A Framework for Classifying HIV Prevention Interventions

Michael Sweat
Report to the Joint United Nations Programme on HIV/AIDS (UNAIDS)

A Framework for Classifying HIV Prevention Interventions

Michael Sweat

\[a\] The Johns Hopkins University Bloomberg School of Public Health, Department of International Health, Baltimore, MD, USA.
# Table of contents

Introduction ................................................................................................................................... 5
   Need for a common framework ............................................................................................... 5
How have interventions been defined in the extant literature? ................................................. 6
   Methods ................................................................................................................................. 6
   Inclusion criteria .................................................................................................................. 7
   Search and acquisition .......................................................................................................... 7
   Coding ................................................................................................................................... 7
   Analysis ............................................................................................................................... 7
   Results ................................................................................................................................. 7
   Content analysis results ...................................................................................................... 8
   Multiple approaches used in defining and describing interventions ................................... 9
Critique of current approaches to defining interventions ......................................................... 10
   A proposed ontology ............................................................................................................ 10
   Use of shorthand phrases for complex interventions ........................................................ 11
   Primary focus: specific activities or services and commodity ............................................ 12
A proposed process for establishing clear intervention definitions ........................................ 13
Bundling interventions into programmes .................................................................................. 22
Next steps .................................................................................................................................. 24
References ............................................................................................................................... 26
Bibliography ............................................................................................................................. 28
Introduction

In recent years, The Joint United Nations Programme on HIV/AIDS (UNAIDS) has taken the lead in establishing guidelines and advice for policy-makers and programme implementers on tailoring HIV prevention responses to local epidemic realities and social contexts. These recommendations are codified in the UNAIDS document Practical guidelines for intensifying HIV prevention (UNAIDS, 2007a). In early 2007, UNAIDS convened a meeting of an external reference group of experts on behavioural HIV prevention to provide guidance on establishing quality standards for HIV prevention interventions1 as a follow-up to the release of the 2007 guidelines. This paper responds to the recommendations of the UNAIDS HIV Prevention Reference Group, which noted that the field needed a clear framework for how to classify and define interventions to facilitate establishing evidence-informed quality standards and costing of interventions. The goal of this paper is to posit a framework for defining HIV interventions based on an examination of the state-of-the-art in HIV prevention science.

Need for a common framework

We need a common framework and language for describing HIV interventions to establish quality standards and avoid confusion

Paulo Freire stressed that to maximize human development it is necessary to put theoretical knowledge into practice, but also to base theory on practice (Freire, 1970; Freire & Macedo, 1996). For Freire, the relationship between theory and implementing an intervention—what he terms “praxis”—should not be a static process. Rather, the most effective interventions require a continuing cycle of conceptualizing based on what is learnt from experience. Clearly, conceptualizing what an intervention does and why it is effective allows for opportunities to reframe models, while also allowing for shared understandings of specific intervention strategies. Without a shared understanding of what specific interventions are, we are unable, as a field, to critique our work and to replicate effective programmes. Conversely, to enhance effectiveness, operational models of interventions also need to be regularly updated and reconceptualized, based on real experiences.

Unfortunately, in the field of behavioural HIV prevention, interventions are frequently implemented without clearly conceptualized operational models and the field lacks an accepted framework for how to classify intervention strategies. In addressing the global AIDS epidemic, it is imperative that the highest standards be used in providing services and interventions. Quality standards should be established for widely implemented interventions and should be based on scientific evidence. Novel intervention approaches should also be subject to scientific scrutiny to ensure their efficacy. Additionally, the evidence base for quality standards should incorporate evidence across studies and settings. It is therefore important that clear definitions of interventions be established to ensure that assessments are based on valid comparisons, i.e. on evaluations of the same basic intervention.

Most interventions are complex sets of interrelated activities; rarely is an intervention a highly discrete and standardized activity. However, we frequently see that in describing interventions, an approach is often given a

1 The term “intervention” is used in this paper given its common usage in the field. Note, however, that the UNAIDS’ terminology guidelines suggest that the term not be used as it conveys “doing something to someone or something” and as such undermines the concept of participatory responses (UNAIDS, 2007b). The preferred terms include programming, programme, activities, initiatives etc. We expect that the use of these alternative terms will be addressed substantively as systematization of descriptions and definitions proceeds in subsequent taxonomy and quality standards work supported by UNAIDS.
simple shorthand title that is based on a single dominant aspect of the overall set of activities. It might also be argued that the best interventions are highly tailored to a target population, and therefore not amenable to standardization. While it is true that tailoring interventions to target populations is important, setting quality standards does not necessarily preclude tailoring an intervention. Quality standards can—and arguably should—include processes that allow for population tailoring, while also setting forth specific components that have been shown empirically to be effective. Therefore, it is recognized that there is an inherent tension between: i) the need for clear intervention definitions to facilitate common understanding and establishing quality standards; and ii) the need to avoid proposing rigid definitions to the detriment of tailoring interventions to populations and settings. This paper’s primary purpose is to set forth a framework for classifying and defining intervention approaches.

How have interventions been defined in the extant literature?

As a first step, we will examine how the field of HIV behavioural prevention science has described and categorized interventions historically and use this exercise to identify some of the problems with the current state-of-the-art in this regard. For this, we draw upon data collected from the Synthesizing Intervention Effectiveness project, which is being conducted jointly between the Johns Hopkins University School of Public Health and the World Health Organization’s Department of HIV/AIDS. In this project, we have been conducting systematic reviews and meta-analyses on a host of HIV behavioural prevention interventions conducted in developing country settings. The project is focused on studies of interventions from peer-reviewed publications and consequently excludes interventions that were not part of a scientific evaluation. While this introduces obvious limitations, the results clearly illustrate some of the challenges that the current ad hoc system of articulating and defining interventions presents.

Methods

We used standard methods for conducting systematic reviews and meta-analyses. “Systematic” refers to the use of predetermined written procedural guidelines designed to make our research methods transparent, appropriate to the task and replicable. We first developed a written definition and associated inclusion criteria for each intervention topic and established minimum design characteristics for studies to be included. The interventions topics we assessed encompassed:

- voluntary counselling and testing
- condom social marketing
- partner notification
- family planning for HIV-positive women
- mass media
- abstinence and abstinence-only
- needle and syringe exchange
- psychosocial support
- medical treatment’s impact on HIV risk behaviour.

We then systematically searched for studies that met our inclusion criteria, consistently extracted data from eligible study reports and compared and carried out meta-analyses of the results across studies.
Inclusion criteria

For purposes of this analysis, study citations were included based on four criteria. The study: i) was conducted in a developing country or emerging economy as defined by the World Bank; ii) evaluated a specific intervention, as was predefined for each topic; iii) results presented were from pre- and post-intervention assessments or comparing people who received the intervention with those who did not; and iv) was published between January 1990 and December 2006. Comparisons of more rather than less intensive versions of the intervention and studies that measured outcomes across levels of intervention exposure were also included if they met all other criteria. Unpublished material and conference abstracts were excluded from the review.

Search and acquisition

Trained staff conducted a broad search for citations meeting the inclusion criteria using computer databases and manual searching of key journals. We also searched the references of those papers selected for inclusion, a process that was iterated until no new papers were identified. Finally, we carefully reviewed the references from any previous review papers and meta-analyses found for possible citations. Two senior staff then separately screened the citations for eligibility. From this process a list of citations for acquisition was derived, the citations were obtained and two coders independently conducted an additional screening of the full citation. A third screener resolved discordant results of the complete citation screening.

Coding

Two coders extracted data from each eligible citation independently using a highly detailed coding form. Data were extracted on 15 content areas: i) citation information, ii) study inclusion criteria, iii) study methods, iv) study population characteristics, v) setting, vi) sampling, vii) study design, viii) unit of analysis, ix) loss to follow-up rates, x) study arms or comparison groups characteristics, xi) intervention characteristics, xii) intervention topic-specific questions, xiii) outcome measures, xiv) eligible outcome results, and xv) additional information (costs, limitations, potential harms, community acceptance and other relevant information). Once each of the two coders independently coded citations, data were transferred to a statistical database (using SPSS Data Entry software, SPSS™, Chicago, IL, USA). Senior staff resolved coding discrepancies across coders.

Analysis

We examined the citation distribution by intervention topic and then examined which of the citations cross-cut intervention topics, indicating how many programmes included multiple intervention topics. We then conducted a content analysis of the intervention descriptions from the published citations to identify common approaches to defining interventions used in the field. We also used this analysis to illustrate frequent pitfalls associated with how interventions are currently being portrayed.

Results

We identified 88 scientific citations meeting our minimum inclusion criteria, as described above. The distribution by intervention topic is summarized in Table 1. These citations represent studies of interventions that were examined for their effectiveness in reducing HIV-related risk behaviour in developing country settings.
Table 1
Distribution of citations by intervention topic

<table>
<thead>
<tr>
<th>Topic</th>
<th>No. of citations meeting minimum inclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary counselling and testing</td>
<td>23</td>
</tr>
<tr>
<td>Condom social marketing</td>
<td>8</td>
</tr>
<tr>
<td>Partner notification</td>
<td>0</td>
</tr>
<tr>
<td>Family planning for HIV-positive women</td>
<td>2</td>
</tr>
<tr>
<td>Mass media</td>
<td>25</td>
</tr>
<tr>
<td>Abstinence and abstinence only</td>
<td>14</td>
</tr>
<tr>
<td>Needle and syringe exchange</td>
<td>12</td>
</tr>
<tr>
<td>Psychosocial support</td>
<td>1</td>
</tr>
<tr>
<td>Medical treatment's impact on HIV risk behaviour</td>
<td>3</td>
</tr>
</tbody>
</table>

Many of the citations also met our criteria for more than one intervention topic, based on the inclusion of multifaceted interventions. This is true even though they were most commonly presented as a test of a single intervention. For example, all of the condom social marketing interventions also qualified as mass media interventions. One of the two interventions providing family planning for HIV-positive women also provided voluntary counselling and testing. Having multiple interventions provided to clients as a package was also reified in the content analysis we conducted of the intervention descriptions the authors provided, described below.

**Content analysis results**

We identified several important findings from the content analysis that we conducted on the above-mentioned intervention descriptions included in the synthesis analysis: i) most interventions were combinations of multiple activities; ii) despite having multiple intervention components, investigators tended to identify the intervention by a single, often prominent component; iii) frequently, detailed descriptions of interventions were missing completely and only a word or brief phrase was used to describe the activities conducted; and iv) several distinct and competing frameworks for defining interventions were used, including by activity, mode of delivery, target population, setting, commodity provided, outcome sought and theoretical orientation. Highlighted below are several examples of study descriptions from citations that we reviewed to illustrate these findings.

**Example of multicomponent intervention**

The intervention consisted of enhanced care and support services offered to newly diagnosed HIV-infected adults. These services included ongoing counseling on prevention and problem-solving for the HIV-infected person, education to other family members, provision of condoms, and, when necessary, referral for treatment.

(MacNeil, Mberesero & Kilonzo, 1999)
Example of portraying the intervention by a single, prominent component

Citation title: “Evaluation of a pilot study on needle and syringe exchange program among injecting drug users in a community in Guangdong, China”.

The project consisted of a needle and syringe exchange program and health education carried out in both drug rehabilitation centers and the community. The intervention activities in the rehabilitation centers included distribution of brochures, posters, exhibitions, video shows, and lectures on drug and HIV/AIDS knowledge. The intervention activities in the community included distribution of brochures, posters, face-to-face education by professionals, peer education, and needle and syringe exchange activities. Activities were carried out by professionals and peer educators.

(Lin et al., 2004)

Example of lack of detailed description or using only a brief phrase

“Participants were interviewed and had a blood draw, followed by pre-test counseling. VCT [voluntary counselling and testing] was provided in the home or another venue of the respondents choosing.”

(Matovu et al., 2005)

Multiple approaches used in defining and describing interventions

Our review of the scientific literature showed that there is little consistency in how interventions are described and defined. The logic for what constitutes an intervention varies significantly across citations. However, several common approaches have been taken. Table 2 describes some of the most common ways that interventions are defined.

Table 2
Common ways of defining interventions

<table>
<thead>
<tr>
<th>Characteristic emphasized</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity</strong>—the specific activities undertaken by project staff</td>
<td>Counselling, testing, education, training, policy enactment</td>
</tr>
<tr>
<td><strong>Mode of delivery</strong>—reflects the channel of content delivery</td>
<td>Mass media, peer education, faith-based intervention, community-based intervention</td>
</tr>
<tr>
<td><strong>Target population</strong>—definition is based solely on a target population, most typically a behavioural risk group</td>
<td>Men who have sex with men intervention, injecting drug user intervention, sex worker intervention</td>
</tr>
<tr>
<td><strong>Setting</strong>—focus on the location where the intervention is delivered</td>
<td>Workplace intervention, school-based intervention</td>
</tr>
<tr>
<td><strong>Commodity</strong>—describes a product that is provided</td>
<td>Condom social marketing, needle exchange, microcredit, condom distribution</td>
</tr>
<tr>
<td><strong>Outcome or goal</strong>—describes the intervention by its intended goal</td>
<td>Abstinence intervention, empowerment intervention</td>
</tr>
<tr>
<td><strong>Theory</strong>—reflects the theoretical basis of the intervention</td>
<td>Structural intervention, policy intervention</td>
</tr>
</tbody>
</table>
Critique of current approaches to defining interventions

There are various challenges with the current ad hoc strategies used for defining interventions in the field. Foremost is the lack of clarity and descriptive detail. For example, by describing an intervention based only on the setting, target group or desired outcome, others cannot know which specific activities were and were not conducted. As described above, in written reports information on the intervention is often sketchy and lacking descriptions of key aspects of the activities undertaken. The labels currently used also make it extremely difficult or impossible to compare interventions, since written reports frequently do not provide enough detail to know whether similarly labelled projects were also similar in their content and implementation. Two different abstinence-based programmes may have provided very different activities, and relying only on the description “abstinence-based intervention” may result in spurious comparisons. These problems make it difficult to compare and evaluate the effectiveness of interventions conducted in different regions and among different populations. Finally, and importantly, the current ad hoc manner of conveying the content of interventions results in difficulty in establishing quality standards. If we in the field do not share a common terminology and understanding of what we mean by each particular term and intervention strategy, it is not possible to establish guidelines and standards for interventions.

A proposed ontology

Given these issues, we propose a way forward, based on our content analysis and principles derived from other scientific fields on how to best develop a systematic scientific nomenclature. In all areas of science, a technical vernacular develops among practitioners, which signifies specific activities, processes, events and entities. Technical terms are only meaningful when a consistent, shared understanding exists of what each technical term or phrase signifies. Much effort on the part of the scientific community in all disciplines is dedicated to forging consensus on the meanings associated with commonly used terms. Once established and agreed upon, these shorthand terms are typically codified in the scientific literature and taught and replicated through the educational and socialization process of each scientific discipline. These technical terms are enormously beneficial since they enable more efficient communication and therefore allow science to progress rationally as concepts are agreed upon and debated.

An ontology is a specific system of classification based on an explicit logic (Genesereth & Nilsson, 1987). Moreover, an ontology is purposefully designed with objective criteria. The following characteristics have been proposed as desirable in defining an ontology (Gruber, 1993):

- clarity—it should communicate the intended meaning of terms effectively, not be subject to social context and be documented in natural language;
- coherence—the defining rules should be logically consistent;
- extendibility—it should allow and accommodate new developments and entries;
- minimal encoding bias—it should allow for consistent application and be resistant to bias when applied;
- minimal ontological commitment—it should be only as complex as is needed to meet the desired purpose. It should not be unnecessarily broad theoretically.

We propose the criteria below for an ontology of HIV interventions, based on the recommendations listed above and our review and analysis presented earlier.

- There is a need for concise definitions for commonly implemented intervention approaches,
based on a consistent definitional logic.

- To enhance specificity, interventions should be foremost defined by activities or services, and commodities provided.
- When relevant, the secondary focus of intervention definition should be based on message content.
- Outcomes along the causal chain of events should not be the primary basis of the definition of an intervention.
- Defining interventions solely by the intervention’s theoretical basis leads to a lack of clarity and should be avoided.
- A list of intervention characteristics is needed, which should be described in written reports to complement the use of shorthand phrases for interventions.
- Carefully designed consensus-building is needed to wed theory to practice. It is the ideal manner of deriving agreement on standards for specific interventions. This is a continuing process, subject to updating as approaches in the field evolve and populations change.

In the following sections we describe and justify several of these principles in greater detail.

**Use of shorthand phrases for complex interventions**

*Use of shorthand phrases for complex interventions facilitates efficient communication, but only when a shared understanding exists for what the shorthand phrases signify*

Problems arise when a naturally occurring shorthand phrase becomes inculcated in a technical field before consensus on its meaning and its codification in the technical literature is established. Once a technical term is agreed upon and its meaning is well documented, its use enhances communicating complex concepts much more efficiently. We noted above that in many cases we found very brief terms and phrases are used to describe an HIV intervention in the literature. Interestingly, this appears to be most commonly done when these phrases are supported by the weight of technical documents that describe well the meaning of these interventions. The use of the abbreviation “VCT” to signify “voluntary counselling and testing for HIV” is an excellent example. There are clear, published international guidelines with minimum standards for voluntary counselling and testing, most of which were developed through consensus-driven processes. Therefore, when an investigator states that they used the UNAIDS (2000) guidelines for voluntary counselling and testing in their intervention, what actually transpired is well understood. Interestingly, in our review it was topics with the shortest descriptions, such as VCT and condom social marketing, that often were the easiest to understand, since they are supported by published technical descriptions.

In biomedicine there have been major efforts to harmonize and standardize medical terminology. The classification of diseases was driven by the need to determine how to group and define illnesses. It now constitutes a distinct branch of medicine known as nosology. Interestingly, there are some parallels between biomedicine and prevention science regarding classification challenges. For example, there are competing systems of disease classification, based on etiology, pathogenesis, symptoms and organ systems affected. Table 3 illustrates some of the parallels with prevention science.
### Table 3

**Systems of disease classification**

<table>
<thead>
<tr>
<th>Classification logic</th>
<th>Definition</th>
<th>Medical example</th>
<th>Prevention analogue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etiology</td>
<td>Agent causing the disease</td>
<td>Allergen</td>
<td>Sex worker intervention (vector mentality)</td>
</tr>
<tr>
<td>Pathogenesis</td>
<td>Mechanism by which disease is caused</td>
<td>Inflammation, shortness of breath, hypoxia, leading to brain death</td>
<td>Poverty, leading to commercial sex, then HIV infection</td>
</tr>
<tr>
<td>Symptom</td>
<td>Experienced outcome of disease</td>
<td>Anaphylaxis</td>
<td>HIV-related disease</td>
</tr>
<tr>
<td>Organ system</td>
<td>System affected</td>
<td>Immune system</td>
<td>Structural intervention</td>
</tr>
</tbody>
</table>

Elaborate standardized criteria for disease classification have emerged in medicine, driven largely by the mandates of those funding medical care. In addition to classifying diseases, medicine has established published guidelines and standards of care for almost all procedures imaginable. This holds medical practitioners and institutions accountable for meeting quality standards and allows for a thoughtful process of challenging the standards as scientific progress is made. It also facilitates demanding adequate remuneration from funders to provide the minimum standard of care when a particular health issue is encountered. This is the heart of evidence-informed medicine, which in recent years has emerged as a global gold standard in medical practice.

**Primary focus: specific activities or services and commodity**

*It is recommended that the specific activities or services and commodities provided be the primary focus of intervention definitions*

In HIV prevention there are complex systems of causal effects that mediate risk and vulnerability, many of which are non-linear, or contain feedback loops along the causal pathway. Therefore, it can be challenging to establish the starting and stopping points for an intervention, in determining how to define and evaluate it. In Figure 1 an example is provided of a hypothetical intervention in which a nongovernmental organization arranges and provides a venue for meetings, carries out training on advocacy and encourages legal rights with the aim of enhancing social mobilization among a vulnerable and marginalized group of women. This, in turn, is designed to empower women in the community and enhance their access to financial resources. Consequently, it is believed that condom use will increase and HIV incidence will decrease. Is this a “social mobilization” intervention, a “women’s empowerment” intervention, a “condom promotion” intervention or an “HIV incidence reduction” intervention? Rather than focus on distal effects of interventions, we suggest that greater descriptive clarity is provided by framing the intervention in terms of *specific activities or services and commodities provided to the target population*. In this case, the services are advocacy training. Therefore, the clearest definition would be to refer to it as an “advocacy training” intervention. However, it would likewise be important to capture the intended downstream goals of the intervention in written reports, presentations and evaluation measures associated with the project.
We recommend that the following steps be taken to establish clear definitions for interventions. First, identify brief (shorthand) definitions describing activities or services and commodities provided in the intervention. When relevant, also refer to key message content included with the intervention. Next, through consensus meetings with key stakeholders and experts, provide a rich description of other requisite components of the intervention, including message content, the method of delivery, how to tailor the intervention to audiences and settings, the intervention’s desired outcomes and its theoretical basis. This process is summarized in Figure 2.

In summary, we propose that an intervention should be defined primarily by the activity or service and commodity provided. However, in applying interventions to specific settings they should be tailored to the realities of the epidemic scenario and target population, as recommended by the UNAIDS *Practical guidelines*. 
for intensifying HIV prevention (UNAIDS, 2007a). Quality standards, however, should be established for each broad intervention component based on empirical evidence of efficacy. In this regard, a much more detailed description of specific interventions should also be provided in describing specific intervention applications. The following list includes the type of information that should be included in a specific intervention’s description:

- specific activities or services and commodities are delivered with the intervention
- key messages and behavioural recommendations imparted with the intervention
- eligibility to receive the intervention with regard to risk behaviours or medical conditions
- age group of those receiving the intervention
- gender distribution of those receiving the intervention
- geographical setting in which the intervention is conducted
- institutional setting or venue in which the intervention is implemented
- who specifically delivers the intervention
- frequency of delivering the intervention delivered to the target audience
- intended ecological level of focus for the intervention (e.g. individual, family, community)
- the theory the intervention is based on
- the main desired outcomes of the intervention.

Table 4 lists many of the major intervention activities that are currently being implemented. This list is based on a review of HIV prevention programmes most commonly implemented. The table uses the framework described above and stresses primarily defining and classifying intervention by the activity, service, or commodity, with additional information provided in the table to allow tailoring of the intervention as needed. We have also grouped these interventions into broad categories, based largely on the interventions’ intended purpose. The table also describes frequently seen examples of the message content, delivery mode, target population, setting, intervention outcome and theory associated with each intervention, recognizing that there are many possible variants of each of these intervention characteristics. The interventions are also grouped in the table according to the following broad categories: i) interventions that affect knowledge, attitudes and beliefs and influence psychological and social correlates of risk; ii) harm reduction interventions that lower the risk of a behaviour, but do not eliminate the behaviour; iii) biological/biomedical interventions that strive to reduce HIV infection and transmission risk; iv) mitigation of barriers to prevention and negative social outcomes of HIV infection; and v) mitigation of biological outcomes of HIV infection. We also include a summary of several hybrid interventions, which bundle discrete intervention approaches, and which are in common use and are well standardized.
Table 4
Major interventions being implemented

<table>
<thead>
<tr>
<th>Activity, service, commodity</th>
<th>Message content (when relevant)</th>
<th>Delivery mode</th>
<th>Target population/setting</th>
<th>Outcome/theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass media campaigns</td>
<td>Varies: e.g. people in your community are at risk of HIV infection through sexual behaviour</td>
<td>Television, radio, public events</td>
<td>Typically large segments of the population, but content can be targeted to subpopulations</td>
<td>Varies: reduced HIV-related risk behaviour, changes in social norms</td>
</tr>
<tr>
<td>Interpersonal education and persuasion programmes, face to face, interactive dialogue</td>
<td>Varies: e.g. mitigation of stigma and discrimination towards people living with HIV</td>
<td>Peer educators, trained outreach workers, theatre, story tellers, etc.</td>
<td>Typically targeted to smaller, unique populations</td>
<td>Varies: includes diffusion-based interventions that strive to affect behaviour through the dynamics of social networks</td>
</tr>
<tr>
<td>Sex education</td>
<td>Varies: e.g. value of waiting to become sexually active, condom promotion</td>
<td>Typically in-school</td>
<td>Adolescents</td>
<td>Higher age of sexual debut, increased condom use, fewer partners</td>
</tr>
<tr>
<td>Education to promote adherence to universal precautions</td>
<td>Increased risk perception and self-efficacy to use precautions</td>
<td>Varies</td>
<td>Health-care workers</td>
<td>Reduced occupational exposure to HIV</td>
</tr>
<tr>
<td>Prevention counselling</td>
<td>Client-centred</td>
<td>Trained counsellor</td>
<td>Varies</td>
<td>Varies</td>
</tr>
<tr>
<td>Activity, service, commodity</td>
<td>Message content (when relevant)</td>
<td>Delivery mode</td>
<td>Target population/setting</td>
<td>Outcome/theory</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------</td>
<td>---------------</td>
<td>---------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Female and male condom distribution</td>
<td>–</td>
<td>Varies, but typically free distribution in public settings</td>
<td>Sexually active at-risk individuals</td>
<td>Decrease in unprotected sex</td>
</tr>
<tr>
<td>Needle and syringe exchange</td>
<td>–</td>
<td>Most typically community-based</td>
<td>Injecting drug users</td>
<td>Decreased use of contaminated injecting equipment</td>
</tr>
<tr>
<td>Provision of equipment required for universal precautions</td>
<td>–</td>
<td>Health-care settings</td>
<td>Health-care workers and caregivers</td>
<td>Decreased occupation exposure</td>
</tr>
<tr>
<td>Providing safe spaces for vulnerable populations to use prevention services, to inject drugs safely</td>
<td>–</td>
<td>Based in physical structure (house, van, etc.)</td>
<td>Injecting drug users, men who have sex with men, young people, sex workers</td>
<td>Reduced overdose potential and reduced use of contaminated injecting equipment</td>
</tr>
<tr>
<td>Livelihood alternatives to transactional sex</td>
<td>–</td>
<td>Job training, job opportunities</td>
<td>Sex workers</td>
<td>Reduction in frequency of sexual contact</td>
</tr>
<tr>
<td>Activity, service, commodity</td>
<td>Message content (when relevant)</td>
<td>Delivery mode</td>
<td>Target population/setting</td>
<td>Outcome/theory</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------</td>
<td>---------------</td>
<td>---------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Diagnosis and treatment of sexually transmitted infections</td>
<td>–</td>
<td>From health-care provider</td>
<td>Varies</td>
<td>Reduced prevalence of sexually transmitted infections</td>
</tr>
<tr>
<td>Post-exposure prophylaxis</td>
<td>–</td>
<td>From health-care provider</td>
<td>Health-care workers, rape victims and others exposed to biohazard material</td>
<td>Reduced incidence of HIV infection</td>
</tr>
<tr>
<td>Family planning services</td>
<td>–</td>
<td>From health-care provider</td>
<td>HIV-positive women of childbearing age</td>
<td>United Nations 4-component prevention of mother-to-child transmission (prong 2) (WHO, 2005)</td>
</tr>
<tr>
<td>Male circumcision</td>
<td>–</td>
<td>From health-care provider</td>
<td>Males</td>
<td>Reduced biological risk for HIV acquisition</td>
</tr>
<tr>
<td>Antiretroviral prophylaxis for infants born to HIV-positive mothers</td>
<td>–</td>
<td>Primarily clinic-based and linked to antenatal services</td>
<td>Infants born to HIV-positive mothers</td>
<td>Reduction in mother-to-child transmission and prevalence/incidence of HIV-positive infants</td>
</tr>
<tr>
<td>Breastfeeding substitution for HIV-positive mothers</td>
<td>–</td>
<td>Via distribution of feeding substitutes</td>
<td>Requires access to clean water</td>
<td>Reduction in mother-to-child transmission and prevalence/incidence of HIV-positive infants</td>
</tr>
<tr>
<td>Activity, service, commodity</td>
<td>Message content (when relevant)</td>
<td>Delivery mode</td>
<td>Target population/setting</td>
<td>Outcome/theory</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------</td>
<td>---------------</td>
<td>---------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Screening blood products and donated organs for HIV</td>
<td>–</td>
<td>Health-care facility</td>
<td>Recipients of blood products and donated organs Within health-care setting</td>
<td>Reduction in iatrogenic transmission of HIV</td>
</tr>
<tr>
<td>Screening sperm donations for HIV</td>
<td>–</td>
<td>Health-care facility</td>
<td>Sperm donor recipients Within health-care setting</td>
<td>Reduction in transmission of HIV</td>
</tr>
<tr>
<td>Disinfection of medical equipment</td>
<td>–</td>
<td>Health-care facility</td>
<td>Patients Within health-care setting</td>
<td>Reduction in iatrogenic transmission of HIV</td>
</tr>
<tr>
<td>Disinfection of tattoo, body piercing and barber equipment</td>
<td>–</td>
<td>Policies and monitoring to mandate use of clean equipment Self-procurement of clean razors by clients</td>
<td>Clients receiving tattoos, body piercing and barber services (especially shaving)</td>
<td>Reduction in transmission of HIV</td>
</tr>
<tr>
<td>Use of gloves and protective clothing during medical procedures</td>
<td>Universal precautions are required for all patients and procedures</td>
<td>Policies and monitoring in health-care settings Provision of requisite equipment</td>
<td>Health-care providers Primarily within health-care settings</td>
<td>Reduction in workplace transmission of HIV Environmental/structural theory</td>
</tr>
<tr>
<td>Proper disposal of biohazard waste</td>
<td>–</td>
<td>Policies and monitoring in health-care settings Provision of requisite equipment</td>
<td>Health-care facilities and associated services</td>
<td>–</td>
</tr>
<tr>
<td>Drug treatment including drug substitution treatment</td>
<td>–</td>
<td>From health-care provider Typically clinic-based</td>
<td>Illicit drug users</td>
<td>Reduction in use of contaminated injecting equipment Possible reduction in sexual risks</td>
</tr>
<tr>
<td>Activity, service, commodity</td>
<td>Message content (when relevant)</td>
<td>Delivery mode</td>
<td>Target population/setting</td>
<td>Outcome/theory</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------------</td>
<td>---------------------------------</td>
<td>---------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Training of service providers and law enforcement</td>
<td>Respect human and civil rights</td>
<td>Varies</td>
<td>Service providers and law enforcement</td>
<td>Environmental theory</td>
</tr>
<tr>
<td>Separate accommodation to protect at-risk populations</td>
<td></td>
<td>Policy-based, legislation and policy change</td>
<td>Young prisoners</td>
<td>Structural theory</td>
</tr>
<tr>
<td>Self-help and solidarity groups</td>
<td>Varies by population</td>
<td>Typically peer-led</td>
<td>HIV-positive population, carers of people living with HIV, those at risk of infection</td>
<td>Social support, enhanced self-efficacy, advocacy</td>
</tr>
<tr>
<td>Financial and in-kind sustenance support</td>
<td></td>
<td>Varies, individuals, microfinance and microcredit, social protection, insurance</td>
<td>Individuals and families economically affected by AIDS</td>
<td>Environmental. May also reduce secondary transmission of HIV</td>
</tr>
<tr>
<td>Medical and legal assistance services</td>
<td>Varies by setting</td>
<td>–</td>
<td>People living with HIV, those affected by HIV, marginalized groups</td>
<td></td>
</tr>
<tr>
<td>Counselling</td>
<td>Varies by group</td>
<td>One-to-one or group</td>
<td>People living with HIV and people affected by HIV; caregivers</td>
<td>Enhanced coping, empowerment and advocacy</td>
</tr>
<tr>
<td>Legal, policy and institutional reform to protect human rights of vulnerable groups and HIV-positive people</td>
<td></td>
<td>–</td>
<td>Leaders, decision-makers</td>
<td>Structural/environmental theory</td>
</tr>
<tr>
<td>Activity, service, commodity</td>
<td>Message content (when relevant)</td>
<td>Delivery mode</td>
<td>Target population/setting</td>
<td>Outcome/theory</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------</td>
<td>--------------</td>
<td>---------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>HIV/tuberculosis treatment services</td>
<td>-</td>
<td>From health-care provider Typically clinic-based</td>
<td>HIV/ tuberculosis coinfect ed individuals</td>
<td>-</td>
</tr>
<tr>
<td>HIV treatment with antiretroviral drugs</td>
<td>-</td>
<td>From health-care provider Typically clinic-based</td>
<td>HIV-positive people</td>
<td>-</td>
</tr>
<tr>
<td>HIV-related opportunistic infection prophylaxis and treatment</td>
<td>-</td>
<td>From health-care provider Clinic-based and home-care delivery</td>
<td>HIV-positive people</td>
<td>-</td>
</tr>
<tr>
<td>Treatment of hepatitis (allowing access to antiretroviral treatment)</td>
<td>-</td>
<td>From health-care provider Clinic-based and home-care delivery</td>
<td>HIV/hepatitis coinfect ed individuals</td>
<td>-</td>
</tr>
<tr>
<td>Palliative care for people living with HIV</td>
<td>-</td>
<td>Home care is frequently supported Care also provided within medical institutions</td>
<td>People seriously ill with AIDS-related disease at end-stage of life</td>
<td>-</td>
</tr>
<tr>
<td>Activity, service, commodity</td>
<td>Message content (when relevant)</td>
<td>Delivery mode</td>
<td>Target population/setting</td>
<td>Outcome/theory</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Voluntary counselling and testing for HIV</td>
<td>Know your infection status Integrated with other services</td>
<td>Often clinic-based</td>
<td>Varies</td>
<td>Decreased HIV transmission Ease fears, better plan for future, linkage to care and treatment Client-centred counselling approach</td>
</tr>
<tr>
<td>Condom social marketing</td>
<td>Social acceptance of condom use</td>
<td>Cross-cutting modalities</td>
<td>Varies</td>
<td>Changes in social norms about condom use, increased access to condoms, increased self-efficacy to use a condom</td>
</tr>
<tr>
<td>Comprehensive sex education</td>
<td>Reduce risk if cannot eliminate risk</td>
<td>Typically in-school</td>
<td>Youth</td>
<td>Offers a wide range of options in risk reduction to recipients</td>
</tr>
<tr>
<td>Social mobilization</td>
<td>Varies</td>
<td>Varies</td>
<td>Broad population base</td>
<td>Social change theory</td>
</tr>
</tbody>
</table>
Bundling interventions into programmes

The last section of Table 4 shows that some HIV intervention approaches have been bundled in a systematic manner. For example, condom social marketing typically includes commodity procurement and logistics management, mass media and small media marketing tailored to specific target groups, and monitoring and evaluation providing feedback on programme effectiveness. The logic for bundling these intervention components is based on the need not only to provide the commodity of condoms efficiently in the marketplace, but also to generate demand for condom sales and address social and cultural barriers to uptake and use of condoms. In reviewing the implementation of HIV interventions, we found that, in practice, interventions are typically bundled to create synergistic programmes. Therefore, such programmes comprise combinations of discrete intervention components and there is typically a logic to how these are combined to maximize impact. Additionally, in many cases there are ethical mandates to bundling discrete interventions, such as the need to provide psychosocial care and support and risk reduction interventions to people diagnosed as HIV-positive. Summarized below are several case studies of interventions being implemented and the logical basis for their bundling (Boxes 1–3).

<table>
<thead>
<tr>
<th>Activity, service, commodity</th>
<th>Message content (when relevant)</th>
<th>Delivery mode</th>
<th>Target population/ setting</th>
<th>Outcome/ theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS hotline</td>
<td>Dispel myths about AIDS, increase risk perception, motivate discussion on AIDS</td>
<td>Individual counsellors VCT counsellors Targeted media</td>
<td>Mumbai, India Men aged 18–34 years</td>
<td>Seek testing Reduce risk behaviours</td>
</tr>
<tr>
<td>VCT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass media</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Source: Health e Communication, date unknown, a (http://www.comminit.com/healthecomm/).
Box 2  **Harnessing talent, Ugandan street youth use drama to respond to AIDS**

Uganda's Baabas project uses street and community outreach, HIV prevention clubs and training to communicate HIV prevention messages to street children, the local community and local leaders. Through collaboration with 12 nongovernmental organizations that work with street children, organizers hope to reduce this group's vulnerability to HIV and sexual exploitation.

At the centre of the project are 140 “Baabas”—street youth elected by their peers who are trained in HIV and sexual health issues as well as participatory teaching methods. These youth engage in drama, song, dance and poetry at various drama festivals (at the first drama festival, approximately 150 dignitaries and representatives from HIV programmes and youth-related organizations joined the local community and street children to watch presentations on the theme “Youth fighting AIDS on the street”). The project also works to build the capacity of local nongovernmental organizations to address HIV-related issues and to foster networking between like-minded organizations.

<table>
<thead>
<tr>
<th>Activity, service, commodity</th>
<th>Message content (when relevant)</th>
<th>Delivery mode</th>
<th>Target population/setting</th>
<th>Outcome/theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV prevention clubs</td>
<td>–</td>
<td>Peers</td>
<td>Ugandan street children</td>
<td>Reduction of vulnerability to exposure to HIV and sexual exploitation</td>
</tr>
<tr>
<td>Street outreach</td>
<td></td>
<td></td>
<td>Dignitaries</td>
<td></td>
</tr>
<tr>
<td>Drama presentations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td>–</td>
<td>Staff</td>
<td>Local nongovernmental organizations</td>
<td>Increased capacity to address HIV-related issues</td>
</tr>
</tbody>
</table>

*a Source: Health e Communication, date unknown, b (http://www.communit.com/healthecomm/).
Box 3  **Stop AIDS—Love Life**

The main purposes of the *Stop AIDS—Love Life* campaign in Ghana were to increase awareness of HIV; to increase the adoption of safer sex behaviour; to destigmatize HIV and to encourage compassion, care and support for people living with HIV.

The campaign’s activities focused on advocacy, community mobilization and mass media. They included development and distribution of print materials; production of an AIDS music video featuring Ghanaian hip-life, highlife and gospel musicians with safer sex messages of abstinence, fidelity and condom use; production of testimony spots, with HIV-positive Ghanaians telling their stories; peer counselling workshop for people living with HIV; production of traditional rulers (local chiefs) radio and television spots, launch of “Journey of Hope” (a participatory tool designed to teach abstinence, fidelity and condom use) with the President of Ghana and cabinet members in attendance; training workshops on community mobilization and use of Journey of Hope; community rallies and school-based programmes; development and production of compassion spots with religious leaders; and provision of input and messages to the script of the award-winning "Things We Do for Love" television series.

<table>
<thead>
<tr>
<th>Activity, service, commodity</th>
<th>Message content (when relevant)</th>
<th>Delivery mode</th>
<th>Target population/setting</th>
<th>Outcome/theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass media</td>
<td>Risk reduction, acceptance of people living with HIV</td>
<td>Media</td>
<td>Ghanaian public</td>
<td>Adoption of safer sex</td>
</tr>
<tr>
<td>Counselling workshop</td>
<td></td>
<td>Peers</td>
<td>People living with HIV</td>
<td>Destigmatize HIV</td>
</tr>
<tr>
<td>Training workshops</td>
<td></td>
<td>Staff</td>
<td></td>
<td>Encourage care for people living with HIV</td>
</tr>
</tbody>
</table>

* Source: Health e Communication, date unknown, c (<http://www.comminit.com/healthecomm/>).

**Next steps**

The UNAIDS *Practical guidelines for intensifying HIV prevention* (UNAIDS, 2007a) provide a cogent set of recommendations for advancing adaptation of HIV prevention responses to national and local epidemics. Key recommendations of the guidelines include knowing your epidemic in terms of its key drivers, vulnerable populations most in need, epidemiological scenarios and focusing on the source of new infections. It is recommended that programme planners match the response to the epidemic to these factors and prioritize efforts according to the appropriate epidemiological scenario. This is achieved through setting ambitious, realistic and measurable prevention targets and using strategic information to stay on course as prevention programmes evolve. Moreover, specific recommendations are made for certain key audiences for which intervention strategies are most appropriate. These well-conceived recommendations could be strengthened through a process of more clearly specifying quality standards and implementation costs. This document is a first step towards that end, since establishing definitions for
major interventions is needed before standards are established and standards are needed to establish the likely costs of activities.

We propose that the preliminary list of interventions described herein be expanded and subjected to further review and critique by prevention scientists and practitioners. Once consensus is established and definitions are agreed upon for major interventions necessary for intensifying HIV prevention efforts, minimum quality standards should be developed for each intervention component and estimated costs for implementation established. Finally, further analysis of the optimal manner of bundling these interventions into logical combinations should be determined. With the establishment of clearly defined interventions with associated quality standards, estimated costs and optimal bundling strategies, it will be possible to provide improved recommendations to programme planners and policy-makers striving to intensify HIV prevention programmes. Consensus in these areas would enhance our ability to plan, allocate requisite resources—including human resources—advocate prevention, and monitor and evaluate the success of prevention programmes.
References


Health e Communication (date unknown, d). Harnessing talent: Ugandan street youth using drama to fight AIDS. Stop AIDS Love Life page on the Johns Hopkins Bloomberg School of Public Health Center for Communication Programs website (http://www.jhuccp.org/)


Bibliography

Abstinence


**Needle and syringe exchange**


**Voluntary counselling and testing**


Allen S et al. (1993). Pregnancy and contraception use among urban Rwandan women after HIV testing and


Semrau K et al. (2005). Women in couples antenatal HIV counseling and testing are not more likely to report adverse social events. *AIDS*, 19:603–609.


**Mass media**


Shapiro D, Meekers D, Tambahshe B (2003). Exposure to the ‘SIDA dans la Cite’ AIDS prevention television


**Family planning**
