A health promotion logic model to review progress in HIV prevention in China

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SUMMARY

Using the theory and concepts of health promotion, this paper proposes a logic model for HIV/AIDS prevention and control which provides a structure for describing planned actions and predicted impacts/outcomes from comprehensive HIV prevention interventions. The potential usefulness of the model is examined by reviewing the evolution of HIV prevention and management in China, drawing on evidence from interventions reported from a mixture of study designs and formats. It reports that HIV interventions in China can be considered in two distinctive phases, before and after 2003 when China commenced its ‘official’ response to the HIV epidemic. The logic model was useful in comparing actions taken over these two periods highlighting the importance of political leadership in distinguishing between the two phases, and the continuing importance of systematic and broadly based public education and communication. We conclude that the logic model can not only be used as a planning model, but can also be applied retrospectively to assess successes and failures in national and local responses to HIV in complex social settings.

Key words: China; HIV/AIDS; health and social policy; behavioural interventions

BACKGROUND: ‘NEW’ PUBLIC HEALTH RESPONSES TO THE HIV EPIDEMIC

Since the early 1980s, HIV has emerged as one of the most challenging threats to public health worldwide. In the early phases of the epidemic HIV was found most commonly in developed nations and among gay men, injecting drug users (IDUs) and to a lesser extent among sex workers. Since this early phase, knowledge of HIV and its transmission have improved significantly, and treatments that make it possible to live with HIV have been developed. However, the epidemic has evolved disastrously and moved from high-risk groups to general populations in some of the world’s most populated and poorest countries, particularly in sub-Saharan Africa.

The epidemic is no longer largely confined to identifiable high-risk groups, and by far, the most common route for infection is sexual transmission. Interventions remain challenging, needing to account for the complex socio-economic and cultural influences and taboos associated with the sexual behaviours leading to transmission (Parker and Aggleton, 2003). Because of its behavioural and pathological determinants, geographic spread and the lack of progress in the development of affordable treatment and health infrastructure, behavioural interventions to prevent HIV infection remain the most cost-effective and sustainable way of managing the epidemic (Hecht et al., 2010; UNAIDS, 2010). Such a complex set of bio-behavioural risk factors and structural determinants has demanded innovation in public health
interventions and bold political leadership. In parallel with the evolution of the HIV epidemic, the science and the art of public health interventions have also had to go through a radical transformation.

During the 1980s, the World Health Organization was at the forefront of a radical reassessment of the way in which public health problems were conceptualized and addressed. Through a series of meetings and papers, WHO developed a ‘new’ approach to public health intervention described as health promotion and defined through the WHO Ottawa Charter for Health Promotion (WHO, 1986). In one sense, this returned public health to its more traditional roots, reflecting a contemporary interpretation of the impact of the environment on health and emphasizing the importance of government and communal action for health alongside the established paradigm focussing on individuals and their lifestyles. The Charter highlighted, for example, the importance of healthy public policy—the role and responsibility that governments have to develop policies across all sectors of government in ways that ‘make healthy choices, easy choices’; and the need for genuine community engagement as a way of achieving locally relevant and sustainable solutions to public health problems. While drawing attention to the range of actions necessary in the wider community, the Charter also maintained the fundamental role of the health system in improving public health, and the challenge to maintain focus on prevention and primary health care in health systems.

These strategies represent a set of tools that can be used in different combinations to plan and deliver effective and sustainable public health interventions that are built on a much broader theoretical base than previously had been the case—balancing individual responsibility with social and governmental responsibility for public health improvement.

Correspondingly, as the knowledge of HIV in terms of methods of transmission and risk behaviours became better understood, more effective and sophisticated prevention programmes and policies have been developed (Moatti and Souterrand, 2000). These programmes have, either deliberately or unintentionally, drawn upon the strategies identified in the Ottawa Charter—based on new and emerging theories of behaviour change, better understanding of the social determinants of health and understanding of the importance of community mobilization in achieving sustainable change in populations. Combining these different public health strategies has been found to be more effective in supporting sustainable behaviour change, and more suitable for use in general populations in poorer countries where the HIV epidemic is now centred.

This paper reflects on this transformation in the theory and concepts of public health action and proposes a ‘logic’ model for HIV/AIDS prevention and control. It considers the potential usefulness of the model by examining the evolution of HIV prevention and management in the world’s most populous country, China.

USING A HEALTH PROMOTION OUTCOME MODEL FOR HIV PREVENTION AND MANAGEMENT

Figure 1 provides a logic model for HIV prevention and management. It is based on the health promotion strategies advocated through the WHO Ottawa Charter. Such a model provides a conceptual illustration of the logic linking planned actions to planned outcomes (Nutbeam, 1998). Starting at the end, the model identifies two goals of halting and then reversing the epidemic of HIV infections, and providing appropriate, affordable treatment for those who are infected. In turn, it identifies two key intervention outcomes that will deliver these goals, namely, sustained prevention behaviours and improved (reoriented) health systems that provide effective HIV testing and screening programmes and access to affordable treatment.

To achieve these outcomes, the model identifies three public health strategies—health promotion ‘actions’ based on the Ottawa Charter—that will deliver change in the determinants, and the intervention outcomes, and health goals identified in the model, as follows:

- **Public education and communication** that, for example, makes use of the mass media for raising public awareness, providing information and influencing public opinion; that makes creative use of edutainment, photo novellas and other media to creatively reach specific populations with targeted messages and that delivers targeted and tailored educational interventions to develop the life-skills
and self-efficacy needed for sustainable behaviour change.

- **Community mobilization** that, for example, targets community leaders to transmit information, reduce stigma and discrimination; provides direct support for marginalized groups (such as commercial sex workers) to organize in ways that protect their health rights, provide them with a voice and enable them to provide mutual support and recognizes and supports NGOs in working effectively with marginalized groups.

- **Political leadership** that, for example, recognizes the social and economic origins of HIV risk behaviours and mobilizes resources to address these; delivers personal leadership in reducing stigma and discrimination; manages the tensions between community norms and cultural/religious sensitivities and ensures that health services are equipped to respond to the epidemic.

These interventions are not mutually exclusive and generally need to be understood as interdependent. For example, a well-informed public is more likely to engage with community-wide activities and support political leaders in making difficult decisions in resource allocation. Similarly, strong political leaders can inspire community mobilization, and by acting as role models, reinforce public education and communication about HIV prevention.

These interventions are directed towards achieving three key health promotion outcomes, as follows:

- **Accurate public knowledge and practical personal skills** that, for example, will ensure correct community knowledge about preventive behaviours and improved understanding of HIV/AIDS prevention and control measures, including reduced misconceptions, discrimination and stigma, and supports the skills and confidence necessary to put into practice recommended behaviours in what may be challenging circumstances for some individuals.

- **Supportive social and economic environment** exemplified by interventions intended to minimize social stigma and discrimination; provide reliable access to relevant health and support services including voluntary confidential HIV testing and counselling services; provide practical access to condoms and other protective methods and provide economic alternatives to commercial sex work.

- **Healthy public policy** that, for example, provides rights and protections for people living with HIV/AIDS; provides screening and control of blood products; monitors transmission risks in antenatal clinics and reduces risks and harms by providing the supportive regulation of commercial sex industry, harm reduction policies for IDUs and delivers supportive health services organization and investments.
It is tempting to imagine that the model is simple and linear—one type of intervention leads to one type of outcome in a predictable way. The reality is more complex and dynamic. In the same way that the different forms of intervention can be seen as co-dependent, so too are the different outcomes. For example, putting into practice recommended behaviours will be fundamentally dependent on an individual’s knowledge and self-confidence to act on their knowledge—but this, in turn, will be influenced by the existence of supportive public opinion and community acceptability towards, for example, access to condoms and the regulation of the sex industry. In turn, public attitudes influence the formation of legal rights and protections offered through public policy. For these reasons, the model cannot offer a simple explanation of causality.

It will also be evident that the model is not a ‘one size fits all’ planning solution. It is rather conceived as an organizing framework for those responsible for planning, delivering and monitoring an effective and sustainable programme of actions for HIV prevention and management. There is no single theory or model which can adequately guide the development of a comprehensive health promotion programme intended to influence the multiple determinants of HIV transmission in populations. Practitioners, communities and their leaders need to use local knowledge and experience and available research information to make judgements about community needs and the local determinants of health which are most amenable to change at a particular point in time.

The usefulness in the model comes from its comprehensiveness. It provides an overview of the universe of actions and outcomes in a logical sequence. It is an organizing framework within which planned activities, anticipated impacts and predicted outcomes can be structured and examined. The model can be used both for the systematic examination of past programmes and to structure the necessary, complementary elements of future interventions. It does not offer a classic causal chain, but does take into account the complexity of a comprehensive intervention within a manageable structure. It can be used to better predict the likely outcomes of planned interventions, as well as help explain the reasons for observed success or failure from past programmes.

**CHINA CASE STUDY: RATIONALE AND APPROACH**

China is the world’s most populous country and has experienced the development of the HIV epidemic in clearly identifiable phases. It offers a complex case study to examine the relevance and usefulness of the logic model in examining the comprehensiveness of actions and effectiveness of interventions in both the initial and later response phases.

Broadly, four distinct phases of the HIV epidemic can be identified: 1985–1988 restricted to a small number of AIDS cases in coastal cities among foreigners and Chinese travelling overseas; local prevalence and isolated outbreak of HIV especially among IDUs in the Yunnan Province of China (1989–1993); HIV transmission beyond Yunnan province among drug users and commercial plasma donors (1994–1998) and an extended phase of the epidemic from 1998 onwards affecting the general population (Kaufman and Jing, 2002; Wu et al., 2007b; Sheng and Cao, 2008; Xinhua et al., 2010). In 2002, UNAIDS forecasted that, without effective countermeasures, China would have as many as 10 million HIV positive people by year 2010 (UNAIDS, 2002).

The risks of HIV transmission were deemed high in China because of its large population, high rates of internal migration reflecting both rural–urban and urban–urban movement, massive urbanization and poor knowledge of transmission routes. Cities and urban areas expanded hugely across China during the early 2000s. This period also saw a major expansion of commercial sex industry and high mobility of female sex workers (Tucker et al., 2005). By 2009, the estimated number of HIV cases was 740,000 (UNAIDS, 2010).

The response to the HIV epidemic can be seen in two distinct phases, pre- and post-2003. The case study below examines the response in these two phases. In 2003, there was, for the first time, an unequivocal high-level political acknowledgement of the HIV epidemic. A State Council Working Group on HIV/AIDS was established in 2003 as a high-level interagency body to mobilize the bureaucracy and coordinate the national response (Wu et al., 2007b). This coincided with the launch of a national treatment programme CARES (China Comprehensive AIDS
Response) supported and funded by the central government jointly with a grant from the Global Fund and the ‘Four Frees and One Care’ policy implemented at the national level.

METHODS

We conducted a review of selected HIV interventions in China with a focus on prevention and behavioural change. The search criteria included reported interventions and reviews based on a mix of study designs including community trials, ethnographic and observational studies published since 2000 in peer-reviewed journals and research reports. The electronic bibliographic database and search engines used were ISI Web of Science, Medline, Google Scholar, online journal resources and UNAIDS database. Restricted information from website resources and abstracts from conference proceedings were not considered.

REPORTED HEALTH PROMOTION STRATEGIES AND IMPACT

The analysis below follows the structure and interdependent pathways of the health promotion strategies illustrated in the logic model (Figure 1). The review identified major HIV interventions in China targeted at both the general population and high-risk groups. It is evident that the way in which HIV interventions were planned and implemented varied considerably before and after the official response in terms of scale and coverage.


The first indigenous cases of HIV were reported in 1989 among IDUs localized within the Yunnan province of southwest China (Wu et al., 2007b). The infection spread gradually along the major drug trafficking routes affecting the IDUs and their partners and children. Towards mid-1990, a second major HIV outbreak was reported among sexual partners of commercial plasma donors in the east-central provinces. By 1998, a generalized epidemic phase with all possible modes of transmission was reported across regions and municipalities of all 30 provinces in China (Sheng and Cao, 2008).

Initially, the government did not publically acknowledge HIV as an epidemic in China. Between 1989 and 1995, there were no national public awareness campaigns, and the only public acknowledgement of the problem nationally came from officially sponsored study tours to learn from the experiences of other countries affected by HIV/AIDS epidemic (Huang, 2006; Wu et al., 2007b). Subsequent government campaigns were largely ineffective and unsustainable including a nationwide campaign launched in 1995 to promote the knowledge of HIV transmission, prevention and control (Huang, 2006).

With reference to the intermediate outcomes of the logic model, there is little published evidence of open horizontal or vertical public education, political commitment and cross-sector coordination to address HIV prevention. A high-level workshop organized by the Chinese Academy of Preventive Medicine in 1997 acknowledged the need for interventions but their attention was limited to stigmatized high-risk groups such as commercial sex workers, IDUs and men having sex with men.

The strategies to prevent HIV at this time were largely ineffective. Public laws and regulations, for example, were generally punitive and often counterproductive, clamping down on drug users and sex workers, alongside attempts to prevent the introduction of HIV through imported blood products, and requiring blood tests among tourists and returning overseas Chinese. This evidently overlooked the generalized nature of the epidemic and emerging routes of HIV transmission and had the effect of driving further underground the high-risk groups such as the IDUs and sex workers. Restricted public knowledge and community involvement particularly in HIV affected provinces remained barriers to community mobilization, and the development of supportive public policies. At this stage of the epidemic, health systems lacked essential infrastructure, technical knowledge and skills to deal with HIV cases. For example, only about 16% of healthcare workers in highly concentrated epidemic areas knew how to prevent HIV and over 90% of IDUs in high user areas were unaware that sharing needles could spread HIV (Huang, 2006). As a whole, the strategy (such as it was) offered few of the key interventions described in Figure 1.

One of the most important determinants of this ineffective response was political sensitivity to HIV and consequent weak political
commitment at the central level which even led provincial and local authorities to justify the cover-up of HIV cases (Liu, 2004; Huang, 2006). This lack of political will combined with ineffective public education probably led to an extended phase of HIV epidemic across Chinese provinces.

A significant development in HIV prevention between 1997 and 2002 was the World Bank funded Health-IX (H9 or the Ninth Health project) programme implemented in four provinces (Jiang et al., 2010). The salient features of the H9 intervention were the promotion of the consistent and 100% condom use model, routine diagnosis and treatment of STDs with a focus on female sex workers and capacity building in local authorities that enabled more sophisticated public education campaigns to raise awareness of the health risks of commercial sex (Rou et al., 2010). Prior to the H9 intervention, condom promotion policies were almost non-existent and subject of intensive debate within the Chinese government. The H9 intervention can be credited with having had positive influence in building confidence within the central government that effective action was necessary, politically feasible and practical to deliver. It was instrumental in mobilizing cross-sector and government cooperation, particularly in relation to condom promotion in controlling HIV and STDs within the commercial sex industry. Importantly, the H9 intervention established the feasibility of condom promotion among female sex workers and led to the development of national guidelines for condom use programmes in China. In effect, public education and community mobilization strategies of H9 intervention worked in tandem to slowly build the necessary political leadership required to scale up and systematize the response to the emerging epidemic.

Overall, pre-2003 activities may be characterized as ‘pilot phase’ in the scale and context of China, identifying potential intervention routes and policy responses to prevent HIV transmission among high-risk groups, but lacking broader public education and the political commitment and leadership needed for a nationwide response. During this period, local authorities showed strong resistance to disclose HIV/AIDS epidemic in their administrative localities, failing to allocate needed resources to diagnose, track and treat infected individuals. There were very few NGOs existing at that time serving the affected communities. Individual advocates did report the epidemic in a number of hot spots but their efforts were largely disregarded (Huang, 2006).

**Official national HIV response post-2003**

If the H9 intervention helped build political confidence for intensifying the HIV prevention efforts at the national level, the outbreak of Severe Acute Respiratory Syndrome (SARS) in 2002–2003 provided a trigger for an abrupt policy shift towards HIV prevention policy in China (Huang, 2006; Gill and Okie, 2007; Wu et al., 2007b). Following international criticism for a failure to openly and energetically respond to the SARS crisis, the Chinese central administration led by President Hu Jintao and Premier Wen Jiabao openly admitted the epidemic crisis and called for expeditious action for prevention as well as treatment and care for people living with HIV.

In 2004, a joint assessment conducted by the State Council AIDS Working Committee and the United Nations Theme Group on AIDS identified the gaps and uneven implementation of AIDS response across Ministries and between local provinces (UNAIDS, 2007). The gaps were primarily poor cross-sector coordination, lack of strategic plans and mechanisms to monitor and evaluate performance at the provincial and local levels. Following the joint assessment, the first legal framework was developed in China (Regulation on AIDS Prevention and Treatment) in 2006 by the State Council which stressed the accountability of governments and ministries at different levels in formulating appropriate policies and effective implementation (UNAIDS, 2007). This eventually led to the establishment of China’s Action Plan for Reducing and Preventing the Spread of HIV/AIDS (2006–2010) under a ‘Three Ones’ principle including one national plan, one coordinating mechanism and one evaluation and monitoring system (UNAIDS, 2007). Political determination and leadership at the higher level invigorated the profile of the national campaign against the epidemic and mobilized multisector coordination and resources.

Public health education was a fundamental component of post-2003 HIV intervention strategy. The health education efforts focused mostly on IEC (Information, Education and Communication) materials including posters, pamphlets and briefings. HIV education had an extensive outreach through health promotion
campaigns which comprised media, entertainment, schools health education as well as community-based events and activities. The interventions were overtly directed towards producing accurate public understanding of HIV and its transmission and to creating a more tolerant and open public response, reducing HIV-related stigma and accepting harm reduction strategies (Han et al., 2010; Li et al., 2010a,b).

Reported HIV prevention interventions focused on both the general population and high-risk groups (migrant workers, female sex workers and IDUs), as well as institution-based interventions such as workplace prevention, health centres including family planning service clinics, entertainment establishments, mining and construction sites (Hong et al., 2011). An assessment of major HIV prevention programmes post-2003 showed evidence of a structured linear course of action in most cases integrating mainly public education and community mobilization efforts backed up by strong political will and leadership—much more compatible with the logic model in Figure 1.

Public education and communication strategies for HIV prevention did not operate in isolation in post-2003 China. Political support and leadership at the provincial and local levels were at the forefront in all government supported HIV prevention programmes, both pilot and large-scale. This is particularly the case in complex situations where interventions targeted both the general population and marginalized and vulnerable communities. Health promotion strategies involving IEC and community resources mobilization operated in tandem, NGOs became increasingly visible in HIV/AIDS awareness raising and in providing community outreach services to high-risk populations. The government recognized the unique roles played by NGOs in reaching the affected groups and in mobilizing communities in ways that would be difficult for the central and local government agencies. Condoms were also made easily available and publicly distributed through multiple sources including vending machines. It is worth noting that the H9 intervention yielded long-term impact in stimulating multisectoral coordination and community mobilization for HIV prevention. A methodical evaluation of H9 intervention documented evidence on how the planned health promotion strategies were linked to expected outcomes (Xue, 2005; Jiang et al., 2010).

The national government-led CARES intervention programme (2003–2008) had an overall positive impact in improving HIV/AIDS awareness and in sustaining behavioural change in the general population. This has been achieved through unprecedented face-to-face public education campaigns for women and those who lived in underdeveloped, rural and ethnic minority areas of China (UNAIDS, 2007; Han et al., 2010). The programme adopted a four-tier management system that allowed for adaptations to local contexts based on common technical planning, guidelines and evaluation criteria. Observational studies and case–control evaluation surveys were used to assess the CARES programme impact. Accurate HIV/AIDS prevention knowledge improved significantly in the intervention sites from less than 30% to over 80% between 2003 and 2008 (Han et al., 2010). The intervention also enabled scaling up of the HIV/AIDS response in resource poor areas of China and contributed to the revision and the development of national and local laws and regulations. Nonetheless, the programme impact was only moderate in changing community norms especially tackling issues related to social stigma and discrimination (Wu et al., 2007b). At the prefecture level, the indicators to monitor community mobilization were only partial (Han et al., 2010).

The review of literature identified a wide range of pilot projects post-2003 including community-based trials focusing on workplace interventions for high-risk groups and migrant workers, classroom education for adolescents, web-based intervention for students and villagers and those integrating HIV education into existing family planning services (Hammett et al., 2005; Zhao et al., 2005; Des Jarlais et al., 2007; Gao and Wang, 2007; Qian et al., 2007; Tian et al., 2007; Lau et al., 2008; Li et al., 2008; Hong and Li, 2009; Hong et al., 2011). HIV interventions that targeted marginalized and high-risk groups varied in scale and geographical coverage (Hesketh et al., 2005; Li et al., 2006; Liao et al., 2006, 2011; Lau et al., 2007; Rou et al., 2007; Wu et al., 2007a). Though such interventions proved to be effective in enabling positive behavioural change, there was no direct evidence of scale-up efforts or sustainability of different interventions. Also, there was little evidence on whether the best practices from these pilot interventions were systematically fed into the design of national guidelines for behavioural interventions among high-risk groups.
The logic model (Figure 1) proposes that successful interventions need a combination of sustained political leadership and meaningful community engagement, complemented and extended in their impact by effective public education. In summary, these conditions for success were rather quickly expedited in post-2003 China. This case study clearly illustrates that the sustained political leadership was the key to subsequent observable success in managing the HIV epidemic in China. More explicitly, the political leadership in China mobilized the needed resources and introduced public policies that successfully transformed the environment for public education and community engagement in HIV prevention and AIDS treatment.

The evidence of change can be seen from several local and national studies. For example, there has been a significant increase in the number of civil society organizations actively contributing to HIV prevention programmes across the country (Li et al., 2010a,b). Government response and greater involvement of NGOs and stakeholders were critical in promoting healthy public policies, e.g. controlled blood donation law and the ‘Four Frees and One Care’ policy (Wang, 2007; Sun et al., 2010a,b). Successful condom promotion campaigns were scaled-up across China which was clearly reflected in the increase in condom uptake among both high-risk and general populations (UNAIDS, 2007; CPDRC, NCWCH and UoS, 2011). Long-term international collaboration and funding have also contributed to national AIDS response and extensive documentation of HIV interventions in China (Sun et al., 2010a,b).

Efforts were also put in place to assemble, review, test and revise key indicators identified in the national monitoring and evaluation system including an online comprehensive web-based HIV/AIDS data system operational since 2008 (Wu et al., 2011). Data from multiple sources indicate a sustained control of new HIV cases in China, although there was lack of coordination to effectively monitor inconsistencies and overlap in data collection (UNAIDS, 2010; Wang et al., 2010; Wu et al., 2011). Observational studies have shown overall positive changes in HIV-related behaviour (He and Detels, 2005; Wang, 2007). However, the challenges in reducing HIV risks still remain to be addressed in the case of marginalized and stigmatized bridge groups such as men having sex with men, IDUs and migrants (Zhang and Chu, 2005; Hu et al., 2006; Xiao et al., 2006; Gill and Okie, 2007; Xu et al., 2008; Liu et al., 2010; Chen et al., 2012). Although most of the existing interventions are scientific and evidence-based, systematic evaluation of intervention guidelines, programme management, monitoring strategies and policy development are still needed (Rou et al., 2010).

DISCUSSION

The HIV epidemic is still evolving in many low- and middle-income countries which are confronted with multiple challenges in HIV prevention and management. The responses of individual nations and communities within countries are shaped and constrained by political systems, social norms and structures and access to resources. In analysing China’s progress in HIV prevention, this political and social context is very important in making observations and judgements about effectiveness and success.

The logic model described in this paper offers a benchmark against which a nation’s response might be compared. It is based on established health promotion strategies that can be used in different combinations to plan and deliver effective and sustainable public health interventions. These health promotion concepts and strategies that have been successfully applied to a range of social and behaviourally determined health challenges and have clear relevance for the prevention and management of HIV/AIDS in many different populations. The model shows how programme strategies are linked and might logically produce targeted impacts and outcomes.

We have examined published major HIV intervention programmes in China in order to examine their fit with the logic model in relation to implementation strategies, impact and outcomes, as well as considering their impact on identified high-risk populations. This case study is not a systematic review but an attempt to test the feasibility of the logic model illustrating the pathways that led to the prevention and management of the HIV/AIDS epidemic in a large and complex population such as China. For these reasons, we recognize that the interventions considered in this paper could be subject to risks of selection bias and impact heterogeneity. However, despite these limitations, the results provide a sufficient spread of information on the responses to the HIV epidemic in China to examine actual responses alongside the ‘ideal’ described in the model. Some elements appear to be better and/or more
frequently recorded than others. For example, there is reasonable quality and quantity of information on the different forms of public education in both the pre- and post-2003 phases of China’s response. However, there is much less structured and systematic recording of community mobilization and political leadership. Although both are directly or indirectly acknowledged to be important, they are much less commonly analysed in papers describing interventions and their impact.

The available information can be mapped against the model showing how in the pre-2003 phase patchy public education and limited pilot projects intended to mobilize high-risk populations produced outcomes that were difficult to sustain in the absence of supportive political leadership and wider societal support. During this period, these same pilot projects, notably the H9 programme, produced important evidence and practical experience in tackling risk behaviours that helped to build the political confidence and consensus needed for a more sustained response. The SARS crisis provided a final trigger that galvanized political support at the highest level.

The model is also intended to signal measures of impact and outcome that can be logically traced to the interventions. The material used in the case study provides some evidence of systematic measurement and reporting of changes in knowledge that would be logically associated with public education, and in turn linked to observable behaviour change. Similarly, information on major policy changes and related legislation can be found post-2003. This information is important in understanding observed outcomes in health behaviour, effective treatment and health protection. There is less evidence of the measurement of supportive social and economic changes that, in the logic model, are identified as important in enabling sustained behaviour change.

CONCLUSIONS

The logic model provides an operational tool for policy-makers and public health practitioners engaged in HIV intervention programmes. It can be used to examine what may be ideal alongside what is achievable in a given context for intervention. It can be used to identify intervention components that may need focussed attention or may be missing from an intervention. It can also be used to guide the assessment of impact and outcome and to manage the expectations of communities, policy-makers and funders as to what might be achieved through different combinations of intervention. The model provides a useful reminder to practitioners, policy-makers and those funding HIV prevention efforts that achieving sustained behaviour change is complex and takes time. Although all programmes have public education and communication at the core of their success, sustained success in stabilizing and reversing the epidemic involves multiple forms of intervention. The logic model can be used to illustrate how investing time and resources in community mobilization can be extremely important in achieving both scale and sustainability of impact. It also serves to remind programme planners that political leadership is essential, showing, for example, that community mobilization efforts seem to have worked in countries where political commitment was high at the national levels. In contrast, the position of China pre-2003 illustrates the lag and complexity in introducing effective interventions and the policies that support them.

REFERENCES


