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CHILDHOOD POISONING: A STUDY IN THUA THIEN HUE & DONG THAP PROVINCES IN 2006



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Hanoi, March 2007

Acknowledgements

The RTCCD study team would like to thank the following people and organizations who gave comments to the research design: Assoc. Prof. Dr. Nguyen Thi Hong Tu – Vice director of Vietnam Administration of Preventive Medicine, Head of National Project Management and the Assessment Board; Mrs. Nguyen Thi Y Duyen – UNICEF project officer Staff, and Prof. Dr. Nguyen Thi Du – Head of Poisoning Control Center. In implementing the fieldwork, the research team got strong assistance from Dr. Tran Thi Minh Huong – Head of Pediatric Department of Hue Central Hospital, Dr. Hoang Van Duc- Staff of Hue Department of Health, Dr. Huynh Thien Sy – Staff of Dong Thap Department of Health, Dr. Nguyen Ngoc Diep- Vice Director of Thap Muoi Hospital, and Dr. Nguyen Thi Nguyet Binh – Vice Director of Sa Dec hospital.

We highly appreciate if receiving more comments on the report. Any weak points remained of course, we are responsible for.

On behalf of the study team

Tran Tuan, MD; PhD

Abbreviations

CIP	Children Injury Program
Dept.	Department
ICD-10	International Classification Diseases
IEC	Information, Education and Communication
MOH	Ministry of Health
RTCCD	Research and Training Centre for Community Development
TOR	Terms of Reference
CHC	Commune Health Centre
UNICEF	United Nations Children Fund
WHO	World Health Organization

Executive summary

This study was conducted on the request of UNICEF and the Vietnam Administration of Preventive Medicine within the context of the UNICEF-MOH program on childhood injury prevention (CIP). The study aimed to identify the routine information system of childhood poisoning, to describe the circumstances of childhood poisoning, to identify the poisoning risks, common factors associated with childhood poisoning, and to provide recommendations for effective prevention of childhood poisoning. It was carried out by a local independent research institution (RTCCD) in two provinces of Thua Thien Hue and Dong Thap from November 2006 to January 2007. In data collection, the team used the two steps approach:

- *Child poisoning survey at the public routine information system:* Four provincial and regional hospitals located in the two provinces, together with two district hospitals in each province were visited by the team for collecting list of child poisoning cases during the last 3 years. From the lists, a sample of 56 cases which met the ICD-10 definition of child poisoning and happened during the previous 6-12 months were selected for the community case study in step two. In addition, an assessment of the public health provincial information system including both curative and preventive statistics for monitoring child poisoning was also conducted in this step.
- *Community child poisoning investigation:* From 56 cases selected from the hospitals, field study was conducted to interview parents or child caregivers about the causes and circumstances of poisoning happened. Other child poisoning cases similar to the index cases were explored to identify the magnitude of childhood poisoning at the community. 10 community group discussions were organized to collect the recommendations for childhood poisoning prevention.

The study found that:

- The current routine information system within the provincial health system was not adequate for monitoring childhood poisoning. The main reason is a lack of a common practical definition of child poisoning, a lack of practical guideline for recording data and using data from the hospital information system for hospital management and public health purposes.

- The information written in most patients' record books was not clear and not sufficient for classifying child poisoning by causes as well as for further investigating causes.
- Data on childhood poisoning reflected by the routine information system was much lower than that happened at community.
- Data from the last three years in each province did not tell us about the trend of childhood poisoning. From community investigation, public opinion expressed that childhood poisoning was increasing during the last 3 years.
- In terms of the magnitude of childhood poisoning, from investigation of 56 poisoning cases we found other 60 poisoning children in the community. It indicates that the percentage of unreported poisoning cases was 52% (60/ 116); of which, food poisoning was the highest 63% (38/60) and venomous bites accounted for the lowest percentage of unreported cases 20% (4/21).
- Children aged less than 2 were unintentionally poisoned at home due to parents or people who look after children. Whereas, children aged from 2 to 5 were unintentionally poisoned at home, neighbor's houses, or kindergarten. Children aged more than 5 were poisoned unintentionally or intentionally at home, food stall, in the canteen, in school, on the street, in the jungle or in the relative's house...
- Childhood poisoning happened most commonly in food poisoning, followed by chemical poisoning, medical and biological poisoning, and rarely venomous bites. Commonly using illegal substances in producing, preserving, and processing foods is the main cause of food poisoning, while a lack of a public health system for effectively inspecting and controlling human poisoning is the main cause contributed for a high prevalence of chemical poisoning, food poisoning, and medical and biological poisoning.
- Risks for childhood poisoning are enormous and varied by type of poisoning. For food poisoning, as the most listed are bacteria contamination, chemical residue, chemical addition and pigment addition in preservation of foods as well as during food processing. For chemical poisoning, the main reasons were unsafe storage, usage of fake and out-dated chemical products or committed suicide. For drugs and biological substances, the most common risks were unsafe storage, misuse, overdose of medicines, usage of quack herbal medicines, followed by suicide.
- The root causes of childhood poisoning were attributed to a poor knowledge from community, childcare givers, and school teachers about risks of

childhood poisoning. The research also found that prevention of childhood poisoning and first aid for poisoning cases have not been addressed adequately in the primary health care system.

- There is a big gap between people awareness on bad effects of childhood poisoning and actions for prevention of childhood poisoning. Findings from group discussions and interviews showed that people claimed that childhood poisoning was a big issue, especially food poisoning but most of them did not have clear solution and action in prevention of childhood poisoning.
- When childhood poisoning occurred in the community, people did not know how to conduct a proper first aid. The knowledge and skills of people about first aids were poor.

Recommendations

1. Upgrading the routine information system for better monitoring childhood poisoning, standardizing the patient's record book in public and private health sectors.

- A study is needed to revise current information system for monitoring childhood poisoning. The system should cover both public and private health care providers, inpatients and out-patients, as well as data from community outbreak investigations. Based on this research, guidelines on investigating a case of poisoning and standard forms for case recording at community as well as at hospitals need to be developed. Definitions and classification of childhood poisoning proposed by WHO (ICD-10) should be used.
- Training on monitoring childhood poisoning should be integrated to the training program on collecting and analyzing the routine information system data for hospital management and public health purposes.
- The routine health information system should be revised towards a two-way information system. This is particularly true for childhood poisoning: any case diagnosed by hospitals as poisoning should be followed by a community investigation for prevention purposes.

2. Putting childhood poisoning into agenda

- Childhood poisoning, especially food poisoning, is a serious public health problem, therefore, implementing a program of control of childhood poisoning is an urgent need.
- The current system of poisoning investigation (including child poisoning) were not able to investigate most of poisoning outbreaks. Upgrading this system is a must priority.
- A quality control system and hygiene inspecting system should be applied not only to food preserving and processing in factories, but also at public markets
- Strengthening the legislations as well as control and supervisions on food safety, chemicals, medicines and biological substances is needed.
- Medical practice of the private health sectors should be supervised.

3. Improving public awareness on prevention of childhood poisoning

- Improving people's knowledge on the childhood poisoning, including causes, risks, and how to prevent.
- First aids of childhood poisoning should be implemented as soon as possible, through the IEC programs and mass media, including TV and radios.
- Changing the negative behaviors of people which relate to childhood poisoning through IEC programs and building community based intervention models.
- Launching safety education programs in school to improve the understanding of children about the dangers and risks of poisoning.

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1 Introduction

1.1 Childhood poisoning in the context of childhood injury prevention project in Vietnam

Injury is a leading cause of child mortality in Vietnam, with approximately 30,000 children dying each year (about 80 children every day) (WHO, 2005). The majority of childhood injuries are caused by drowning, traffic accidents, falls, bites, burns, poisoning, electrocution and unexploded ordnance and, not only bring tragedy for the victims and their family, but increase the burden on the healthcare service for treatment and rehabilitative care (UNICEF, 2006).

Due to the high proportion of child mortality attributed to injuries, UNICEF Vietnam has placed injury prevention among its top priorities. Since 2004, UNICEF has assisted the Vietnamese Government in launching a program of childhood injury prevention (CIP). One of the program components is the project “Model Demonstration and Institutional Strengthening, Research and Capacity building”, aimed at studying common specific childhood injuries, with an expected output of better understanding contributors and causes to enable more effective prevention programs to be implemented. During the first year of the project implementation, a study on poisoning risks and causes among children has been planned.

1.2 Burden of childhood poisoning and study need

WHO defines poisoning as a clinical condition produced by exposure to an agent in doses considered to be toxic, and may be acute or chronic. Acute poisoning is the exposure of the body to the toxic substance in a high dose, on one occasion, over a short period of time. Symptoms of poisoning develop in close relation to the exposure. Therefore, acute poisoning is often obvious and easy to diagnose. Chronic poisoning is the exposure of the body to a toxic agent, continuously or repeatedly over a long period of time. The toxic substance may accumulate in the body until its levels become significant enough to cause clinical symptoms. Chronic poisoning is very difficult to diagnose (Persson, 2000).

In Vietnam, acute poisoning is considered one of the most common injuries among children. Every day hospitals throughout the country receive numerous poisoning cases, including children, requiring treatment. However, the exact magnitude of the problem and the common causes of poisoning among children in Vietnam have not been identified. Therefore, this study was carried out to obtain a better understanding about the causes of and risk factors for childhood poisoning as well as to develop strategies for prevention of childhood poisoning.

2 Objectives

The study aims to address four objectives:

- To consider the routine information system of childhood poisoning.
- To identify the magnitude of childhood poisoning in the community.
- To describe the circumstances of childhood poisoning in two provinces.
- To identify the risk factors for poisoning and common factors associated with childhood poisoning.
- To provide recommendations for childhood poisoning prevention.

3 Theoretical frame for childhood poisoning study

The study method was established based on the following points:

3.1 Definition of childhood poisoning

Up to the present, there has been no standard definition of childhood poisoning. A practical definition has been established as a framework for the study based on the International Classification of Diseases 10 (ICD-10) and the current situation of childhood poisoning in Vietnam. This practical definition includes three major points:

3.1.1 Food poisoning

Food poisoning is caused by consumption of food contaminated with pathogenic bacteria, toxins, viruses, poisons or parasites. Such contamination usually arises from improper handling, preparation, processing or storage of food. Food poisoning can also be caused by adding chemicals or medicines to food, or by accidentally consuming naturally poisonous substances like poisonous mushrooms or reef fish. Symptoms of acute food poisoning typically begin several hours to several days after ingestion and the symptoms include one or more of the following: nausea, abdominal pain, vomiting, diarrhea, fever, headache, fatigue, or even death in serious cases.

3.1.2 Poisoning by drugs, medicaments and biological substances

An overdose is when a substance, such as a drug or medication, is given or taken in error over the safe amount and may be administered to the body by oral/enteral, inhaled, injected or cutaneous routes.

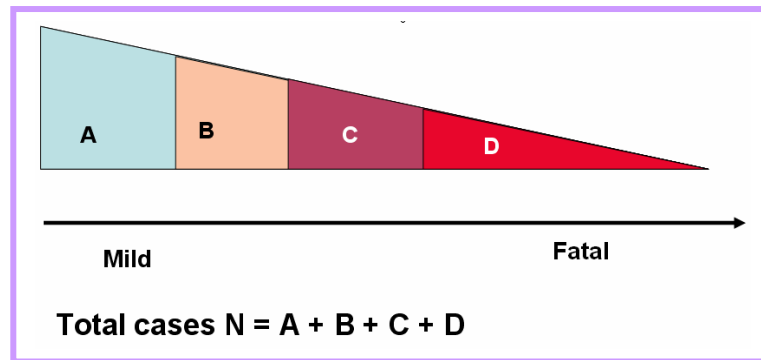
3.1.3 Toxic effects of substances chiefly non-medicinal as to source

This includes the poisoning caused by alcohol (e.g. intoxication, other side effects such as hypoglycaemia), petroleum products, solvents (e.g. benzene, glycols), gases, fumes and vapours (eg hydrocarbons, carbon monoxide), acids and alkali, detergents, metals (e.g. lead, mercury), inorganic substances (e.g. arsenic), pesticides, plant toxins (e.g. mushrooms, berries, plant parts), animal venom or toxin, and others not specified (e.g. nicotine and tobacco).

3.2 Clinical manifestations of childhood poisoning

Clinical manifestations of childhood poisoning are represented in the following diagram. The manifestations lie on a spectrum from mild to severe cases, with a proportion of the cases resulting in death. Only a proportion of the total actual cases will be identified depending on whether or not they present for medical treatment. The more severe the case the more likely it will be identified.

Figure 1: Clinical manifestations



3.3 Diagnosis of childhood poisoning

Childhood poisoning can be identified and reported primarily through three sources:

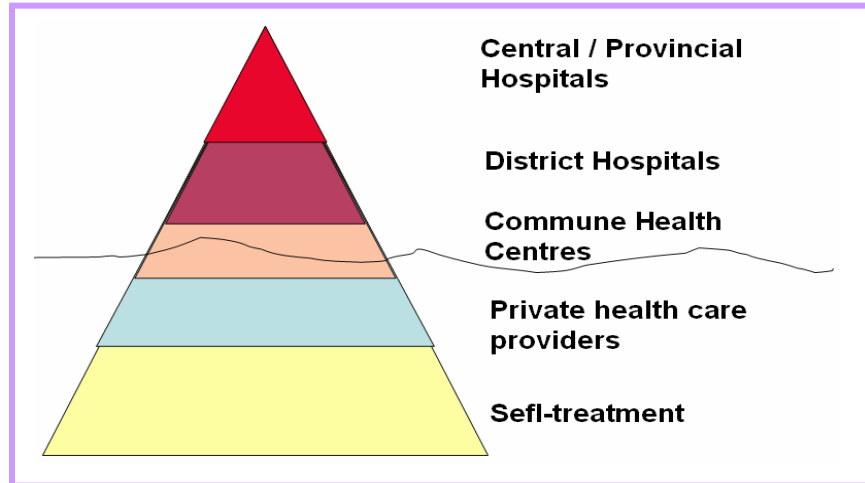
- Family and community
- Health services and points of care
- Epidemiological survey

The reliability of each source is variable. However, diagnosis of childhood poisoning by health services and epidemiological survey is more accurate.

3.4 Distribution of access to health services

Vietnam has a diversity of health services giving patients many choices when deciding which service to access, based on the quality of services as well as costs. The following box describes the health services in Vietnam where children can be treated in the event of poisoning. The available reported figures on childhood poisoning are mostly derived from hospitals at national, provincial or district level, and in some cases can be taken from local clinics. Therefore, in reality, the number of cases of childhood poisoning is likely to be much higher than currently reported.

Figure 2: Distribution of access to the health services



3.5 Causes of and risks factors for childhood poisoning

Causes of and risks factors for childhood poisoning are very diverse and complex. One way to classify them is in the following groups:

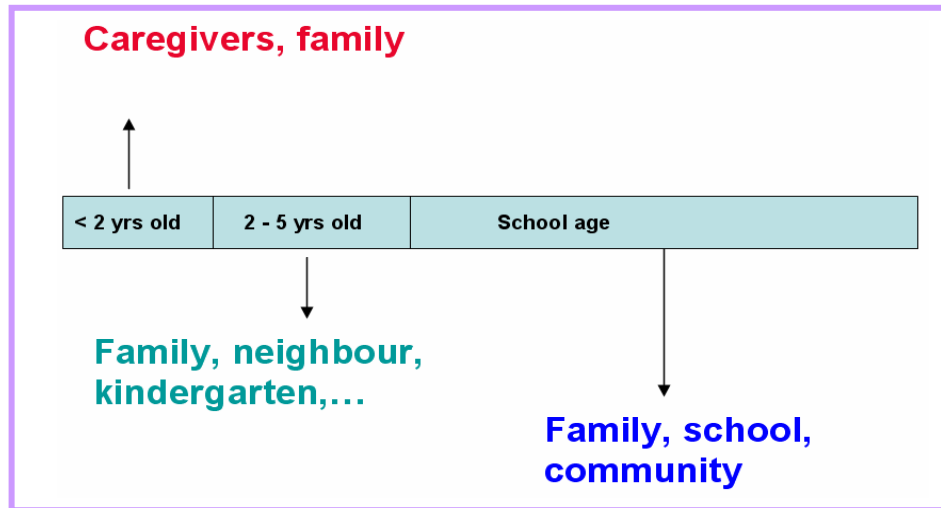
- Poisoning agent:
 - Chemicals (Agriculture, foods, toys..)
 - Drugs (medicines, herbal medicines..)
 - Biological agents (venomous bites)
- Route of poisoning:
 - by contact: via skin (bites); via eyes
 - by ingestion: contaminated foods and water, chemicals, drugs...
 - by inhalation: gases, pesticides...
- Poisoning environment:
 - Family
 - Neighbors
 - Schools, community

3.6 Classification of childhood poisoning by age group

Different risk factors and causes play important roles in poisoning depending on the age of the child. The MOH classifies children in its report system according to two age groups; from 0 – 4 years old and from 5-14 years old. However, the WHO classification of children uses more detailed age groups. WHO (2005) suggested that

age groups should be classified in 5 age groups including less than 1, 1-4, 5-9, 10-14, and 15-18. In this study, which considers how factors in the environment might relate to the risks of poisoning, we classified children in three age groups as shown below.

Figure 3: Causes and Risk factors different by age groups



4 Study methods

4.1 Study strategy

Based on the theoretical study framework described above, the study used the following study design strategy:

- The routine health information system in each province was surveyed for statistical data on childhood poisoning, and the public hospitals were surveyed to obtain the records of all patient visits for poisoning at the hospital during the previous three years. Then a sample of cases from the previous 6 to 12 months was selected for the community investigation for childhood poisoning. The cases selected were representative for patterns of poisoning in children with the following categories:
 - Age group (less than 2 years, from 2 to 5 years, more than 5 years).
 - Types of poisoning: food poisoning; drugs and biological substances; chemicals; venomous bites.
- For the community investigation, each case was investigated to determine the circumstance of poisoning, causes and factors contributed to the occurrence, and similar cases within the community was also explored to estimate the magnitude of childhood poisoning in the area.
- Opinions about poisoning risk factors and preventative strategies were collected from various discussions at the community level.

4.2 Data collection

The data collection was carried out via two methods:

- **Secondary data collection:** at provincial and district levels. Statistical data of childhood poisoning for the last three years was collected from the Provincial Department of Health, the Provincial Department of Preventive Medicine,

Provincial hospitals, the District Department of Health, and District hospitals. Statistics staff and people in charge of the routine data information system were interviewed for identifying accuracy and efficiency of data reported.

- **Community investigation:** parents or child caregivers of the index cases were interviewed on circumstances of occurrence of childhood poisoning, cause and factors for the occurrence, and other similar cases around their place. In addition, focus group discussion were organized for community people and community leaders for collecting recommendations for childhood prevention.

4.3 Sites

Study was carried out in two provinces, Thua Thien Hue and Dong Thap. In Thua Thien Hue province, secondary data was collected from the Provincial Department of Health, the Provincial Department of Preventive Medicine, three provincial hospitals and two district hospitals. Field study was conducted in 14 communes. In Dong Thap province, secondary data was taken from the Provincial Department of Health, the Provincial Department of Preventive Medicine, the provincial hospital and two regional hospitals. Field study was carried out in eight communes.

Thua Thien Hue	Sites of implementation
<i>Secondary data collection</i>	Hue Department of Health, Hue Department of Preventive Medicine, Hue Central Hospital, the Hospital of Hue Medical School, Hue City Hospital, Phu Vang Hospital, & Huong Tra Hospital.
<i>Field study</i>	Communes in Phu Vang District: Vinh Thanh, Phu Xuan, Phu Luong, Phu An, Phu Da, and Phu My. Communes in Huong Tra Dist.: Huong Chu, & Huong Van Communes in Hue city: Phu Nhuan, Tay Loc, Thuan Loc, Thuan Thanh, Phuoc Vinh, and Phu Hoi.

Dong Thap province	Sites of implementation
<i>Secondary data collection</i>	Dong Thap Department of Health, Dong Thap Department of Preventive Medicine, Dong Thap hospital, Thap Muoi hospital, and Sa Dec hospital.
<i>Field study</i>	Communes in Thap Muoi District: My An town, My An, Phu Dien, Doc Minh Kieu. Communes in Se Dec District: Ward No 3. Communes in Chau Thanh District: Tan Binh. Communes in Cao Lanh town: Ward No.2 & No 11.

4.4 Informants

Table 1: Key informants in the two provinces

	No of participants	No. of places
<i>Provincial level</i>		
• Provincial Department of Health	4	2
• Head of Pediatric Faculty of the provincial hospital	4	4
• Head & staff of Statistic & Planning Dept. of the provincial hospital	4	4
• Head of Provincial center of Preventive Medicine	2	2
<i>District level</i>		
• Head of Pediatric Faculty of District hospital and staff	4	2
<i>Commune level</i>		
• Head of Commune Health Center and staff	15	15
• Teacher, parents, people involved in childhood poisoning (interview & group discussion)	120	22

4.5 Survey organization

- RTCCD launched the study with management support as well as procedural support from the CIP program in liaising with the two Provincial Health Departments.
- The fieldwork was launched by two researchers with technical support from the team leader.

4.6 Study Team

This study was carried out by the RTCCD Community health and Nutrition Team.

- Tran Tuan, MD, PhD – Team leader
- Van Thi Mai Dung, MD, MSc.
- Vuong Van Quan, BSc, MSc.
- Nguyen Thi Thu Trang, MD.
- Tran Dinh Dung, BSc.

5 Findings

5.1 *Childhood poisoning reflected by data from the health information system*

In general, the routine information report system does not meet the requirements for monitoring childhood poisoning, and the reported data on childhood poisoning was severely under-estimated and at low accuracy.

Why that?

In a study province, we found that data on childhood poisoning comes from the two sources: (1) provincial health department report, and (2) provincial center for preventive medicine report (childhood injury report). The first source is reflected only inpatient cases at the hospitals and subjected to errors in coding causes of poisoning, while the second source covers only big poisoning outbreaks and cases reported by commune health center systems. A large part of childhood poisoning cases treated at home or at the private sectors, and even at public hospitals as outpatient visits were not reflected in the routine health information system.

Evidence for that is presented in the two sections below.

5.1.1 **Childhood poisoning reflected by data from the provincial health department report**

Table 2 summarizes the total cases of childhood poisoning in the last three years in the two provinces based on data reported by the Provincial Health Departments.

Table 2: Distribution of total childhood poisoning cases in Thua Thien Hue and Dong Thap, 2004-2006

Year	Thua Thien Hue			Dong Thap		
	<4 yrs	4-15 yrs	Total	<4 yrs	4-15 yrs	Total
2004	14	43	57	110	127	237
2005	1	11	12	123	157	280
2006	1*	12*	13*	53**	64**	117**

(*) is the data of the first 6 months in 2006 and (**) is the data of the first 9 months in 2006

Table 2 shows a reduction of the trend of childhood poisoning in both Thua Thien Hue and Dong Thap for the last three years.

The data of childhood poisoning from the Provincial Health Department was aggregated from the the hospital system. It consists of inpatient cases only, and therefore not reflects the burden of childhood poisoning at the hospital system. Evidence for this was shown in Table 3. There is a big difference between the data reported officially by the Provincial Health Department and the actual data on childhood poisoning in Thua Thien Hue taken from the patient-register books in the Pediatric Department of Hue Central Hospital.

Table 3: Childhood poisoning cases from Hue Provincial Health Department and Pediatric Department of Hue Central Hospital for the years 2004-2006

Year	Hue Provincial Health Dept.	Pediatric Dept. of Hue Central Hospital
2004	57	173
2005	12	215
2006	13*	201**

(*) is the data of the first 6 months in 2006 and (**) is the data of the first 11 months in 2006

Data from provincial health department showed a sharp reduction trend for the period 2004-2006, while the actual trend reflected by patients accessed to the dept of pediatrics in Hue central hospital was an increase of 24% in this period.

The reason is that data from the routine health information managed by the provincial health department covers inpatient only, while data collected by the research team from the patient-register book in the department of pediatrics covered both inpatient and outpatient cases. Therefore, we could say that statistics on childhood poisoning reported by the provincial departments to the MOH missed the part of the hospital out-patient cases.

In addition, evidence from fieldwork showed that from 56 hospitalized poisoning cases we found other 60 poisoning cases in the community and these poisoning cases were not reported in the public routine information system. For example, among 8 children developed clinical symptoms of food poisoning after getting a meal of “com

tam” in Phuong 2 (Cao Lanh, Dong Thap), only one child accessed to the provincial hospital, while the others were treated by private health care providers. Similarly, from a cluster of 10 children developed symptoms of food poisoning after eating cake brought home by their parents from a funeral, only two admitted to Dong Thap hospital for treatment while the other 8 victims were treated at home or by private doctors. These cases were of course, not reported to the routine health information system.

Besides underestimating the actual burden and failing to reflect trend of childhood poisoning, the data aggregated from the hospital system is facing low accuracy and poor efficiency.

First, childhood poisoning data reported by the provincial health department covered for the age range from 0-15 years only, while children is defined from 0-18.

Second, all hospital statistics staff who were interviewed by the research team expressed their difficulties in data management, including recognizing code of type of childhood poisoning, entering data, and aggregating data for report.

Patient records did not show clear type of childhood poisoning ... Sometimes, I did not know which category I should drop a case into that met the ICD 10 classification....We use Medisoft for management of data. Sometimes, I made a mistake in data entry, I could not correct it immediately. I had to to complete the entire record, and then re-entry as a new patient. As consequence, this patient was accounted twice.

A staff from dept. of medical statistics, Hue City hospital, Thua Thien Hue

Looking at type of poisoning reflected by data from the provincial health department, we found that the most common poisoning pattern at community level- food poisoning- was not recorded as a separate type. The six specific groups of childhood poisoning (see Table 4) sometimes made health staff confuse when coding the diseases.

Table 4: Distribution of total childhood poisoning cases by causes of poisoning in Thua Thien Hue and Dong Thap in 2005

Diseases by categories	Thua Thien Hue	Dong Thap
Poisoning by drugs and biological substances	3	49
Toxic effects of substances chiefly non-medical as to source	3	67
Squeal of injuries of poisoning and other consequences of external causes;	1	78
Contact with venomous animals and plants	4	28
Accident poisoning by and exposure to noxious substances	0	40
Drugs medicament and biological substances causing adverse-effects in therapeutic use	1	18

In addition, the information written in most patients' record books is not clear and sufficient enough. Most patients' record books did not indicate clearly the clinical condition of the patients when arriving the hospitals, first aids as well as the treatments before visiting the hospitals. More importantly, the diagnosis of the poisoning towards specific causes was not clearly written. Therefore, the statistics staff sometimes did not know whether or not to select the case for reporting as childhood poisoning.

5.1.2 Childhood poisoning reflected by data from the Provincial Center for Preventive Medicine report (Childhood Injury Report).

Discussing with staff from the provincial center for preventive medicine about poisoning outbreak investigation, we were informed that the Center of Preventive Medicine would conduct field investigation for poisoning outbreaks only if the number of cases were reported high enough. Reasons for that are:

We only carry out an investigation for the cause of a poisoning outbreak if number of victims were 30 or more. We could not conduct investigations for small outbreaks because how we could have enough staff, facilities and financial resources to cover all? In addition, if poisoning outbreaks were not reported to us, or poisoning substance samples were not kept or kept improperly, we could not conduct the investigations too...

A staff from Dong Thap center of Preventive Medicine.

We carried out poisoning investigations based on reports sent to us by the hospitals or the community leaders. As usual, only big poisoning outbreaks were requested for investigation....We can only record the poisoning cases that we investigated or to be reported from the lower level.

A staff from Hue Center of Preventive Medicine

Table 5 shows data on childhood poisoning taken from the Childhood Injury report for Dong Thap. It is clear that with a total of less than 200 cases per year, data reported by the Center of Preventive Medicine just reflected a small part of childhood poisoning, compared to what actually happened at community level.

Table 5: Total cases of childhood poisoning reported by the routine information system in Dong Thap

Year	From childhood injury report (preventive medicine sector- community cases)			From Provincial health report (Curative medicine sector- inpatient)		
	0-4 yrs	5-14 yrs	Total	< 4 yrs	4- 15 yrs	Total
2004	65	83	148	110	127	237
2005	80	91	171	123	157	280
2006	50*	37*	87*	53*	64*	117*

(*) is the data of the first 9 months in 2006

5.1.3 Conclusion for the study at the public health information system

Evidence shows that:

- The routine health information system recorded only a small part of childhood poisoning.
- The routine health information system did not reflect the burden, or the trend of poisoning in children. In addition, for those cases recorded, many errors existed in classification of causes of poisoning.
- Many outbreaks were not investigated and not covered by the routine health information system.
- A large part of poisoning victims not access to the public hospitals for treatment.
- Provincial health department reports did not cover poisoning cases from outpatient source.

- Age range in health data report format missed the group of children 16-18 years old.
- Data reported from the preventive medicine sector were severely underestimated for childhood poisoning cases happened at community level.

5.2 Community study

5.2.1 Overview of index cases selected for the community investigation

As mentioned above, the causes as well as circumstances of childhood poisoning could not be reflected from the routine information system, a community investigation is needed. In this study, we conducted home visits of 56 childhood poisoning cases selected from the study hospitals. Table 6 and 7 show the distribution of 56 index cases by age group and type of poisoning.

Table 6: Childhood poisoning cases by age group

<i>Age group</i>	Thua Thien Hue	Dong Thap
• Less than 2	6	5
• From 2 to 5	7	8
• More than 5	10	20
Total	23	33

Table 7: Distribution of 56 childhood poisoning cases by causal type of poisoning

<i>Poisoning type</i>	Thua Thien Hue	Dong Thap
• Food poisoning	6	16
• Drugs, medicaments and biological substances	7	2
• Chemicals	3	5
• Venomous bites or poisonous plants	7	10
Total	23	33

With this study sample, we could have more than 10 cases for any age group, and have at least 8 cases for each poisoning types, a bit higher than that required by the study design.

5.2.2 Magnitude of childhood poisoning in the community

To identify the magnitude of childhood poisoning in the community, we investigated the similar cases in the community from 56 cases diagnosed as poisoning in the hospitals with the same period.

In total, there were other 60 poisoning cases out of 56 cases in the community. The magnitude of childhood poisoning is reflected by the percentage of reported cases (poisoning cases were treated in the hospitals) per actual poisoning cases in the community.

Table 8: Distribution of childhood poisoning in the community from investigation of 56 hospitalized cases

Causes	Hospitalized cases	Other poisoning cases in the community	Total	Percentage of hospitalized cases
• Food poisoning	22	38	60	37%
• Medicine, biological substances	9	9	18	50%
• Chemicals	8	9	17	47%
• Venomous bites	17	4	21	81%
Total	56	60	116	48%

As can be seen from table 8, only 48 % (56/116) actual poisoning children went to hospitals for treatment and were reported in the public routine information system. The reported data of venomous bites was closest to actual data (80%) and reported data of food poisoning was furthest to actual data (37%).

5.2.3 How childhood poisoning happened?

The findings indicate that circumstances for childhood poisoning happened varied by age group.

Children aged less than 2 mostly got poisoning at home, while for children aged 2-5, it happened in a wider environment, including at home, at neighbors', or at

kindergartens. All of cases in these two groups were poisoned unintentionally. For children from 6 and over, poisoning happened in everywhere, at home, at school, at community, in the forest, in the park, or in an area very far from home. Different from the other younger groups, some cases in this group were poisoned intentionally.

“About 6 PM, I used bleaching agent to clean glasses, then I put the rest of chemical in a glass and put under the bed. My son played on the floor near the bed, he accidentally drank the chemical”.

Mother of a 20-month-old boy in Phu My, Phu Vang, Thua Thien Hue

While going out for leisure, I bought cakes (banh nam) for my two sons; one hour , after eating cake, they both vomited and got diarrhea; I took them to hospital and they were diagnosed as food poisoning”.

Mother of two boys 3 and 1 year old in Tran Phu, Hue City

“..My son played near the bushes together with his classmates, some of them accidentally attacked by bees. My son was the most severe. He was sent to the hospital and stayed there for a week for treatment”.

Father of a 10-year-old boy in Phu Dien, Thap Muoi, Dong Thap

“In the morning, on the way going to school, my daughter bought sticky rice from street seller and ate it with soy sauce. Soon she got sick and vomited. Then she was taken to the hospital. Doctor diagnosed that she was poisoned by food”.

Father of a 12-year-old girl in Phu Hoi, Hue City



Children and food vendors around their school

5.2.3 Why childhood poisoning happened?

Childhood poisoning happened most commonly in food poisoning, followed by chemical poisoning, medical and biological poisoning, and rarely venomous bites. Commonly using illegal substances in producing, preserving, and processing foods was the main cause of food poisoning, while a lack of a public health system for effectively inspecting and controlling human poisoning was the main cause contributed for a high prevalence of chemical poisoning, food poisoning, and medical and biological poisoning.

5.2.3.1 Food poisoning

From the field investigation of 60 food poisoning cases, finding showed that half of children in the investigation were poisoned unintentionally due to eating unsafe street foods such as cakes, rice with pork, breads with meat, grilled pork, apple... The rest of children were poisoned unintentionally because of eating unsafe foods made at home such as shrimp paste, sea fish, and vegetable with raw shrimp... However, this investigation was conducted as retrospective method, and therefore, the risks and factors which caused childhood poisoning were not identified.

From group discussions and interviews, people claimed that food poisoning was caused by bacteria contamination, chemical or pigment added during production, processing or preservation of foods for children.

Bacteria contamination was a major risk of food poisoning. Evidence was obvious from our observation of the foods in the market. In public market, food was kept in normal condition for the whole day for sale without any protection from environment; ready-to-eat food was kept in the same place with raw food, so bacteria could contaminate easily via air, fly and other insects. People still fed children or children ate by themselves the raw food such as meat, fish, and vegetable so bacteria from raw food could cause childhood poisoning.

Observation of 20 food vendors, who sold ready-to-eat food such as fried pork, cakes, agar, drinks... near the schools, we found that all of the foods were not hygienically prepared, cooked or stored. Foods were kept in a glass trolley with the door open all the time. Raw foods were kept inside with cooked foods without separation. A pan

with oil was put on top of the trolley for frying foods. Some cakes and drinks looked colorful because of the pigment. Interviewing the vendors, they did not know whether pigment they used was permitted to use; and the vendors did not know the source of pigment. Vendors used their hands without gloves to serve food to the children. However, street vending foods are still out of control and parents do not know how to keep their children safely from street foods.

“Street foods contain a very high risk of food poisoning but it is hard to control the food vendors because they are mobile”

A staff from Dong Thap Department of Preventive Medicine

“No one knows whether the street foods are safe for children. My son and many other children still buy them before or after school. I just told him to buy from the food vendor who looks clean”

Mother of a 8-year-old boy in ward No.2, Cao Lanh, Dong Thap

Chemical added in food was also another major risk of food poisoning. People from group discussions and interviews also claimed that chemicals have been used extensively in food preparation, processing and preservation.

“I used to be a sea fish seller, when fish was taken from boats, we put fish in a tank and mixed with Urea, salt and Acid Boric. By doing this fish is hard and not rotten”

A woman from Ward No. 2, Cao Lanh, Dong Thap

“I saw several times the meat sellers covered Acid Boric on the meat in the early morning. By doing this the meat looks fresh for the whole day and not get stale soon”

A woman from Ward No. 11, Cao Lanh, Dong Thap



Street food and childhood poisoning

Borax and boric acid are banned to use in food. However, people said that borax and boric acid have been using widely in preservation of meat, fish and production of sausage, pork-pies, rice cake and noodle just because they keep food look more attractive to buyers. The situation has been widely happened in many years. In a study in Bac Ninh province, Hanh et al (2003) reported that 82.35% of pork pie and fermented meat containing Borax. In another study in Ho Chi Minh city, Hai et al (2005) reported that 66.5% pork-pie samples, 68.7% grilled meat samples, and 62.7% noodle samples having Borax. Another study in Vung Tau (Ha, D.T. & Linh, T.V., 2005) found that 91.6% beef chopping pie samples, and 55.8% pork-pie samples having Borax. Evidence form these study, together with information collected from our study show that no public interventions have been launched effectively although research had alerted a risk to public health from some years ago.

Besides that, industrial pigment added into food was also very common and caused food poisoning, especially for children, as reported by people interviewed in our study. Pigment mostly illegally imported and used in food for the purpose of drawing children attention to food. In another study in Thua Thien Hue, Hoa et al (2004) stated that 48.49% food samples from street food having inorganic or industrial pigment.

Chemicals used in agricultural production and animal breeding also accounted for the high risk of food poisoning. People in the community reported that chemicals have been used extensively in agricultural production and animal breeding; therefore, vegetable, fruits, meat, fish could contain chemical residues which could cause the food poisoning and affect the human health.

“We plant vegetables for sale. We have to use the pesticides to spray against the insects, otherwise we have nothing for harvest. All of us use pesticides not only for productivity but because the vegetable is vigorous and good looking when we sell them”

A woman from My An, Thap Muoi, Dong Thap

“Pesticides are easy to buy. We are not sure which one is allowed to use for vegetable or rice as well as its half-life. From our experience, we just buy the one which is effective, cheap and good for our vegetable”

A group of people in Huong Van, Huong Tra, Thua Thien Hue

“All the people who raise pigs in my hamlet use unbranded animal feed. Each lifecycle of a pig, we injected it one or two times with a chemical solution, which I don’t know the name of, but it has a pink color and is available and not expensive. When pig is fed with animal feed and injected the chemical, it grows faster and its skin look nice”

A woman from My An, Thap Muoi, Dong Thap

Our findings confirm information about the public use of chemical in agriculture affecting public health. In a recent study on pesticide usage for vegetable in Thai Nguyen (Hoa, P. B; Ham, D. & Anh, N. N., 2005), the findings showed that 72.9% of farmers, who grew vegetable for sale, used pesticides for vegetable; and 61.4 % of farmers have not been advised and did not know how to use pesticide properly and safely. Another study on the usage of pesticide for vegetables in Ninh Binh (Thi, H. L. et al, 2005) also found that 100% people used pesticides for vegetable and all of them have not been trained how to use pesticides safely; and 46.5% vegetable samples having high pesticide residues. A research conducted by the Southern Agricultural Techniques Institute (Vietnamnet, 2006) reported that 11% of 428 samples of pork had hormone residues with 3-60 times higher than the allowed level. 96.5% of pig feeds contain hormones (Clenbuterol and Salbutamol are the most commonly used) which are sourced from China, Thailand and Malaysia. These hormones can cause high blood pressure, arrhythmia, sphincter, oedema, even cancer.

5.2.3.2 Poisoning due to medicine or biological substances

From the filed investigation of 18 poisoning cases due to medicine or biological substances, findings indicated that childhood poisoning occurred due to the poor awareness of the adults. Unsafe storage, misuse, overdose of medicines, and usage of quack herbal medicines were the risks of childhood poisoning. Of which, consumption of quack herbal medicine accounted for the highest risks (10/18 ~ 56%), followed by unsafe storage of medicine so children unintentionally had it 28% (5/18). The rest was caused by misuse of medicine because parents gave medicine to children without prescription and overdose of medicine. This indicates that improvement of the people knowledge about usage and storage of medicine should be put into the program of childhood poisoning prevention.

In this study, children were poisoned because of consumption of quack herbal medicines. Some old people being interviewed had expressed that to them, herbal medicine was effective in treatment of some diseases such as fever, abdominal pain, and headache. In addition, people especially old people thought that the quack herbal medicine could increase the intelligence of children so they bought herbal medicine for their children. These findings indicate that some negative customs and habits in using medicine and herbal medicine need to be changed.

“People in Mekong river delta still use quack herbal medicine (called Chinese medicine) when their children have fever, abdominal pain, headache; especially the old generation. Some of them even think these medicines can increase the intelligence of the children so they give these medicines to newborn babies. Many cases of childhood poisoning due to using these medicines had been sent to us”

A Pediatrician from Dong Thap Hospital, Dong Thap

Unsafe storage of medicine caused childhood poisoning because parents or people who look after children did not keep the medicine out of children reach, so children unintentionally had the medicine and got poison. This indicates that the awareness of the adults about the risks and danger of medicine to children are poor.

“My daughter played in her uncle’s house, her uncle was sick so he bought medicine. She was curious so she swallowed all medicine left in a bottle. After 30 minutes, she was tired and crying. We took her to the hospital”

Mother of a 3-year-old girl in Phu Da, Phu Vang, Thua Thien Hue

In a study about the childhood acute poisoning in pediatric hospitals No I & II in 2002, Thang (2003) reported that 11.04% childhood poisoning cases, who visited Pediatric Hospital No. 1 & 2 in 2002 for treatment, caused by unintentionally consuming medicine which parents did not store safely.

Misuse of medicine lead to childhood poisoning due to parents or people who look after children gave medicine to children without prescription from doctor.

“My daughter told me she had adnominal pain. I went to the pharmaceutical shop and asked the seller to give the medicine. I don’t remember the name. After drinking about 30 minutes, my daughter was in bad condition, I took her to the hospital and doctor diagnosed that she was poisoned by misuse of medicine”

Mother of a 8-year-old girl in Tay Loc, Thua Thien Hue

Overdose of medicine also caused childhood poisoning. Childhood poisoning happened because parents or adults gave children with overdose of medicine. Due to poor knowledge, so parents gave children with a high dose of medicine because they thought the higher the dose, the more effective in treatment of the diseases. Therefore, children were poisoned.

“My daughter vomited, I forced her to take antiemetic. After having medicine, she still vomited so I gave her another dose of antiemetic. About 30 minutes later she had convulsion, crying and had high fever. I took her to the hospital and doctor diagnosed that she was poisoned by overdose of antimetic”

Mother of a 4-month-old girl in Phu Dien, Thap Muoi, Dong Thap

5.2.3.3 Poisoning due to chemicals

From the filed investigation of 17 poisoning cases due to chemicals, we found that childhood poisoning happened because of the usage of fake or out-of-date chemical products, unsafe storage, and chemical committed suicide. In our study, usage of fake or out-of-date chemical products accounted for the highest risk (8/17~ 47%), followed by unsafe storage of chemicals (7/17~41%). Chemical committed suicide accounted for the lowest risk (2/17~ 12%).

Using out-of-date products or fake products for children caused childhood poisoning. Children themselves or parents used fake or out-of-date chemicals products such as baby lotion, lipstick, or baby cream. It is noted that people from interviews and group discussions stated that chemical products sold in or near school have not been strictly controlled, this puts children under high risk of getting poison.

“I applied baby lotion which was a present given from my friend on my son’s face, and he was poisoned. I did not care the manufactured or the expired date until things happened. I think the lotion is a fake one”.

Mother of a 14-month-old boy in Phu Nhuan, Thua Thien Hue.

“Four pupils in my class bought unbranded lipstick imported from china. This lipstick is cheap (only 1000 VND) and very nice smelling. They applied it to their lips and then licked their lips, after half an hour they got poisoned”.

A teacher in grade 4, ward No.11, Cao Lanh, Dong Thap



Fake baby lotion and poisoning children

We found that unsafe storage of chemicals such as petrol, detergent, bleaching solution, pesticide, herbicide and rodenticide also caused childhood poisoning. Children got poison due to parents or the adults did not store chemicals safely or they kept chemicals in household containers so children unintentionally or mistakenly had chemicals.

“I kept petrol in a household container and did not stored it safely so my son mistakenly drank it”

Mother of a 2-year-old boy in Phan Dinh Phung, Hue City

Chemical poisoning occurred due to children committed suicide especially for the adolescents. The major reason was that children were berated by parents or children were unhappy with the family. Investigation indicated that children committed suicide because they were not understood by parents or they had poor skills in overcoming the difficulties in life.

“My niece was unhappy with family and school, so she committed suicide by pesticide. She intended to die by pesticide cause she knew it is poisonous and available at home”

A Aunty of a 15-year-old girl in My An, Thap Muoi, Dong Thap

“My son drank pesticide for a very simple reason, he did not clean the house; he was with friends the whole day. His father was angry and berated him. Then he took the pesticide inside the house and drank it”.

Mother of a 14-year-old boy in Huong Chu, Huong Tra, Thua Thien Hue

A study conducted in pediatric hospital No I from 1996-2001 (Cam B.V., et al, 2002) found that among poisoning due to chemicals treated in the pediatric hospital NoI, there were 47% poisoning children because of chemical suicide commitment. In another study carried out in pediatric No I & II in 2002 (Thang, V.D., 2003) reported that all children committed suicide had the age from 7 to 15 and accounted for 5.6% total poisoning children. However, it should be noted that hospital statistic did not reflect correctly the magnitude of childhood poisoning in the community. In our study, all children committed suicide were taken to the hospitals; whereas, only 37% of food poisoning cases, 47% chemical poisoning cases, 50% medical poisoning cases and 80% venomous bites were taken to the hospitals. In our study, although the percentage of children committed suicide was only 12% (2/17) total poisoning children due to chemicals and was less than 2% (2/116) total poisoning children in the investigation, it should be highly paid attention on this issue because all people from interviews and group discussion did not have any solution to prevent this happen to children in the community.

5.2.3.4 Poisoning due to venomous bites

From the filed investigation of 21 poisoning cases due to venomous bites, we found that childhood poisoning happened because of bee, snake or centipede bites.

Childhood poisoning due to bee bites accounted for the highest risk 57% (12/21). Followed by snake bites 33% (7/21) and centipede bites were the lowest risk.

In this study, people expressed that poisoning happened because children were not aware of the danger of venomous bites so they played near the bushes or broke the bee hives and got bites. However, people said that poisoning due to venomous bites has decreased in recent years as bushes have been cleaned and poisonous animals have been extensively hunted for sale or food.

“One of my son’s friends found a bee hive, he called my son and other children to break the hive, and they got bitten. I think they were curious and did not know the danger. I did not tell my son about the danger of playing with bees or snakes”.

Mother of a 5-year-old boy in Huong Van, Huong Tra, Thua Thien Hue

5.2.4 How the people and community understand about childhood poisoning?

There is a big gap between people’s awareness about childhood poisoning and action for prevention of childhood poisoning. In group discussions, most people claimed that eating unsafe food is a major cause of childhood poisoning. However, a few of them told clearly how to prevent childhood poisoning.

“Childhood poisoning is the children getting sick because they eat food containing poisons. We really don’t know what the major causes of childhood poisoning are. Maybe food containing chemicals is the cause of childhood poisoning”.

Group discussion in Ward No.11, Cao Lanh, Dong Thap

When asked about how to keep children out of poisoning, most of parents could not find out clearly their responsibility. Most of them claim to “that is the state responsibility”. So, people know poisoning is a public health problem and want to control it, but they do not know how to control it.

5.2.5 When childhood poisoning happened, what people do at community level?

In our study, we found that most of people did not know how to conduct the first aids for each circumstance of poisoning. A half of the poisoning cases investigated (52%) were taken directly to the district or provincial hospitals without first aids; 34% of cases were taken to the CHC for the first aids before taking to higher levels; 14% poisoning children were treated at home or private doctor before taking to the hospitals.

Except first aids were applied for venomous bites, in general, people did not know how to conduct first aids to a victim. For example; in a case of pesticide poisoning in Huong Chu, Thua Thien Hue, instead of helping the victim to vomit, a father did nothing except shouted at him then took him to hospital after traveling a long distance. Therefore, it is important to educate people about the correct first aids which should be conducted for the childhood poisoning circumstances

5.2.6 Conclusion for the section of community investigation

The community investigation brought to the following conclusions:

- Childhood poisoning is very common. Most of cases were not reported to the public health information system.
- In terms of the magnitude of childhood poisoning, from investigation of 56 poisoning cases we found other 60 poisoning children in the community. It indicates that the percentage of unreported poisoning cases was 52% (60/ 116); of which, food poisoning was the highest 63% (38/60) and venomous bites accounted for the lowest percentage of unreported cases 20%(4/21).
- Childhood poisoning happened everywhere, but the distribution varied by age group. For children under 2, mostly happened at home. For children 2-5 years old, poisoning cases happened at home, in neighbors', and at kindergarten. For school age children, it could happen at community, school, and even places far from their commune.

- There were many reasons leading to a child exposure to poisoning. The most common one is food poisoning, followed by chemical poisoning, drugs and biological products poisoning, and ranked at bottom is venomous bites.
- For food poisoning, unhygienic eating habits together with commonly use illegal substances in producing, preserving, and processing foods are the main reasons.
- Lack of a public health system for effectively inspecting and controlling human poisoning is the main cause contributed to all kind of childhood poisoning, including chemical poisoning, food poisoning, and medical and biological poisoning.
- There is a big gap between people awareness on bad effects of childhood poisoning and actions for prevention of childhood poisoning.
- When a case of childhood poisoning happened, people did not know how to conduct first aid except brought the victim to hospitals in cases of life threatening.

6 Recommendations for childhood prevention

6.1 Upgrading the routine information system for better monitoring childhood poisoning

- A study is needed to revise current information system for monitoring childhood poisoning. The system should cover both public and private health care providers, inpatients and out-patients, as well as data from community outbreak investigations. Based on this research, guidelines on investigating a case of poisoning and standard forms for case recording at community as well as at hospitals need to be developed. Definitions and classification of childhood poisoning proposed by WHO (ICD-10) should be used.
- Training on monitoring childhood poisoning should be integrated to the training program on collecting and analyzing the routine information system data for hospital management and public health purposes.
- The routine health information system should be revised towards a two-way information system. This is particularly true for childhood poisoning: any case diagnosed by hospitals as poisoning should be followed by a community investigation for prevention purposes.

6.2 Putting childhood poisoning into agenda

- Childhood poisoning, especially food poisoning, is a serious public health problem, therefore, implementing a program of control of childhood poisoning is an urgent need.
- The current system of poisoning investigation (including child poisoning) were not able to investigate most of poisoning outbreaks. Upgrading this system is a must priority.
- A quality control system and hygiene inspecting system should be applied not only to food preserving and processing in factories, but also at public markets
- Strengthening the legislations as well as control and supervisions on food safety, chemicals, medicines and biological substances is needed.
- Medical practice of the private health sectors should be supervised.

6.3 *Improving public awareness on prevention of childhood poisoning*

- Improving people's knowledge on the childhood poisoning, including causes, risks, and how to prevent.
- First aids of childhood poisoning should be implemented as soon as possible, through the IEC programs and mass media, including TV and radios.
- Changing the negative behaviors of people which relate to childhood poisoning through IEC programs and building community based intervention models.
- Launching safety education programs in school to improve the understanding of children about the dangers and risks of poisoning.

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8 Appendixes

8.1 Appendix1: Provincial health department reports on childhood poisoning in Thua Thien Hue and Dong Thap

8.2 Appendix 2: Research tools

Cục Y Tế Dự Phòng Việt Nam Dự án Phòng chống Tai nạn Thương tích Trẻ em Dự án Phòng chống Ngộ độc Trẻ em

Mẫu A1: Điều tra tại bệnh viện/Sở Y tế

(Mẫu phiếu được hoàn thành bởi các bệnh viện/ sở y tế trước khi nhóm nghiên cứu đến làm việc)

Mục tiêu của mẫu phiếu:

- Cung cấp số liệu làm cơ sở cho nhóm nghiên cứu tổng hợp về tình hình và chiều hướng ngộ độc trẻ em trong địa bàn tỉnh trong ba năm gần đây.
- Cơ sở để thực hiện chọn mẫu nghiên cứu cho cuộc điều tra cộng đồng về nguyên nhân ngộ độc và cách phòng chống

Yêu cầu kỹ thuật

- Thông tin hoàn thành đầy đủ theo từng năm; riêng năm 2006 lấy số liệu cập nhật đến hết tháng 11.
- Số lượng trẻ bị ngộ độc sẽ phân theo nhóm tuổi và qua đường tiếp xúc. Ba nhóm tuổi chính là: (1) dưới 2 tuổi, (2) từ 2 đến 5 tuổi, và (3) trên 5 tuổi.
- Cho mỗi nhóm tuổi, số lượng trẻ bị ngộ độc được phân cụ thể theo đường tiếp xúc với tác nhân gây độc gồm: (1) nhiễm độc qua đường hô hấp, (2) nhiễm độc qua ăn uống, và (3) nhiễm độc qua tiếp xúc đường da, niêm mạc. Trường hợp trẻ bị ngộ độc do 2 hoặc cả 3 đường tiếp xúc thì chọn đường tiếp xúc chính dẫn đến ngộ độc.
- Kết quả điều trị phân tách thành 4 nhóm chính: (1) trẻ xuất viện trong tình trạng khỏi hoàn toàn, (2) trẻ xuất viện chưa hoàn toàn bình phục nhưng không để lại di chứng, (3) trẻ xuất viện để lại di chứng và (4) tử vong.

Tên bệnh viện/ Sở y tế:.....

Địa chỉ:.....

Họ tên người thực hiện thống kê và điền phiếu:

Chức vụ:Ngày hoàn thành phiếu:.....

Mẫu A1-

Năm	Số lượng trẻ bị ngộ độc									Kết quả điều trị			
	Dưới 2 tuổi			2-5 tuổi			Trên 5 tuổi			Khỏi hoàn toàn	Xuất viện nhưng chưa phục hồi hoàn toàn	Để lại di chứng	Tử vong
	Qua hô hấp	Qua miệng	Da, niêm mạc	Qua hô hấp	Qua miệng	Da, niêm mạc	Qua hô hấp	Qua miệng	Da, niêm mạc				
2004													
2005													
2006													

Ngày.....tháng.....năm 2006

(ký, ghi rõ họ tên)

Tóm tắt tao đối của nghiên cứu viên với cán bộ thống kê của bệnh viện (về độ tin cậy, tính đầy đủ của thông tin thu nhận)

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Cục Y Tế Dự Phòng Việt Nam
Dự án Phòng chống Tai nạn Thương tích Trẻ em
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Mẫu A2: Điều tra tại bệnh viện - chọn case

(Mẫu phiếu này thực hiện bởi nhóm nghiên cứu của RTCCD giúp chọn ra được các trường hợp trẻ bị ngộ độc cần được điều tra chi tiết tại cộng đồng)

Tên bệnh viện:.....
Địa chỉ bệnh viện:.....
Tên trẻ bị ngộ độc:.....
Giới tính: Nam [] 1 Nữ [] 2
Sinh ngày:/...../.....
Số hồ sơ bệnh án:
Ngày nhập viện:/...../.....
Ngày xuất viện:/...../.....
Tên bố, mẹ hoặc người đi theo chăm sóc trẻ:.....
Địa chỉ liên hệ:.....
Số điện thoại:.....
Nguyên nhân ngộ độc cụ thể:.....

Thông tin chi tiết quá trình điều trị tại bệnh viện (tình trạng lâm sàng khi nhập viện, thời gian điều trị, thuốc sử dụng, thời gian điều trị, chi phí điều trị, kết quả điều trị):

.....
.....

Nhận xét về hệ thống ghi chép thông tin bệnh án tại bệnh viện

.....
.....

Kết luận của điều tra viên:

.....
.....

Độ tin cậy của thông tin để chọn đối tượng nghiên cứu: Có [] 1 Không [] 2
Phân loại ngộ độc theo nhóm tuổi: <2 [] 1 2-5 [] 2 >5 [] 3
Phân loại ngộ độc theo đường tiếp xúc: Qua hô hấp [] 1 Qua miệng [] 2
Qua da, niêm mạc [] 3

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Mẫu A3: Phỏng vấn lãnh đạo khoa, phòng tại bệnh viện

(Mẫu phiếu này thực hiện bởi nghiên cứu viên RTCCD nhằm mục đích thu thập thông tin về tình hình ngộ độc trẻ em và kiến nghị phòng chống từ nhân viên y tế)

Họ và tên:.....

Đơn vị công tác:.....

Chức vụ:.....

1. Ông (bà) có nhận xét gì về chiều hướng ngộ độc trẻ em trong 3 năm qua (tăng, giữ nguyên, giảm, và giải thích tại sao)?

.....
.....

2. Tại cơ sở mình công tác, theo ông (bà) ngộ độc ở trẻ em thường xảy ra do những nguyên nhân gì?

.....
.....

Hãy đánh số thứ tự loại ngộ độc theo sắp xếp giảm dần của mức độ phổ biến:

- *Hoá chất nông nghiệp*..... _____
- *Hoá chất trong gia đình*..... _____
- *Thực phẩm*..... _____
- *Do thuốc (đông & tây y)*..... _____
- *rượu, cồn* _____
- *Động vật cắn*..... _____
- *Đồ dùng sinh hoạt*..... _____
- *Các nguyên nhân khác (Liệt kê.....* _____

3. Ông (bà) hãy cho biết ý kiến của mình để giải thích tại sao [*tên nguyên nhân hàng đầu*] kể trên lại phổ biến nhất và đề xuất của ông/bà nhằm kiểm soát tình hình?

.....
.....

4. Ông (bà) hãy cho biết ý kiến của mình để giải thích tại sao [*tên nguyên nhân tiếp theo*] lại phổ biến thứ hai và đề xuất của ông/bà nhằm kiểm soát tình hình?

.....
.....

5. Ông (bà) hãy cho biết ý kiến của mình để giải thích tại sao [*tên nguyên nhân tiếp theo*] lại phổ biến thứ ba và đề xuất của của ông/bà nhằm kiểm soát tình hình?

.....
.....

6. Ông (bà) có thể ước lượng bao nhiêu phần trăm trẻ em của tỉnh bị ngộ độc trong năm qua đến điều trị tại bệnh viện này? __ __ %

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Mẫu A4: Phỏng vấn các cán bộ y tế và lãnh đạo tại cộng đồng
(Mẫu phiếu này thực hiện bởi nhóm nghiên cứu của RTCCD)

Họ và tên:.....

Đơn vị công tác:.....

Chức vụ:.....

1. Ông (bà) có biết trường hợp ngộ độc của cháu [tên trẻ, tên bố mẹ trẻ] trong xã:

Có [] 1

Không [] 2 ◊ giải thích cụ thể trường hợp trẻ bị ngộ độc này (triệu chứng, điều trị, kết quả....) và hỏi tiếp câu 2

2. Theo ông (bà) trường hợp ngộ độc như cháu [tên trẻ] phổ biến như thế nào trong xã trong năm nay (bao nhiêu trường hợp tương tự, tên, tuổi, tên bố, mẹ, địa chỉ gia đình)?

.....
.....

3. Theo ông (bà) ngoài những trường hợp trẻ bị ngộ độc như trường hợp trên, trẻ còn bị những trường hợp ngộ độc nào khác như sau (*Hoá chất nông nghiệp, hoá chất trong gia đình, thực phẩm, do thuốc (đông & tây y), rượu cồn, động vật đốt cắn, đồ dùng sinh hoạt, các nguyên nhân khác...*)(số trẻ theo từng trường hợp, tên, tuổi, tên bố, mẹ, địa chỉ gia đình)?

.....
.....

4. Theo ông (bà) 3 nhóm nguyên nhân của ngộ độc ở trẻ em trong xã là (sắp xếp theo số lượng giảm dần dựa vào thông tin trên) đúng hay sai?

Đúng [] 1

Sai [] 2

Tại sao đúng? Tại sao sai?

.....

.....

5. Ông (bà) hãy cho biết ý kiến của mình để giải thích tại sao [*tên nguyên nhân hàng đầu*] kể trên lại phổ biến nhất và đề xuất của ông/bà nhằm kiểm soát tình hình?

.....

.....

6. Ông (bà) hãy cho biết ý kiến của mình để giải thích tại sao [*tên nguyên nhân tiếp theo*] lại phổ biến thứ hai và đề xuất của ông/bà nhằm kiểm soát tình hình?

.....

.....

7. Ông (bà) hãy cho biết ý kiến của mình để giải thích tại sao [*tên nguyên nhân tiếp theo*] lại phổ biến thứ ba và đề xuất của ông/bà nhằm kiểm soát tình hình?

.....

.....

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Mẫu A5: Phiếu điều tra các trường hợp ngộ độc trẻ em
(phỏng vấn trực tiếp cha mẹ, hoặc người chăm sóc trẻ)
(Mẫu phiếu này thực hiện bởi nhóm nghiên cứu của RTCCD)

Họ và tên:.....

Địa chỉ:.....

Quan hệ với bệnh nhân:.....

Họ tên bệnh nhân:.....

Giới tính: Nam 1 Nữ 2

Nhóm tuổi: <2 1 2-5 2 >5 3

Hoặc

Qua đường tiếp xúc: Qua hô hấp 1

Qua miệng 2

Qua da, niêm mạc 3

1. Mô tả địa điểm và hoàn cảnh xảy ra ngộ độc (tại nhà, môi trường xung quanh, nhà trường, sự việc xảy ra trong hoàn cảnh như thế nào – có người lớn ở bên cạnh trẻ hay không....)?

.....
.....

Độ tin cậy của thông tin.....

2. Mô tả nguyên nhân xảy ra ngộ độc?

.....
.....

Độ tin cậy của thông tin.....

3. Nếu do thuốc/ hoá chất mô tả màu sắc hoá chất?

.....
.....

Độ tin cậy của thông tin.....

4. Nếu do thuốc/ hoá chất mô tả hình dạng, bao gói, nguồn gốc, nhãn mác, tính hợp pháp của thuốc/hoá chất?

.....
.....
Độ tin cậy của thông tin:.....

5. Miêu tả quá trình phát hiện trường hợp ngộ độc, tình trạng lâm sàng và trợ giúp ban đầu (first aids):

.....
.....
Độ tin cậy của thông tin:.....

6. Miêu tả cụ thể quá trình điều trị (theo tiến trình đưa bệnh nhân, từng địa điểm điều trị, tình trạng lâm sàng, thời gian, giá thành và kết quả điều trị)?

.....
.....
Độ tin cậy của thông tin:.....

7. Theo ông (bà) làm thế nào để tránh/ hạn chế bị ngộ độc như trường hợp của cháu?

.....
.....

8. Ông (bà) cho biết ngoài ra còn có các trường hợp trẻ bị ngộ độc nào khác trong năm nay?

.....
.....

9. Kiến nghị của ông (bà) về vấn đề phòng và điều trị ngộ độc trẻ em? (cơ sở vật chất, khó khăn, chất lượng phục vụ.....)

.....
.....

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Mẫu A6: Hướng dẫn thảo luận nhóm

(tiến hành tại các xã nhằm thu thập thêm thông tin về nguyên nhân ngộ độc trẻ em và kiến nghị về biện pháp phòng ngừa)

Các câu hỏi cần trả lời qua thảo luận nhóm

- (1) Hiểu biết của người dân về ngộ độc trẻ em?
 - (2) Nguyên nhân phổ biến gây ra ngộ độc trẻ em trong xã?
 - (3) Các biện pháp sơ cấp cứu thường được tiến hành khi có trường hợp ngộ độc xảy ra?
 - (4) Ý kiến về phòng chống và kiểm soát ngộ độc trẻ em?
1. Hiểu biết của người dân về ngộ độc trẻ em?
 - 1.1. Ông/bà hiểu như thế nào về ngộ độc trẻ em? Nguyên nhân nào thường gây ra ngộ độc trẻ em? Hậu quả của ngộ độc trẻ em là gì?
 - 1.2. Ông/bà hãy đưa ra ví dụ và giải thích vì sao ông/bà coi trường hợp đó là ngộ độc trẻ em?
 2. Nguyên nhân phổ biến về ngộ độc trẻ em trong xã?
 - 2.1. Ông/bà hãy cho biết những nguyên nhân chủ yếu thường gây ra ngộ độc trẻ em trong xã?
 - 2.2. Ông bà hãy giải thích tại sao đó là những nguyên nhân chủ yếu.
 3. Các biện pháp sơ cấp cứu thường được tiến hành khi có trường hợp ngộ độc xảy ra?
 - 3.1. Ông bà hãy miêu tả [với từng trường hợp ngộ độc trẻ em xảy ra trong xã] đã được sơ cấp cứu như thế nào trước khi đưa đến bệnh viện/ đưa đi điều trị? Các biện pháp đã được làm đó đúng hay sai? Tại sao đúng? Tại sao sai?
 - 3.2. Ông bà hãy cho biết những khó khăn gặp phải khi tiến hành sơ cấp cứu trẻ bị ngộ độc tại địa phương?
 - 3.3. Ông bà đã bao giờ được cung cấp thông tin/ được hướng dẫn cách sơ cấp cứu một trường hợp ngộ độc trẻ em hay chưa?

4. Ý kiến về phòng chống và kiểm soát ngộ độc trẻ em?

4.1. Từ các nguyên nhân gây ra ngộ độc phổ biến trên, ông bà hãy cho biết ý kiến của mình về cách phòng chống ngộ độc trẻ em và những biện pháp kiểm soát tình trạng trên tại xã mình?

4.2. Ông bà có thể cho biết những kiến nghị của mình nhằm cải thiện, nâng cao khả năng sơ cấp cứu cho trẻ em khi bị ngộ độc của người dân?

8.3 Appendix 3: Summary 116 poisoning cases from the field investigation

8.3.1 Summary on the magnitude of childhood poisoning in the community

To identify the magnitude of childhood poisoning in the community, we investigated the similar cases in the community from 56 cases diagnosed as poisoning in the hospitals with the same period. In total, there were 116 cases in the community. The magnitude of childhood poisoning is reflected by the percentage of reported cases (poisoning cases were treated in the hospitals) per actual poisoning cases in the community.

Table 8.1: Distribution of childhood poisoning in the community from investigation of 56 hospitalized cases

Causes	Hospitalized cases	Similar cases in community	Total	% of hospitalized cases
• Food poisoning	22	38	60	37%
• Medicine, biological substances	9	9	18	50%
• Chemicals	8	9	17	47%
• Venomous bites	17	4	21	81%
Total	56	60	116	48%

As can be seen from table 8.1, only 48 % (56/116) actual poisoning children went to hospitals for treatment and were reported in the public routine information system. The reported data of venomous bites was closest to actual data (80%) and reported data of food poisoning was furthest to actual data (37%).

8.3.2 Food poisoning

8.3.2.1 Magnitude of food poisoning in the community

From field investigation of 22 food poisoning cases, we found other 38 children who were poisoned unintentionally due to foods at the same period. These 38 cases were treated either at home or private health sectors. Therefore, only 37% of poisoning children were treated in the hospitals as inpatient and were reported in the public routine information system; other 63% poisoning children, who were treated either at home, private doctors, were not reported in the public routine information system.

8.3.2.2 Food poisoning circumstances

Poisoning circumstances of 22 cases who were diagnosed as food poisoning at the hospitals are shown in table 8.2.

Table 8.2: Poisoning circumstances of 22 cases and other similar cases in the community

Circumstance	Hospitalized cases	Similar cases in community	Description
• Surrounding environment	11	22	Poisoning occurred due to eating unsafe street foods
• At home	11	16	Poisoning happened due to eating foods made at home
Total	22	38	
% of hospitalized children/ total poisoning children due to food poisoning			37 %

As can be seen from table 8.2, half of children in the investigation were poisoned unintentionally due to eating unsafe street foods such as cakes, rice with pork, breads with meat, grilled pork, apple... The rest of children were poisoned unintentionally because of eating unsafe foods made at home such as shrimp paste, sea fish, and vegetable with raw shrimp.

8.3.2.3 First aids for food poisoning

All food poisoning cases in the investigation were initially recognized by parents or child givers when children were in the obvious clinical condition such as vomiting

and diarrhea and these people who decided the place of treatment for children. All poisoning cases treated in the hospitals (22 cases) did not receive any first aids at home before taking to the hospitals. Similarly the rest of poisoning cases treated by private doctors at home or private health care service did not receive any first aids. When interviewing, all parents or child givers claimed that they did not know how to do when their children were poisoned.

8.3.2.4 Understanding of parents on the causes and prevention for food poisoning

All parents of these poisoning cases knew that their children were poisoned because of eating unsafe foods. However, most of parents could not find out clearly their responsibility. Most of them claimed to “that is the state responsibility”. So, people know poisoning is a public health problem and want to control it, but they do not know how to control it.

8.3.3 Poisoning due to medicine or biological substances

8.3.3.1 Magnitude of poisoning in the community

From only 9 poisoning cases from the hospitals, we found other 9 children who were poisoned by medicine in the community at the same period. Therefore, from our investigation about half of poisoning cases due to medicine or biological substances were reported in public routine information system.

8.3.3.2 Poisoning circumstances

Poisoning circumstances of 9 cases due to medicine or biological substances are presented in table 8.3.

Table 8.3: Poisoning circumstances of 9 cases and other similar cases in the community

Circumstance	Hospitalized cases	Similar cases in community	Description
• Unsafe storage	4	1	Children unintentionally took medicine which was not stored safely
• Mistaken	2	0	Parents gave medicine to children without doctor's description
• Overdose	1	0	Parents gave children with overdose of medicine
• Quack herbal medicine	2	8	Parent gave quack herbal medicine to children
Total	9	9	
% of hospitalized children/ total poisoned children due to food poisoning			50 %

Table 8.3 shows that childhood poisoning occurred due to the poor awareness of the adults. Unsafe storage, misuse, overdose of medicines, and usage of quack herbal medicines were the risks of childhood poisoning. Of which, consumption of quack herbal medicine accounted for the highest risks (10/18 ~ 56%), followed by unsafe storage of medicine so children unintentionally had it 28% (5/18). The rest was caused by misuse of medicine because parents gave medicine to children without prescription and overdose of medicine.

8.3.3.3 First aids

All poisoning children were recognized by parents or child givers when they were in obvious clinical conditions such as tiredness, vomiting, fever and crying. All poisoning children treated in the hospitals (9 cases) were taken to the hospitals without any treatment at home, similar to the cases treated by private doctors. All parents of these poisoning cases claimed that they have not been shown how to give the first aids and they did not know how to do when poisoning occurred.

8.3.3.4 Understanding and prevention

Most parents in our interview showed their poor awareness on the danger of medicine and their children health and this was the main cause leading to the childhood poisoning. However, most parents did not give clear suggestion to prevent childhood poisoning.

8.3.4 Chemical poisoning

8.3.4.1 Magnitude of chemical poisoning

From these 8 poisoning cases, we found other 9 poisoning cases due to chemicals in the community at the same period, because they were treated as outpatients or treat by private doctors so they were not reported in the public routine information system and only 47% poisoning children due to chemicals were reported.

8.3.4.2 Circumstances of poisoning

Poisoning circumstances of 8 cases, which were diagnosed as chemical poisoning, are shown in table 8.4.

Table 8.4: Poisoning circumstances and similar cases found in the community

Circumstance	Hospitalized cases	Similar cases in community	Description
• Unsafe storage	3	4	Children had chemicals unintentionally due to unsafe storage of chemicals
• Unbranded chemical products	3	5	Unsafe chemical products were unintentionally used by parents for children or by children themselves
• Suicide	2	0	Children committed suicide due to family problems
Total	8	9	
% of hospitalized children/ total poisoned children due to food poisoning			47 %

Investigation indicated that most poisoning cases happened due to poor awareness of parents or other people in chemical storage and chemical usage. Usage of fake or out-of-date chemical products accounted for the highest risk (8/17~ 47%), followed by unsafe storage of chemicals (7/17~41%). Chemical committed suicide accounted for the lowest risk (2/17~ 12%).

8.3.4.3 *First aids*

All poisoning children were treated in the hospitals or private doctors without any treatments at home. All people in our interview had poor knowledge in the first aids for childhood poisoning.

8.3.4.4 *Understanding and prevention*

Most people from our interview showed their poor awareness on the danger of chemicals and their children health. In order to prevent childhood poisoning, most people in our interview suggested that chemicals should be stored safely and only use trusted chemical products. However, they did not show clear ways to do so; especially in the cases of children committed suicide, there was no suggestion to prevent this case happen.

8.3.5 Poisoning due to venomous bites

8.3.5.1 *Magnitude*

From investigation of 17 poisoning cases due to venomous bites, we found other 4 similar poisoning cases in the community in the same period. Therefore, unlike other poisoning causes, 80% (17/21) poisoning cases due to venomous bites were treated in the hospital and were reported in the public routine information system.

8.3.5.2 Poisoning circumstances

Table 8.5: Poisoning circumstances of 17 children due to venomous bites and similar cases found in the community

Circumstance	Hospitalized cases	Similar cases in community	Description
• Bee bites	8	4	Children got bites due to they were curious to break the hive or they played near the bushes.
• Snake bites	7	0	Children unintentionally got bite because they played near the bushes
• Centipede bites	2	0	Children got bite because they played near the bushes
Total	17	4	
% of hospitalized children/ total poisoned children due to food poisoning			81 %

Table 8.5 shows that children were poisoned unintentionally at family garden or surrounding environment. Childhood poisoning happened because of bee, snake or centipede. Childhood poisoning due to bee bites accounted for the highest risk 57% (12/21). Followed by snake bites 33% (7/21) and centipede bites were the lowest risk. Children got poison due to they are curious and did not fully aware of the danger of venomous bites.

8.3.5.3 First aids

Half poisoning cases due to bee bites were treated at home. Parents applied lime on the bite areas. All poisoning cases due centipede or sake bites, parents put a tourniquet near the bite area before taking children to the hospitals.

8.3.5.4 Understanding and prevention

All parents in our interview were aware of the danger of venomous bites but they did not warn their children and tell them the way to prevent of getting bites. Most people suggested that to prevent the risk of venomous bites; bushes surrounding houses and school have to be cleared.

8.4 Appendix 4: Terms of Reference