

**Attitudes Towards Immunization in Cambodia:
A Qualitative Study of Health Worker and
Community Knowledge, Attitudes and Practices in
Kompong Chhnang**



**PATH and AIHI
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ACKNOWLEDGMENTS

This report is dedicated to a three-year-old child who drowned during our research in Kompong Chhnang and to all the Cambodians who are struggling to protect and nurture their children while striving to survive.

I would like to thank all the villagers, health workers, Village Chiefs, traditional healers, Village Health Volunteers and Traditional Birth Attendants for their time and sharing their knowledge, experience and opinions. I am also indebted to the Provincial Health Department staff and the National Immunization Program (NIP), especially Dr. Sann Chan Soeung, NIP Director, and Mr. Ork Vichit who supported the research – thank you. To the researchers, Dr. Sam Say, Ms. Um Samon, Ms. Um Saron, Ms. Em Xakha, Ms. Chan Mom, Mr. Vin Vuth, Mr. Heav Bun Sering, Dr. Keo Thyda, thank you for your time, enthusiasm and skilful probing. Drivers were Mr. Nouv Sam Eun, Mr. Long Rottanak and Mr. Long Tha. To Mr. Chum Aun of UNICEF, Mr. Keith Feldon of WHO, and Drs. Sann Chan Soeung and Chheng Morn of the NIP for their advice to the research design and questionnaire. To Dr. Lim Sidevil for co-ordinating the research teams in addition to his logistical, analytical and organizational support. Finally, thanks go to Mr. Andy Tucker of the Children's Vaccine Program (CVP) at PATH and Dr David Hipgrave of the University of Melbourne for continuous support. This study was supported by PATH and made possible by a grant from the World Bank.

This report uses the term 'traditional' to describe medicines and healers who have acquired skills and knowledge through 'technical' dreams or apprenticeships or use herbal remedies or a mixture of natural and magical services. 'Bio-medical' is used to describe health providers who have acquired skills and knowledge through educational institutions based on international medical research and practice. Khmer language uses *Peit*¹ to represent those people fulfilling the bio-medical role and *Kru Khmer* or *Boran* to represent those people fulfilling the traditional role. Additionally, Health Center staff, immunization staff and health workers are terms used interchangeably in this report.

Cambodian health professionals trained in the bio-medical paradigm translated participants' reported illnesses. It should be borne in mind, however, that the translation and interpretation might not accurately reflect the illness experienced or observed by the participant. If there is no appropriate translation for a recognized medical illness, direct literal translation or transliteration is used and is found in Italics.

Geographical locality (water, road and rural), wealth, sex and age stratified the participants of the research. Those participants living in the road and rural localities spoke Khmer and 'Kh' is used beside quotes to identify this. Those living in the water locality spoke Vietnamese and in this report are referred to as ethnic Vietnamese. 'Vn' is used beside quotes to identify that Vietnamese language was spoken.

JA Forder, PATH Consultant, July 12, 2002

¹ Collins (2000) reported respondents in his research used the term *Peit* to refer to any practitioner who could give injections.

CONTENTS

ACKNOWLEDGEMENTS	2
TABLE OF CONTENTS	3
ABBREVIATIONS	4
GLOSSARY	5
EXECUTIVE SUMMARY	6
INTRODUCTION	8
CONTEXT	8
RATIONALE	8
STUDY LOCALE	9
OBJECTIVES	9
DESIGN AND METHODOLOGY	10
DESIGN	10
METHODOLOGY	11
RESEARCHERS	11
PARTICIPANTS AND INTERVIEWERS	12
CONSTRAINTS	12
FINDINGS	14
VILLAGERS	15
OTHER KEY COMMUNITY MEMBERS	22
HEALTH CENTRE STAFF	23
DISCUSSION	30
VILLAGERS	30
HEALTH WORKERS	31
RECOMMENDATIONS	33
REFERENCES	37
APPENDICES	38
QUALITATIVE RESEARCH SCHEDULE	38
GUIDE FOR SEMI STRUCTURED INTERVIEWS	39
QUESTIONNAIRE FOR HEALTH WORKERS	40
TABLES AND PICTURES	
Table 1. Villagers' mutual knowledge of illnesses, causes and prevention	17
Table 2. Knowledge of 'liver disease' transmission routes	24
Table 3. Knowledge of causes of 'liver disease.'	25
Table 4. Positive responses by HW to having sufficient supply of resources	28
Picture 1. Mapping of river area by young ethnic Vietnamese men	14
Picture 2. Mother taking care of child by mothers of medium wealth in rural location	15

ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
BCG	Bacille Calmette-Guèrin Vaccine
DHS	Demographic and Health Survey
DTP	Diphtheria, Tetanus, Pertussis Vaccine
DTP-HepB	Diphtheria, Tetanus, Pertussis, Hepatitis B Vaccine
EPI	Expanded Programme on Immunization
FBC	Feedback Committee
FGI	Focus Group Interviews
GAVI	Global Alliance for Vaccines and Immunization
HB	Hepatitis B
HC	Health Center
HIV	Human Immunodeficiency Virus
HW	Health Worker
IEC	Information, Education and Communication
KAP	Knowledge, Attitudes and Practices
MoEYS	Ministry of Education Youth and Sport
NGO	Non-Governmental Organisation
NHS	National Health Survey
NIP	National Immunization Programme
OD	Operational District
OPV	Oral Polio Vaccine
PATH	Program for Appropriate Technology in Health
PEU	Polio Eradication Unit
STI	Sexually Transmitted Infection
TB	Tuberculosis
TBA	Traditional Birth Attendant
TT	Tetanus Toxoid
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
VHV	Village Health Volunteer
WHO	World Health Organization

GLOSSARY

Bio-medical	Health providers who have acquired skills and knowledge through educational institutions based on international medical research and practice
Feedback Committee	A commune based committee of elected village representatives responsible for feeding back community views to the health center and health staff. VHV's are often FBC members but this is not always the case.
Health worker	Health staff who work in the bio-medical role, with immunization staff or health staff
Kh	Khmer language spoken
Kru Boran	People fulfilling the traditional role (same as Kru Khmer)
Kru Khmer	People fulfilling the traditional role (same as Kru Boran)
Peit	People fulfilling the bio-medical role
Traditional	Medicines and healers who have acquired skills and knowledge through 'technical' dreams or apprenticeships or use herbal remedies or a mixture of natural and magical services
TBA	Traditional birth assistant based at the village level, also called a midwife, usually with no formal training and provides private services, ie. not a government health staff
Vn	Vietnamese language spoken

EXECUTIVE SUMMARY

Childhood immunization is a major public health concern in Cambodia. Given the high infant and child mortality rates and the low uptake rate of immunizations, a study of knowledge, attitudes and practices (KAP) of communities and health workers was conducted to identify barriers to immunization and inform future information, communication and education (IEC) strategies. Quantitative and qualitative research was conducted to discover the KAP of communities and health workers towards immunization services and the introduction of hepatitis B vaccine. This paper reports on qualitative research with villagers and health workers. A second paper on the quantitative research with mothers of children under two years is available from PATH.

Kampong Chhnang was selected for the research, as it is also the pilot site for the introduction of the combination Diphtheria, Tetanus, Pertussis and Hepatitis B vaccine (DTP-HepB). Participants were selected from six health centre (HC) catchment areas. Villages were selected from three geographical localities: water communities (which house the ethnic Vietnamese minority), road communities (near communication and provincial capital) and rural communities (over one hour and a half drive from the main road). Data was collected using focused group and individual interviews based on a participatory learning and action methodology. Groups were separated into mothers' aged 30 – 40 years, fathers aged 30 – 40 years and young people aged 15 – 20 years. These were additionally stratified by wealth. In total, 192 people attended the groups. Structured interviews were conducted with six older women, two older men, three *Kru Khmer*, two Traditional Birth Attendants (TBAs), three Village Chiefs and four HC staff. Twenty additional HC staff also completed a questionnaire.

There was little difference in KAP between the road and rural communities, or between the poor and richer groups. The main difference found between men and women was the women's added responsibility for childcare, which included immunizations. Surprising differences were recorded between youth and their elders and between Vietnamese and Khmer villagers. The young people interviewed were talkative, energetic and ideally situated for future education campaigns, but the Vietnamese felt isolated and victimized, and lacked contact with HC staff.

Generally the community participants were positive about immunizations, but were not empowered to be proactive and had underlying fears about side effects, efficacy and injection techniques. Most children in this research were immunized opportunistically, as opposed to their parents actively seeking out immunization. Some parents, aware of vaccine side effects, had to wait until they had enough funds to buy medicine to prevent these side effects for their child. Lack of notification of forthcoming outreach immunization sessions was a common complaint, as was the lack of other services available at these sessions.

Hepatitis was reported to be a serious illness. However, there was varied understanding of its cause and little appreciation of Hepatitis B (HB) or the vaccine. Knowledge of the injections required in the first year, which six communicable diseases are covered by the Expanded Programme on Immunization (EPI) and the causes of these diseases was a mixture of uncertainty, traditional belief and bio-medical fact.

In general, the immunization staff reported that immunization services had improved over the last seven years, with equipment, staff levels and training being adequate. However, transport remains a problem when conducting outreach, which is a significantly more prevalent means of providing immunization than fixed sessions. HC staff were aware of villager's concerns. They correctly reported these to include side effects of immunizations and accessibility to the service.

An IEC strategy for villagers is recommended with the following messages:

- weighing the risk and consequences of illness against the problem of side effects,
- understanding that the immunization program does not cover all illnesses,
- understanding that amongst diseases of the liver, only hepatitis B can be prevented with a vaccine, and
- encouraging empowerment to actively seek out immunizations.

These messages need to find their way into everyday beliefs, language and practice. Any IEC strategy used would benefit from being verbal, as literacy is low and reading for information not common, particularly amongst women in these communities. Drama groups could act out common scenarios and radio or television would be the information media of choice.

A training curriculum for health workers (HWs) and a communication strategy for communities are needed to prepare parents to cope with vaccine side effects and to use feedback committees (FBC) to voice complaints, inform parents about hygiene and maintaining a clean injection site. Safer injection techniques should be taught to reduce side effects.

A holistic approach to health care that fits into the indigenous belief system and an integrated approach to maternal and child health could build positive working relationships between health workers and their communities.

An advanced understanding of the physiology of the body and the immune system would help improve knowledge and confidence in immunization within communities.

Training in data collection, recording and reporting of immunizations and side effects would improve monitoring.

Sensitization to the needs of minority people and the poor could improve community perceptions and uptake of the immunization program. In particular, in this location, the needs of the ethnic Vietnamese community must be actively and sensitively addressed.

INTRODUCTION

CONTEXT

Universal immunization of children against six preventable diseases (tuberculosis, diphtheria, pertussis [whooping cough], tetanus, polio and measles) is vital to reduce childhood mortality and morbidity across the world and a major public health concern in Cambodia. Cambodia is in Southeast Asia, bordered by Thailand to the west, Lao P. D. R. to the north, Vietnam to the east and the Gulf of Thailand to the south. It is one of the poorest countries in the region, emerging from decades of civil conflict and the genocidal Khmer Rouge regime. Since 1979, rebuilding and development of Cambodia's economy and health and education sectors have been a priority. Recent statistics, however, reveal that there is still much work to do in these sectors; an estimated 40 percent of the country's population live below the poverty line (UNAIDS 2001), with an estimated literacy rate of 29 percent for women and 47.6 percent for men (MoEYS 2000). The 1998 National Health Survey (NHS) reported an infant (under 1 year) mortality rate of 89.4 per 1000 live births – compared to a regional average of 38, and child (under 5 years) mortality of 115 per 1000 live births – compared to a regional average of 50. The 2000 Demographic and Health Survey (DHS) reported that approximately only one third of children were fully immunized by 12 months, and this was similar to the NHS results. The World Health Organization (WHO) considers a child fully immunized when they have received one dose of BCG (against tuberculosis); three doses each of diphtheria, tetanus and pertussis vaccine (DTP) and oral polio vaccine (OPV); and one dose of measles vaccine, preferably by age 12 months. In 1986, the Cambodian government with support from UNICEF officially launched the Expanded Programme on Immunization (EPI). EPI activities were extended to all provinces by the end of 1998, and by early 1999 tetanus toxoid (TT) immunization was included for pregnant women. In 1995, an independent Polio Eradication Unit (PEU) was established to accelerate polio eradication activities and Cambodia was certified polio free in November 2000. Around the same time, the Ministry of Health established the National Immunization Program (NIP), joining the EPI and PEU into one organizational structure.

The Royal Government of Cambodia, with assistance from WHO and UNICEF, restructured and reformed the health service in 1995. Despite the restructuring, the health sector in Cambodia has one of the lowest utilization rates when compared to other countries in the world; there are only an estimated 0.35 medical contacts with organized health services per person per year (UNAIDS 2001). Wilkinson (2000) and Wilkinson et al (2001) additionally demonstrated that care and provision of medicines from the reformed health sector were severely constrained by lack of funds for salaries, supplies and maintenance. Cambodians seek alternative sources of advice, diagnosis and treatment from private services and traditional healers.

RATIONALE

Given the high infant and child mortality rates and the low uptake rate of immunizations, a study of knowledge, attitudes and practices (KAP) of communities and health workers was funded to identify barriers to immunization and inform future IEC strategies. The study had an added focus of Hepatitis B (HB) illness and vaccination. Hepatitis B is a major health concern worldwide affecting approximately 30 percent of the world's population. The disease burden caused by HB in Cambodia is uncertain; blood donor surveys suggest

that an infection rate of 3.2 - 12.2 percent exists among donors, and rates as high as 19 percent have been reported (Institute Pasteur 1996 - 1998). Assistance from the Global Alliance for Vaccines and Immunization (GAVI) has enabled additional support from The Vaccine Fund to be directed towards the NIP for improvements to the routine immunization program and for the addition of HB vaccine, in the form of DTP-HepB, to the infant vaccination schedule. Kompong Chhnang, where the new vaccine is being piloted, was the province selected for the research.

STUDY LOCALE

Kompong Chhnang is located in central Cambodia with a population of 417,603 (NIS 1999). The majority (90 percent) of the population lives in rural areas. The health service reforms of 1995 divided the province into two operational health districts (ODs): a geographically smaller Kompong Tralach and a large, (twice the size of Kompong Tralach) OD with a dispersed population called Kompong Chhnang. Since 2001, Kompong Chhnang OD has been a pilot site for the introduction of DTP-HepB vaccine.

In total, there are 34 health centers (HC) across the province, 11 in Kompong Tralach OD and 23 in Kompong Chhnang OD. World Vision International supports all HCs in Kompong Tralach. Support to eight HCs in Kompong Chhnang OD is provided by CARE International and CESVI, an Italian NGO, with CARE giving indirect support to a further 11. The type of support is different depending on the organization, but in general, assistance is given with training and outreach activities (petrol, ice, per diems, etc).

Reports from the ODs and the NIP for Kompong Chhnang show that the coverage rate for BCG and the first doses of DTP (DTP1) and OPV (OPV1) stand at 90 percent, decreasing to 85 per cent for DTP2 and OPV2 and only 73 percent for measles (NIP 2002). These are consistent with a WHO-style 30-cluster survey conducted in Kompong Chhnang OD in June 2001. However, full coverage for all 6 EPI antigens by 12 months was only 57%, suggesting a high rate of drop out or delay.

OBJECTIVES

The aim of the research was to gain an appreciation of knowledge, attitudes and practices of the villagers and health workers toward immunizations. This information was sought to inform and direct a social mobilization strategy and any training needs for the promotion of immunization and the introduction of Hepatitis B vaccine. An emphasis on understanding health workers' perception of villagers' actions, decision-making and barriers to immunization was requested. Specifically the study was to:

- Assess the health care providers' KAP related to immunization and hepatitis B disease and vaccine;
- Identify community KAP towards immunizations, liver disease, HB vaccine and barriers to immunization services;
- Identify training needs of health care providers for immunization, HB disease and vaccine, and health promotion with communities;
- Make recommendations based on findings of the study.

DESIGN AND METHODOLOGY

DESIGN

Three different geographical areas were identified in Kompong Chhnang. These were road, rural and water communities. Within each of these locations, villages were randomly selected and a purposive sampling of mothers and fathers aged 30-40 years from the poor wealth category and those from the medium/rich wealth category were invited to talk and share their knowledge and experiences of the immunization service. Young people (female and male) aged between 15 - 20 years were also approached and participated in the research sharing their knowledge of illnesses in the village, causes and prevention with enthusiasm. Wealth, age and sex were the divisions for participants of the focus group interviews.

The respective village chiefs selected the wealth ranking criteria for the participants. Villagers selected whether they wanted cash compensation for their time or a gift.

Criteria for wealth category by community

	<i>Poor</i>	<i>Medium/rich</i>
<i>Road</i>	No house Small sugar palm leaf shelter. No food to eat No farm land	Wooden house Small rice land
<i>Rural</i>	No money for treatment Nothing to eat Small shelter made from sugar palm leaves No husband/wife Little rice land Unhealthy, no energy	House on stilts Buffalo/cows Keep animals for sale Enough rice fields
<i>Water</i>	Small boat for work no engine Small house boat for living	Boat with engine Comfortable home

Kru Khmers (traditional healers), Traditional Birth Attendants (TBAs) older men and women, Village Health Volunteers (VHVs), village chiefs, HC chiefs and immunization staff were randomly selected and asked for observations and opinions of the immunization services using semi-structured and structured interview techniques.

METHODOLOGY

In order to appreciate the complexities of KAP in the communities this research adopted a participatory action research approach and in doing so accepted that knowledge was more than understanding bio-medical facts. Blaikie (1993) called this “mutual knowledge” which is the everyday beliefs and practices that provide an understanding to the actions of the social actors in the study.

A participatory action research methodology was implemented using focus group interview methods and visual tools with the social actors: mothers, fathers and young people (Appendix 1). These methods were adopted to engender discussion and critical debate among participants. Discussion and critical debate were necessary to gain an appreciation of the decisions, dynamics and “mutual knowledge” of the cohort. This could give insights into action and behavior that otherwise might not be detected. In addition, these methods allowed respondents to identify their own needs, select their own priorities and describe possible solutions.

At times, using visual tools caused laughter and embarrassment; men commented that their hands were for fishing or farming not drawing. However, these tools allowed the participants time to think and discuss together, to identify serious and frequent illnesses in their villages and to keep the pictures they drew as a reminder of the information they had shared with us. Many times the beneficiaries of research are those who can extract meanings from reports, not the participants. Participatory methodology attempts to redress the balance using research as a learning tool for all. During this research several people in the ‘poor’ groups asked for more information and specifically wanted to know if tetanus and TB could be prevented. The researchers answered any questions that they could at the end of the research sessions.

Semi-structured interview techniques were conducted with a limited number of *Kru Khmer*, TBAs, old women, old men, VHVs, village chiefs, HC chiefs and immunization staff. It was decided that this method of interviewing would allow greater access to a cross section of community members in the time allowed for the research. It was assumed that organizing a group of *Kru Khmer* or TBAs would be difficult. Semi-structured interviews (Appendix 2) in the hands of skilled interviewers possess many advantages that give the researcher access to thoughts, opinions and practices. Additionally, HC staff, selected from the 34 HCs across Kompong Chhnang, completed a questionnaire (Appendix 3). This questionnaire was developed with NIP staff while the other tools were developed and adapted during the research by the Cambodian team of researchers.

RESEARCHERS

The researchers were independently contracted for the research and presented themselves as researchers from PATH organization. They informed the participants and interviewees of the research aims. Four of the researchers spoke Vietnamese. Three spoke it with a northern accent, but this did not appear to make any problems during the research.

PARTICIPANTS AND INTERVIEWEES

There were 192 focus group participants. There were six groups of women/mothers (48 people), six groups of men/fathers (48), six groups of girls'² (48) and six groups of boys' (48). However, one group of ethnic Vietnamese girls had to leave the research early so that left 184 people. In addition there were three *Kru Khmer*, two TBAs, two VHVs, three Village Chiefs and 4 HC staff (one chief and three immunization staff) who participated in semi-structured interviews. Finally, 20 HC staff (nine women and 11 men) – two each from 10 health centers - completed questionnaires. Two NGOs working in Kompong Chhnang, an ex-WHO advisor to the province, and national and provincial level immunization staff shared their perceptions of the immunization service. Some of their insights are mentioned later in the report, albeit only briefly as they were not the focus of the research.

CONSTRAINTS

- **Focus group method with visual tools**

The method of focus group interviews with visual tools caused some hilarity, some angst and some anger. A few participants reported that they could not hold a pencil/pen to draw and directed others without drawing themselves. The drawing and talking, however, caused others to laugh with happiness and embarrassment. The aim of this methodology is to raise critical thinking through discussion, but two women said they did not want to be involved.

“I don’t think because I don’t want to think.”

The second participant did not have time to think because she was angry.

“I’m on the boat all day every day, I only go out fishing with my husband, I do not talk to any one or meet anyone.”

- **Children**

The groups of mothers brought an unanticipated problem for the researchers – babies and children. Many children attended with the mothers and were crying, running around or bored.

- **Focus**

An important point came out from almost every group and individual interviewed. Adults found it difficult to focus on childhood illnesses and immunizations, they wished to talk a great deal about themselves and their problems, and they requested assistance for their needs.

- **Power and participation**

Patronage and hierarchy are entrenched power relationships in Cambodia (O’Learly & Meas 2001). Cambodian language has developed to accommodate those more powerful (Ledgerwood 1992). Power relationships and conformity in group situations (like this research) were acknowledged issues. Therefore, it was not surprising that many of the participants in one group were relatives of the Village Chief. The

² The term girl and boy are used for ease to refer to young people aged between 15 – 20 years.

research and findings are reported from this context of power dynamics. Another constraint of this method is that one person can dominate a group, and in one case, a man was drunk and disruptive. The facilitator, however, managed to placate the drunken man and continue discussions.

- **Locality**

People in the road and rural localities managed to find a quiet shaded area for the research; surprisingly there were no others listening or disturbing the groups. The participants were anxious that there had been no early rainfall and consequently worried about drought in the dry rice season. The researchers with the ethnic Vietnamese appeared to have the most problems. Swaying boats made them feel uneasy, and noise of other boats passing and people talking on walkie-talkies was very disruptive. However, many people were interested as they said that with exception of the Red Cross we were the first organization to meet with them.

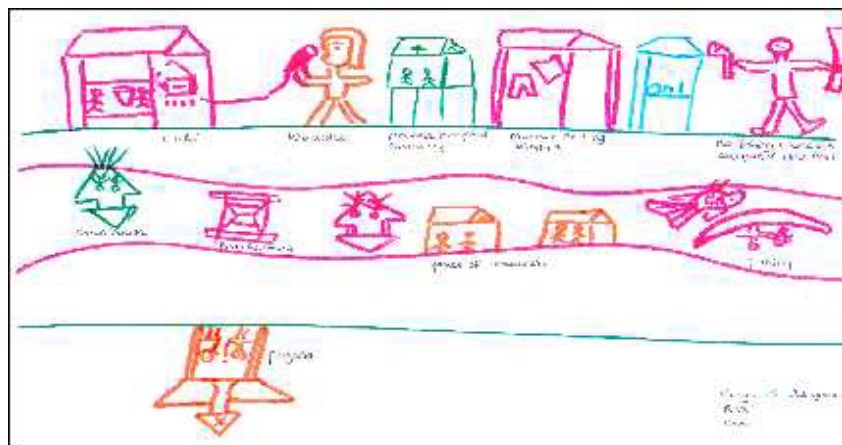
FINDINGS

This section of the report describes the findings through examining the environment of health, illness and prevention as perceived by the villagers and other key stakeholders. The environment is the context where choices are made and ideas are moulded. It is important to appreciate the environment and its influence on people concerning their children's health and the actions they take to protect themselves from bad spirits, illness and communicable diseases.

There were no significant differences between the road and rural communities or between wealth groups in this study. The main differences lay between the Vietnamese and the Khmer and between young people and their elders.

The Khmer had access to health centers and received outreach services. However, the Vietnamese felt access to health centers was problematic and outreach services were sporadic. The young people were most articulate and conversant regarding the current health situation in their village. Some reported this was because the young had more time and energy to mix and observe their surroundings. Several of the young people had had access to school; however, an equal number reported that there was no school in their area and that they were illiterate. The difference in activities between young and older was most striking in the ethnic Vietnamese where the young men often came on to land to socialize at cafés, shops and karaoke bars. The women's group reported that they rarely ventured off their boat, and if they did, it was to help their husband sell fish.

Picture 1. Mapping of river area by young ethnic Vietnamese men



The assessment of knowledge, attitudes and practices of the health workers placed an emphasis on understanding health workers' perception of villagers' actions and decision-making. In general, the health workers were aware of the problems facing villagers both Khmer and Vietnamese; the main difference in perceptions was found in the notice given for outreach activities. All villagers asked to be given prior notice, which indicated that they didn't receive notice even though all health workers reported that they gave it. It was not possible to determine the source of this miscommunication in this survey.

VILLAGERS

INDIGENOUS AND TRADITIONAL KNOWLEDGE

- **Health**

Health was described as a fragile entity incumbent upon wealth. A healthy child was described as having a strong body and fair skin, and not having fever.

“There are a few blind children in this village because of measles and because the mothers do not have enough money to look after them (Kh fathers road medium).”

“All kinds of diseases can lead to death when we don’t have enough money to take care of them [children]. (Vn mothers medium).”

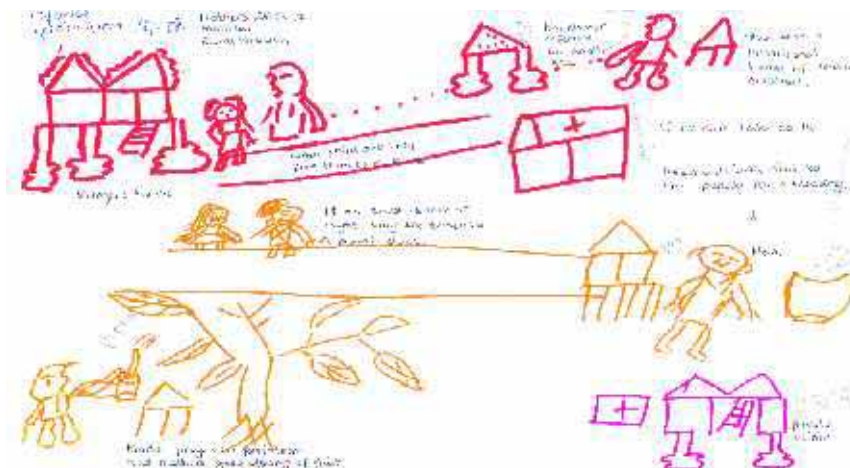
One group of ethnic Vietnamese participants could not describe a healthy child, all their children (ten in total) were sick on the day of the research, with asthma, itchy skin, bronchitis, fever and ‘lung disease’.

- **Prevention**

The mutual knowledge of the villagers about childcare and prevention was diverse, but reoccurring themes were diet, bathing and traditional practices. Immunizations were mentioned and respected but could not be clearly reported as a practice like diet, bathing or praying. There appeared to be more hesitation and some underlying uncertainties about immunizations; these are discussed later in the report.

Nourishment and bathing were reported as the primary important aspects in keeping a child healthy in the first few months. Garlic and salt were believed by several to keep a child healthy, and these were added to some foods after three months when rice porridge was introduced. Parents reported that they used mosquito nets or smoke against mosquitoes during the night and early morning. Traditional practices of praying and offering food to the spirits of the great grandparents, taking ‘magic’ baths, having monks recite ‘magic’ words to raise the child’s fortune and having a string amulet tied around a baby’s wrist were important detailed practices for protecting children from harm.

Picture 2 Taking care of a child



Immunization coverage decreases for each successive recommended dose. BCG has the highest coverage and measles vaccine has the lowest uptake amongst the five recommended visits in the immunization schedule. The reason for this dropout (percent drop in coverage for subsequent vaccinations) is partly reflected in the villagers' level of angst when detailing how they try to protect their children from harm. Several villagers reported that a newborn is most difficult but as a child becomes older (over five months) it is easier to understand them, assess their character, detect signs of illness and therefore seek help if needed and if affordable. That is, it seems their level of concern and prioritization decreases as the child grows, and this is probably reflected in a reduced effort to ensure immunization.

- **Illness**

There is a profound depth of indigenous knowledge among the groups as to causes of illness, methods of prevention and treatments. However, remedies and practices for prevention and treatment were presented with more confidence and clarity than any causes of illness. Illnesses mentioned as a problem for children were: liver disease, falling liver (sometimes called jaundice or yellow disease), lung disease, bronchitis, TB, asthma, whooping cough, pneumonia, dry cough, pulmonary edema, cough cold and fever, headache, stomach-ache, sick in the body, polio, diarrhea, vomiting, fever and skinny, measles, tetanus, *skon*, *skon m'dey deoun*³, dengue, blood fever (hemorrhagic disease) many different types of skin problems, cholera, rubella, typhoid, ulcer, cancer, dysentery, worries, parasites, cholera, sexually transmitted infections (STIs), bad breast milk, numb arms, and paralysis.

Liver disease, polio, tetanus, measles, TB, diarrhea and vomiting and chicken pox were the illnesses ranked number one for most serious across the different groups. Several groups did not rank by seriousness. Serious was defined as the speed with which death occurred or serious morbidity resulted. Paralysis or blindness were the two main factors mentioned. Another group listed measles as the second most serious illness. It is interesting that measles produced the strongest reaction (11 of 17 groups listed measles as serious), yet it has the lowest uptake rate for vaccination. TB and polio were listed in 10 groups, liver disease nine, whooping cough six, tetanus four and diphtheria only listed once by a young women's group.

In addition to many of these illnesses, the young people from the ethnic Vietnamese added HIV/AIDS. This was discussed in a Khmer village but not added to the list, as it was not directly seen. Other illnesses added by young people were appendicitis, malaria, encephalitis, swollen stomach (sometimes reported as a sign of liver disease), rabies⁴ and smallpox⁵. Interestingly HIV/AIDS received a record 104 score⁶ for frequency by young poor ethnic Vietnamese women. This was the highest score for frequency across all groups for all the aforementioned illnesses.

The participants' possess knowledge to various degrees about all the illnesses mentioned above. This report, however, focuses on the six communicable diseases presently covered

³ *Skon* and *skon m'dey deoun*. the death of a young baby – the baby and mother died in a previous life and this time the mother comes back to reclaim her re-born child as she does not want the baby to live without her. Bio-medical practitioners translate this as tetanus.

⁴ Rabies is inferred by the author for a description of a person becoming mad after a dog bite and being afraid of water.

⁵ As smallpox has been eliminated though effective vaccination it seems that this is a case of misdiagnosis, inaccurate translation or poor interpretation and was most likely confused with chickenpox.

⁶ Scoring was achieved by asking the participants to decide which illness they perceived to be most frequent in their village, they then placed a small or large amount of beans on to the illness to represent this perception.

in the immunization program plus hepatitis/liver disease. The mutual knowledge held by the participants about preventative measures, course, frequency and severity of these illnesses (Table 1) offers an insight into the every day lives and subsequent actions of the social actors – the participants. It is the context and the environment that shape their lives, their decisions and their actions; it is the context within which they try to nurture their children and within which the immunization program operates.

Table 1 Villagers’ mutual knowledge of illnesses, causes and prevention

ILLNESS	CAUSE	PREVENTION	TREATMENT
<p>Liver disease</p> <p>Called yellow disease – yellow eyes and skin</p>	<ul style="list-style-type: none"> ◆ KH. Caused by talking and sharing drinks and from alcohol. ◆ VN. Comes from coughing; when there is no money for treatment coughing leads to liver disease. ◆ It also comes from the river; the river has things in it that cause liver disease when children drink un-boiled water. ◆ It just enters the body. ◆ Mixed opinions on whether this can be transmitted from one person to another. 	<ul style="list-style-type: none"> ◆ Prevent by cleaning hands and body before a meal and bedtime and by taking expensive medicine. <p>“This disease is called AIDS by villagers but the <i>peit</i> calls it liver disease.” (Kh mothers rural poor)</p> <ul style="list-style-type: none"> ◆ Several groups have heard of a vaccine from private clinics. Only one person was able to specify hepatitis B as a cause of liver disease. 	<ul style="list-style-type: none"> ◆ Mixture of traditional and bio-medical services.
<p>Measles</p> <p>Makes lots of red marks on our body.</p>	<ul style="list-style-type: none"> ◆ KH. Caused by children playing under the hot sun and then in water and this makes a fever. If the mother cannot give any medicine to the child their body will get hotter and come out in red spots. ◆ People rearing animals spread it to others. ◆ VN. Caused by wind and heat, which enters the body. If there is no money for treatment the child develops measles and transmits it to others. ◆ Mixed opinions on whether this can be transmitted from one to another. 	<ul style="list-style-type: none"> ◆ To prevent complications when a person/child has measles they need to be aware of what they eat as blindness can result. They should not see blood, go near a menstruating woman, should not have sexual relations, step on chicken faeces, hear funeral music or smell perfume. If they do, measles will go back into their body and never leave; it will come back time after time. ◆ Do not allow the sick out the house. ◆ It seems generally known that there is an immunization for this, the timing of it however is not known. 	<ul style="list-style-type: none"> ◆ Bathe in a specially prepared bath of herbal remedy (<i>Sla</i> tree bark). Drink <i>Srokou sar</i> and <i>Kdat</i> forest plants. Measles is afraid of water and will run away. A person needs to bathe several times a day.
<p>Whooping cough</p> <p>Coughing until the child cannot breathe and their eyes go red.</p>	<ul style="list-style-type: none"> ◆ KH Making <i>prohoc</i>,⁷. ◆ Poor hygiene such as flies in food and this makes a person cough and they get whooping cough. ◆ Making dust, rice and rubbish all cause whooping cough. ◆ Dusty season is the main time for this illness. ◆ VN Wind and steam from food enters the body and this causes whooping cough. ◆ Can be transmitted 	<ul style="list-style-type: none"> ◆ Immunization against this illness was reported but by only a few groups. 	

⁷ A fermented fish dish made from small fish –.

ILLNESS	CAUSE	PREVENTION	TREATMENT
Polio	<ul style="list-style-type: none"> ◆ KH. Caused by an injection from the <i>peit</i>. ◆ Not enough vitamins. Lack of meat, sugar, vegetables and fruit. ◆ Not enough blood in the body. ◆ A swollen body that suddenly loses fluid. ◆ Pregnant women have not had immunization and pass it to their baby. ◆ Others say that it just appears without reason or cause. ◆ VN. Diarrhea causes weakness and the polio can enter the body. ◆ Untreated measles leads to polio. ◆ Wind entering the veins leads to polio. ◆ Unclear if it can be transmitted. 	<ul style="list-style-type: none"> ◆ Eat a balanced diet but avoid pineapple. ◆ All participants understand that there is a vaccine. The majority of groups understand that this vaccine is by drops to the mouth. Participants learnt about OPV from TV, radio, health workers and King Sihanouk's support for polio eradication day. 	<ul style="list-style-type: none"> ◆ Coining⁸
TB Coughing and coughing until they cough blood.	<ul style="list-style-type: none"> ◆ KH. Food and drinking, water is one source of TB. ◆ Dry cough. ◆ Close social contact – talking, drinking, and eating together. ◆ VN. Smoke from the kitchen. ◆ Washing in the Tonle Sap River and then the water can enter the lungs. ◆ Close social contact - sharing eating and living space. ◆ It is clearly understood that TB can be transmitted from person to person through coughing and close social contact. 	<ul style="list-style-type: none"> ◆ Cover your mouth when you cough. Do not share cooking or eating utensils. Do not talk to a sick person or cover your mouth when talking. ◆ “If you get it when you are young you don't have any treatment until you are old so the bacteria is old too, it cannot be cured.” (Vn boys poor). ◆ A vaccine against TB was seldom mentioned. 	<ul style="list-style-type: none"> ◆ Treatment is very much dependent on financial situation. For three poor groups, they could not maintain treatment until recovery, as they would have no money for rice. TB in one village was ranked the number one serious disease across all groups. Several participants were obviously ill and coughing during the research.
Diphtheria	<ul style="list-style-type: none"> ◆ Very little was said about diphtheria. Only once were symptoms of a swollen neck and difficulty with breathing mentioned. 	<ul style="list-style-type: none"> ◆ Immunization against diphtheria was never mentioned. 	
Tetanus	<ul style="list-style-type: none"> ◆ KH. Cuts and injuries. Also known as <i>Skon</i> and <i>Skon m'dey</i>. ◆ VN A person is born with tetanus and little by little it comes out of the body, the person eventually gets sick and dies. ◆ Mothers can pass it to their babies. Wind enters the body and causes tetanus. ◆ Dog bites. ◆ Rusty nails, nails have bacteria and poison. ◆ Fighting. 	<p>“<i>Peit</i> said this disease was tetanus and comes from rust. The <i>Kru Khmer</i> said it comes from <i>skon m'dey doeum</i>.” (Kh mothers poor rural).</p> <ul style="list-style-type: none"> ◆ To avoid complications from tetanus a person must not eat ducks or chickens when having a convulsion as they may choke. ◆ There is awareness of tetanus immunization for children and older people who have had an injury. Many Khmer women were aware of its availability for them, but less Vietnamese women, and none in those groups reported being vaccinated. 	<ul style="list-style-type: none"> ◆ Mix rice with red peppers and garlic to put onto the wound. ◆ Grind monkeys' gall bladders and drink. ◆ Allow the wound to bleed. ◆ Burn or cut the skin where it is wounded. <p>“<i>Peit</i> or <i>Kru Khmer</i> cannot cure nor can praying.” (Vn girls poor).</p>

⁸ Rubbing a blunt instrument (coin) over the bones of the body until a red mark is left.

IMMUNIZATIONS PRACTICE AND ATTITUDES

- **Vaccines and schedule**

Hesitation and lack of clarity about the immunization program was most apparent when asking what illnesses the program helped protect children against. There were many combinations that often included cholera, fever and diarrhea. The ages that children could have immunization varied from six weeks to five years of age. Not one participant across any of the groups could clearly state the immunization schedule or report precisely that their child was fully immunized. None of the children of the ethnic Vietnamese participants were fully immunized. They never went to the HC, and they reported only one outreach contact by the Red Cross in the month of November – one of their busiest fishing months. Children in the Khmer villages reported receiving outreach activities more often, though a common theme was that they did not get any notice of the immunization sessions. All groups reported that the mothers were responsible for taking a child for immunization though other family members would go if the mother could not.

- **Side effects**

In the Khmer villages, side effects of temperature and swelling at the injection site were reported. In several cases, it was documented that the child had received medicine for their side effects. It was unclear if this was given at the time of the immunization or whether the child had to be taken to the HC for a consultation. Three groups in one village reported that cases of polio occurred because of faulty injection technique (injecting into/missing a nerve/vein⁹). Several groups, while commenting on the benefits of immunization, reported that they did not like taking their healthy child for immunization because they came back unhealthy. The ethnic Vietnamese reported side effects of fever and one group of fathers reported a case of an abscess at the injection site. No one from the water community mentioned any free medicine available for these side effects.

- **Tetanus toxoid for women**

The young people interviewed possessed a great deal of understanding about the immunization program and believed tetanus vaccine was important to protect people after accidents. In one group of young women only three out of eight participants had received tetanus toxoid (TT) immunization. The remaining five reported that they were afraid of the injection – that it would hurt – or else they were out working in the fields and had little time. The Vietnamese women's group reported that they did not go for TT immunization as they had no money and they had their own traditional midwife. None of the Vietnamese women reported receiving TT.

- **Efficacy and HB**

Many participants reported that immunizations do not protect the children completely. However, participants did recognize that immunization could reduce the severity of a communicable disease. A group of poor fathers from a village near the national road had strong opinions about efficacy of immunizations.

“If we get the immunizations and polio still occurs why does the *peit* come to visit us for immunizations? (Kh fathers poor road).”

⁹ The word for *k'sai* in Khmer refers to veins, arteries, ligaments, tendons or nerves.

A worrying comment that came from two groups was that immunizations were so effective that they were a panacea for children against all serious diseases. This may lead to disillusionment with the program when infectious diseases still take or harm young lives. The prospect of children having HB vaccine was received with agreement. However, the same group as above passed a very astute remark.

“Yes we want to get it (HB); we want to have it if it is effective.”

- **Dissenting voices?**

The immediate response to the immunization services was very positive, but it may be possible to interpret dissent in the concern about side effects, efficacy of vaccines and a reported feeling that the HC staff ‘needed’ to immunize the children.

“When we know that there is the [immunization] activity, we take our children to it to avoid getting sick. The vaccinations protect us against illness. The health workers do well, but we are afraid and we don’t believe in the protection. They call us to get the vaccinations, they are nice to us, they need our children to get vaccinated. “

“[Mod] What do you not believe?”

“We have no worries, if they don’t give the vaccinations our children get sick, they give the vaccination, why do we worry? (Vn mothers poor). ”

It seems that while there is clear agreement and support for the immunization program, there is a feeling that it is in the best interests of the immunization staff to have a child immunized and not necessarily the child itself. It seems that this issue suggests suspicion of public health policy, and lack of individual empowerment and responsibility.

INTERACTION WITH IMMUNIZATION STAFF

Interaction with the staff was mixed. Several accounts reported that they were happy with the staff and that they were pleasant and informative. Others informed the researcher that poverty affected the interaction and the service received from the *Peit*.

“If we have money, they are our friends, if we have no money they do not take care of the poor like us (Kh girls poor road). “

The *Peit* was frequently mentioned as a source of information across all groups. The young women’s group talked about going to both *Kru Khmer* and *Peit*; both were equally respected and interaction was positive.

“I believe both the *kru khmer* and *peit* ...sometimes the *peit* cannot cure us because there is an army of evil spirits against us... but the *kru khmer* can shield us... then the *peit* can give injection, that is why we go to both. (Kh girls medium rural). ”

A young man and future father who had gone for treatment to the HC was disenfranchised by interaction with the HC staff.

“Yes we get medicine at once from the HC – without asking symptoms...they only look at us and give us medicine...I feel angry that we don’t have a medical check-up... (Kh boys poor rural).”

One group reported that they had gone to the HC only to find it closed. The Vietnamese never talked about going to a HC. In cases of necessity and if the family had money, they went to private facilities, or in serious cases, a few participants reported that their family members went to Vietnam.

TIMING AND ACCESS

Access to *Kru Khmer* is easy; it is usually in walking distance, and the *Kru Boran* is available most hours in the day. Access to the HC varied; most had access via motorcycle taxis, bicycles or by foot though access became more difficult in the wet season. The furthest distance a group had to travel was 12 km. One group in the rural location reported immunizations were provided at the Wat and appreciated the ease and availability of this service. The ethnic Vietnamese had difficulty accessing government health services for curative care or immunizations and were very appreciative of services coming to them.

Farmers reported that they were busy most of the year, and the younger ones talked of seasonal labor in the quieter months. Extracting sugar from palm trees was an occupation most men did from December to April, and May to September was rice-growing season. The quietest months were October, November and December. The men were the only group to have free time during the day.

Fishing families reported their busiest months to be October to April or May when they were about 5 km away from their homes for fishing. Quiet months were July, August and September. The participants acknowledged that the quiet times were when it was raining and the Tonle Sap River was high which made access difficult for the health workers. Many reported seasonal work but all said that they stayed in Kompong Chhnang province. The Vietnamese reported that government officials sometimes moved them off the water. All groups said that if they were given notice of an outreach visit, they would stay at home for the full day – despite their busy farming or fishing schedule.

SOURCES OF INFORMATION

Throughout the course of the research, several sources of information regarding immunizations were reported. The *Peit* was regularly mentioned even by the ethnic Vietnamese. They gave information or advice directly or through the village chief. The village chief played an important role in the immunization program and their interest and support for the research was obvious. Their help with gathering and informing people was witnessed in one village and reported in others. Radio and TV were mentioned several times, as were teachers as sources of information about immunization. One group of participants reported that they ‘believed’ in immunizations because King Sihanouk had endorsed polio eradication days. There was no mention of information from leaflets or other reading materials. VHV’s demonstrated their depth of knowledge of the immunization program and reported that this was through attendance at HC training days

and regular meetings with immunization staff. They were positive and believed that the *peit* was more popular than the *Kru Boran*. Why VHV's were not mentioned as a source of information from any of the participants was puzzling.

OTHER KEY COMMUNITY MEMBERS

KRU KHMER

Kru Khmer play an important role in the lives of Cambodian people, whether they are young or old. The *Kru Khmer* demonstrated their involvement with young and old for curing and prevention of illness. One of the three reported using plants, spitting and incantation for their clients.

“For childhood diseases like *Scon* [tetanus] I can make a bracelet, these babies will be cured (Male).”

They had various degrees of awareness of the immunization program but little knowledge of illnesses covered. One reported that cholera was one of the illnesses protected against. Another reported that he had been invited to meetings by the immunization staff but that he was wary of losing his knowledge to the *peit* and so he remained separate. They all had met people with liver disease, and one reported that he had heard about HB.

“They come to me with stomach ache I give them traditional drugs then they go to the *peit* and they diagnose typhoid and liver disease then they come back to me for drugs. (Male).”

TRADITIONAL BIRTH ATTENDANT

The TBA of the Khmer village had little information about the immunization program though she did report that she had gained some knowledge from the HC and that she believed immunization was beneficial for the children. Her involvement was limited to collecting children and informing the HC of home births. The TBA from the Vietnamese villages had learned her knowledge from her grandmother and had little information about the immunization program. She discussed the problems of poverty but never mentioned the HC.

OLD WOMEN AND MEN

Eliciting information about the history of diseases in the villages proved difficult with this group as many reported that they could not remember. They all reported being aware of the immunization program when the staff came to the villages and that they believed their grandchildren had received injections. One ethnic Vietnamese woman reported that she supported the immunization program as it stopped children getting serious diseases. She did however make a request for immunizations for older people and a birthing room for the young women as she reported that

“TBA was not bad, and better at cutting the umbilical cord than the *peit*.”

A group of ethnic Vietnamese mothers disagreed with this and said that the *peit* had more equipment but was expensive. The TBA used salt and pepper to prevent bleeding when she cut the umbilical cord; this technique, the women continued, only stopped one in 10 babies from bleeding.

HEALTH CENTER STAFF

KNOWLEDGE

- **Side effects and schedule**

All respondents reported that they verbally informed the villagers of the immunization schedule and side effects caused by immunizations with some additionally using written means and one or two also using loudspeakers or the village chief. All 20 respondents acknowledged fever as a side effect, but despite two cases of death in Kompong Chhnang in recent years, no one remarked that anaphylactic shock or death were possible effects from immunization. It is unclear why this is the case as two interviews revealed that the staff believed that the death of a baby after immunization was the reason for low uptake of immunizations in the previous year.

Nineteen of the 20 questioned correctly answered the immunization schedule and all respondents were aware of the procedure for an 8-month baby without any immunizations or a young woman.

- **Training**

Answers to training for immunizations in general brought some interesting yet conflicting responses between those that replied to the questionnaire, those that were interviewed and those from NGOs, in addition NGOs contradicted each other. From 20 who responded to the questionnaire 19 wanted further training. The majority wanted further training about practical and managerial issues of immunization that included: dose, schedules, prevention of side effects, and statistics (graphics) to compare and assess uptake rates of vaccinations in order to monitor and evaluate. One interesting comment was a request to learn a method that would enable the HW to calculate a crude birth rate for their area in order to help planning. It could be assumed that these latter comments refer to an appreciation of basic statistics, an introduction to statistical thinking. Only eight requested training in health promotion including IEC techniques and planning and one respondent requested training on how to use the tetanus and yellow cards. This last comment appears quite pertinent given that only about half the respondents in the quantitative survey knew what their card said, and others commented that their card was an inaccurate reflection of their child's immunization status.

“I want to know more and more about health so that I can explain clearly to the people.”

Of the four HWs interviewed using a semi-structured technique they reported that the quality of training was good, another felt there has been sufficient training.

“The training we have had has been very good. ”

“Every staff gets training. ”

“There has been enough training. ”

One HC chief however, reported that although training was provided in technical issues and management, infection and abscesses were still observed. He felt that this was proof of poor hygiene and bad injection technique by the practitioner.

An NGO working to support HCs and their immunization program agreed with some HWs that there had been adequate training, though they reported that more training was planned to introduce the new program called Integrated Management of Childhood Illness. They added that due to all the training there appeared to be little time for outreach or other service delivery demands.

Another NGO contradicted this while reporting that

“There has been lots of progress and capacity building over the last five years. ”

But still recommended that the HWs needed more training.

- **Liver disease**

All respondents to the questionnaire reported that liver disease was a problem for people in the coverage area, and 16 reported that transmission of 'liver disease' could occur through blood transfusions, and needles. Slightly less (11) reported transmission through sex. The questionnaire was designed to allow for multiple responses and so when examined overall only nine respondents identified blood transfusion, sex and needles as transmission routes, four of these did not identify food and water and only one identified razors and toothbrush. The different replies appear to suggest some misunderstanding about transmission routes of 'liver disease.'

Table 2: Knowledge of 'liver disease' transmission routes

Question 29. How does liver disease get from one person to another? ✓ = yes x = no

Respondents	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Blood transfusion (16)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	x	x
Food (9)	X	x	✓	✓	✓	✓	x	✓	x	x	X	✓	✓	x	✓	x	x	x	✓	x
Sex (11)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	x	x
Needles (16)	✓	✓	✓	✓	✓	✓	✓	x	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	x	x
Razors (1)	x	x	x	x	x	✓	x	x	x	x	X	x	x	x	x	x	x	x	x	x
Toothbrush (2)	x	x	x	x	x	✓	x	x	x	x	X	x	✓	x	x	x	x	x	x	x
Social contact (0)	x	x	x	x	x	x	x	x	x	x	X	x	x	x	x	x	x	x	x	x
Other (4)	x	x	x	x	x	x	x	x	x	x	X	x	x	✓	✓	✓	x	✓	x	x
Unsure (0)	x	x	x	x	x	x	x	x	x	x	X	x	x	x	x	x	x	x	x	x

As 'liver disease' was the generic term used to ask the question - despite the fact the question was within a section about HB- then this may account for some differences in responses. Hepatitis A may initially present with signs of 'liver disease' and it is correct to identify food and water as a transmission route - whereas the main transmission routes of HB are thought to be through contact with infected bodily fluids although there is still much to learn about this virus.

The multiple response design meant that while just over half the respondents (11) correctly thought a virus could be responsible for liver disease, with two of these 11 additionally reporting that spirits could also be a cause. The remaining respondents reported spirits (three) and "other" (five) of which hard work, smoking and poor hygiene were thought to be the causes. No one remarked that mosquitoes or bacteria were causative agents and four were unsure.

Over all only a core group of eight respondents correctly reported that blood transfusion, sex and needles (with or without water and food) were the main routes of transmission and that a virus alone was the cause of HB.

When asked about HB 19 had heard about it. 18 were aware that a vaccine was available and 14 had used the vaccine. When asked specifically about training related to the introduction of HB, 18 reported that they would like more training while two respondents were unsure if they had training needs or not. Of those that responded the training needs mentioned were related to general issues about liver disease, care and prevention. A clear understanding of causative agents, transmission routes and the aetiology of HB would be advantageous to the HWs and their communities. HB vaccine has already been introduced in one OD, and it was reported that all the staff had received some training. In the other OD, a supporting NGO reported that staff at the 11 HCs had received training and were waiting to introduce the vaccine. If indeed all HWs have received training across the two ODs then the responses to questions pertaining to liver disease appear to suggest that there still remains a great deal of misunderstanding.

Table 3. Knowledge of causes of 'liver disease.'

Question 32 "In your opinion what causes liver disease."

✓ = yes x = no

Respondents	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Virus (11)	✓	x	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	x	x	x	✓	x	x	x	x
Spirits (5)	x	✓	x	x	x	✓	x	x	x	x	x	✓	✓	x	x	x	x	x	x	✓
Other (5)	x	x	x	x	x	x	x	✓	x	x	x	x	✓	x	✓	x	x	x	✓	✓
Unsure (4)	x	✓	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	✓	✓	x	x

ATTITUDES AND INTERACTION WITH VILLAGERS

- **Coverage rates**

To gain an insight into attitudes and HWs understanding of their client group they were asked for their opinion about coverage rates in their area and the reasons for low uptake of DTP3 and measles vaccines. A majority of 15 workers felt that the coverage in their area was satisfactory, with two and three people respectively thinking it was high and low.

“In my area, we have stopped all six diseases but sometimes we have a small amount of measles.”

“In this area, people have all five injections for their children.”

“People in center [urban/road] know clearly and come to us – others [rural/water] wait for us to come to them.”

“They [Vietnamese] don’t want injections, drops are Ok, Khmer people understand what the immunization program is about.”

It was reported that a HC serving the ethnic Vietnamese were “not close” with them and while there had been an increase in Khmer clients the Vietnamese were “too busy and scared” to come. HC staff serving the ethnic Vietnamese recognized language and transport as barriers to providing services. They also reported that side effects, especially abscesses at the injection site created a problem that was largely responsible for low uptake of injectable immunizations – oral polio was no problem.

- **Low uptake rates**

It appears that the HWs have a good appreciation of their client group. Eighteen out of 20 reported side effects as the most common reason for refusal to have immunizations. All respondents reported fever as the side effect that deterred people while three additionally reported ‘swelling at injection site’. One reported that families had to wait until they had sufficient funds to purchase medicine for the anticipated side effects before they could agree to immunizations. Poverty was described as a problem in terms of seasonal labor and “poor people moving around a lot”.

Only one direct comment criticized the parents and HWs for not caring. Other comments about the lack of the mothers’ knowledge were mentioned by NGOs.

“Some parents don’t bring their children because they don’t care.”

“Staff become thinner through talking too much to mothers”

“Poor knowledge of mother.”

The development of HC Feedback Committees (FBC) received praise. FBCs seem to have the potential for empowering the immunization service users through dealing with complaints, listening and reporting recommendations to the HC staff. This potential may be able to deal with complaints like that voiced in one village - a HW drunk and speaking rudely. However, FBC’s need clear lines of communication with the HC and those that it represents, plus a degree of power. One NGO reported that the lines of communication were in the nascent stages of development.

“HC and FBC make a plan to inform villages but then the HC changes its plan and information is not passed to the villages.”

Several HWs expressed the opinion that more villagers were accessing the immunization services and that this was broadly due to two changes: firstly a change in villagers’ belief system and secondly the introduction of HB.

“Before people believe in *Kru Boran*, now they understand about the disease.”

“People have changed from believing in spirits to science.”

“Villagers like HB more and more are involved in our activities.”

Two responses reported that where HB was already introduced, children had fevers after receiving vaccination and this deterred others from receiving the immunization.

- **Responsibilities**

It seems that despite perceived changes in villagers' attitudes to immunizations 16 HWs believe that they were the person responsible for making sure a child was immunized, among these however, among these 10 felt they were solely responsible while the others shared responsibly with the parents. Of the four who did not report that the HW was responsible three felt it was a parents responsibility and only one reported that it was exclusively the mother. A minority reported FBC (three) and grandmothers (two) in "other" were either additionally responsible with the HWs or the parents. This is an interesting comparison to the villagers' perception - whereby it was reported that while all relatives of a child could take them for an immunization it was the mother who was predominately responsible for the child.

PRACTICE

- **Outreach**

Everyone interviewed reported positive changes and improvements to the immunization program over the last seven years even though, it was remarked, the population had become more dispersed with greater political stability and peace in Cambodia, and this was problematic for outreach workers. Staff need to travel in twos or threes in remote areas for fear of rape or robbery. The health service reforms also brought more work, more demands and different priorities for the health workers.

“Before 1995, we had less work, only antenatal clinic, immunizations and curative. Now there is more and more work, different priorities and less emphasis on immunizations.”

One outreach team reported that they covered nine villages, which usually takes them two-three days per remote village, in total nine villages takes them about 23 days.

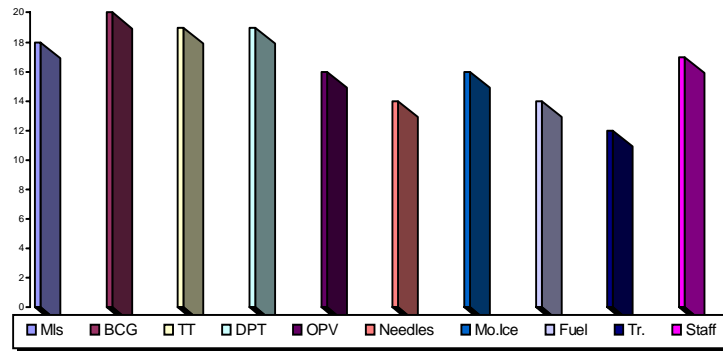
All 20 respondents to the questionnaire reported doing outreach activities monthly, while three additionally reported a two-monthly visit for some areas, and there was one positive response to 'no fixed schedule'. The vast majority (18) reported giving one-day notice although at times no notice was given (5). The majority of respondents used a mixture of verbal and/or written methods to communicate this notice to the villagers, only two respondents relied on written messages alone. Given the repetitive request for notice by villagers across all geographical locations the high number of positive responses for a one-day notice is surprising.

- **Equipment**

In general, immunization materials/equipment were reported to be in sufficient supply (Table 2), though one staff remarked that delivery was not always regular and this led to lack of materials for immunizations. Additionally, multi-dose vials led to wastage. To prevent excessive wastage one interviewee reported a practice of immunizing a minimum of six children, yet another reported that a multi-dose vial would be opened even for one child. Transport for outreach was the biggest problem reported through the questionnaires and the semi-structured interviews. The HWs received payment for travel, which covered the cost of petrol but they used their own motorbikes and had to pay themselves for 'wear and tear' costs.

Interestingly, in response to the final question on the questionnaire there were 12 comments requesting more equipment nine requesting money and six requesting more IEC materials.

Table 4. Positive responses by health workers to having sufficient supply of resources



Key:

MIs	measles vaccine	Mo. Ice	money for ice
BCG	vaccine against TB	Fuel	money for fuel
DTP	DTP vaccine	Tr	transport
Needles	needles/syringes	Staff	staff

- **Money**

Per diems are paid to HWs for outreach in addition to petrol costs; different HCs operated different procedures for dealing with this money. In some HCs, per diems paid to health staff for outreach were shared equally amongst all workers whether they did outreach or not. Others reported a percentage went in overheads and the worker was given the remainder. Yet another center reported that the outreach worker got all the per diem. It was unclear, however, what the health worker felt about this. Given that a CARE (2000) report listed outreach as one of the least favorite aspects of a health workers' day, it is assumed that the distribution of per diems may cause some disputes. However, given that the salary of a HW is less than a livable allowance, it is difficult to see alternatives to sharing.

- **Records and procedures**

In order to facilitate their practice, 19 respondents reported using work plans and had maps to help plan their outreach work. Twelve further reported that they kept lists of villages and coverage of immunizations. Only one respondent remarked that s/he was unsure what records were kept to facilitate outreach activities. Several interviewees reported that reporting procedures were good but that they were not always followed. Comments were made about incorrect filling in of the yellow cards and that at times health staff misrepresented the immunization statistics to please their superiors.

- **Follow-up**
 Children who had failed to be immunized were followed-up by HWs using several methods: home visits (15), by asking the VHV to go to the home (12) and meeting the child/family at the next outreach session (4). Meeting the child at the next outreach session could be deemed a follow-up if the HW keeps a tracking system of children's immunization status in their coverage area and seeks out the child at the next meeting in the village.
- **Immunization**
 The TBA (20) is the main source of information to the HC about a newborn baby, with the VHV (18) and midwife (16) also playing an important role. At one observed outreach activity an interviewer witnessed the HWs and VHV collecting mothers of predominately young babies together. OPV was dropped onto the lips of sleeping babies; then the villagers waited around until they were told to go. One mother who was obviously tired and unwell held a crying baby with sticky eyes. After the child's immunizations, she waited and reported that she did not have enough money to go to the HC and hoped that the staff on outreach could help – they could not. The separation of immunization from a holistic approach to mother and child health, and perhaps the lack of funds to supply time, medicines and materials to the outreach team, may affect the health of this child and its future immunization status.
- **Support and supervision**
 An NGO and some immunization staff reported that moves have been made to integrate services, and one reported outcome was regular supervision by an integrated team. The generic nature of an integrated supervision team, however, has led to the reported development of checklists. These checklists appear to focus the supervisors' energies on ticking boxes and restrain them from conducting a holistic assessment of the individual practitioner's needs and strengths. This, it seems, prevents appropriate technical assistance as the supervisors do not have the time and may not have the specialized ability to carry out spot checks on procedures and records of immunizations.
- **HB**
 The majority of HC staff feel that the addition of HB adds little extra to their workload, believe it will improve the service and believe the people want it. Two respondents to the questionnaire however, reported fever due to HB and that this deterred others from receiving vaccines.
- **IEC**
 When asked about informing the general public about HB again multiple responses were possible but the findings show that the majority of HWs (19) reported that information should be given to the villagers verbally and this seems to be the medium most remembered by the participants. However a high response rate of 16 was given for written materials, which seems surprising given the literacy rates. Nine responses thought radio would be a good means of communication while 12 comments in "other" were in reference to videos, FBCs and loudspeakers.

DISCUSSION

VILLAGERS

This research has highlighted a wealth of knowledge that exists in the community about illness, health, prevention and cures. This knowledge is varied. The knowledge of illness prevention based on traditional cultural patterns is the most extensive. Knowledge of prevention based on vaccinations and bio-medical understanding is limited. There is awareness of the immunization services but little knowledge could be reiterated with clarity and comprehension about immunizations. This hesitation and lack of clarity appear to undermine the initial positive response mothers and fathers voiced about the immunization program.

The precarious nature of good health for children in Cambodia and the reports that a healthy child may become unwell from side effects must be a concern for poor families. The poor have neither extra money for medicine or time to care for a sick child. The choice to make a child unwell in the short term appears to be a stronger influence than protecting the child for the future. It seems that the poor understand the benefits of immunization but will not seek out immunizations and do not want that responsibility. However, if the immunization team comes to them, they will yield to those more powerful. Therefore, immunization is done through opportunistic means. Those more powerful however, do not take responsibility for side effects.

In the short term, little can be done to address these roles and responsibilities. Immunization is a public health issue and the responsibility remains with the outreach teams to improve their service. Responsibility for side effects and treatment is not so simple. Long-term goals should include education and empowerment to enable parents to be proactive and take the responsibility to seek out immunization. Tomorrow's parents are some of the young people in the research who proved to be most articulate.

Several of the young people's groups demonstrated a greater appreciation of the benefits of immunization than their elders did. Better education may have contributed to this. Their knowledge, attitudes and practices are still influenced by their environment and can accommodate both bio-medical interventions and traditional remedies. The young people are active and have the energy to be inquisitive, questioning and proactive. It appears that they have the potential for greater involvement and empowerment through education.

In addition to the young people, one VHV and one Village Chief interviewed demonstrated substantial enthusiasm for the immunization program. The VHV in particular had the highest knowledge and believed that science was becoming a stronger basis for village people than traditional remedies. No participant mentioned VHVs as a source of information and it seems possible that the VHV could be further exploited to benefit the community.

The Vietnamese have the same issues as the Khmer about side effects and knowledge. They also appear to be isolated and wary of interactions with government staff. Their homes are physically close to the capital of Kompong Chhnang but their discussions gave an impression of a segregated poor community. It appears that there is much work to be done in the Vietnamese community.

HEALTH WORKERS

The HWs come from a similar background to the Khmer villagers, so it is assumed that they also have mixed traditional and bio-medical knowledge. Some HW believed that spirits could cause illnesses, including liver disease. The indicators used in this research demonstrated that HW have learnt and understood many practical aspects of immunization service delivery. Several HW demonstrated their commitment to their work by waiting to be interviewed after work or using their own motorcycle for outreach at their own expense. Their understanding of the immunization program procedures, schedule and vaccines was varied but the majority could report correctly and clearly. Responses to 'liver disease' were mixed and demonstrated a need for further training with regard to causative agents, transmission routes and aetiology of liver disease.

It is essential to build working relationships between health practitioners and clients to promote immunizations. From the anecdotal evidence below this is still rudimentary.

- ❖ There were some reports of perceived bad injection technique from the villagers and a HC Chief. HWs and some participants of the research noted abscesses.
- ❖ There was a worrying comment about a HW being drunk and impolite. Hopefully, the development of the FBC will be empowered to work with the appropriate people to bring about changes where needed.
- ❖ Observation of an outreach activity left the impression that the immunization program operated in a vacuum and was unable to address wider health problems of a mother and her child.

The importance of this delicate relationship is paramount if there is to be a shift away from a paternalistic health service provision towards empowerment, education and parents as partners.

A negative attitude towards the poor has been noted in other research (Collins 2000) and it is difficult to see any immediate change in this given the meager salary and the need for self-survival of the HWs. If as Wilkinson (2000) demonstrated the reformed health service is under funded for salaries, maintenance and medicines, then the HWs are placed in a difficult position. Hence, if they wanted and were skilled enough to provide a holistic caring service to their population, the service they could give would be severely curtailed by lack of funds.

Collins (2000) provides a definition from his research of a holistic caring and multidimensional service. He reports that *Kru Khmer* provide this service by taking into account social, psychological, spiritual and physical elements and moreover these elements in combination need to be in any health intervention for it to be deemed worthy. It is not anticipated that HWs could or should provide a multidimensional service like this, only that they require support to expand their view of health care provision and establish improved working relationships.

The introduction of HB in one OD appears to be presenting no problems, though two reports of fever, as a side effect in such a short time period is interesting. Given that fever following DTP is possible, fever following DTP-HepB is also to be expected. Perhaps

systems of recording and reporting differences in reaction need to be developed and documented. Recording and documenting were issues that arose in this research as a potential problem for accurate monitoring and evaluation. Several workers asked to learn more about graphics for immunization uptake rates, understanding some basic statistical analysis may enhance record keeping. Other workers wanted to understand more about the bio-medical functioning of the body so that they could support and inform their clients.

To conclude, the majority of HWs appear to be doing an excellent job in difficult circumstances. These circumstances are lack of transport, issues of notice, supervision, additional work demands and problems with access to and from the ethnic Vietnamese.

RECOMMENDATIONS

It is not possible to generalize findings from this research population to all people from which the research population was drawn. It is up to others in the field to know if these findings and recommendations are transferable to their situation. The following major findings and recommendations are listed but not in order of priority or importance.

1) Finding

One of the main objectives of the research was to identify community KAP towards immunization. The study found that community participants were generally positive about immunizations, some to the extent that they reported immunizations to be a panacea against all communicable diseases. In general however, they were not empowered to be proactive and had underlying fears about side effects, efficacy and injection techniques. Most children in this research appeared to be immunized through opportunistic measures. Other parents who were aware of side effects waited until they had funds to buy medicine for their child.

Hepatitis was reported to be a serious illness with a varied understanding of cause and little appreciation of HB vaccine.

The young people interviewed in this research proved to be some of the most articulate and conversant informants of the health situation in the village. Their KAP demonstrated their ability to integrate both traditional and modern aspects of health care into their worldview.

◆ Recommendation

High infant and child morbidity and mortality created the need for a public health intervention and the immunization program was initiated. This put the responsibility for immunizations with the providers who therefore maintain control. Treating side effects, however appears to be the responsibility of the parents. An IEC strategy needs to be employed to help villagers:

- Assess the risks of illness against the risks of side effects.
- Distinguish that the immunization program does not cover all illnesses.
- Know that only one form of hepatitis can be prevented with a vaccine.
- Feel empowered and confident to seek out immunizations on time.

These messages need to find their way into everyday language, practice and beliefs. Time, money and innovation need to be employed in the creative design of this strategy. One possibility is using drama groups to act out common scenarios. Any IEC strategy would benefit from being verbal. Radio or television are the information channels of choice.

It is recommended that a specific IEC strategy be developed for the ethnic Vietnamese. At first, this should simply inform them of the free immunization service for children and women. It can then be developed to address issues of side effects and empowerment.

Adding HB to HIV as a virus that can be prevented by using condoms would serve all people, in particular the young Vietnamese.

It seems that the young people as future parents are a receptive target group for a specialized IEC strategy. Whether this strategy should be part of a school curriculum or included in a community drama approach should be discussed with relevant school authorities.

2) Finding

HWs' outreach practices in regard to injection technique, working relationships, providing services and knowledge of HB were found to need strengthening. While HWs correctly perceived side effects as the main reason for low immunization uptake rates, some of the side effects were possibly due to faulty injection techniques. Other HWs reported that they were "not close" to their Vietnamese public, there were no other observations about lack of closeness to the poor. Additionally, providers giving immunizations were not able to address the health needs of a mother or those of her child that were outside the immunization field. The poor health of the mother and other adults in the study made it difficult for them to focus and prioritize the needs of their children.

◆ Recommendation

There are several inter-related recommendations that come from these findings some of which appear to be borne from basic training in bio-medical medicine that removes the holistic approach to health from the service providers. This plus insufficient funds for salary, medicines and maintenance leads to a robust private health sector with little regulation that does not meet the medical needs of its users leaving child carers in a difficult position that prevents them prioritizing their children.

In the first instance more research is required to understand any patterns to abscesses occurring.

Secondly, further research is required into the capacity of trainers and their skills in identifying trainees needs, designing appropriate teaching materials and using appropriate teaching methodologies prior to introducing further training to the HWs. Finally, a training curriculum for HWs needs to be developed that includes:

- Preparing parents to cope with side effects and empowering them to use the FBC to voice complaints.
- Preparing parents with information about hygiene and maintaining a clean injection site.
- Safer injection techniques that reduce side effects are essential to address parents' fears.
- Holistic approaches to health care that fit into the indigenous belief system in order to build positive working relationships.
- An integrated approach to mother and child or family health during any contacts.
- Advanced understanding of bio-medical workings of the body and the immune system so that knowledge and confidence in the techniques is passed to the community.

- Data collection, recording and reporting of immunizations and side effects so that close and accurate monitoring can be documented, and any differences in reactions with the introduction of DTP-HepB are visible.
- A clear understanding of the causative agent, transmission routes and aetiology of HB.
- Feelings and attitudes to minority groups and the poor.

3) Finding

The community participants perceived that no notice was given before outreach immunization sessions. Underlying fears and the fact that the poorest have to be out of the village working on land mean that when the outreach team arrives unannounced they are often away or only the mothers of very young babies are at home.

◆ Recommendation

The villagers in all geographical areas (water, road and rural) would benefit from 1 – 3 days notice. It may be advisable to work with the FBC to set a timetable of regular meetings in the villages and designate accessible locations. Outreach activities would be better attended if there were notice given. The farmers in the road and rural communities reported that their quiet months were from September to January. The Vietnamese reported that June to September were their quietest months.

4) Finding

Community participants reported mixed feelings about health staff. A lack of funds was reported to affect HC staff attitudes to both Khmer and Vietnamese villagers. Other participants reported that the HC staff were pleasant and a source of information. VHVs were knowledgeable and enthusiastic. However, participants did not mention them as information sources. The VHV attended training sessions and regularly attends meetings.

◆ Recommendation

Continued support for the nascent FBC's, of which the VHV may be a member, appears to be a way forward. The FBC's require clear reporting lines and the power to engender change and challenge systems when necessary. To make this possible, villagers need to gain trust and respect for this system. Additionally, if it is not already occurring then the role of the VHV appears ready for expansion into more health promotion work. Health promotion is a skill that draws on principles of adult education and VHVs may require some specific training in this field.

5) Finding

Traditional health providers interviewed included TBAs and *Kru Khmer*. Neither the Khmer nor the Vietnamese traditional midwives felt involved in the immunization program. The Khmer TBA was more aware and had collected children for the immunizations and referred to the HC for complications. The VN TBA never mentioned the HC and appeared more isolated from government health facilities and services. One

Kru Khmer was invited to work with the immunization team and refused. Another reported the mutual benefit immunization and his knowledge could give children.

◆ Recommendation

The role of the TBA could be more than collecting children for immunization. This would however, be dependent on the individual TBA, their workload and their interest. They are obviously valued members of the community and have a great deal to offer the immunization program if a partnership could be established. Contact with the VN TBA is essential to try to bridge the gap and involve known healers in the immunization program.

A working partnership with *Kru Khmer* is an interesting concept. Bringing the elements judged important by Cambodians (physical, psychological, spiritual and emotional) together to compliment a bio-medical service would be ideal and in the best interests of the child and community. There are however, many different types of traditional medicine practiced in Cambodia some of which may aggravate conditions like tetanus and undermine the immunization service. A further exploration of the types of *Kru* and their potential role in the immunization program is needed. An initial contact may be the Association of Traditional Medicine *Kru* of Cambodia.

6) Finding

The ethnic Vietnamese feel isolated from government health services. This was obviously due to a language barrier and reported insufficient transport by HC staff. Limited outreach activities were reported and have done little to improve the relationship. Additionally, the historical relationship between Cambodia and Vietnam has not engendered mutual respect and the participants reported feeling victimized by some government officials.

◆ Recommendation

The employment of Vietnamese speaking HC staff and regular outreach immunization sessions could improve the relationship between government health workers and their Vietnamese clients. It is important to acknowledge that the historical relationship may influence interactions between Vietnamese clients and Khmer health providers. It may be advisable to examine attitudes and relationships of staff through sensitization workshops.

7) Finding

It appears that some health staff are expected to use their own motorcycles for outreach sessions. Although they receive a petrol allowance, there is no allowance for maintenance.

◆ Recommendation

Salary structures should be examined and funding of transport is an essential factor to support and demonstrate the value of the HWs in their important outreach role.

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APPENDICES

Appendix 1 QUALITATIVE SCHEDULE FOR RESEARCH WITH VILLAGERS

	QUESTIONS	METHOD	
AM	<p>◆ Describe a healthy child . . .</p> <p>◆ What are considered serious illnesses for children?</p> <p style="padding-left: 40px;">what makes this serious?</p> <p style="padding-left: 40px;">what are the consequences of this illness?</p> <p>◆ What causes TB, DTP, polio, measles, liver disease?</p> <p style="padding-left: 40px;">Can you explain the connection here?</p> <p style="padding-left: 40px;">How do you prevent TB. . . ?</p>	<p>FGI</p> <p>Listing, ranking.</p> <p>FGI</p> <p>Causality diagrams</p> <p>FGI</p>	<p>Offers an insight into the worldview of the villagers regarding health, illness and prevention.</p> <p>Indigenous knowledge</p>
PM	<p>◆ How do immunizations fit into the cause and prevention belief system?</p> <p>What do you do in the first year of a Child's life to protect them from harm.</p> <p>Who makes the decision to take a child for immunizations?</p> <p>Who does this person seek advice or information from?</p> <p>What prevents people from having their child immunized?</p> <p>What are the worries with Immunization?</p> <p>What if another vaccine to stop one Form of liver disease was available?</p> <p>Out of this group how many have had their youngest child fully immunized?</p> <p>Why/why not etc?</p>	<p>Cartoon drawings</p> <p>FGI</p> <p>Ask people to move to one side or another.</p>	<p>Offers an understanding of attitudes towards the immunization program.</p> <p>Interaction of indigenous beliefs with EPI program.</p>
	<p>◆ Is access and timing of the outreach program and team convenient?</p> <p style="padding-left: 40px;">where do you live?</p> <p style="padding-left: 40px;">where do you work in the dry season wet season other times?</p> <p style="padding-left: 40px;">how do you 'plan' where you will work?</p> <p style="padding-left: 40px;">can you 'plan' to be in the village?</p> <p style="padding-left: 40px;">how much money would you loose in the wet season to be in the village for a day?</p> <p style="padding-left: 40px;">what time in the day are they free?</p>	<p>Social mapping</p> <p>FGI</p>	<p>Timings and priorities and access – physical psychological.</p>

Appendix 2 SEMI STRUCTURED INTERVIEW WITH OTHER KEY PEOPLE

Old women; old men, Village Chief; TBA; Village Health Volunteer, Health center staff.

Subjects for questions for Village Chief

- ⇒ History of changes in the village. . . .
- ⇒ His opinion of the immunization program. . .
- ⇒ Reasons that stop children having five injections for immunizations in the first year of life.
- ⇒ Thoughts on addition of hepatitis B to the program. . .

Subjects for questions for Old women and men

- ⇒ History of changes in the village. . . .
- ⇒ Opinion of the immunization program. . .
- ⇒ Practice of grandchildren. . .
- ⇒ Thoughts on addition of Hepatitis B to the program. . .

Subjects for questions for TBA

- ⇒ History of changes in the village. . . .
- ⇒ Their involvement in the immunization program. . .
- ⇒ Their experience of the immunization program. . .
- ⇒ Thoughts on addition of the Hepatitis B vaccine. . .

Questions for Kru Khmer

- ⇒ History of changes in the village. . . .
- ⇒ Their work with children. . .
- ⇒ Work in prevention. . .

Questions for Health Center staff

- ⇒ History of changes in their catchment area. . . .
- ⇒ What training have they had in recent years.
- ⇒ What are the main difficulties in providing an immunization service.
- ⇒ What do they perceive the reasons are that stop children having 5 injections for immunizations in the first year of life.
- ⇒ Thoughts on addition of the Hepatitis B vaccine. . .

Appendix 3 QUESTIONNAIRE FOR HEALTH WORKERS

Name of HC _____	
Interviewer's name _____	
Date of Interview	__ __ / __ __ / 2002
Result of Interview	Completed 1 Partially completed..... 2 Refused 3
Sex of respondent	Female 1 Male 2

Introduction

Good morning/afternoon, my name is _____ and I work for PATH in Phnom Penh. We are conducting a survey in Kompong Chhnang. The purpose of this survey is to learn what villagers' think, feel and know about childhood immunizations and liver disease. The information you provide will help us to understand what villagers' need in order to help keep their children healthier.

I would therefore like to ask you some questions about your work with the immunization program. We do not ask for your name and we will not show your answers to anyone else. We would greatly appreciate it if you could help us understand the strengths and weaknesses of the present program. What we learn from you will help us to improve support to you so you can help the communities and provide a good service. May I sit down with you and ask some questions? It will take about 30 – 40 minutes.

Interviewer arranges for a private setting to conduct the interview

Section I would like to ask some questions about immunizations and planning

No	QUESTIONS	CODE/RESPONSE	SKIP
1.	In your opinion, how would you describe the coverage of immunizations in your area?	High..... 1 Satisfactory..... 2 Low..... 3	
2.	Where do the majority of children in your coverage area get immunized?	HC..... 1 Outreach..... 2 Hospital..... 3	
3.	Last month (Feb) did you have enough: Measles vaccine? BCG? TT? DTP? OPV? Needles? Money for ice? Fuel? Transport? Staff?	Yes No. Unsure 1..... 2..... 9... 1..... 2..... 9... 1..... 2..... 9... 1..... 2..... 9... 1 2..... 9... 1 2..... 9... 1..... 2..... 9... 1..... 2..... 9... 1..... 2..... 9... 1..... 2..... 9...	
4.	Last month (Feb) how well did your cold-chain function?	Well. 1 Not so well. 2 Poor. 3	
5.	What do you do for a child who has missed an immunization?	Ask the VHW to follow up. 1 Meet at next outreach date. 2 Visit home. 3 Nothing 4 Other (please specify). 5	→6
6.	How many times will you follow up a child who has missed an immunization?	< 3..... 1 3-5..... 2 >6..... 3	
7.	What records do you keep in the HC to help you plan your immunization work?		
8.	How do you know about newborn babies in your area?	VHW informs us. 1 Midwife informs us. 2 Village Chief informs us. 3 TBA informs us. 4 Other (please specify). 5	
9.	In your opinion, what is the main reason for parents <u>not</u> immunizing their children? (Can circle more than 1).	Side effects 1 Too busy. 2 Distrust Imm team 3 Other (please specify). 4	
10.	What are the <u>known</u> side effects of immunization?	Swelling at injection site. 1 Irritability 2 Fever. 3 Convulsion. 4 Anaphylactic Shock 5 Death. 6 Other (please specify). 7	

11.	In your opinion, which side effect causes most concern for the parents?	Swelling at injection site. 1 Irritability 2 Fever. 3 Convulsion. 4 Anaphylactic Shock. 5 Death. 6 Other (please specify). 7	
12.	Who is responsible for making sure a child has their immunizations?	Mother. 1 Father. 2 Parents. 3 HW. 4 Other relative 5 Other health professional. 6 Other (please specify). 7 Unsure. 9	
13.	What is the immunization schedule for a newborn infant? correct answer: 0-6 weeks OPV 0 BCG 6 weeks OPV 1 DTP1 10 weeks OPV 2 DTP2 14 weeks OPV3 DTP3 9+ months measles	Correct. 1 Incorrect. 2 Unsure. 9	
14.	If a child of 8 months is brought to the HC with no record of immunizations, what immunizations is the child due? Correct answer: all (of the above)	Correct. 1 Incorrect. 2 Unsure 9	
15.	If a young single woman of 20 years comes to your clinic which immunization should she have? Answer: Tetanus Toxoid (TT)	Correct. 1 Incorrect. 2 Unsure 9	
16.	Do you require any further training for immunizations?	Yes. 1 No. 2 Unsure. 9	→19
17.	Please specify what training?		
18.	In your opinion what can be done to improve the immunization rates in your area?		

Section 3 I would like to ask some further questions about I E& C

No.	QUESTIONS	CODE/RESPONSE	SKIP
19.	How often do you go to a village for immunization outreach?	Monthly. 1 2 monthly. 2 3 monthly. 3 4 monthly. 4 Less often. 5 No fixed schedule. 6	
20.	How much notice do you give before you arrive?	1 day. 1 2 days. 2 3 days. 3 Less. 4 No notice. 5	
21.	How do you inform the villagers that you are coming?	Verbally 1 Leaflet/written. 2 Loudspeaker 3 Via village chief 4 Other (please specify). 5	
22.	How do you inform villagers about the immunization schedules?	Verbally 1 Leaflet/written. 2 Loudspeaker 3 Via village chief 4 Other (please specify). 5	
23.	How do villagers learn about side effects of immunizations?	Verbally 1 Leaflet/written. 2 Loudspeaker 3 Via village chief 4 Other (please specify). 5	

Section 4 This is the last section, I would like to ask about Hepatitis B

No	QUESTIONS	CODE/RESPONSE	SKIP
24.	Do you know people in your coverage area with liver disease?	Yes. 1 No. 2 Unsure 9	
25.	Has liver disease ever caused long term illness in your area?	Yes. 1 No. 2 Unsure 9	
26.	Does liver disease cause death?	Yes. 1 No. 2 Unsure 9	
27.	In your opinion, is liver disease a problem for people in your coverage area?	Yes. 1 No. 2 Unsure 9	
28.	Can liver disease be transmitted from person to person?	Yes. 1 No. 2 Unsure 9	→32 →32
29.	How does liver disease get from one person to another?	Blood transfusion 1 Food or water. 2 Sex 3 Needle 4 Razors. 5 Toothbrushes. 6 Social contact 7 Other (please specify). 8 Unsure 9	
30.	Can liver disease be transmitted from mother to baby?	Yes. 1 No. 2 Unsure 9	
31.	Can a person look healthy and still have liver disease?	Yes. 1 No. 2 Unsure 9	
32.	In your opinion, what causes liver disease?	Viruses. 1 Bacteria. 2 Mosquitoes. 3 Spirits. 4 Other (please specify). 5 Unsure 9	
33.	Can liver disease be prevented?	Yes 1 No 2 Unsure 9	
34.	Have you heard of a liver disease caused by Hepatitis B virus?	Yes. 1 No 2	
35.	Have you heard of a vaccine against Hepatitis B?	Yes. 1 No. 2	→39
36.	What have you heard about this vaccine?		
37.	Have you ever used this vaccine?	Yes. 1 No. 2	
38.	In your opinion, if a vaccine were available to protect children against Hepatitis B, would parents agree this?	Yes. 1 No 2 Unsure 9	

39.	If Hepatitis B were added to the DTP injection, what difference would this make to your work?		
40.	How do you feel about adding Hepatitis B to the immunizations for children?		
41.	In your opinion, do you require further training before using Hepatitis B?	Yes. 1 No. 2	→44
42.	Could you specify two training needs you have?		
43.	In your opinion, if Hepatitis B were added to the immunizations what information do the villagers need?		
44.	How should this information be given?	Verbally. 1 Written/leaflet. 2 Radio. 3 TV. 4 Other (Please specify). 5	
45.	Is there anything else you would like to say about the immunization program?		

Thank the respondent for their time and information; tell them that the information will be used to improve the support to them and the service they provide to the community.