HIV/AIDS Research Agenda Report

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Forward

Cambodia is one of the hardest-hit countries of the HIV epidemic in South East Asia. Timely and good quality of body of knowledge would help Cambodia’s response effectively to the HIV/AIDS epidemic. NCHADS is always committed to improve this evidence-based knowledge through better coordination of research activities and better dissemination of research findings.

From 28-29, March 2007, NCHADS in collaboration with WHO and other development partners organized a workshop in Phnom Penh, to establish an HIV/AIDS-related research agenda. Around 70 people from more than 30 different organizations attended the workshop.

During the workshop, research priorities were defined for the areas prevention, care & treatment and socio-economic impact of HIV/AIDS. This research agenda will be reviewed in the next two years. In the meantime, NCHADS will be responsible for maintaining the inventory of HIV/AIDS-related research studies and make it publicly accessible via the NCHADS website. NCHADS will also play a coordinating role to update and share the latest information related to different HIV/AIDS related research projects and findings in Cambodia.

Finally, I would like to thank WHO for providing technical support to this process. I strongly hope that local and international researchers who intent to conduct HIV/AIDS related research in Cambodia will make use of this research agenda as guidance to identify priorities areas of research to be undertaken to meet program needs and that its findings translate back into action.

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List of Abbreviations

ART Antiretroviral Therapy
ANC Antenatal Care
MSF-B Médecins Sans Frontières Belgium
CENAT National Center for Tuberculosis and Leprosy Control
CHAI Clinton HIV/AIDS Initiative
CoC Continuum of Care
CPN+ Cambodian People Living with HIV/AIDS Network
EC European Commission
EW Entertainment Workers
FHI Family Health International
GTZ German Technical Co-operation
HSS HIV Sentinel Survey
KAP Knowledge, Attitudes and Practices
KAB Knowledge, Attitudes and Behaviours
KHANA Khmer HIV/AIDS NGO Alliance
MSM Men Having Sex with Men
NAA National AIDS Authority
NCHADS National Center for HIV/AIDS, Dermatology and STD’s
NGO Non-Governmental Organization
NIPH National Institute of Public Health
NPH National Pediatric Hospital
OD Operational District
OVG Orphans and Other Vulnerable Children
PLHA Persons Living with HIV/AIDS
PMTCT Prevention of Mother to Child Transmission
PSI Population Service International
RACHA Reproductive and Child Health Alliance
RHAC Reproductive Health Association Cambodia
SCH-A Save the Children Australia
SHCH Sihanouk Hospital Center of Hope
STI Sexually Transmitted Infection
STD Sexually Transmitted Disease
SWOT Strengths, Weaknesses, Opportunities and Threats
TB Tuberculosis
UHS University of Health Science
UNAIDS The Joint United Nations Programme on HIV/AIDS
UNDP United Nations Development Programme
UNESCO United Nations Educational, Scientific and Cultural Organization
UNFPA United Nations Population Fund
UNICEF United Nations Children’s Fund
UNIFEM United Nations Development Fund for Women
UNSW University of New South Wales
URC University Research Co.
US-CDC United States Center for Disease Control
USAID United States Agency for International Development
VCCT Voluntary Counseling and Testing
WHO World Health Organization
WFP World Food Programme
Executive Summary

Cambodia is one of the hardest-hit countries of the HIV epidemic in South East Asia. Having a high donor presence, a considerable amount of research on the HIV/AIDS epidemic has been carried out. The research findings are needed to equip Cambodia’s response to the HIV/AIDS epidemic with an evidence-based approach. However, the impact of the generated knowledge could be greatly improved through better coordination of research activities, better dissemination of research findings and a stronger focus on closing the most pressing knowledge gaps on the HIV epidemic in Cambodia.

NCHADS has therefore taken the initiative to establish an HIV/AIDS-related research agenda. The research agenda should enable that research undertaken meets program needs and that its findings translate back into action. Research priorities were defined for the areas prevention, care & treatment and socio-economic impact of HIV/AIDS. As it was important to establish the agenda in a participatory manner, a workshop was convened to which both researchers and implementers of programs were invited. Around 70 people from more than 30 different organizations attended the workshop.

To build upon existing knowledge, already published research studies were reviewed for the three areas. The majority of studies (143 out of 255) are on HIV/AIDS prevention. Many of these are KAB surveys and have continuously been conducted by various organizations since 1995. This makes trend analysis possible. Nearly one third of all studies (75 out of 255) are on care & treatment. Much care & treatment research is still on-going, and a good start in nearly all areas has been made. Prevalence and incidence of opportunistic infections have been particularly well covered. 15% of research studies are on the socio-economic impact of HIV/AIDS. Studies in this category also look at OVCs and
analyze Cambodia’s best practice in containing the epidemic. But, there is no holistic coverage of the socio-economic impact of HIV/AIDS.

Based upon a knowledge gap analysis, the research priorities for the respective areas were defined. For prevention, it was decided on three broad research priorities: (1) To measure HIV incidence for all high risk groups, which is to be integrated into the HSS; (2) To research how behaviour change is achieved, particularly how consistent condom use in young people and discordant couples can be made possible and how PMTCT services can be made more attractive to pregnant women; and (3) to analyze how access to HIV testing and counselling and testing uptake can be improved.

For the area of care & treatment, ten rather specific research priorities were defined: (1) To monitor and evaluate adherence to ARTs over the long term; (2) to analyze how stigmatization and discrimination of health care professionals and the community impairs people from getting tested or treated, and how it can be overcome; and (3) to explore what viral load testing strategies can be recommended for a resource-poor setting such as Cambodia. Other research priorities include (4) to research the women’s barriers to HIV testing and care, (5) how to sequence 1st, 2nd and 3rd line ARTs, and (6) to better understand the short and long term toxicities associated with the current protocol.¹

Two research priorities were defined for the area of socio-economic impact. (1) To conduct a cost-effectiveness analysis, including quality of life, for people living with HIV/AIDS; and (2) to assess the impact of HIV at the household level. In addition, care & treatment research priority nr. 10 looks at the effects of poverty on access to health care services, which could also be seen as a socio-economic research issue.

¹ For the last four research priorities, see p. 26ff.
The research agenda has a duration of two years, and will next be reviewed in 2009. In addition, a national HIV/AIDS research symposium will be held in 2008 to monitor the implementation of the agenda and share latest results. NCHADS will be responsible for maintaining the inventory of HIV/AIDS-related research studies and make it publicly accessible via the NCHADS website.
I. The Need for an HIV/AIDS Research Agenda

Cambodia is one of the few countries that have seen a turn-around in the HIV/AIDS epidemic. Adult prevalence rates of HIV have decreased from 3% in 1997 to 1.9% in 2003. The high level of political commitment and leadership from the Royal Government of Cambodia in responding to HIV/AIDS, together with generous financial support from various sources and a vibrant civil society response have all contributed to this turning of the tide. The success of the national HIV/AIDS program can be attributed to successful HIV prevention programs such as the 100% condom use program, effective behavior change interventions, a rapid scale up of VCCT services and enhanced utilization of the expanding Continuum of Care (CoC) program.

While many of the results of the fight against HIV/AIDS in Cambodia are encouraging, there is still ample need for action. Every year, new people living with HIV/AIDS will need care and treatment services. New areas of concern need to be addressed, for instance the increasing transmission of HIV from husband to wife, mother to child, the spill of HIV into the rural areas and the appearance of new high risk groups such as men that have sex with men and drug users. The conventional strategy to combat the disease by focusing on risk groups needs to be complemented by approaches that address vulnerability and the long-term consequences of the epidemic in a wider range of settings and populations. In general, a better understanding of the underlying causes, dynamics and impacts of the epidemic is needed.

Being a country with a high donor presence, quite an extensive amount of research on the HIV epidemic has been carried out in Cambodia. However, the impact of the generated knowledge needs to be improved through increased

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2 Data HIV Sentinel Surveillance Survey 1997 and 2003. The 2005 CDHS found a HIV prevalence rate of 0.6%. However this is based on household survey data, which as a method tends to underestimate HIV prevalence in situations where the epidemic is concentrated in high prevalence groups. National reconciliation of data from the sentinel surveillance survey and the CDHS is planned to produce consensus on estimated HIV prevalence.
coordination and a better focus on program needs. NCHADS created a research unit, that aims at: (1) identifying HIV/AIDS and STDs related research that will improve prevention and care interventions; (2) collaborating with other institutions in the development and conduct of HIV/AIDS and STDs related research and (3) at disseminating research results and encouraging their incorporation into design of interventions. The unit is supported by a research steering committee. To improve the above-described situation, the research unit together with the research steering committee has taken the initiative to establish a HIV/AIDS-related research agenda. The objective of the research agenda is to ensure that all research conducted on HIV/AIDS in the country contributes to Cambodia’s HIV/AIDS programmes. It is important to note that the agenda does not aim at controlling research. Instead, it is meant to serve as a framework for both national and international researchers on what should be researched next. Implementing organizations can use the generated knowledge as basis for their programming and funding agencies can use the agenda as a tool to evaluate the importance of research proposals.

To establish the HIV/AIDS research agenda in a participatory manner, a workshop was organized that brought together all relevant stakeholders. They discussed the current knowledge gaps and agreed on future research priorities. To technically prepare the workshop, an inventory aiming at aggregating all HIV/AIDS related research in Cambodia was established, and several meetings of the research steering committee were held. This report aims at documenting the workshop and the agreed upon HIV/AIDS research agenda for 2007/2008.

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4 The Research Steering Committee was set up to (1) define the HIV/AIDS research agenda; (2) review research protocols to be conducted in Cambodia; (3) advise the National Ethic Committee and (4) organize an annual symposium on HIV/AIDS and STI related research in Cambodia. Additionally, research sub steering committees were created on clinical research, epidemiological research and socio-behavioral research. It is composed of NCHADS and NIPH managers, UN agencies and other organizations conducting and/or supporting research.
II. HIV/AIDS Research Agenda and Workshop Objectives

1. Overall Goal of the HIV/AIDS Research Agenda:

In line with the Cambodian Millennium Development Goal Nr. 6, the goal of the HIV/AIDS research agenda is to contribute to decrease the spread of HIV/AIDS in Cambodia.⁵

2. Overall Objectives of the HIV/AIDS Research Agenda:

In line with the National HIV/AIDS Strategic Plan, the objective of the research agenda is to equip the planned increase in access to and quality of HIV/AIDS prevention and care services with an evidence-based approach.⁶ The desired outcome will support the creation of an environment where the relevant research is undertaken and research findings translate back into policy and program practices.

3. Workshop Objectives:

(i) Collect additional information on the existing HIV/AIDS research in Cambodia from different stakeholders working in this field
(ii) Conduct a gap analysis: discussion of issues and challenges in increasing access and quality of HIV/AIDS prevention and care services
(iii) Identify the research priorities: questions HIV/AIDS programmes want to have answered
(iv) Define the HIV/AIDS research agenda: duration and scope
(v) Define strategies to take the research agenda forward: monitor quality and progress of implementation

III. Workshop Proceedings

The HIV/AIDS research agenda workshop was convened by the National Center for HIV/AIDS, Dermatology and STD on the 28th and 29th of March 2007 at the Sunway Hotel in Phnom Penh, Cambodia. The World Health Organization provided technical assistance to the process, and the GTZ Back Up Initiative kindly funded the workshop.

More than 70 participants from 37 organizations took part in the meeting. Participants came from many different organizations, ranging from government institutions to international and national non-governmental organizations to multilateral donors. The majority of participants were active in HIV/AIDS research themselves, but organizations implementing programmes as well as potential funders of research were present as well.

The workshop was a two-day meeting. The objective of the first day was to identify the knowledge gaps in HIV/AIDS-related research, hereby answering to workshop objective nr. ii. After the official openings, the discussions started with a presentation on the current status of the HIV/AIDS epidemic and the response to it. This was followed by a presentation on the overall process of establishing the inventory of HIV/AIDS-related research in Cambodia, which formed the basis for the knowledge gap analysis. More detailed discussions followed, which specifically reviewed the existing research in the areas of prevention, care & treatment and socio-economic impact.

After participants had been brought on the same knowledge level, they were divided into working groups. It was originally planned to have one working group each on prevention, care & treatment and socio-economic impact. About 15 to 20

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7 NCHADS; NAA; WHO; CENAT; URC; MSF-B; UNIFEM; CLFD; EC; MEDICAM, UNSW; CPN+; KHANA; NPH; UNFPA; FHI; PSI; UNAIDS; US-CDC; RACHA; DFID; SCH-A; UHS; UNDP; Institute Pasteur; World Bank; UNESCO; Center of Hope; WFP; RHAC; USAID; UNICEF;
people signed up for the prevention and care & treatment working groups. However, since too little participants were interested in the socio-economic impact working group, they were asked to join one of the other groups. The two remaining groups were asked to include socio-economic impact research issues in their discussions throughout the workshop. The day continued with group discussions to identify the knowledge gaps in HIV/AIDS related research by carrying out a SWOT analysis.

The second day was used to identify the research priorities and to finalize the HIV/AIDS research agenda. Participants returned to their working groups for the morning session, and were asked to prioritize the already identified knowledge gaps according to criteria of importance, urgency and feasibility, herewith answering to workshop objective nr. iii. It is important to mention that each group was free to decide on their decision-making. The prevention group adopted a rather consensus-driven decision-making, in which all participants tried to agree whether a topic was important, urgent or feasible. The care & treatment group used a voting mechanism, in which each member of the group was asked to give up to five points for the importance, urgency and feasibility of each topic.

In the afternoon discussion, the research priorities for the areas of prevention, care & treatment and socio-economic impact were presented and discussed. When the content of the research agenda was established, the last session of the workshop was dedicated to contemplating steps forward. In a plenary discussion, participants agreed on how the research agenda will be implemented and how progress made will be monitored. This discussion answered to workshop objective nr. iv and v.
IV. The Content of the HIV/AIDS Research Agenda

1. Current Situation of HIV/AIDS Programs

As the introduction has already outlined, efforts to contain the spread of HIV have been successful in the recent years. To maintain and expand the progress made, it is therefore important to design targeted interventions that meet actual needs. Hence, it is therefore of vital importance to conduct a situation analysis before defining the HIV/AIDS research priorities for the upcoming years.

Regarding prevention, the situation of EW has evolved in the last few years with a decrease in numbers of brothel based EW and a drastic increase in numbers of non-brothel based EW (beer girls, women working in Karaoke and massage parlors). Since the STI prevalence among brothel-based EW has stayed stable since 2000, NCHADS has recently strengthened the prevention program for EW, including outreach/peer education and 100% CUP for non brothel based EW and strengthening linkages with STI clinics.

Since the early 2000s, two new high-risk groups have emerged in Cambodia: Men having sex with men (MSM) and drug user (DU). These 2 groups have a potential to create new pockets of HIV infection that can also spread to other groups. Both MSM and DU are progressively being included into the second-generation surveillance system, providing information on HIV/STI prevalence, behaviors and access to health services. HIV/AIDS prevention services are expanding progressively for these groups, mainly implemented by NGOs and existing special STI services will soon offer services for MSM.

Voluntary Confidential Counseling and Testing (VCCT) services have expanded up to 140 sites, providing HIV testing to more than 200,000 people in 2006. HIV testing coverage however needs to increase particularly for TB patients (only 1/3 new TB cases tested in 2006), pregnant women (8% tested in 2006) and high
risk groups, particularly MSM and DU. The Provider Initiated Testing and Counseling (PITC) policy was introduced late 2006 to improve HIV testing coverage and mechanisms for a linked response between HIV/AIDS/STI and Reproductive Health, Family Planning and antenatal services have been discussed.

With the recent shift in the gender distribution of the epidemic, it is important to ensure a strong PMTCT program to limit the number of HIV-infected children. Despite government efforts to scale PMTCT services up to 60 facilities in 39 OD in 21/24 provinces in 2006, only 8.6% of HIV-infected pregnant women received a complete course of ARV prophylaxis to reduce MTCT. Evidence is needed on the best ways to improve access and uptake to HIV testing for all pregnant women, and to ensure that all HIV-positive pregnant women are actually given PMTCT interventions.

Regarding care and treatment services, the services of the CoC have expanded up to 44 OI/ART sites in 2006 including 19 sites providing pediatric care, in 19/24 provinces. In 2006, a total of 18,344 adults and 1,787 children were on HAART and survival at 12 months was > 80%. The role of HBC teams has shifted from palliative care to ensuring linkages and referrals within the CoC. New challenges are to ensure treatment access to all population groups including high risk and hidden groups, to ensure quality of services, long term adherence to ART for all population groups in order to limit the emergence of HIV drug resistance and to gain expertise on second line regimens.

In order to maintain and expand the progress made in fighting the HIV/AIDS epidemic, it is important to design evidence-based intervention that meet current needs. This is the purpose of the HIV/AIDS research agenda.
2. Overview on the HIV/AIDS Research Inventory

The analysis of existing research is an essential step before a research agenda can be defined. NCHADS therefore decided to establish an inventory of all HIV/AIDS related research ever conducted in Cambodia. The inventory catalogues all HIV/AIDS related research studies, and hence aims at aggregating all published knowledge on the HIV/AIDS epidemic and the response to it.

A broad definition of what to consider as research was used in the inventory. Research was understood as "a systematic investigation, designed to develop or contribute to generalizable knowledge." Consequently, many different formats of research were included in the inventory, such as (1) journal articles, (2) reports, (3) evaluations and (4) conference papers. On-going research is only included in the database only if preliminary findings have been presented at a conference or published in a journal.

The research was gathered through two different methodologies. The first one was to conduct database queries, using the Pubmed, Social Science Citation Index and Medscape’s eJIAS databases. Searched words were “HIV” and “Cambodia”. The second method was to conduct a handsearch, using the snowball method. This means that key organizations were identified and interviewed. These key organizations referred to other organizations that should be interviewed and so on. All organizations were asked to provide copies of their research.

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8 University of Virginia, University of Pennsylvania
10 For instance, RHAC (2006). Knowledge and Behavior of Young People on STI, Family Planning and HIV/AIDS. Phnom Penh: 43
12 For instance, Thwyn, A. (2006). Food Support to People Living With HIV/AIDS and OVC with Home Based Care. Phnom Penh, KHANA, USAID and WFP
13 Pubmed and social science citation index contain references and abstracts from peer-review journals, and eJIAS contains references and abstracts from the major international HIV/AIDS conferences.
research studies and to identify the most pressing knowledge gaps from their point of view.14

A total of 30 organizations have provided their input. Two thirds of them were interviewed, and one third provided their inputs via e-mail etc. The organizations can be divided into the following groups: (1) government institutions15; (2) national NGOs16; (3) international NGOs17 (4) international organisations18; (5) bilateral donors19 and (6) other research institutions20.

Once the research was collected, all studies were entered into an electronic database and categorized. More than 500 research studies were found and about 250 of them had been reviewed at the time of the workshop.21 The main three categories used were prevention, care & treatment and socio-economic impact. The analysis shows that the majority of research has been conducted on HIV prevention. The types of research publications vary widely across the different areas (see figure 1). The majority of prevention and socio-economic impact publications are reports, whereas the majority of care & treatment publications are journal articles and conference papers. An explanation for this lies in the organizations active in the respective areas. Care & treatment researchers might be better linked with the

14 The snowball method was a very good way to quickly see who forms part of the Cambodian HIV/AIDS research community. But it had the disadvantage that it organizations outside the network were excluded. For instance, interviews were only conducted with organizations that have a headquarter in Phnom Penh.
15 NCHADS, NIPH, CENAT, Social Health Clinic and Calmette Hospital
16 Medicam, KHANA, CNP+, RAHC, RACHA and Korsang
17 CARE, FHI, PSI, Save the Children Australia, Helen Keller, MSF France and Center of Hope
18 UNAIDS, WHO, UNDP, UNESCO, UNFPA, UNIFEM, WFP, ILO and the World Bank
19 GTZ, JICA, USAID, US-CDC and DFID
20 Institute of Tropical Medicine, University of New South Wales, Pasteur Institute and the Policy Project
21 All numbers on research studies used in this report are directly taken from the workshop, even though the inventory has been updated since.
international public health community and therefore publish their results more often in journals or present them in conferences. However, this may also mean that care & treatment researchers are less interested in making their results know locally.

After having been categorized under the areas of prevention, care & treatment or socio-economic impact, studies were labelled according to the four categories of: (1) Clinical research, meaning experimental research with patients; (2) epidemiological research, assessing prevalence and/or incidence of HIV and other relevant diseases; (3) socio-behavioural research, looking at behaviours and social characteristics, and (4) response analysis, assessing the accuracy of the response (Figure 2). The majority of studies conducted are socio-behavioral research. However, the high number of socio-behavioral research correlates with the high number of prevention studies, which often assess knowledge, attitudes and practices of specific population groups.22

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22 One problem with this categorization is that there are overlaps between the different research designs. Second generation surveillance would for instance fall both under epidemiological and socio-behavioural research.
3. Prevention Research

3.1 Review of Existing Research

Prevention has been an important component in Cambodia’s strategic HIV/AIDS plans since the early 90ies. As a result, organizations working in HIV prevention continuously need evidence from research to know what population groups to target, how to target them and to find out whether their interventions have been successful. In light of the upcoming funding cuts in HIV/AIDS work and the growing significance of care & treatment, it is especially important for prevention research to focus their research on priority areas in the future.

The high number of prevention studies in the inventory reflect this long-standing engagement. Nearly 60% of all studies in the inventory are on prevention (143 out of 255). Out of these, 58% have been carried out as socio-behavioral research23, 26% with an epidemiological research design24, 9% focus on response analysis25 and 6% have a clinical research design26. Research in prevention started in 1995, and has steadily increased since (Figure 3).27

![Figure 3: Trend in number of prevention research studies in Cambodia from 1995 to 2006](image)

27 The following timeline is biased in the sense that the later the research dates back, the more likely the publication is to have been forgotten or lost, and the less likely it is to be reflected in the inventory.
Regarding the issues researched, surveys assessing knowledge, attitudes and behaviours in various population groups are the most common. Sexually transmitted diseases, HIV prevalence and behavior change have also been commonly researched (Figure 4). Despite their importance, there are only two studies on HIV incidence, and only two reports and two conference papers on HIV testing, such as VCCT services.

Additional to certain research issues, it is also important to gather information on specific population groups vulnerable to HIV infection. With the main mode of transmission being heterosexual intercourse, most studies focus on population groups linked to heterosexual commercial sex work. The majority of these are KAB surveys, looking at brothel-based and non-brothel based entertainment workers and their clients. However, new high risk groups have been identified in Cambodia, and recent research also covers men having sex with men (MSM), drug users or mobile populations (see figure 5).

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28 Most studies assessing HIV prevalence are NCHADS surveillance reports.
Overall, the strength of prevention research is that all aspects of prevention and nearly all population groups are, at least partially, being covered. Furthermore, prevention research has been taken place since 1995, and the organizations active in this area have remained relatively stable over time. In addition, thanks to a strong behavioural surveillance system, trend analysis on the knowledge, attitudes and practices of entertainment workers, is possible.\textsuperscript{29}

### 3.2. Identified Research Priorities

With one exception\textsuperscript{30}, all identified knowledge gaps are somehow reflected in the agreed research priorities. Three main areas were defined: (1) HIV incidence, (2) behaviour change and (3) HIV testing and counseling (Table 1).

(1) HIV incidence has been measured twice using specimens from HIV sentinel serosurveillance in 1999, 2000 and 2002. Because the increasing access to antiretroviral therapy greatly prolongs the lives of people living with HIV/AIDS, HIV prevalence rates are expected to remain stable over the coming years. Therefore, HIV incidence needs to be measured consistently over time to know how many new infections are taking place. HIV incidence measurement hence becomes both important and urgent, and this knowledge gap was unanomiously defined as a priority.

(2) Behavior change was a second topic the prevention working group unanomimously defined as a research priority.\textsuperscript{31} While the high amount of KAP surveys was welcomed, participants felt it was needed to conduct research that provides clear guidance on what type of interventions help to improve safe sexual behavior. The thirty studies in the inventory looking at behavior change

\textsuperscript{29} However, what is striking about research in prevention research is that there is little variation in research designs. The majority of studies are conducted as socio-behavioral research, assessing knowledge, attitudes and practices and mainly asking the same questions.

\textsuperscript{30} The exception was the knowledge gap around sexually transmitted diseases. Reason for this was that the issue was felt to be important, but less urgent than the other topics.

\textsuperscript{31} Behavior change is defined as activities that help a person or a community to reflect upon their risk behaviors and change them to reduce their risk and vulnerability.
are mainly project specific evaluations with small sample sizes, and do not primarily aim at producing general recommendations for certain population groups. The two main identified populations groups in need of behaviour change research are young people and discordant couples, which includes pregnant mothers and their partners.

Even though a vast amount of studies on youth already exist in the inventory, young people are and will remain an important target group for HIV prevention. Three specific questions on behavior change in young people were identified. The first one was sexual networking, meaning to analyze how young people interact sexually, between themselves and other groups. A survey specifically focusing on youth sexual behaviour would be useful here. Furthermore, research has shown that young people are aware of HIV, know how it is transmitted and have access to condoms. But studies also show that consistent condom use is still low. A better understanding of the communication and interaction between young people is needed to clarify why sexual behaviors have not yet changed. At the moment, none of the nine studies assessing behavior change in youth address this topic. A qualitative research design was recommended, which should easily be feasible. The third proposed research topic is to compare the knowledge, attitudes and behaviours of young people in rural and urban areas. Even though research on young people outside Phnom Penh exists, there is no study that explicitly compares urban and rural areas. This would however be important, since the lives of young people in the countryside are expected to be differ greatly from that in Phnom Penh.

The second target group are discordant couples. Surprisingly, no studies on prevention in discordant couples exist. But due to the arrival of ART, the number of discordant couples is expected to be increasing, making this an important and urgent topic for research. Research might be carried out with a prospective clinical research design.
In addition to research on discordant couples themselves, the prevention of mother to child transmission is another area where more information is needed. As the part on HIV/AIDS programmes has shown, not enough pregnant women use PMTCT services. Existing research mainly assesses the technicalities of PMTCT, and a few conference papers in 2006 address the low coverage of PMTCT services. This is a well-suited topic for qualitative research as well.

(3) The number of VCCT services has been massively scaled up in the last two years, and VCCT services are the link between prevention and care & treatment. However, only nine research studies have been conducted on HIV testing in Cambodia. Most of these either assess the impact of HIV testing upon behavior change, or the functioning of HIV testing services. Three topics deserve particular attention. First, research should be conducted on how obstacles towards testing can be overcome for drug users, men who have sex with men, entertainment workers, pregnant women and tuberculosis patients. Second, the quality of counseling services should be evaluated from provider and client perspectives. Third, to more extensively assess the impact of VCCT on behavior change and the access and impact of couple counseling. As most of the proposed research topics deal with questions of access and satisfaction, research should have a qualitative component.

Participants in the prevention working group did not only discuss what to research, but also how the quality of research can be improved. They expressed a need to strengthen capacity to gather data through sound methodologies, as well as to analyze it. Quantitative and qualitative methods should be used more often side by side to validate findings. In addition, it would be useful to carry out joint program evaluations to get a better impression of what type of interventions work and which do not.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Importance</th>
<th>Urgency</th>
<th>Feasibility</th>
<th>Rank</th>
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</table>
| **1. HIV incidence**  
HIV incidence among all high risk groups/integrated with HSS     | High       | High    | High        | High |
| **2. Behavior change regarding to HIV infection**  
Youth (already exist in the inventory)                             | High       | Mid     | High        | High |
| > Sexual networking                                                | High       | Mid     | High        | High |
| > Understand communication between young people (need more qualitative) | High       | Mid     | High        | High |
| > Compare youth situation in rural vs urban                        | High       | Mid     | High        | High |
| Discordant couple/pregnant mother and their couple (HIV test, care) | High       | High    | High        | High |
| **3. Access to HIV testing and counselling and testing uptake**     | High       | High    | High        | High |
| Groups to study/ DU, MSM, Sex worker, ANC and TB patients           | High       | High    | High        | High |
| Look at the quality of service from client and provider perspective | High       | High    | High        | High |
| Impact of VCT on behavior change/couple counselling                 | High       | High    | High        | High |

Table 1: Overview of Prevention Research Priorities
4. Care & Treatment

4.1. Review of Existing Research

Care and treatment of HIV/AIDS has increasingly become important in Cambodia. As most interventions are fairly new, research is needed to analyze whether they are successfully implemented. This evidence is especially necessary to expand quality services. However, because this area is so new, a lot of research is still on-going and hence not included in the review.

Overall, the area of care and treatment makes up for nearly one third of all studies in the inventory. The majority of the care and treatment studies are epidemiological research (76%). Response Analysis (22%) follows before experimental (1%) and socio-behavioral research (1%). The main topics covered in epidemiological research are prevalence and incidence of opportunistic infections and their treatment. When looking at specific opportunistic infections, tuberculosis is researched the most. The outcomes of antiretroviral treatment are a second topic that is quite well documented. Most of these entries are conferences papers that analyze survival rates and its determinants. The study of ART resistance has been initiated, but remains limited.

A chronological review of existing research shows that the first care & treatment research study in the inventory was carried out in 1994, documenting the spread of HIV among hospital patients. This study was followed by one more study in 1997 and two more studies in 1999, of which one looks at HIV subtyping. The numbers of studies increased with the start of antiretroviral treatment in 2001 and

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32 75 out of 255 references.
36 For instance, Thwyn, A., Food Support to People Living With HIV/AIDS and OVC with Home Based Care. 2006, KHANA, USAID and WFP: Phnom Penh.
nearly doubled in 2005 compared to 2004, and more than doubled in 2006 compared to 2005. (Figure 6)

Care and treatment studies already cover a wide range of topics. Research has made a good start in nearly all areas. Also, opportunistic infections are well covered, which allows for sound drug forecasting. New testing and treatment strategies for developing countries are underway in Cambodia that may also be useful internationally. This is the case of the study on best methodologies for CD4 testing and best time for initiating ART for TB/HIV co-infected patients. However, the review also reveals that important areas have been neglected, such as in-depth studies on ART adherence, nutrition needs of Cambodian PLHA and how to efficiently treat special risk groups, such as drug users.

Figure 6: Trend in number of existing care and treatment research studies from 1994 to March 2007
4.2. Identified Research Priorities

The care and treatment group identified 29 knowledge gaps, of which ten were identified as research priorities. The top three priorities are (1) long-term adherence, (2) stigma and discrimination amongst health care professionals and (3) viral load testing (Table 2).

(1) Antiretroviral treatment has become widely available throughout the country in the last two years. Evidence on adherence to ARTs is therefore vital before services can be scaled up to universal access. Also, monitoring of adherence gives a first indication of the development of ART resistance. Currently, only a few conference papers present first findings on adherence, showing that treatment compliance is very good. Patients report of doses taken late, but rarely missed doses. While reasons for stopping used to be related to financial problems, they now mainly seem to be related to side effects. However, given that access to ARTs is still fairly new to most patients, it is important to measure adherence over the long term, meaning several years instead of months.

(2) Stigma and discrimination is an area which has hardly been researched in Cambodia. About four studies in the inventory look at this topic, and they mainly report that the access to health services and antiretroviral treatment decrease stigma and discrimination. There is no study measuring the effects of stigma and discrimination on getting tested and treated in the first place. For instance, stigma and discrimination might be one reason why only so relatively few women seek PMTCT services. In the research, a special focus on the role of health care professionals and communities is recommended.

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37 For instance, drug resistance was defined as a knowledge gap, but the issue did not rate high enough on importance, urgency and feasibility.
(3) In addition to CD4 count, viral load testing is an important indicator for measuring treatment outcomes. While CD4 count is available throughout the country, viral load testing is less accessible. Conventional viral load testing is very expensive and requires advanced technology, and Cambodia needs to find cheaper and easier strategies. Research should assess what viral load testing strategies can and should be used in the future. Currently, there are no entries on this topic in the inventory, but research is still on-going.

In this prioritization exercise, the care and treatment group gave points to each research issue. Amongst the three priorities, adherence stood out. It was rated most important, most urgent and most feasible. Stigma and discrimination rated less high on importance and urgency, but received very good scores for feasibility, and viral load testing strategies ranked high on importance and urgency, but was rated last on feasibility.

The other research priorities are (4) barriers to HIV testing and care of women outside high risk groups, (5) HIV drug resistance testing of 1st, 2nd and 3rd line ART, (6) short and long term toxicities associated with current ART protocols, (7) prevention among positive, (8) role of home based care in the Continuum of Care, (9) barriers to HIV testing and care of children and (10) effects of poverty on care and treatment, for instance through transportation costs.

It is interesting that there are overlaps and similarities between the priorities identified for prevention and the ones identified for care and treatment. One cross-cutting question seems to be how to reach women outside of high risk groups. The concern for the prevention group was that women do not access testing services for PMTCT as much as hoped. A similar concern was formulated for care and treatment (see priority nr. 4), only that this concern also extends to treatment issues.
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<tr>
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<tbody>
<tr>
<td>1</td>
<td>Adherence over long term</td>
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<td>2</td>
<td>Stigma and discrimination of health care professionals/ community and impact on testing / treatments/ adher</td>
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<tr>
<td>3</td>
<td>viral load testing strategies (best testing strategy- timing)</td>
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<tr>
<td>4</td>
<td>Barriers to HIV testing and care of women (not classified as high risk group)</td>
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<tr>
<td>5</td>
<td>sequencing 1st , 2nd, 3rd line ART (drug resistance)</td>
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<td>6</td>
<td>short and long term toxicities associated with current protocols</td>
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<td>7</td>
<td>Prevention among positive</td>
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<td>8</td>
<td>Role of Home based care in CoC</td>
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<tr>
<td>9</td>
<td>Barriers to HIV testing and care of children</td>
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<tr>
<td>10</td>
<td>Poverty / transportation effect on care and treatment</td>
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</tbody>
</table>

Table 2: Overview of Care and Treatment Research Priorities
5. Socio-economic Impact Research

5.1. Review of Existing Research

HIV/AIDS also has wider implications that go beyond the infected individual. In generalized epidemics, HIV affects the whole society, and through that, the economy. HIV/AIDS interventions should therefore not only target people living with HIV/AIDS, but to mitigate the socio-economic impact of the disease. Research is necessary to ensure that the most vital needs are addressed.

37 studies (15% of all research studies) assess the socio-economic impact of HIV/AIDS in Cambodia.\(^{41}\) Because socio-economic research uses other research designs than public health research, the categories of clinical, epidemiological and socio-behavioral research no longer apply. Instead, studies in this category can be divided according to the issues they deal with. Fourteen (14) studies directly look at the socio-economic impact of HIV\(^ {42}\), seven (7) studies analyze the problems of and possible solutions for orphans and other vulnerable children\(^ {43}\), and sixteen (16) studies are labelled as cross-cutting research\(^ {44}\). The majority of these studies document Cambodia’s best practice in containing the HIV/AIDS epidemic.

There are several reasons for the limited number of research on the socio-economic impact. First, the impact of HIV/AIDS is not that strong or not that visible, because HIV prevalence is relatively low. However, only future research can show the extent and the urgency of a need for action around the socio-

\(^{41}\) It needs to be added here that studies labelled as „cross-cutting research” were also categorized under socio-economic impact. Therefore, 22 out of 37 studies assess the socio-economic impact, whereas 15 studies are cross-cutting research. Cross-cutting research goes beyond, or involves all three categories of prevention, care and treatment and socio-economic impact.


economic impact of HIV. It is furthermore interesting that a first article on the 
socio-economic impact of HIV/AIDS was published in 1995\textsuperscript{45}, followed by a more
extensive report in 1999.\textsuperscript{46} This means that research in this area dates nearly as
long back as the research in prevention and/or care and treatment.

Gaps in socio-economic research exist in the sense that there is no holistic
coverage of the problem. Existing literature appears rather scattered. This means
that even the extent of the socio-economic impact of HIV/AIDS is uncertain.\textsuperscript{47}
Positive about it is, however, that the number of entries per year seems to be on
the increase (Figure 7). Also, the issue of orphans and other vulnerable children
is quite well covered.

\begin{figure}[h]
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\includegraphics[width=\textwidth]{figure7.png}
\caption{Trends in socio-economic impact research studies in Cambodia between
1995 and 2006}
\end{figure}

\textsuperscript{45} L’Her, P., M. Merlin, et al. (1995). “[Cambodia: The Undermining by AIDS or the Difficult Rebuilding of a
\textsuperscript{46} Bunna, S. and C. N. Myers (1999). Estimated Economic Impacts of AIDS in Cambodia. Phnom Penh,
UNDP.
\textsuperscript{47} Because existing literature is so scarce, it is noteworthy that two studies are planned on socio-economic
impact. One is initiated by UNDP in collaboration with government institutions with the objectives to assess
the socio-economic impact at the household level at urban and rural settings; and to assess the impact of
the HIV/AIDS epidemic at sectoral level. Another study is initiated by NCHADS with DFID funding to assess
the quality, efficiency and cost effectiveness and sustainability of the continuum of care for people living with
HIV/AIDS. Both studies are expected to finish in June-July 2007.
5.2. Identified Research Priorities

Participants in both the prevention and the care and treatment group were asked to put some thinking into the socio-economic impact of HIV/AIDS. This means that participants looked beyond the artificially drawn up boundaries of their group and focused on the problem of HIV as a whole. Also, each group became aware of the importance of the overall socio-economic impact of HIV for their specific work. One expression for this is priority nr. 10 in the care and treatment group: “To assess the effects of poverty in general and transportation costs in particular on care and treatment”.

Two research priorities were identified. The first one is to analyze the cost-effectiveness of programs for PLHA. Currently, four studies look at quality of life of PLHA. They report from changes over time and measure how medical and other support has improved the lives of PLHA. However, the findings are limited geographically and in their sample size.

The second one is to assess the impact of HIV at the household level. This would mean to analyze how households with an HIV-positive family member cope with the situation. Particularly, it would be important to identify the positive and negative coping mechanisms the families are using. One study exists that looks at the social and economic impact of HIV/AIDS on families with adolescents and children in Cambodia. 48 It shows that households with an HIV-infected family member are poorer, but it does not analyze what coping mechanisms the households should be encouraged to use. The findings from this study can serve as a starting point, and a similar research design could be used to make the findings better comparable (using case and comparison households).

Given that there was no working group dealing with socio-economic impact, some research priorities might have been overlooked. Other possible areas for future research might include the impact and determinants of stigma (currently only mentioned as discrimination by health care professionals), the impact of HIV on the health system (in the sense that HIV should neither dominate or fragment the health system), and the needs of orphans and other vulnerable children (currently, it is not clear what will happen to them after a certain age).
V. Implementation of the HIV/AIDS Research Agenda

During the last session of the workshop, participants agreed on the implementation mechanisms for the agenda’s priorities. The discussion was one of the most important, as a clear vision of the process will greatly facilitate the agenda’s implementation. In particular, it was decided (1) what duration and scope the research agenda will have, (2) how the inventory will be updated, and (3) how quality of research and funding continuity can be improved.

(1) As proposed by NCHADS, the HIV/AIDS-related research agenda will have a duration of two years. This means that the present research agenda will be valid until March 2009. By that time, a second HIV/AIDS research agenda workshop is to be held to review the previous priorities and identify new ones. Should a past research priority not have been addressed, it will be possible to keep this priority on the agenda. In addition to the workshop, a biannual HIV/AIDS research agenda symposium is to be held. It shall take place in the years between the HIV/AIDS research agenda workshop, mainly targeted at the Cambodian HIV/AIDS research community. Recommended is a one-day meeting, first to be held in March 2008.

The already existing HIV/AIDS research steering committee will serve as a third level to monitor the progress made through bi-monthly meetings. Currently problematic is, however, that the research steering committee comprises less members than form part of the HIV/AIDS research community, and it would not be practical to enlarge the steering committee. Therefore, it is recommended to set-up an e-mail group, to which all Cambodian HIV/AIDS researchers and funders can subscribe. It can be used to send out the reminders, post publications or to alert researchers to other relevant issues.
(2) Workshop participants agreed that NCHADS will continue to maintain and update the inventory of studies. It was furthermore decided to make the inventory more inclusive. In addition to the completed research studies, researchers are also asked to send in copies of their not-yet completed research, in the form of research proposals and/or research protocols.

The inventory will be publicly accessible through the NCHADS website. Different audiences, however, will have different access levels. Research proposals and protocols will be accessible to only those that have sent in their research proposals and protocols. This is meant as an incentive for researcher to share their research ideas, and should encourage communication, collaboration and exchange between researchers. Therefore, a brief description of planned research and the name of a contact person will be sufficient. Already published reports will be accessible to everyone.

To facilitate the maintenance of the inventory, NCHADS will send out bi-yearly reminders to all researchers and ask them to send in information about their research proposals, journal articles, reports, evaluations and conference papers. 49 When doing so, researchers are encouraged to indicate to what research priority their paper contributes.

(3) The issue of quality of research and the need for in-country capacity-building have repeatedly been raised throughout the workshop. Local research is sometimes carried out with weak methodologies, which in return makes the findings difficult to generalize. 50 A few recommendations were issued to improve this.

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49 NCHADS will use the above mentioned e-mail list is to do so. The reminder will be send out twice a year. Once in January, and once in July.

50 Another area of concern that workshop participants expressed was a general insecurity on how to translate research findings into action. There a few research studies that address this topic, for instance Ioannidis, J. P. A. (2007). "Evolution and Translation of Research Findings: From Bench to Where?" PLOS Clinical Trial e36.
International short-term consultants often carry out research studies. These consultants work outside local structures and hence do not contribute to local capacity building. The first recommendation therefore is that international consultant should work in collaboration with a local consultant. The second recommendation would be that better use should be made of existing training possibilities. Amongst the institutions that offer training, for instance on epidemiology or the use of quantitative and qualitative research methods, are NCHADS, NIPH and PSI. The e-mail list should be used as a forum to announce training courses and to encourage researchers to participate. Furthermore, it was proposed to set up working groups on specific topics to discuss research questions, methods and tools. The existence of such groups would also help to ensure quality of research, and thereby contribute to capacity building.

Regarding possible funding opportunities, the European Commission presented its funding programs for health-related research\textsuperscript{51}, and it was brought to the attention of the participants that the Global Fund against HIV/AIDS, Tuberculosis and Malaria allows in its proposals to set aside between 5 to 10\% of each component budget on monitoring and evaluation, which includes operational research.\textsuperscript{52}

\textsuperscript{51} For more information, see \url{http://ec.europa.eu/research/health/poverty-diseases/geo-info_en.html#countries} or \url{ftp://ftp.cordis.europa.eu/pub/fp7/docs/health_international_en.pdf}.

\textsuperscript{52} The Global Fund against HIV/AIDS, Tuberculosis and Malaria: Guidelines for Proposals Round 7. Geneva: p. 49
VI. Annex

1. Agenda of the Meeting

Day 1

8:00  Registration

8:30  Welcome remarks by H.E. Dr. Mean Chhi Vun, Director of NCHADS

9:00  Process of the workshop

9:45  Where are we now in terms of program intervention and epidemic?: H.E. Dr. Mean Chi Vun

10:30  Review of the past and current HIV/AIDS research in Cambodia
   •  Overall presentation of the process: Nina Ingenkamp
   •  Prevention: Chhea Chovorn
   •  Care & treatment: Vonthanak Saphonn
   •  Socio-economic impact: Heng Sopheab

11:30  Plenary discussion

12:00  Lunch break

2:00  Identification of knowledge gaps: SWOT analysis

3:30  Tea break

4:00  Presentation from the groups

5:00  Closing
Day 2

8:00 Wrap up day 1

8:15 Group discussion: Link knowledge gap to program and set up research agenda. Objective of this discussion is to prioritize knowledge gaps. Teams should clarify the priorities based on:

- Importance
- Urgency
- Feasibility/suitable funding

9:30 Break

9:45 Group discussion

10:30 Group work presentation on agreed research themes

12:00 Lunch break


Vonthanak Saphonn

3:00 Discussion

3:30 Break

4:00 Agreement on step forwards (Plenary discussion)

- How frequent should agenda be revised?
- When will be the next workshop?
- Who should update the agenda?
- How should we all endorse this agenda?
- Capacity building and quality of research?

4:45 Closing Ceremony
## 2. List of Participants

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Organization</th>
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<tr>
<td>1</td>
<td>Voeung Yanath</td>
<td>National AIDS Authority</td>
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<td>2</td>
<td>Mok Sokuntheary</td>
<td>National Center for HIV/AIDS, Dermatology and STD’s</td>
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<td>3</td>
<td>Ros Seilarith</td>
<td>Sihanouk Hospital Centre of Hope</td>
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<td>4</td>
<td>Voeu Vanny</td>
<td>National Center for HIV/AIDS, Dermatology and STD’s</td>
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<td>5</td>
<td>Rin Rachana</td>
<td>National Center for HIV/AIDS, Dermatology and STD’s</td>
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<td>6</td>
<td>Neak Sokha</td>
<td>National Center for HIV/AIDS, Dermatology and STD’s</td>
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<td>7</td>
<td>Phal Sano</td>
<td>National Center for HIV/AIDS, Dermatology and STD’s</td>
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<td>8</td>
<td>Nina Ingenkamp</td>
<td>World Health Organization</td>
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<td>Carla Obermeyer</td>
<td>World Health Organization Geneva</td>
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<td>Vong Sathiarany</td>
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<td>Nicole Seguy</td>
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<td>Khun Kim Eam</td>
<td>National Center for Tuberculosis and Leprosy Control</td>
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<td>Mean Ratanak Sambath</td>
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<td>15</td>
<td>Khim Sam Ath</td>
<td>Médecins Sans Frontieres Belgium</td>
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<td>16</td>
<td>Katy Pullen</td>
<td>United Nations Development Fund for Women</td>
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<td>Matt Maggenheim</td>
<td>Clinton Foundation</td>
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<td>18</td>
<td>Bou Noeun</td>
<td>Delegation of the European Commission to Cambodia</td>
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<td>Ung Bunthoeun</td>
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<td>Cambodian People Living with HIV/AIDS Network</td>
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<td>Neth Sansothy</td>
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3. Inventory of HIV/AIDS Research Studies (as of 28/3/07)

0. List of Available Keywords

I. Prevention
1. Clinical Research
2. Epidemiological Research
2.1. Prevalence
2.2. Incidence
2.3. Additional Epidemiological Research
3. Socio-behavioral Research
3.1. Behavior Change
3.2. Knowledge, Attitudes and Practices
3.3. Additional Socio-behavioral Research
4. Response Analysis

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I. Prevention

1. Clinical Research


Ngin, S., L. T. t. Xuan, et al. (2006). *The HIV-1 RNA real time PCR: A Low Cost Strategy to Diagnose HIV Infection in Infants Born from HIV-infected Mothers in Cambodia and Viet Nam*. XVI International AIDS Conference, Toronto: Prevention; Clinical Research; PMTCT; Pediatric Care


2. Epidemiological Research

2.1. Surveillance


2.2. HIV and STI Prevalence


AIDS in the Asia and the Pacific, Melbourne, Australia, 2001. Prevention; Epidemiological Research; Prevalence; Sexually Transmitted Diseases; Response Analysis


Girault, P., T. Saidel, et al. (2004). "HIV, STIs, and Sexual Behaviors among Men who have Sex with Men in Phnom Penh, Cambodia." AIDS Educ Prev 16(1): 31-44: Prevention; Epidemiological Research; Prevalence; Socio-behavioral Research; KAP; Men who have sex with men; Sexually Transmitted Diseases.


2.3. HIV Incidence


2.4. Additional Epidemiological Research


3. Socio-behavioral Research

3.1. Behavior Change


Sciences in Cambodia: 30: Prevention; Socio-behavioral Research; Behavior Change; KAP; General population.


CARE Cambodia: 39: Prevention; Socio-behavioral Research; Behavior Change; Indirect sex workers; Evaluation.

Lan, V. S., V. Ouk, et al. (2006). Cost Effectiveness of the 100% Condom Use Programme (CUP) in Cambodia. XVI International AIDS Conference, Toronto: Prevention; Socio-behavioral Research; Behavior Change; Direct Sex-Workers; Condom-use.


Socio-behavioral Research; Behavior Change; Police and Armed Forces; Evaluation.


3.2. Knowledge, Attitudes and Practices

- Drug Users


- General Population


-Male Sexuality-


Socio-behavioral Research; KAP; Male Sexuality; Police and Armed Forces; Sexually Transmitted Diseases; Surveillance


- **Mobile Populations**


Crossing Borders Crossing Realities Cambodia (1999). The Vulnerability of Vietnamese Sex Workers in Cambodia. Phnom Penh: Prevention; Socio-behavioral Research; KAP; Mobile Populations; Direct Sex-Workers; Indirect sex workers; Sexually Transmitted Diseases.


- **Men who have sex with men**

Alliance: Prevention; Socio-behavioral Research; KAP; Men who have sex with men.


Girault, P., T. Saidel, et al. (2004). "HIV, STIs, and Sexual Behaviors among Men who have Sex with Men in Phnom Penh, Cambodia." AIDS Educ Prev 16(1): 31-44: Prevention; Epidemiological Research; Prevalence; Socio-behavioral Research; KAP; Men who have sex with men; Sexually Transmitted Diseases.


- Police and armed forces


- Direct and indirect Sex-workers


Crossing Borders Crossing Realities Cambodia (1999). The Vulnerability of Vietnamese Sex Workers in Cambodia,. Phnom Penh: Prevention; Socio-behavioral Research; KAP; Mobile Populations; Direct Sex-Workers; Indirect sex-workers; Sexually Transmitted Diseases.


International AIDS Conference, Toronto: Prevention; Socio-behavioral Research; KAP; Direct Sex-Workers; Police and Armed Forces; Condom-use.


- Youth


RHAC (without year). Adolescent Reproductive Health Survey, A Baseline Study: Out of School Adolescents in Phnom Penh. Phnom Penh: Prevention; Socio-behavioral Research; KAP; Youth.


3.3. Additional Socio-behavioral Research


4. Response Analysis


Leng, H. B., G. Dallabetta, et al. (2000). *Cambodia: STD and HIV Prevention and Control Efforts. Phase-Specific Strategies for the Prevention, Control and Elimination of Sexually Transmitted Disease: Implications for Research, Policies and Programs*. , Rome, Italy: Prevention; Socio-behavioral Research; Behavior Change; Direct Sex-Workers; Sexually Transmitted Diseases; Response Analysis


II. Care & Treatment
1. Clinical Research

1.1. Basic Science


Lynen, L., S. Thai, et al. (2006). "The Added Value of a CD4 Count to Identify Patients Eligible for Highly Active Antiretroviral Therapy Among HIV-Positive Adults in Cambodia." J Acquir Immune Defic Syndr 42(3): 322-4: Care & Treatment; Clinical Research; Basic Science; CD4 Count.


1.2. Antiretroviral Treatment
Chel, S., M. Roeun, et al. (2006). The Role of Peer Support Workers in Adherence Support at the Social Health, Phnom Penh, Cambodia. 18th Annual Australasian Society for HIV Medicine Conference, Melbourne: Care & Treatment; Clinical Research; Antiretroviral Treatment; Socio-behavioral Research.

Ferradini, L., D. Laureillard, et al. (2005). Positive Outcomes of HAART at 24 Months in HIV infected Patients in Cambodia Care & Treatment; Clinical Research; Antiretroviral Treatment.


Ferradini, L., O. Segeral, et al. (2007). Efficacy of Kaletra-based Second Line Antiretroviral Treatment in Cambodia CROI, Los Angeles: Care & Treatment; Clinical Research; Antiretroviral Treatment.

Ferradini, L., L. Som, et al. (2007). Efficacité à un an de traitements antirétroviraux de seconde ligne chez les patients HIV+ dans le programme MSF/ MOH de l’hôpital AKS à Phnom Penh, Cambodge. 4e Conférence Francophone VIH/Sida, Paris: Care & Treatment; Clinical Research; Antiretroviral Treatment.


Myung, P. D., M. F. Brady, et al. (2006). Directly Observed HAART Treatment of HIV-infected Children in Cambodia. XVI International AIDS Conference, Toronto: Care & Treatment; Clinical Research; Pediatric Care; Antiretroviral Treatment.


Toeung, P. D., S. Pouv, et al. (2007). Routine Switch after 6 Months from d4T to AZT Containing Antiretroviral Therapy, at an Outpatient HIV Clinic in Phnom Penh, Cambodia. 4th International AIDS Society Conference on HIV Pathogenesis, Treatment and Prevention, Sydney: Care & Treatment; Clinical Research; Antiretroviral Treatment.

1.3. Pediatric Care


Myung, P. D., M. F. Brady, et al. (2006). Directly Observed HAART Treatment of HIV-infected Children in Cambodia. XVI International AIDS Conference, Toronto: Care & Treatment; Clinical Research; Pediatric Care; Antiretroviral Treatment.

1.4. Additional Clinical Research


Pappas, G., R. C. Wolf, et al. (2006). "Validity of Measures of Pain and Symptoms in HIV/AIDS Infected Households in Resources Poor Settings: Results from the Dominican Republic and Cambodia." BMC Palliat Care 5: 3: Care & Treatment; Clinical Research; Opportunistic Infections.


2. Epidemiological Research

2.1. Opportunistic Infections


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antimycotics." Mycoses 47(9-10): 435-41: Care & Treatment; Epidemiological Research; Prevalence; Opportunistic Infections.


2.2. Additional Epidemiological Research


3. Socio-behavioral Research

3.1. Nutrition


Thwyn, A. (2006). Food Support to People Living With HIV/AIDS and OVC with Home Based Care. Phnom Penh, KHANA, USAID and WFP: 20: Care & Treatment; Socio-behavioral Research; Nutrition; PLHA

3.2. Additional Socio-behavioral Research

Chel, S., M. Roeun, et al. (2006). The Role of Peer Support Workers in Adherence Support at the Social Health, Phnom Penh, Cambodia. 18th Annual Australasian Society for HIV Medicine Conference, Melbourne: Care & Treatment; Clinical Research; Antiretroviral Treatment; Socio-behavioral Research.


KHANA (2001). When You Are Ill, You Always Have Hope: An Exploration of the Role of Traditional Healers in HIV/AIDS Care and Prevention in Cambodia. Phnom Penh, KHANA: Care & Treatment; Socio-behavioral Research.

Paxton, S. (2005). Steps to Empowerment: Challenges to the Greater Involvement of People Living with HIV in the response to AIDS in Cambodia. Phnom Penh, Policy Project: Care & Treatment; Socio-behavioral Research; PLHA; Response Analysis.

4. Response Analysis


Fraser, B. (2005). "Getting Drugs to HIV-Infected Children in Cambodia." Lancet 366(9492): 1153-4: Care & Treatment; Pediatric Care; Response Analysis.


Paxton, S. (2005). Steps to Empowerment: Challenges to the Greater Involvement of People Living with HIV in the response to AIDS in Cambodia. Phnom Penh, Policy Project: Care & Treatment; Socio-behavioral Research; PLHA; Response Analysis.


III. Socio-economic Impact

1. OVCs


2. Macro/Micro Economic Impact


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4. Other Research on Socio-economic Impact


