



RECOMMENDATIONS FROM A RESEARCH CONSULTATION TO INFORM THE NEXT GENERATION OF HIV PREVENTION MESSAGING FOR MEN WHO HAVE SEX WITH MEN (MSM)

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ABSTRACT: The Centers for Disease Control and Prevention (CDC) convened a consultation with experts in communication and HIV behavioral science to identify dimensions of new HIV prevention strategies, discuss implications of these dimensions for messaging, recommend messaging principles, and recommend future research to inform the development of the next generation of HIV prevention messages for men who have sex with men (MSM). Complexity and uncertainty were two recurrent themes that ran throughout the discussion and underlay many of the experts' recommendations. Several issues generated considerable discussion, and the experts agreed on their importance: (1) capitalize on the opportunity to refresh condom use messaging, (2) communicate transparently, (3) segment the population, (4) use message delivery strategies that are not typical for CDC campaigns, and (5) consider a range of outcomes when messaging about new HIV prevention approaches. In consideration of these factors, experts recommended tools that are interactive and flexible to inform and educate MSM about new and emerging risk reduction strategies for HIV prevention.

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BACKGROUND

In the United States, men who have sex with men (MSM) have shouldered and continue to shoulder a disproportionate burden of the HIV/AIDS epidemic. MSM of all races accounted for 53% of all new HIV infections in 2006 [1] and 71% of all HIV infections among men [2], while only representing 4% of the adult male population in the United States [3].

The ongoing development and sustained dissemination of effective prevention messages are critical to reducing HIV incidence among MSM. However, the HIV/AIDS epidemic among MSM presents several challenges to contemporary prevention messaging and communications strategies, which requires critical thought and strategic guidance. For example, audience segmentation can be complex given the heterogeneous nature of MSM communities. In addition, risk among MSM must be considered in terms of important social, cultural, and contextual factors [4]. Furthermore, the advent of new and promising HIV prevention strategies brings added complexity to the development of communication strategies and targeted HIV prevention messages. These newer HIV prevention approaches include serosorting, vaccines, circumcision, and various antiretroviral (ARV)-related strategies, including microbicides and pre-exposure prophylaxis (PrEP) (see Table 1 for potential strategies and key issues/challenges to their broad-based adoption). Currently, efficacy data are complex or lacking and there are limited recommendations or guidelines pertaining to the use of these strategies. Although MSM are already using some of these strategies, other strategies may be available options for MSM to consider soon. Therefore, it will become increasingly important to include information about these strategies into the mix when communicating with MSM about available HIV prevention or harm reduction options.

Public health officials and prevention practitioners alike will need effective communication and messaging guidance that adequately address issues in the context of uncertainty about rapidly evolving prevention developments and at the same time address ongoing behavioral risk and their determinants.

MEETING GOALS AND OBJECTIVES

In December 2009, the Centers for Disease Control and Prevention (CDC) convened a consultation with 17 experts from the fields of communication and HIV behavioral research (see acknowledgements for the list of participants). The goal of the experts' consultation was to apply the latest communication research to assist in developing HIV prevention messages targeting MSM that will achieve reach, efficiency, and effectiveness (see Figure 1 for the organizing framework for the consultation).

To our knowledge, this is the first time that top communication and HIV/AIDS experts have been brought together around one table to discuss strategies to inform the development of HIV prevention messaging for MSM.

The specific objectives of the consultation were to

1. develop a set of specific recommendations that can guide contemporary HIV prevention messaging and communication strategies targeting MSM and
2. identify priorities for testing HIV prevention messages targeting MSM.

At the outset of the meeting, we provided consultants with an overview of the HIV epidemiologic profile among MSM as well as an overview of new HIV prevention strategies. After which, the consultants' discussion focused on identifying the dimensions of the new HIV prevention strategies, discussing implications of these dimensions for messaging, making recommendations for messaging principles that could inform CDC's efforts to communicate about the new strategies, and making recommendations for areas of future research. We report the main themes and recommendations as put forth by the consultants and conclude with a discussion of our interpretation of the findings.

Figure 1. Organizing Framework for Messaging about New HIV Prevention Strategies

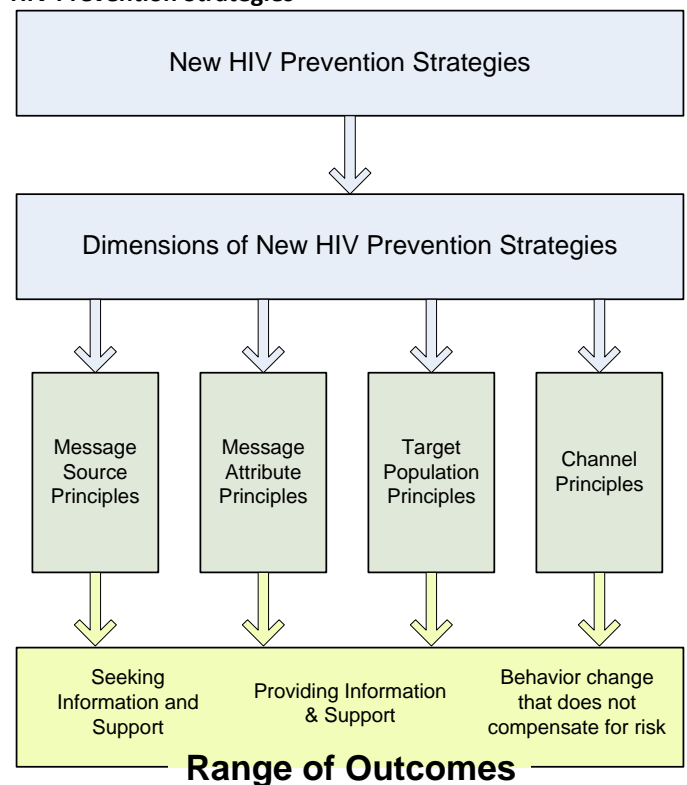




Table 1. New HIV Prevention Strategies and Accompanying Key Issues		
Strategies	Description	Key Issues and Challenges
Serosorting	Sexual partner selection strategy in which individuals select and limit sex partners to persons of a particular HIV serostatus.	Sexual risk behavior among HIV-positive persons may be more likely when their sex partners are also HIV positive and less likely if their partners are HIV negative. Serosorting is widely reported among MSM. Sexual risk behavior with partners of unknown HIV serostatus is not uncommon. Factual knowledge about one's HIV serostatus and that of their sexual partners is necessary.
Circumcision	Surgical removal of foreskin from the penis.	Most adult men in the United States are circumcised; white men are more likely to be circumcised than black and Latino men. Three studies have examined the association between circumcision status and HIV infection among MSM: two in the United States found a protective effect associated with circumcision. A more recent study found no statistically significant evidence of a protective effect associated with circumcision status among black and Latino MSM. It is unlikely that the results of the circumcision trials in Africa apply to MSM in the United States.
Vaccines	Vaccine successes that prevent illness from pathogens such as poliovirus, smallpox, measles, and yellow fever have led to the opinion that an AIDS vaccine that prevents infection would be the single most powerful tool for ending the epidemic.	AIDS vaccine candidates have aimed to contain or reduce viral load after infection in the hope of delaying the time to treatment of HIV-related disease. Altering the course of disease as a goal in vaccine research is based on preexisting and ongoing research that identifies elements of the immune profile that are associated with virologic control: focusing on these may yield specific targets for vaccine design. It is not known whether the virologic control mechanisms in question are the same as those underlying prevention.
Microbicides	ARV drugs used in gels, films, or other products that would be inserted in the rectum to reduce the likelihood that the user becomes HIV infected during sex.	Need additional research on intermittent vs. daily use, rectal use, long-term toxicity and drug resistance, adherence, and use by adolescents. Will require careful planning for targeted rollout. Will require expanded and frequent HIV testing. Need to optimize rectal delivery methods to maximize acceptability.
PrEP	Strategy in which HIV-negative people take prescribed ARV drugs (tenofovir [TDF] or a combo of TDF and emtricitabine [FTC]) orally on a regular basis to reduce their risk for acquiring HIV.	Need additional research on intermittent vs. daily use, long-term toxicity and drug resistance, adherence, and use by adolescents. Will require planning for targeted rollout. Will require expanded and frequent HIV testing. Only partial effectiveness is likely if at all. Risk compensation. Availability will likely be targeted to high-risk groups. Cost and financing.

Sources: [5, 6, 7, 8, 9]



Table 2. Dimensions of New Risk-Reduction Strategies

No existing guidance/recommendations	Biomedical or behavioral	Self-efficacy or behavioral control
Uncertainty	Complexity	Ease of adoption or use
Newness	Context	Convenience
Efficacy	Acceptability	Practicality
Effectiveness	Stigma	Desirability
Side effects	Behavioral demands	Impact on pleasure
Risks associated with long time use	Frequency	Already in practice
Access	Intra or interpersonal	
Availability	Planning	
Cost		

METHODS USED TO SUMMARIZE CONSULTATION DISCUSSION

We audio-recorded and transcribed the discussion verbatim. Two members of the project team independently read the transcripts; reviewed the notes; and made lists of the major themes, dimensions, and principles that emerged from the discussion. The two team members subsequently met to discuss the lists and agree on the resulting themes, dimensions, and principles. In addition, the team organized the consultants’ reports of potential principles into the following common message variable categories: source, attributes, target population, and channel.

DIMENSIONS OF NEW HIV PREVENTION STRATEGIES AND THEIR IMPLICATIONS FOR MESSAGING

After reviewing key issues pertaining to potential HIV prevention strategies, consultants identified specific dimensions of strategies that have implications for messaging based on their knowledge of communication research (see Table 2 for list of dimensions identified by consultants).

Consultants quickly pointed out that at present no official CDC guidance or recommendations for any of the strategies exist—constituting one overarching dimension. All of the strategies are also new. Consequently, there is a great deal of *uncertainty* about the strategies. In addition, information is lacking on a number of other important dimensions, including *efficacy* (both real and perceived); number and severity of physical, psychological, and social *side effects*; potential *risks* associated with long-time use; actual and perceived *effectiveness* when practiced under real-world conditions; *access*; *availability*; and *cost*.

Collectively, all of these dimensions, and inherently the absence of information about them, suggest a need for transparent communication with a number of different audiences (e.g., policy makers, health care providers, health departments, community-based organizations, and individual consumers). Given the uncertainty that exists and the reality that knowledge, including evidence of the strategies’ efficacy,

is evolving also imply the need for ongoing communication with updated messages as new information emerges. For example, it may be useful to borrow approaches from the field of risk communication that are used when messaging about emerging health threats for which the government issues “interim guidance” as information evolves. Similarly, it may be helpful to consider how other fields have messaged about risks with a great deal of uncertainty such as those related to environmental safety and health hazards.

Consultants pointed out that the newness of potential HIV prevention strategies implies that messages will need to promote awareness and education across a number of different target audiences (e.g., health care providers, consumers) and will also need to consider the target audiences’ receptiveness to the information and readiness to consider a change in their current practices. For example, among providers, changing current practices may include a change in the way risk-reduction options are presented to clients. For clients, it may require openness to potentially changing their current risk-reduction practices. At a minimum, for both audiences, is acceptance of the fact that new information is now available, and options for risk-reduction strategies may be more plentiful than they were previously. The variety of potential choices for prevention could benefit from informed decision-making perspectives that help clients weigh the potential risks and benefits of particular prevention approaches. Additional implications for messaging include the need to correct misperceptions and misinformation as news begins to circulate about new strategies and their availability.

Actual efficacy and effectiveness of the new strategies are unknown, and even when determined, efficacy and effectiveness for any of the new strategies are not likely to be as high as for condom use. This suggests messaging to promote informed decision making using a harm-reduction frame (e.g., being transparent about what is known and not known about efficacy and effectiveness, explaining the advantages and disadvantages of each strategy, and then allowing the consumer or client to weigh those advantages



and disadvantages and make a choice based on what is right for him). Because efficacy for the new strategies will likely not be as high as using condoms, the consultants strongly recommended emphasizing the importance of condom use when messaging about the other strategies.

Another dimension of the strategies that has implications for messaging is whether the strategy itself is a biomedical or behavioral approach. This has implications for determining the most suitable source of the message (e.g., health care provider) as well as the channel for delivering the message (e.g., interpersonal).

Cutting across all of the new strategies are the dimensions of *complexity* and *context*. First, the ability to assess one's own risk is complex, and prior research has shown that perceived risk and actual risk seldom align [10, 11]. Understanding all of the new strategies, including their advantages and disadvantages, and contemplating their employment within one's own life and relationships are also complex tasks. For instance, if one chooses to use one of the new biomedical approaches, one must visit a health care provider to discuss the options and gain access to the medication or procedure. PrEP, in particular, will require ongoing contact with the medical care system in the form of routine HIV testing and prescription refills, so messages about this strategy will need to emphasize the need for routine HIV testing, for instance. Another layer of complexity is how frequent the decision to use the strategy needs to be made (i.e., one time versus recurring). In other words, decisions to get vaccinated or to get circumcised are made only once, whereas decisions to use PrEP or to engage in serosorting are made on an ongoing basis. Another form of complexity is that the decision to implement some of the strategies may need to be made in conjunction with another person, either a medical professional or a sexual partner.

Serosorting requires knowing one's own current HIV serostatus as well as the serostatus of one's sexual partner and discussing both serostatus and the strategy itself with one's partner. Again, the need to have accurate and current information about one's serostatus necessitates messaging about the importance of routine HIV testing in addition to disclosure. Disclosing and discussing one's serostatus are difficult for many people. This requirement suggests that messages focused on couples may be helpful, as well as skill building and role modeling to help men gain experience and confidence with these difficult conversations.

The contexts in which HIV prevention strategies are deployed vary by particular strategy. For example, contexts include physical locations (e.g., in medical settings) and interpersonal or sexual situations (e.g., serosorting). Contexts in which HIV prevention strategies are deployed may also be emotionally laden, which could affect the effectiveness or

appropriateness of the strategy being used (e.g., serosorting decisions made "in the heat of the moment").

Complexity and context suggest several possible implications for messaging. For example, it is likely that a variety of sources and channels will be required, ideally with consistent messaging across those sources and channels. Given the complexity of the new strategies, individually tailored messages may be necessary. Furthermore, preferences for level of detail in information may vary across individuals, particularly when the information is complex. Thus, information may need to be layered such that individuals can get the level of detail they desire (e.g., main take-home message only vs. more detail).

A number of dimensions may determine the likelihood of an individual considering or adopting one or more of the new strategies. These dimensions include *acceptability*, actual or perceived *stigma*, *behavioral demands*, *self-efficacy* or *behavioral control*, *ease of adoption or use*, *convenience*, *practicality*, *desirability*, and *potential impact on pleasure*. These dimensions suggest that messages will likely need to address preexisting beliefs as well as social norms. Varying behavioral demands associated with the strategies may suggest the need for messages to break down the behaviors as well as the need for individually tailored messages. Acceptability and stigma may be addressed by using testimonials and popular opinion leaders in messaging. Self-efficacy and behavioral control, ease of adoption or use, convenience, practicality, and desirability may be addressed through messages explaining the advantages and disadvantages of each strategy and promoting skill building through role modeling, testimonials, and endorsement by popular opinion leaders. Perceived impact on pleasure should be considered when messaging about the advantages and disadvantages of the strategies, as well as offering alternatives to strategies that are perceived to have a negative impact on pleasure. For example, if an individual believes that microbicides have an adverse impact on pleasure, consider messaging about the different types of microbicides available to give individuals options. This is also important when messaging about condoms.

Finally, in the case of serosorting and PrEP, there is at least anecdotal evidence suggesting that MSM are already practicing these strategies in the absence of research-based information about efficacy or effectiveness. This again underscores the importance of transparent communication and also highlights an opportunity to provide information to MSM communities as it becomes available to facilitate more informed decision making. It also emphasizes an opportunity to refresh messaging about condom use because it is the only prevention strategy that is highly efficacious in preventing HIV when properly employed. Consultants stressed in their deliberations the importance of not having condom use



messages overshadowed by information about new (perhaps less effective) prevention strategies.

MESSAGING PRINCIPLES

Consultants brainstormed how the dimensions previously discussed could be translated into messaging principles that could inform CDC efforts. During the discussion it became clear that an overriding principle for messaging must achieve the goals of reach, efficiency, and effectiveness. To achieve these goals, participants emphasized that messaging must be culturally appropriate to the specific target audience and consistent with Institute of Medicine recommendations on communicating with diverse audiences [12]. Consultants also emphasized that a range of outcomes would need to be defined. Information seeking, information and support provision, and behavior change may all be appropriate end points for messaging to clients and service providers alike because new prevention strategies are unknown to some audiences and their efficacy or use is uncertain. Principles must also address the issue of potential misuse, misunderstanding, or risk compensation. Some have argued that PrEP or serosorting, for example, could result in risk compensation [13].

We organized potential messaging principles generated by the consultants into the following categories taken from McGuire's information processing/persuasion model [14]: message source, message attributes, target population, and message channel.

Message Source Considerations

Consultants emphasized the value of various message sources that are both formal (e.g., CDC, health departments, providers) and informal (e.g., community groups, advocacy groups, grass roots organizations, peer leaders, influential social network members) in nature. To increase efficiency, consultants advocated for message sources to focus on areas where they may have more credibility or could increase message relevance. For example, CDC could use mass media sources to raise awareness about new prevention strategies and refer MSM audiences to local sources that may be more familiar. In local venues, popular opinion leaders or lay health advisors have been shown to be effective in promoting HIV risk reduction and increasing message relevance [15].

Using various sources means effective coordination about the message must be in place. All sources should reinforce a topline message, which consultants urged should be condom use. Then, depending on the needs of audience members, the message should focus on the most appropriate new strategies. This approach requires CDC to work in concert with and lead a coalition of national, local, public, and private entities to achieve maximum reach, efficiency, and message effectiveness because without coordination, using various

sources could lead to confusion and amplify uncertainty about new strategies. Table 3 illustrates principles related to message source and examples.

Message Attribute Considerations

Consultants also focused on four general message attributes that need to be addressed when developing messaging strategies: (1) uncertainty, (2) motivation to seek new information or change behaviors, (3) enhancing knowledge and skills, and (4) message delivery approaches.

Uncertainty. One way to address uncertainty is to link it with certainty. Messages about biomedical strategies need to be coupled with condom messages, and condom promotion should be the topline message to manage uncertainty and provide an evidence-based alternative for reducing risk. In addition, new strategies need to be couched in the context of harm-reduction approaches. The message needs to be honest, not overstate benefits, and acknowledge limitations while providing appropriate alternatives.

Motivation. Some MSM have been living with the HIV epidemic for many years, while others have not and do not understand transmission risks. Each group needs messages that increase motivation to seek information about new prevention strategies. Messages need to address perceived and actual costs and benefits, be tailored to important individual differences that might support or detract from motivation, capitalize on the power of peer and social norms, and reinforce positive behaviors already practiced by MSM. By addressing these areas in messages surrounding new HIV prevention strategies, consultants argued that prevention messages would be novel, interesting, and more salient.

Knowledge and skills. Messages should address the acquisition of knowledge and skills related to new prevention approaches. Taken together, these messages would increase behavioral capability to reduce risk.

Message strategy. Consultants emphasized the importance of developing a strategy that would make messages easy to understand, convenient to obtain, and relevant to the specific target audience. To achieve these goals, they recommended layering information in a stepped approach using electronic channels and evidence-based theoretical approaches focusing on risk reduction from prospect theory and message framing (e.g., Kahneman and Tversky [16]; Rothman, Bartels, Wlaschin, and Salovey [17]). Finally, because messages may be novel and uncertain to many MSM subgroups, messages and communication need to be frequent so that audience members are continually engaged in the communication process. As the evidence for new prevention strategies evolves and other intervention strategies are introduced, the needs of cohorts of MSM may change. Accounting for this by taking a life course approach that accounts for "life time



Table 3. Messaging Principles and Related Examples	
Principles	Examples
Message Source	
Use stepped communication that leverages trust and credibility	Each source must reinforce the topline message and then capitalize on the value each source brings to the communication
Use sources that have been proven effective	Incorporate popular opinion leaders, lay health advisors, and grassroots approaches
Coordinate across sources	CDC could play leadership role in building communication coalition across sources
Capitalize on the benefits of formal and informal sources	CDC could partner with local advocacy organizations that might use popular opinion leaders to deliver messages
Message Attributes	
<i>Certainty/Uncertainty</i>	
Link uncertainty with certainty	Condom use should be the topline message and then introduce new strategies
Emphasize harm reduction	New strategies can help reduce risk, but they may not be foolproof
Acknowledge uncertainty with honesty and transparency, while providing alternatives	While evidence and information emerges, use precautions; seek information frequently
<i>Motivation</i>	
Outline perceived and actual costs and benefits	Provide the array of potential strategies
Address important individual differences in receptivity to new information	Tailor to fatalism, possible/active selves, perceived life chances
Address norms	Tailor to perceived prevalence or acceptability of strategy
Reinforce positive behaviors	Acknowledge information seeking and sharing to increase reach
Use persuasion only when evidence is certain; otherwise adopt informed decision-making approach	Provide alternatives while emphasizing that each person must choose what is most appropriate for him at the present moment
<i>Knowledge and Skills</i>	
Address both knowledge and skills	Use tools and counseling for complex alternatives that enhance knowledge and skills to increase behavioral capability
<i>Message Strategy</i>	
Layer messages and information to reduce complexity and meet audience needs	Web pages and other electronic means can reduce information overload and decrease complexity
Use evidence-based theoretical approaches to guide message construction	Prospect theory, message framing
Increase message frequency	To address uncertainty, avoid gaps by increasing frequency
Incorporate life course perspective	Messages need to be refreshed over time to achieve lifetime positioning
Target Population	
Segment and target important MSM subgroups	Age, race, literacy level, community identification, HIV status
Tailor information to important attributes	Prior history, stage of change
Segment and target service providers	Health care providers, health departments, community and advocacy groups
Message Channel	
Capitalize on the benefits of various channels	Interpersonal counseling and electronic means could address uncertainty and complexity
Use multiple channels to reinforce message	Print materials can reinforce and expand on interpersonal channels
Mass media can help deliver high-level messages about effectiveness of new strategies and increase their visibility	News sources could help introduce newer strategies and refer audience members to sources where further information is available



positioning” could be important to enhance reach and effectiveness. Table 3 illustrates principles and examples related to message attributes.

Target Population Considerations

A variety of target populations need to be considered, including MSM, service providers, and other stakeholders to expand the reach, efficiency, and effectiveness of messages.

Different MSM subgroups have different information needs, history, and experience that need to be considered. Consultants discussed the strengths and weakness of targeting messages to particular sub-groups of MSM or delivering individually tailored messages. Targeted messages may not increase motivation enough to seek information or change behavior. Therefore, consultants suggested that tailoring information could help achieve effective messaging about new HIV prevention strategies. Because MSM are already practicing some new strategies, tailoring information based on prior experience, information receptiveness, or stage of change could enhance effectiveness. Because some new HIV strategies are sufficiently complex and uncertain, consultants suggested that a messaging strategy combining both targeting and tailoring may be required. For example, messages tailored to a person’s specific relationship or sexual encounter that also targets his age, race, or HIV status could be more helpful in delivering messages about specific prevention strategies.

Consultants also emphasized that service providers will have different needs based on their clinical background or specific area of service provision. Targeted messages to different service providers, including health care providers, health departments, and community-based advocacy groups would help increase reach and effectiveness, while assisting each in supporting their specific service mission.

Table 3 offers examples of principles and examples regarding target population considerations discussed above.

Message Channel Considerations

Consideration of message channels is very important as each channel has advantages that could be leveraged to address information seeking, enhance support for and from service providers, and to change behaviors. In addition, messages can be reinforced and expanded when delivered across multiple channels, creating important synergies that would be absent if only one channel is used. Channels should also be used appropriately. For example, mass media may be best used to raise awareness and refer audience members to local or electronic sources that can provide more in-depth information. Table 3 summarizes principles and examples tied to message channels offered by the consultants.

CONSULTANT RECOMMENDATIONS FOR FUTURE RESEARCH

The consultation concluded with a discussion of areas for future research. Consultants felt strongly about the importance of understanding the target audience. In the case of MSM, this should include careful segmentation of the population and reliance on both quantitative and qualitative methods for assessing the views, beliefs, and behaviors of priority communities. In particular, it is important to understand what HIV prevention strategies gay men are already employing as well as acceptability and risk compensation related to the uses of new HIV prevention strategies.

Research is also needed to explore how best to message about various HIV prevention strategies in ways that would be understandable and would lead to their complementary uses. For instance, it may not suffice to develop messages about PrEP without combining it with messages about condom use and HIV counseling and testing. Similarly, messages about serosorting will need to be coupled with messages about HIV serostatus disclosure and HIV testing.

Finally, message testing, including exploring the most appropriate and effective source(s) and channel(s) for messaging, was high on the list of research priorities mentioned by the consultants.

DISCUSSION

We brought together top communication and HIV/AIDS thought leaders to discuss HIV prevention messaging strategies for MSM and provide recommendations for informing the development of these messaging strategies. Bringing together experts from these two fields at a time when the HIV/AIDS epidemic continues to severely affect MSM in this country as well as when new prevention strategies may be just around the corner offers a unique opportunity to advance the field. Complexity and uncertainty were two recurrent themes that ran throughout the discussion and underlay many of the experts’ recommendations. Several issues generated considerable discussion, and the experts agreed on their importance. First, experts felt that the focus on new prevention strategies provided CDC with an opportunity to refresh messaging about condom use. They recommended that condom use always be the topline message when messages about new strategies are delivered. This approach would ensure that audiences would always receive an evidence-based method for reducing HIV infection. The consultants pointed out that messaging about condom use may need to be different depending on the individual’s age, experience with condom use, and relationship status. For example, there is now a new generation of MSM who may not have received or been exposed to the abundant condom messaging that occurred earlier in the epidemic. As a result, there is now a renewed need for education about condom use. Conversely, an older



generation of MSM, who were bombarded with condom messaging in the past, could benefit from a refreshed message.

Second, experts firmly agreed that given the uncertainty and changing evidence base around new prevention strategies communicating messages or information needs to be transparent. This could entail a different messaging approach or one that focuses on harm-reduction principles.

Third, the MSM audience is composed of important subgroups that need to be considered in messaging (e.g., age, race, HIV status, identification as gay, and urban/rural).

Fourth, messages need to be delivered using strategies that are not typical for CDC campaigns. Because of the uncertainty involved and the necessity of involving a clinical context for prevention, using informed decision-making approaches to supplement typical campaign messages would be helpful for health care providers as well as MSM subgroups.

Fifth, the experts agreed that a range of outcomes needs to be considered when messaging about new HIV prevention approaches. Seeking of information, information exchange between clinicians and MSM, decision making, and action are all valid outcomes when considering the complexity and uncertainty surrounding these new strategies.

In consideration of the factors just described, the experts strongly recommended developing or adapting tools that are interactive and flexible to inform, educate, and support MSM choices about new and emerging risk reduction strategies for HIV prevention. Rather than a risk assessment tool, they conceptualized the tools as prevention decision-making tools. For example, MSM could input their sexual behaviors, HIV status, social/structural factors, demographic characteristics, and need for information and be provided with individually tailored messages to help determine which prevention strategies would be most helpful to them. Given the current state of uncertainty and the fact that information and knowledge are rapidly evolving, the tools could be updated regularly as new information and evidence become available. Additionally, since uncertainty often produces anxiety, the tools could include options to chat with a representative to receive additional counseling. The discussion of these tools was an important output from the consultation because it was not part of the original agenda or purpose, but it flowed naturally from the discussion, and many of the experts endorsed it as a useful and valid intervention. More research will be needed to determine if any similar tools currently exist that could be adapted or if new tools would need to be developed.

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REACHING MEN WHO HAVE SEX WITH MEN FOR HIV PREVENTION MESSAGING WITH NEW MEDIA: RECOMMENDATIONS FROM AN EXPERT CONSULTATION

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ABSTRACT: We report on the results of an expert consultation held by the Centers for Disease Control and Prevention (CDC) on the use of the Internet and new media to deliver HIV prevention messaging to men who have sex with men (MSM). Experts from government, academia, community-based AIDS service organizations (CBOs/ASOs), and the private sector participated in discussions to examine the strengths and weaknesses of specific channels, technologies, and Websites for delivering HIV prevention messages; and how the issues raised could inform the development of electronic materials to educate, and support choices for different risk reduction strategies. Analysis of the meeting discussion suggested that consultants viewed the Internet and other new media as having great potential to reach MSM with HIV prevention messages. Key themes related to flexibility, reach, visual appeal, engagement, interactivity, and community building were discussed with emphasis given to optimizing the impact and effectiveness via message timing and linking to other resources or data. Several challenges were noted, including structural barriers and the need to deliver HIV content in the context of MSM health issues. Implications for health promotion practice are discussed.

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INTRODUCTION

In the United States, men who have sex with men (MSM) account for more than 50% of all new HIV infections [1]. They also represent 71% of all HIV infections among men [2], while only representing 4% of the adult male population [3]. MSM are 50 times as likely to be infected with HIV as the general population, and ethnic/racial minority and young MSM are disproportionately affected [4]. These statistics underscore the need for both developing and evaluating new strategies to reach MSM with HIV prevention messages.

We report on a consultation meeting sponsored by the Centers for Disease Control and Prevention's (CDC's) Division of HIV/AIDS Prevention to share lessons learned from experts currently using new media-based strategies to communicate with MSM and discuss how these emerging technologies can best be used to deliver HIV prevention messages to MSM. We use the phrase "new media" to refer to the new technological developments and devices that mediate information exchange between people, or people and HIV prevention interventionists. The essential quality of these new media being communication, connection, and engagement [5]. For a growing number of Americans, particularly younger people, the Internet, social media, and mobile technology use are becoming ubiquitous channels for communication [6, 7]. Thus, these technologies are potentially useful in delivering HIV prevention messaging. However, because technology is constantly changing, implementing and maintaining interventions and tools that decrease HIV risk are challenging. Research with MSM shows that they perceive benefits and challenges when the Internet is used for HIV prevention messages as Table 1 summarizes. Because of the potential promise new media may hold for HIV prevention, CDC convened an expert panel to share opinions, experiences, and best practices that could inform practice in this area.

BACKGROUND

In March 2010, CDC convened a consultation with 16 experts from government, academia, community-based organizations

(CBOs), and the private sector currently using the Internet, social media, and/or mobile technology to communicate with MSM. Experts are listed in the acknowledgements section. The consultation (1) discussed how using specific channels, technologies, or Websites varies by important demographic and behavioral characteristics; (2) determined the strengths and weaknesses of specific channels, technologies, or Websites for different types of HIV prevention messages; and (3) discussed how points raised can inform the development of online tools that might help MSM minimize risk for HIV infection and maximize their sexual health overall. This paper reports on a subset of these questions related to strengths, weaknesses, and challenges; describes the consultants' recommendations for using new media; and implications these recommendations have for health promotion practice.

METHODS

We audio-recorded and transcribed the discussion verbatim, and three members of the project team took notes. To summarize the group discussion, two team members independently read the transcripts; reviewed the notes; and made lists of major points brought up in the discussion; common themes; the strengths, weaknesses, and challenges of using the Internet, social media, and mobile technology for HIV prevention messaging; and any recommendations. The two team members subsequently met to discuss the lists and agreed on the resulting presentation of conclusions described below. The other authors, also in attendance at the meeting, reviewed and agreed on the conclusions. The consultants were able to comment on the entire report.

SUMMARY OF GROUP DISCUSSION

Existing Web-Based Decision Support Tools

We asked the consultants to identify the strengths and weaknesses of existing publically available Web-based decision support tools. They mentioned a handful of tools and did not identify any strengths. Conversely, the consultants identified several weaknesses of existing tools:

Table 1. MSM's Perceived Benefits and Challenges for Using the Internet for HIV Prevention

Benefits	Challenges
<ul style="list-style-type: none"> • Functional and practical • Ability to socialize and communicate with other men about common interests and concerns • Easy to search and user friendly • Clean design • Nonjudgmental and not preachy 	<ul style="list-style-type: none"> • Frustration about the lack of open, honest, and meaningful communication in online venues • Possibility that some people lie about themselves when looking for sex partners • Few alternatives to sexually oriented sites • Ambivalence regarding participation in Internet-based HIV prevention interventions • May be appealing but may not be creating change in norms, attitudes, behavior • Preference for hook-up sites vs. links to social network sites • Racial/ethnic stereotyping online reinforce divisions in gay communities

Sources: [8, 9, 10]



they are not tailored, not comprehensive, not helpful, and not useful. In addition, they felt quantifying risks in a decision tool and communicating risk information to individuals in a meaningful way would be difficult.

New Media-Based HIV Prevention Interventions: Strengths, Weaknesses, and Challenges

The discussion then focused on the issues surrounding using new media to support MSM in making sexual health and risk-reduction decisions. The primary themes that emerged were that new media (1) are very flexible channels that can easily organize message content and message or intervention delivery, (2) have the potential of high reach, (3) can be visually appealing and engaging, (4) can mimic interactivity like counseling and interpersonal interaction, (5) can be used to facilitate social connections and create community, and (6) can optimize timing of message delivery via linking with other technology or data sources that may increase impact and effectiveness. We summarize potential strengths and challenges noted for most themes.

Flexibility. As the consultants noted, the MSM community is not homogeneous; therefore, communication and messages need to be segmented by relevant priority audiences when implemented. Thus, using new media is a strength because it can facilitate targeting interventions and delivering tailored information. Targeting and tailoring information to priority audiences should not stigmatize MSM subgroups by singling out particular subgroups of MSM.

A new media-based intervention can also be designed and developed in components or offer a continuum of options for users. The consultants viewed this aspect very positively because an intervention and messages can be delivered and adapted over time as needs change. They also noted that a potential challenge of this flexibility is that intervention development can become more complex, requiring greater monetary and technical resources.

Reach. New media also provides a delivery channel that is very high reach, and depending on how it is used, the intervention, or at least promotion of it, can “go viral” and be used on both computers and mobile devices. New media facilitates interfacing with other Websites and organizations and can create opportunities for co-branding so that reach is maximized because content resides on multiple sites. As the consultants noted, although the digital divide is closing, not all MSM may be online. Therefore, it is important to consider that messages, interventions, or tools implemented online only reach MSM who use the Internet. Disparities might be magnified for those who are not regular Internet users or do not have access.

Visually appeal. Web-based applications delivered via a computer or mobile device enable interventions to be visually

appealing, fun, and engaging through multimedia components (e.g., video vignettes, audio, music). The consultants viewed this aspect of the technology very positively because it allows interventions and messages to be delivered so that they can compete in a crowded messaging environment. Furthermore, some of the consultants felt strongly that delivering interesting or engaging messages to some MSM priority audiences is difficult when prohibitions on showing intimacy between two men or sexually explicit images online exist in organizations that deliver HIV prevention programs. The issue of content and images also poses a challenge because health departments cannot access many Websites housing interventions for MSM if they are blocked due to policy or legal concerns. Furthermore, these Websites are likely blocked on public computers in places such as libraries. Thus, although visually appealing and engaging content may be a positive element of online and mobile applications, the types of images need to be considered carefully so access is not decreased.

Interactivity. New media can mimic interactions that take place in a counseling context. Although consultants did not suggest that technology take the place of counseling when needed, they did offer examples when online or mobile interactivity may help set behavior-change goals, provide reminders (e.g., to get tested for HIV, for medical appointments, and for medication adherence), and offer tools to support these activities. Web pages can effectively mimic active listening, track data, and mirror data back to users in visually appealing ways; this potential was viewed as a strength of using new media for delivering prevention messages.

Community building/social networking. Consultants noted that overlapping social networks online can help build MSM communities, which can enhance social support and create positive social norms for MSM. Researchers can capitalize on the power of new media for recruiting study participants and involving MSM in intervention development or formative research for HIV prevention. This capacity was considered a strength. However, the overlapping and mixing of social networks can also increase potential sexual risk, which may facilitate the transmission of HIV by increasing the chances for those who are seeking sex partners outside their primary sexual networks to find each other. The consultants noted that online pornography sites are now integrating social networking into their sites, which could affect behavior and increase risk.

The consultants noted that an additional potential strength of new media is the opportunity for user-generated content that may sustain interventions and messages and make them more accessible, interesting, and relevant for MSM. A potential downside of this, however, is that the sustainability of messaging is threatened if social network members do not



repeat or pass along the messages. Involving MSM as co-creators of online messaging and online communities to support prevention messaging would require a greater online presence in social networking sites (SNSs) of health promotion practitioners and more monitoring how and when messages are delivered.

Optimizing effectiveness via timing and linking. Several issues emerged related to using new media to increase the potential impact and effectiveness of prevention messages. These issues centered on the ability to time message delivery and data or technology linking. Consultants noted that new media offer the ability to intervene in real time by messaging when it might be most influential, a potential strength. For example, if a user is entering his HIV status into his online profile, appropriate prevention messaging can be provided immediately. However, timing can be complicated by actual online use and preferences among MSM users. For example, consultants reported that MSM typically multitask and traverse multiple social sites at once while online, which can pose challenges for delivering an intervention or attempting to select “the” most appropriate Website for an intervention or messages. Thus, limiting messaging, an intervention, or tool to only one site is likely not sufficient. Having prevention messages on multiple sites that are either linked or have related content is important.

Using location-aware applications that use global positioning systems (GPS) is increasingly popular and offers new ways to enhance the timing of message delivery, which consultants viewed as a benefit. Public health workers can use location-aware strategies for prevention messaging and outreach in addition to providing information to MSM about resources available in a neighborhood or locale. At the same time, mobile applications like “Grindr,” which capitalize on the GPS function, facilitate the process of finding sex partners in close proximity to the user, which may increase risk and present new challenges for HIV prevention and intervention activities.

The consultants felt strongly that using large-screen technology, such as computers alone, results in missed opportunities to link or supplement with mobile small-screen technology. They emphasized the importance of using multiple technology channels to reinforce messages and advocated for frequent use of mobile applications.

Consultant Recommendations for Using the Internet and New Media

The remainder of the discussion focused on the consultants’ recommendations for using new media (including mobile technology) for HIV prevention messaging. We highlight two areas most relevant to health promotion practice.

Recommendations for Intervention Message Content and Delivery

Consultants were very clear that an intervention focused on messaging about HIV needs to also focus on a broader topic if it is to capture MSM’s attention. In other words, MSM are not going to be interested in watching a video with HIV in the title. The overarching recommendation was to focus on comprehensive men’s health or sexual health rather than on HIV only. Furthermore, they stated that a focus on relationships and dating could be particularly effective, especially since a large proportion of infections (68%) are occurring within primary relationships [11], and presently no interventions are focused on relationships. The current focus in many technology-based interventions is messaging on hook-up sites. The consultants acknowledged a more comprehensive focus would require a different conceptualization for HIV prevention. They believed thought needs to be given to messaging for MSM in relationships so that the formation and maintenance of relationships are not undermined. The consultants offered a number of suggestions for topics to consider in a relationship-based intervention, including relationship skills, pleasure, intimacy, loneliness, negotiating non-monogamy, communication, decision making in critical situations, alcohol, drugs, sexually transmitted diseases (STDs), and acute infection.

The consultants believed using a variety of approaches to reach MSM is important. They recommended reviewing approaches undertaken in other countries, especially in the UK and Australia, and adapting these approaches as a model to effectively engage MSM in the United States. In particular, they suggested reviewing Davidovich’s work (e.g., Davidovich, de Wit, and Stroebe [12]), the Center for Sexual Health Promotion at Indiana University, Sigma Research, and Australia’s pleasure-focused AIDS Council campaigns. They also recommended considering approaches and guidelines for U.S.-online partner services as an informative model. They suggested looking at the range of existing Websites aimed at MSM, for example, from the DC Fuk!t (www.dcfuk!t.org) Website to those focusing on relationships. This review would lead to understanding the full spectrum of language and images MSM are accustomed to viewing online.

In designing an intervention, the consultants underscored the need to carefully consider the goals of online messages. Other relevant goals mentioned included increasing awareness, promoting information seeking, or informing men of other offline resources for prevention and/or treatment services, or even promoting offline social activities that are safe alternatives. The consultants suggested a pulling-in or opt-in, motivational approach rather than imposing messages in the online context. They further recommended that message and intervention developers avoid anything that looks like teaching or providing information. They also suggested that if health care providers were involved in a



larger real-world communication campaign branded with online interventions or messaging, they could reinforce the online messages to give them further credibility and urgency, especially if they relate to new HIV prevention strategies, like pre-exposure prophylaxis (PrEP), that are still largely unfamiliar to gay communities.

Overall, the consultants felt strongly that interventions need to generate relevant and actionable output (e.g., no one size fits all message that tells all gay men to get tested for everything or to wear a condom 100% of the time). Thus, the information must be tailored to important factors to make the messages relevant. For example, they felt the age of users is an important segmentation variable because use of different Websites varies by age (e.g., dlist is a SNS for gay men, but it has a high proportion of users aged 18 to 24). In particular, the consultants thought developing messages and designing interventions with the specific needs, concerns, and strengths of MSM under age 18 was important.

The consultants recommended using an iterative approach to developing online interventions or decision support tools. A strength of building an Internet-based intervention is that more applications can be built into second and third generations as opposed to having to develop everything all at once (e.g., focus on relationships and create a number of modules and then people can choose which module[s] is most relevant to them). They recommended choosing the three to five most important prevention activities and focusing on those. It would be a first generation mistake to take an intervention that works offline and put it online because it would result in a weak online program. However, an offline intervention can be supplemented with an Internet component. In addition, the consultants thought that developing an intervention or decision support tool that was accessible only via computers would be a critical mistake. New interventions must be compatible with mobile devices such as smart phones and capitalize on Web 2.0 (social) features from the start. They stated that short-messaging service (SMS) (i.e., texting) has not yet been used to its fullest capacity; it can be used for much more than delivering text messages. For example, it could be used to send YouTube videos and links that provide more information.

The consultants suggested using an asset-based approach (as opposed to a risk-based approach) to messaging. They provided a concrete example related to crystal meth. They suggested messaging about the 90% of MSM who do not use crystal meth as opposed to the 10% who do. This strategy can be effective in changing social norms about the prevalence of meth use or the perception of other normative factors in local communities. The recent AIDS Chicago campaign "How Are You Healthy" and the NYC campaign "I Love My Boo" are prime examples of asset-based approaches.

The consultants also supported innovative approaches to message and product development, including using a Wiki-type approach or crowdsourcing to generate content. Crowdsourcing, sometimes referred to as community-based design, refers to using a large group of people or a community to develop a new product or technology. One of the consultants provided the example of Gay Men's Health Crisis' Raw Cut Productions/Anti-Stigma Awareness Project as an example of a Web-based HIV prevention social marketing campaign that incorporated user-generated content.

Another innovative suggestion was to include the ability for each user to build an avatar. This could help create buzz and conversation about the intervention. The avatar application could also be designed so that it could be exported to other Websites (e.g., incorporated into someone's online profile on SNS or dating sites). The avatar could also function as a support provider by offering reminders and tips about what to do in high-risk situations. Furthermore, the consultants recommended developing an intervention or tool that could be embedded on multiple sites to enable broader reach and access.

To supplement a community-based approach, the consultants recommended using the popular opinion leader models and working with the house and ball community as one way to deliver messages. One approach suggested for delivery and dissemination involved CBOs taking messages developed by CDC or others and putting them into their own publications or products. CBOs are already doing this at the local level, and having support from CDC and other agencies would be helpful. The consultants recommended pursuing partnerships among CDC, CBOs, and the private sector to implement messaging, interventions, and decision support tools. This type of partnership may be very important when using newer technologies to deliver HIV prevention messages, because CDC has easier access to important HIV/AIDS surveillance, monitoring and evaluation data, the business sector is ahead of health promotion agencies in using these technologies, and CBOs have closer ties with target audiences of interest. The consultants also underscored the importance of having multilingual messages and materials to reach non-English speaking MSM.

Recommendations Related to Structural Changes

The consultants provided several recommendations related to structural changes to facilitate the use of emerging technologies to communicate HIV prevention messages. They said CDC can help health promotion practitioners by making behavioral, HIV/AIDS, surveillance, monitoring and program evaluation data available more rapidly. The lag in data availability has resulted in delays in identifying "hot spots" and vulnerable populations and prevented the use of

**Table 2. Discussion Themes and Implications for Health Promotion Practice**

Theme	Implications for Health Promotion Practice
Flexibility	Increases ability to deliver meaningful and relevant information. At the same time developing, hosting, and maintaining Websites can be resource intensive, so partnerships among organizations or linking to other resources could be helpful.
Reach	Increases practitioners' ability to reach priority populations and makes access more convenient for priority populations. At the same time, the intervention or messages could get lost in a crowded online environment so similar messages across multiple Websites could increase effectiveness. Access could be difficult for some groups who may be at higher risk (e.g., younger MSM), so online methods need to be supplemented for particular audiences.
Visual appeal	Multimedia capabilities increase appeal and engagement for priority audiences. Creating dynamic Websites and messaging interventions could be expensive, so collaboration with different types of nontraditional partners (e.g., designers, programmers, communication practitioners, private sector enterprises) could increase this potential.
Interactivity	Leverages important aspects of social interaction without need for face-to-face dialogue. Start to use messaging that goes beyond static text presentation. Information can be layered, tailored based on user input, and user-generated content could capitalize on Web 2.0 capabilities.
Community building and social networking	Building online MSM communities via SNS can enhance positive prevention norms. Ask early adopter MSM to refer friends to build online community focused on assets and prevention rather than risk. Involve MSM as co-creators of information rather than passive recipients.
Optimizing effectiveness via timing and linking	Delivery of interventions and messages via mobile devices can make delivery match the context of an individual's daily life, thereby increasing potential effectiveness. In addition, data on multiple sites can be linked to make Websites easier to use for audience members. This means partnering with mobile phone providers, SMS gateway providers, or organizations using Websites to deliver related content.

technological solutions to address HIV among MSM. The data and technology need to be in better sync to be effective.

Because lack of funds is a barrier to adopting emerging technologies for HIV prevention, the consultants recommended that CDC explicitly state that hardware and software purchases are allowable using prevention funds. In addition, they felt that CBOs may need technical assistance to use technology effectively for HIV prevention activities. Another structural barrier to using technology for HIV prevention is that many city, state, and local health departments have restrictive access policies or firewalls that block access to HIV/AIDS resources that contain sexually explicit information. Given that Websites with adult content could prove to be an important venue for promoting HIV prevention education among MSM, having these Websites blocked or prohibited is a barrier.

CONCLUSIONS

There is a large opportunity to enhance HIV prevention by developing HIV prevention messages that could be delivered via new media. We summarize implications related to the

themes discussed in Table 2. One common thread across the implications shown is that using new media requires collaboration and working with nontraditional partners and involving the priority audiences as meaningful partners in content generation [13].

Overall, consultants felt that new media can play a key role in disseminating HIV messaging to support MSM and connecting them with local agencies, health departments, or CDC. The social integration potential of these technologies is important for creating positive and healthy online and offline communities. The social reinforcing and community building aspects of these communication technologies are likely as important as their "messaging" potential [14]. Emerging communication technologies can play an important role in integrating MSM into a community of prevention and bolstering positive social norms by focusing on community strengths rather than creating stigma by highlighting weaknesses. Many consultants viewed technology in this way, even though it also creates the potential for MSM who are seeking high-risk sex to find it more easily. Given the research showing that community integration, social support, and social capital are health enhancing [15], these technologies could have a positive impact that outweighs the



risk. To fully realize this potential, however, health promotion practitioners must be able to access and use technology to reach MSM.

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