RESPONSE TO ROAD TRAFFIC INJURIES AMONG ROYAL THAI TRAFFIC POLICE IN NAKON RATCHASIMA PROVINCE

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ABSTRACT

The response to road traffic injuries (RTI) among the traffic police is a vital component for decreasing the mortalities and disabilities in society. First responders are very important for stability and communication to be relayed to the concerned sector. This cross sectional study was conducted to assess the response to RTI among Royal Thai Traffic Police and to assess the knowledge of post-crash injuries of traffic police, as well as to find the association between a response time of 10 minutes and the handling of RTI. The survey was conducted among traffic police with a self-administered questionnaire.

The age of the 123 respondents, the average age was 47 years ranged from 27 to 60 years. About one-third were educated to a bachelor degree level or above. Once they were informed about the accidents, half of them responded within 10 minutes; it showed that there was a good response by those who had been trained in handling accidents (p-value= 0.04). Handling RTI alone had statistical significance when it was cross tabulated with training (p-value=0.026), being trained on rescuing (p-value=0.016) and having experience of post-crash rescuing (p-value<0.001). Age only had a significance when cross tabulated with post-crash knowledge (p-value= 0.09). All of the above showed a statistical significance with response and handling of RTI. However, other variables, like level of education or number of members in family, showed no statistical significance to the response and the experience of the traffic police.

Regular refresher courses are suggested, at least about positioning, detection and triage of the victims. They should also be given either a video presentation or updated technology for ensuring a better response.

KEY WORDS: RESPONSE/ ROAD TRAFFIC INJURIES / ROYAL THAI TRAFFIC POLICE

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LIST OF ABBREVIATIONS

RTI	Road Traffic Injuries
DALYs	Disability Adjusted Life Years
YLLs	Year Loss of Years
WHO	World Health Organization
EMS	Emergency Medical Service
GDP	Gross Domestic Product
F/V	Fatalities per Vehicle
SCT	Social Cognitive Theory
ALS	Advanced Life Support
GPS	Global Positioning System
PCM	Post Crash Management
GIS	Geographic Information System
CVS	Cardio Vascular System

CHAPTER I
INTRODUCTION

1.1 Rationale and Justification

Death, disability and injuries are the major concern for public health as it leads to global burden resulting in social, economical and health related problems. Road traffic accidents are one of the causes for death, disability or injuries; therefore it is one of the major public health concerns now. A road traffic injury (RTI) is a fatal or non-fatal injury incurred as a result of a collision on a public road involving at least one moving vehicle. Children, pedestrians, cyclists and the elderly are among the most vulnerable of road users.(1)

Currently RTI's are the 8th leading cause of the death globally, and one of the topmost causes of death in productive age group among 15-29. If the current trend continues it will be fifth leading cause of death by the year 2030 AD.(2, 3) Recently, there have been 1.3 millions of casualties and another 50 million peoples get non-fatal injuries around the world.(4)

Thailand is one of the middle income countries and one-third of the population has either of modes of transportation like motorbike, cars.(5)and it is hardest hit by RTI. With 52% of total registered vehicles and 72% of total population, Thailand shows double proportion of fatalities as compared to the high income countries.(3) It has the highest number of motorbike accidents which accounts for more than 70% of all RTIs. The estimated mortality due to RTI is 38.1 per 100,000 populations which is remarkably high and alarming.(6) Out of above figure populations males are more involved than females. The number of motorbike accidents in Thailand is as high as74% even with rules regarding use of helmet, drunk-

driving, no use of the phone while riding and use of lights in daylight are already implemented.(7)

In Thailand, RTI is one of major causes for hampering the health scenario, thus creating a huge burden on the economy. Globally the economic

loss is over US$518 billions and Thailand has 243,000 Million Baht or about 2.8 % of the gross domestic product in 2008 value.(8) Road accidents in Thailand kill around 13,000 people annually.(9)

Moreover, disability has paralyzed most of the society and caused a huge economic burden. RTI is the fourth leading cause of the death in Thailand, which is just behind non-communicable diseases. One of the studies say that in 1990 injuries accounted more than 15% of morbidity and it is estimated to be 20% by 2020. More recent calculations have further confirmed this critical situation of RTI.(10) It covers around 6% of the death. Deaths are seen more on male's in-comparison to females. It has been consistently seen in number two position in comparative tabulation of 1999 and 2009; however, there has been slight fluctuation on the numerical parts.(11)

Disability adjusted life years (DALYs) are markedly noteworthy; it is because of huge gap between males and female. Out of 49.9% disable males 8.63% are suffering from RTI whereas out of 44.5% females only 2.9% are disabled due to RTI therefore it has significant differences. As deaths are mostly seen in the productive age group of 15-29 years, year loss of life's (YLLs) has been number one. This data is more significant because it shows the figure of that productive age group which are above 15 years people who is ready for the workforce of the nation with education or with skills.(11)

Table 1.1 Disease burden (DALYs lost) for 10 leading causes.

No.	1998 disease or injury	No.	2020 disease or injury
1	Lower respiratory tract	1	Ischemic Heart Disease
2	HIV/AIDS	2	Unipolar Major Depression
3	Perinatal conditions	3	**Road Traffic Injuries**
4	Diarrhoeal disease	4	Cardiovascular Disease
5	Unipolar major depression	5	Chronic Obstructive Pulmonary Disease
6	Ischemic heart disease	6	Lower Respiratory Tract
7	Cerebrovascular disease	7	Tuberculosis
8	Malaria	8	War
9	**Road Traffic Injuries**	9	Diarrhoeal Disease
10	Chronic Obstructive Pulmonary disease	10	HIV/AIDS

*Source: WHO, Evidence, Information and Policy.*2000

Royal Thai Traffic Police (RTTP) can play a vital role in declining the RTI mortality in a number of ways. Since traffic police are from government sector, they are responsible for activities such as handling of the victims to avoid further deterioration of the cases after injuries. Traffic police are the available in the all the phase of the accidents which are pre-crash, during crash and post-crash, hence they become the most eligible sector for responding the situation. Even though Thailand follows most of the WHO guidelines, it has the maximum number of deaths due to RTI.(12) One of the main reasons for it is because of lack of intervention by the government and enforcement of the laws which are made to avoid RTIs; therefore, traffic police can play a pivotal role. When the accidents happen the first on-lookers are the pedestrians and followed by traffic police. As it is the major burden for Thailand it should be trans-disciplinary approach to reduce to the ambitious plan of Thailand. It is more practical and multi-disciplinary approach to involve the RTTP for this purpose. Road traffic injuries cause economic loss to the countries as it decreases the productivity of the huge number of the working population.(6)

Despite being preventable and predictable, RTI's are the most neglected prospect of health. There are plenty of data available on disease like infectious diseases and nutrition but such data are not available for injuries and their management. There are many extents to injuries: human, environment and "vector". Presently there are ample of research carried out in the world but the research and development for injuries are below par; around 3-4% of the health expense are spent on same.(13) Therefore, response of the RTTP is necessary component to check as it has different factors related to it. If we know the response of the RTTP, then we can assess the organization about the knowledge of the traffic police. They have an essential role in the various aspects of these frightening situations.

Nakon Ratchasima, commonly known as Khorat, is Thailand's largest province. It is situated in the northeastern region of Thailand. It is the important political and economic hub for the northeastern region. Since it is the only main gateway for northeastern highway, its usage has been in demand. Hence, it has been vulnerable for road traffic injuries with top causes being; over speeding, drunk driving and dangerous lane changing without the signals. It resembles the figures on the national status of RTI cases; the motorbike accidents are the topmost followed by jeeps or pick-up and private cars.(14)

Mittraphap Road or National Highway No. 2 is designated as a main road heading towards Northeastern of Thailand. It runs from Saraburi to Nong Khai with a total of 508 kilometers in length. It passes through the provinces of Saraburi, Nakhon Ratchasima, Khon Kaen, Udon Thani, and ends in Nong Khai which is the gateway to Laos linked by the Thai-Lao Friendship Bridge. Along the road Mittraphap we will consider ten different posts like Pak Chong, Nong Sarai, Khlong Phai, Sikhio, Sung Noen, Pho Klang, Mueang (Nakon Ratchasiam), Jo Ho, Non Sung and Phimai. Besides these there are other stations like Chok Chai, Pak Thong Chai of highway number 24 of Nakon Ratchasima Province.(14)

1.2 Research question

How does the Royal Thai Traffic Police respond to road traffic injuries?

1.3 Research objectives

1.3.1 General objective

- To assess the response to RTI among the Royal Thai Traffic Police.

1.3.2 Specific objectives

- To assess the knowledge of post crashes among the Royal Thai Traffic Police.
- To assess the procedure of communication and coordination during RTI.
- To find the association between:
  i. General characteristics of traffic police, knowledge, experience and response to emergency call.
  ii. General characteristics of traffic police, knowledge, experience and handling of RTI.
  iii. General characteristics, experience and knowledge.

1.4 Conceptual framework

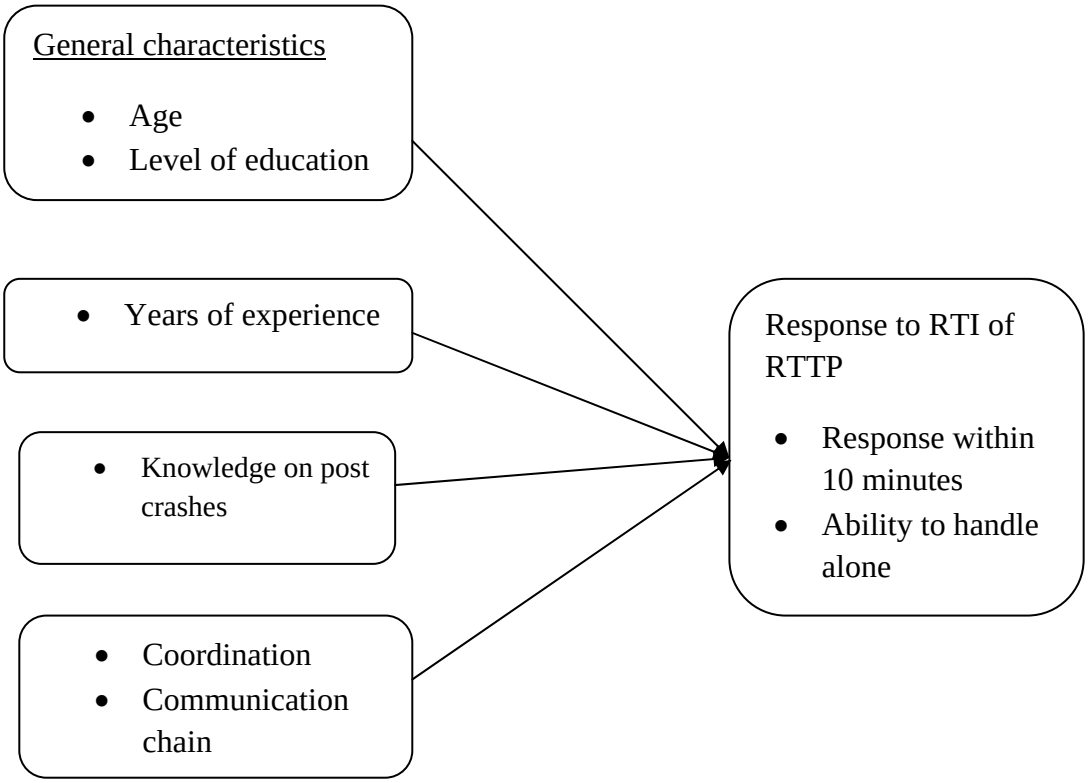

Figure 1.1 Conceptual framework

1.5 Variables of the study

1.5.1 Dependent variable

- Response to RTI among traffic police

1.5.2 Independent variables

- Age
- Level of Education
- Years of experience
- Knowledge on post crashes
- Coordination
- Communication chain

1.6 Operational definition

- **Road traffic injuries**

Road traffic injuries are the unintended collision of one motor vehicle with another, a stationary object, or person, resulting to fatal or non-fatal injuries.

- **Response to RTI of RTTP**

It is the procedure of reacting to the call which the respondent gets. It can also be parted with the response time as the time duration taken to react to the certain situations. It is the time taken after the respondent gets the information to the time they reach the accident site.

- **Knowledge**

Knowledge here means facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject (handling the cases.)

- **Years of experience**

Here the experience refers to the number of years working in the same field.

- **Age**

The number of years a person has completed from birth till the time of data collection.

- **Level of education**

Education of the respondents is the level of education they attained. It can also be any specific level of education attained by the respondents.

- **Coordination**

Coordination refers to the organization of the different elements such as informing the higher level officers and managing the ambulance staffs, so that there

will be effective management of the injured victims. These sorts of activities enable them to work together effectively. It also helps for the proper understanding and management of the situation.

- **Chain of communication**

Chain of communication refers to the series of link which works for the effective exchange of the information so that the injured gets faster access.

CHAPTER II
LITERATURE REVIEW

Review of the literature consists of the following contents:

2.1 Global epidemiology and history of RTI

2.2 Global emergency medical system

2.3 Economic situation

2.4 Theories and concepts

2.5 Variables and relations

2.1 Global epidemiology and history

The history of the road traffic injuries starts from 1896 in Great Britain. It started with the two deaths in Crystal Palace. After that there was one registered in the United States of America in 1899. Within the half century United States of America registered 1,000,000 deaths due to road traffic accidents. Now, World Health Organization (WHO) has started taking it as a serious threat, since the data for death and disability tolled high mainly in middle and low income countries. The road death rate is expected to be less than 1 per 10,000 persons while it is predicted to be double in developing countries.(15) Maximum number of deaths due to RTI are in low and middle income countries where preventative measures are nearly null and health facility are not ready to face the challenge of it. With the rise of economy, road traffic victims have also increased and have caused disabilities and deaths. (16)

As the human loss has increased, the RTI has been one of the public health concerns. According to the US department of health, RTI had caused 8401 deaths out of 29,533 deaths in 1958. While 421,460 years loss has been calculated during the same year alone. RTI became the major cause of death showing more numbers than infectious diseases in the developed country during that period. (17)

Thailand is the middle income country with the population of 69 millions having gross national income per capita of US$ 4,440. (18) Thailand has funds from the national budget for road safety. However, the safety strategy has only been partially implemented. It has been a part of WHO's the plan of decade of action and has made the target to decrease RTI less than ten per 100,000 populations. In perspectives of safer roads and mobility, there have been no formal audits for new road construction, or regular inspections of existing road. They have not promoted safe walking and cycling polices. Nevertheless, they have encouraged the investment in public transportation. (7)

According to the data available the rules and regulation for seat belts and vehicles standard are maintained. The maximum numbers of vehicles are 2 wheelers and three wheelers, hence, the accident of the same are high as 74%. It also suggests that total fatalities of male are 79% as compared to females which account to only 21%. Estimated GDP loss in Thailand has been 3% of total where as average GDP loss in comparison to this is only 1.5% in most of countries.(2)

Thailand has all the safety measure applied for the reductions of the fatalities like use of the helmet, seat belt, prohibition of drink and drive. Yet, they don't have child restraint laws. They have flexible law regarding the use of mobiles phones. According to the law, they cannot use the hand held mobile phone, but they can use hands-free mobiles while driving. One of the major drawbacks of Thailand is the effectiveness of the enforcement which is rated as two out of ten scale.(7) Post-crash situations are the important factors for the patients. They have all the system set by the WHO except for nurses for the emergency care.

2.2 Global emergency medical system

An Emergency Medical Service (EMS) can be defined as "a comprehensive system which provides the arrangements of personnel, facilities and equipment for the effective, coordinated and timely delivery of health and safety services to victims of sudden illness or injury."(19)

The aim of EMS focuses on providing timely care to victims of sudden and life-threatening injuries or emergencies in order to prevent needless mortality or long-term morbidity. The function of EMS can be simplified into four main components; accessing emergency care, care in the community, care en route, and care upon arrival to receiving care at the health care facility.(20)

There are two models which are frequently used in case of EMS delivery: Anglo-American and Franco-German. In Anglo-American they reach the accident site and load the victims and triage the victims whereas in other they do minor treatment in the field itself. No model is better than the other and each community should decide on what suits them better according to their resources, targets and goals. However, patient outcomes should be the ultimate judging standard for deciding the best model of action. Few other studies show that ALS interventions are the best for patient outcomes.(21)

There have always been controversies between "scoop and run" than "stay and play". So it differs in the scene and context; in urban area there should be rapid transportation of the victims whereas in rural setting there should be facilitated medical techniques for the care of the patients. Hence, there will be Improved training and expertise has enabled emergency medical personnel to provide advanced levels of care at the scene of trauma.(22) Since 1970s, there has been either Anglo-American or Franco-German model which has been used. Further addition has been either use of basic life support and advanced life support according to the level of care.(19)

In the Franco-German system the doctor and EMS evaluate and provide basic care to the patients at the accident site. Countries such as Germany, France, Greece, Malta and Austria have well-developed Franco-German EMS systems.(23-28) In the Anglo-American system they reach the accident site with the trained EMS staff and paramedics trained with basic, intermediate and advanced life support. They provide pre-hospital care of stabilization, intervention and transport of the patient to the nearest clinic or hospital for the further evaluation of the victims. Countries which use this model of EMS delivery include the United States, Canada, New Zealand, Sultanate of Oman and Australia. They differ when delivering non-life threatening care and scheduled transports of stable cases. The conventional European style uses primary care options other than transporting patients to Emergency Departments

extensively more than the Anglo-American system. (28) If to be transported, patients in Europe are usually escorted directly to a hospital floor to the attending field emergency physician. Hence, there is a belief among Franco-German model that they get more advantages if the primary treatment has been done in field and they can be directly transported to specialized departments.(29)

2.3 Economic situations

RTI has been directly or indirectly related to the economic factor. In Thailand, it showed that rate of traffic accidents decreased record low when there was economic crisis during 1980s and it went remarkable high when the economy started to get better. The term has been given as bubble economy during which Thailand had the crisis and it shows the representation of association between economy and RTI.A study on road traffic injuries in Thailand showed. Serious RTA also fell substantially from 1886 in 2008 to 1443 in 2012(23.5% decrease). The same was true for fatalities decreasing from 1550 in 2008 to 976 in 2012.(30)

Economy of the country also plays the important factors for the road traffic injuries. During the economic recovery in Thailand the number and rate of traffic injury recorded low as 10 during 1980's. With the economy booming again the pattern of road traffic injuries increased during mid nineties. The economic costs were estimated at U.S. $1.6 billion in 1995.(30) Similarly, one of the study in the Greece reports the; comparable pattern from 2008 to 2012 the accidents decreased by 10.2% where 2012 was the economical crisis situation for them.(31) There are some interesting equation about the fatality due to RTI and per capita income. Equations for the road death rate (fatalities/population) and its components the rate of motorization (vehicles/population) and fatalities per vehicle (F/V) are estimated using panel data from 1963 to 1999 for 88 countries. The per capita income at which traffic fatality risk (fatalities/population) begins to decline is 8600 US dollars (1985 international dollars. This turning point is driven by the rate of decline in fatalities/vehicles as income rises since vehicles/population, while increasing with income at a decreasing rate, never declines with economic growth. Projections of future traffic fatalities

suggest that the global road death toll will grow by approximately 66% over the next twenty years. This number, however, reflects divergent rates of change in different parts of the world: a decline in fatalities in high-income countries of approximately 28% versus an increase in fatalities of almost 92% in China and 147% in India.(15)

2.4 Theories and concepts

There are different facets of the theories involved in the health behavior of the human being. Social Cognitive Theory (SCT) was developed and has been refined to apply health behavior by Albert Bandura. It has five different constructs, which are:

- Knowledge
- Perceived self-efficacy
- Outcome expectations
- Goal formations
- Social-structural factors

Knowledge is the precondition for behavior change. This is a relatively simple idea and one that is quite easy to accept. There are different types of knowledge; in context of health promotion there are two types of knowledge which are content and procedural knowledge.

Perceived self-efficacy is the next step to provide people with confidence and ability they need to actually adopt the health protective behavior. It is one of the most widely known theoretical construct. It is the perception of his or her ability to perform a specific behavior. Perceived self-efficacy is extremely relevant to the adoption and maintenance of health behaviors that may not always be easy to perform.

Outcome expectations are the anticipated positive outcomes that stem from engaging in the behavior. It is one of the beliefs that I will do and that will happen.

Goal formation is the behavior change which is achieved by breaking goals down into progressive series of sub-goals. Applied to health, this principle implies that well defined and easy to measure behaviors should be the sub-goals that lead to a grander behavioral change goal.

Socio-structural factors are the function of supporting factors, as well as the impending factors, of person's environment.(32)

2.5 Variables and relations

2.5.1 Response

Emergency medical services agencies are determined to respond the accidents within 8 minutes at least 90% of calls. One of the retrospective studies evaluates the effect of exceeding time of 8 minutes for the patients of traumatic injury which shows there is no significance of 8 minutes bar in traumatic injury cases.(33)

One of the study in UK has categorized the emergency calls as follows: category A if the presenting condition may be immediately life threatening, category B if the presenting condition is serious but not immediately life threatening, and category C as a condition which is neither immediately life threatening or serious. UK government has set the standard that within 8 minutes the 75% of category A should be responded and 95% of category B and C should be responded within 14 minutes (urban areas) and 19 minutes (rural areas) in 95% of calls. These response time targets are used as the main performance indicators for UK ambulance services. This important category has increased the timely response of the patient's triage.(34)

There are so many times that the lay person like policemen, firemen and others have to be first responder to the situations of prehospital care. This study describes and understands experiences of being the first responder on the scene of an accident. Five constituents further described the variations of the phenomenon; a feeling of security in the uncertainty, a distanced closeness to the injured person, one moment in an eternity, cross-border cooperation within distinct borders and a need to make the implicit explicit. This finding highlights the importance of using policemen and firemen in doing life support measures while waiting for the ambulance staff, and would in turn increase the importance of the relationship between the different professionals on the scene of an accident.(35)

The study in rural trauma system in Northern Iraq shows the significant reduction of mortality of victims of mines and war injuries with the first responder and paramedics in the year 1996 to 2004. Injury pattern was obviously reduced from 91% to 15% whereas mortality was decreased one-third which was 28.7% previously and 9.4% later. There was also marked decreased in time form 2.4 hours to 0.6 hours for first medical help. This prehospital emergency system designed for dealing with penetrating trauma matured by reducing time for medical help too have been a remarkable for decrease of mortality.(36)

Since there is so much emphasis on the prehospital care, there were a study between the technicians -operated advanced life support (ALS) and physician -operated EMS. Five countries with ALS-EMS system and four countries with Doc-ALS EMS system provided with de-identified patient-level data from their national or local trauma registries. The early trauma fatality rate was significantly lower in Doc-ALS EMS systems compared with ALS EMS systems (OR: 0.70, 95% CI: 0.54-0.91). Furthermore, we found a considerable heterogeneity in patient outcomes among countries even with similar type of EMS systems. (29)

2.5.2 Age

Despite many majors have been taken for the prevention and research about road safety have been carried out, the accidents amongst the male riders remains high. One of the surveys done on the male rider at the age of 18 and 28 states more of the peer influence have been causes of over-speeding: other factors like negative attitude towards speed limits, perceived risk of having an accident when over speeding. It is suggested that preventive measures should take these different influences of peer pressure into account by using a peer-based approach for the 18-year-olds and a more individual approach for the 28-year-olds.(37)

2.5.3 Education

According to the World Health Organization (WHO), the role of lay people is to contact the emergency services and ensure there is no further damage to the victims and the site. It seems that some – but not all – of these WHO recommendations are followed in the study area. More specifically, observers

extricate – or try to extricate – victims instead of taking action to secure the scene. This might be related partly to the sense of haste and urgency that they also have reported, and partly to the late arrival of the emergency services at the scene, which has an adverse effect on the management of the crash scene.(38)

The study in the Bangkok and outside of the Bangkok, reveals that those who have low socioeconomic status are involve in more accidents as they are less educated. Those people who have less education tend to use motorbike as mode of the transportations and the total number of the motorcycle accidents is 11.6:1 in transportation comparison to the motorcycle and other vehicles.(39) Nevertheless, even in the absence of formal Emergency Medical Services, improvements in the process of pre-hospital trauma care are possible by building on existing, although informal, patterns of pre-hospital transport.(40) There should be better knowledge and awareness for the lay people about the basic care of the victims during the accidents such as calling emergency number and handling victims. (41)

Studies from low and middle income countries show that first aid training to the professional driver had improved the management of the victims in case of care and transportation.(42) This could even apply to the combination of formal training of paramedics and basic training for laypeople, and the provision of some basic supplies and equipment. This could decrease the mortality rate to an even greater extent.(43)

In low income countries, pre-hospital trauma care for roadway casualties can be improved by training laypersons already involved in pre-hospital transport and care. Training should be locally devised, evidence based, educationally appropriate, with practical demonstrations.(44)

The retrospective analysis of training in different ways in Montana for the prehospital care was done within the span of 25 years. This strange training or educating system has varied result on the prehospital care. Though it can be useful and get some good idea of prehospital care too.(45)

2.5.4 Untrained laypeople's involvement – education

One of the most common issues raised in relation to PCM was the interaction of untrained laypeople and their lack of knowledge and skills in handling

the situation in general; and the victims in particular.Modernization has been boon as well as beast for the mankind. 90% causes of death have been because of trauma in developing countries. These developing countries have developed the cheaper model of using community-based model for the establishment of emergency care systems. Therefore an assessment was done in Manenberg in South Africa. Community leaders and established local services were consulted for the design of first responder care. They were averaged 28.2% before training and 77.8% after training on competency examination of emergency care. Hence it is one of the low-cost, versatile models used efficiently in the developing nations for the emergency care where there will be the involvement of the lay people for the support of the victims.(46)

2.5.5 Coordination

Lack of coordination as a major barrier to effective PCM has also been raised in earlier studies in case of disaster. The most important strategies to counteract this problem include broad-based participation of key stakeholders and changes in trauma delivery. Although various parameters can come into play, the study participants mainly referred to difficulties in coordination rather than in equipment, staffing and physical resources.(47)

In low and middle income countries, emergency care can make significant remarks by minimizing the avoidable death and disability. But emergency care should be planned, supervised and coordinated at all the levels- national, provincial and community levels. So to achieve this there should be well coordinated package from all the sectors like materials, health system and personals to optimize the available resources. The false impression that emergency care cannot be cost effective in low-income settings is demonstrably wrong. Emergencies occur everywhere, and each day they consume resources regardless of whether there are systems capable of achieving good outcomes. With better preparation, the ongoing costs of emergency care can effect in better results and enhanced cost-effectiveness. Every country and community can and should provide emergency care regardless of their place in the ratings of developmental indices.(48)

2.5.6 Communication

Commercial drivers, laypersons, military, police, a centrally controlled communication network, and government ambulance services are feasible delivery models that can be incorporated into the Nigerian prehospital system. Prehospital trauma services have been useful in reducing morbidities and mortalities from traffic injuries, and appropriate implementation of this study's recommendations may reduce this burden in Nigeria. This study shows that the layperson and military and police are given the knowledge of the prehospital care to reduce the mortality and morbidity due to RTI.(48)

2.5.7 Knowledge

Prehospital cares in developing countries are lacking and it is very difficult to afford the costly model of western countries. So WHO (World Health Organization) had highlighted the development of layperson first responder programmes. This study was done in Mahajanga Medical School in Madagascar. They took 26 taxi drivers for the study, who were trained for prehospital management of patients. As a result they found that it was a successful method to train for knowledge and skills of the lay person for the future intervention and training too. (42)

As formal emergency system was absent lay people had to suffer heavy burden of injuries in Kampala, Uganda. This study shows the costs and cost-effectiveness of training. For six months, researcher prospectively followed 307 trainees (police, taxi drivers, and community leaders) were given primary basic prehospital trauma care program. At six months their fund of knowledge either increased or became high. The mean correct score on basic fund of knowledge test increased from 86% to 92% after initial training, 97% of trained had one knowledge of controlling the hemorrhage, recovery position and lifting/moving whereas 96% had used the first aid kit once. This cost-effective step for developing emergency care in Kampala was used for knowledge of prehospital care in lay first-responders.(49)

One of the studies conducted on Iranian drivers about the knowledge, attitude and practice regarding the traffic rules in two different cities of Tehran and Zahedan, Iran shows that increase in attitude and practice can decrease the RTI; especially attitude has major role on that. The study shows that it is not knowledge

and education which are the contributing factors for the safety but the safer attitude and self-reported practice are the fundamental aspect for the decreasing the RTI cases.(50)

2.5.8 Experience

Experience has a major feature on the response of the individual and one of the studies done on the driver with the different and atypical condition was driving done on fog. This was done to investigate the driving experience on behavioral compensations and check the speed adjustment and variability between the novice and experienced drivers. The results showed that novice driver had higher risk on response time, greater speed and steering variability resulting to collisions. Hence, the experience has got the major factors and is influential role on the response of an individual.(51)

Another study regarding the effects of driving experience on hazard awareness and risk perception skills was done with young, newly qualified drivers, experienced and commercial drivers. Results demonstrated that professional drivers were more sensitive to hidden hazards than other drivers. So, the experienced driver are more reliable and more sensitive to the hazards hence they are more tactful towards the situations.(52)

2.5.9 GIS

One of the studies from turkey reveals about the response time in accordance to the GIS. Form this study they could find there were able to reach 97.9% of the population within critical 10 minutes response time. This study demonstrates that GIS is an indispensable tool for processing and analyzing spatial data, which can in turn aid decision-making in the field of geographical epidemiology and public health.(53)

This paper suggests the use of GIS for assessing ambulance response performance in Canada. This is the case study of Canada in three different communities where they used GIS for easy and rapid identification of atypical calls. This has been good system for the finding of victims hence, extensions of service in

has been suggested for service deployment and planning decision support system has been already discussed with its better implementation.(54)

2.5.10 Marital status

This study looks at whether marital status has an impact on work-life balance so that the organizations can visualize and apply proper motivational policies. The findings show that the four categories of employees included in the research (unmarried, married without children, married with children under 18, married with children over 18) do not have a significantly different level of work-life balance.(55)

In conclusion, all the variables like response, age, knowledge, education, coordination and communication plays a vital role on the good response of the traffic police. Even different studies stated above also enlighten the importance of the different factors for the response of traffic police.

CHAPTER III
MATERIALS AND METHODS

3.1 Study design

A cross sectional study was conducted to assess the response on road traffic injuries among the Royal Thai Traffic Police with self-administered structured questionnaires.

3.2 Study site

Following districts of Pak Chong, Nong Sarai, Khlong Phai, Sikhio, Sung Noen, Pho Klang, Mueang(Nakon Ratchasima), Jo Ho, Non Sung, Phimai, Chok Chai and Pak Thong Chai police stations which were along the highway number 2 and 24 of Nakhon Ratchasima Province, Thailand was the study site for the study.

3.3 Study population Study population

The target population of this study was Royal Thai Traffic Police working in Nakhon Ratchasima Province, Thailand.

3.3.1 Inclusion criteria

- RTTP willing to participate in the study
- Traffic police employed in Nakhon Ratchasima Province

3.3.2 Exclusion criteria

- The respondent did not give consent
- The respondent who were not present or on leave during the data collection period.

3.4 Sample size

All the traffic police of 12 traffic post which were 140. As there are less number of traffic police allotted area, we had taken all the possible samples.

3.5 Methods of collection

The sample was taken along the highway of Mitrapap road in Korat province according to convenient sampling. As there was less number of traffic police in the allotted area, we had taken all the possible samples along the way.

1) Ethical clearance was taken.

2) Permission was taken from traffic police sought.

3) Pre-test with the research instrument.

4) Correction was done as per suggestion.

5) Survey was conducted as self-administrated questionnaire (Traffic police was described the purpose of the study)

6) The formats of the questionnaire are as following: It starts with general characteristics, followed by the knowledge of the traffic police. Gradually the questions were asked about the response and experience. There were certain questions regarding personal experience as well as coordination too. There were some questions regarding the time response in the respond part of the questions. It was conducted after mid-January 2014.

7) Finding and contacting eligible participants was made easier by the fact that the major advisor had contacts of the participants.

8) Questionnaire was translated into Thai language with the help of advisors. Since it is the self administered questionnaire researcher don't need any other individual for the explanation of the questionnaire. Researcher had written all the required procedure in the consent form.

9) Participants needed only 30 minutes for the answering the questionnaire after they read the consent form.

3.6 Research instruments

The instrument for data collection was newly developed structured questionnaire, which was initially prepared in English and then was translated into Thai version. Back Translation was done to validate the accuracy of the translation.

3.7 Quality of instruments

Content validity:

- The content validity was assessed with special committee of advisor and co-advisor. It was repeatedly checked and revised for the paper contents and meaning.
- The pre-test was conducted among 20 traffic police to assess the reliability. It has the questionnaire of knowledge which has “true”, “false”, “don’t know” as options and it was marked as the hints for reliability testing.
- The questionnaire was sent to Mueang police station. The feedback was taken from the police and questionnaire was corrected accordingly.
- Later, Cronbach’s alpha was tested on knowledge on post-crash using SPSS for reliability and it was 0.708.

3.8 Data analysis

- After data collection, data verification was done. It was translated into digital format i.e. the data was entered in Epi data 3.1. The data was checked for errors.
- Researcher had used the SPSS 18 for statistical analysis.
- In the descriptive statistics, number, frequency, proportion and mean, median with standard deviation was be used.
- To find out the association Chi Square test, Fisher’s exact test was applied and the significance level was set at 5%.

- Knowledge section had 9 items and scoring of the knowledge was set from the overall score and it was considered as following:

5 or less than 5 correct answers – need improvement

6-7 correct answers- fair

8-9 correct answers- good

3.9 Ethical clearance

A written consent was taken from all the traffic police before data collection. All of the respondents were clearly informed that the participation to this study was voluntary, and unwillingness to participate was never posed a negative impact on his status. The respondents had right to avoid answering the questions that made them feel uncomfortable and the respondents could withdraw from the study anytime they wanted. All data was received carefully and privately with no identification on the sheets and coding was given. Only, the researcher had the access to the data. After the data from the questionnaires was entered to the computer data file, they were destroyed for confidentiality. This study was done under approval of Ethical Review Committee for Human Research of the Faculty of Public Health, Mahidol University certificate of approval number COA.No. MUPH 2014-022

CHAPTER IV
RESULTS

The results of this study for the response to road traffic injuries among Royal Thai Traffic Police in Nakhon Ratchasima are presented in this chapter in tables, as numbers, percentage, mean, standard deviation and other statistical values.

The traffic police recruited in this study were form 12 different police stations along the highway number 2 and 24 of Nakon Ratchasima province. Out of the total 140 traffic police officers, 17 traffic police officers were not available during the data collection period and thus 123 officers responded to this study.

4.1 General Characteristics of 123 traffic polices

The general characteristics of all the respondents who responded to the self-administered questionnaire are summarized in table 4.1, which provides the distribution of the respondents in characteristics like age, job location, highest education, field of study, marital status, total family members (male, female, dependent), monthly income and expenses.

The respondents were from 12 different police stations and about one-fourth of the respondents were from Mueang district. Their age range from 27 to 60 years and mean age was 47 years. Around 65% had education level below bachelors and rest had studied bachelors or more; their field of study was law, political sciences and education.

Majority of the respondents (88.2%) were married. The family members ranged from 3 to 9 and on average there were 4 members in a family. The number of family members who were dependent on them was 3 on an average both in case of male and female.

Twenty-five thousand baht was the median salary per month and the range started from 2000 to 35000 baht; half of them were satisfied and answered that it was enough for a monthly expenses.

Table 4.1 General Characteristics of 123 traffic polices

General Characteristics	Number	Percent
Age in Years	122	100.0
27-39	18	14.8
40-49	60	49.2
50-60	44	36.1
Mean =46.58, S.D.= 7.39		
Police Station	123	100.0
Mueang	30	24.4
Chok Chai	10	8.1
Phimai	10	8.1
Pak Thong Chai	10	8.1
Pak Chong	10	8.1
Non Sung	10	8.1
Nong Sarai	9	7.3
Klong-pai	9	7.3
Sikhio	9	7.3
Sing Nern	7	5.7
Pho Klang	5	4.1
Joho	4	3.3
Highest educational attainment	123	100.0
Below bachelors	79	64.2
Bachelors	42	34.1
Higher than bachelors	3	2.4
Field of study among Bachelor and higher	44	100.0
Law	26	57.8
Political Sciences	17	37.8
Education	1	2.2

Table 4.1 General Characteristics of 123 traffic polices (cont.)

General Characteristics	Number	Percent
Marital status	119	100.0
Married	105	88.2
Single	9	7.6
Divorced	4	3.4
Separated	1	.8
Total family members	118	100.0
1-3	53	44.9
4-9	65	55.1
Mean=3.7, S.D.=1.48		
Male family members	118	100.0
0	2	1.7
1-3	110	93.2
4-5	6	5.1
Mean=1.77, S.D.=0.92		
Female family members	118	100.0
0	6	5.1
1-3	104	88.1
4-5	8	6.8
Mean=1.92, S.D.=1.06		
Dependent family members	97	100.0
1-4	83	85.6
5-7	14	14.4
Mean=3.13, S.D.=1.31		

Table 4.1 General Characteristics of 123 traffic polices (cont.)

General Characteristics	Number	Percent
Monthly Income (Baht)	122	100.0
2000-19999	15	12.3
20000-29999	85	69.7
30000-35000	22	18.0
Median=25,000, S.D. 5096.58		
Enough money for monthly expense	115	100.0
No	59	51.3
Yes	56	48.7

4.2 Knowledge on Post-crash

There were all positive items measuring the knowledge of post-crash rescuing. Out of nine items, 4 had more than 80% of positive answers which were fracture stability; seize the blood flow, nearest health facility and detection. Transfer technique was the one which was responded incorrectly. Only one-third of the respondent knew about it. Half of them knew about the calling 1669 during emergency. Less than half knew about the geo-mapping and recovery position of the victims during post-crash. 70% of them had idea on head injury and CVS addressing when they are the accident site. So, these were the general information about the knowledge on post-crash rescuing from the traffic police which is demonstrated on table below.

Table 4.2 Number and percent of 123 Traffic Policemen who answered correctly to each item of knowledge on post-crash

Knowledge on Post-Crash	Answer correctly	
	Number	Percent
Fracture stability	117	95.1
Seize the blood flow	115	93.5
Nearest health Facility	112	91.1
Detection	103	83.7
Head injury and CVS	86	69.9
Call 1669	65	52.8
Recovery Position	56	45.5
Geo-mapping	50	40.7
Transfer Technique	40	32.5

Knowledge of post crash was divided into three sections according to correct answers:

- Good –those who answered 8 or 9 correct answers
- Fair - those who answered 6 or 7 correct answers
- Need improvement – those who answered less than 6 correct answers.

Around 23% had good knowledge on overall knowledge on post crash. It is compiled on table 4.3.

Table 4.3 Level of overall Knowledge of 123 Traffic Polices on Post crash injury

Level of Knowledge on post-crash	Number	Percent
Need Improvement	47	38.2
Fair	48	39.0
Good	28	22.8

4.3 Experience on handling cases

Personal experience and experience on handling the cases while on duty were asked to traffic police. About 65% had the personal experience of RTI. Around half of those who responded, had training on handling the cases and the training was given last year only to them.

More than 90% had the ability to handle RTI and they had showed the confidence, when they were given any kind of assistance to tackle the cases. There were irregularities on answering about the guideline of RTI. Around one-third of them responded that they have the guidelines of RTI; 90% of respondents follow the guidelines and about 80% were trained according the guidelines of RTI. 60% of them deal maximum of 9 cases per month whereas maximum cases seen last year was only 12 which could be controversial. 0ne-fourth of the respondents did not have the experience of post-crash rescuing. When they were asked about the training on rescuing, 55% answered that they had training. They generally responded by calling 1669 (60.2%), informing seniors (69.9%) whereas others responded that either they call rescue team, radio station or call emergency number like 191, 31.

Table 4.4 Experience on handling cases

Experiences		**Number**	**Percent**
Personal Experience of RTI		121	100.0
No		42	34.7
Yes		79	65.3
Trained on Handling RTI Cases		116	100.0
No		51	44.0
Yes	*last trained (in years)*	65	56.0
	0	*10*	*8.6*
	1-4	*19*	*16.4*
	5-9	*13*	*11.2*
	10-20	*12*	*10.3*
	Missing	*11*	*9.5*

Table 4.4 Experience on handling cases (cont.)

Experiences	**Number**	**Percent**
Ability to Handle RTI/ Co-ordinate	121	100.0
No	1	.8
Yes, with help	112	92.6
Yes, without help	8	6.6
Having guidelines for RTI	*117*	*100.0*
No	*80*	*68.4*
Yes	*37*	*31.6*
Follow Guideline	*33*	*100.0*
No	*3*	*9.1*
Yes	*30*	*90.9*
Trained According to Guideline	*33*	*100.0*
No	*7*	*21.2*
Yes	*26*	*78.8*
RTI cases a month dealt on average in the last one year	94	100.0
1-9	57	60.6
10-29	27	28.7
30-59	10	10.6
RTI cases having seen last year	75	100.0
0	2	2.7
1	20	26.7
2	17	22.7
3	13	17.3
4-5	14	18.7
6-12	9	12.0

Table 4.4 Experience on handling cases (cont.)

Experiences		**Number**	**Percent**
Experience of post-crash rescuing		109	100.0
No		26	23.9
Yes		83	76.1
Being trained on rescuing		118	100.0
No		52	44.1
Yes		66	55.9
By calling 1669		*93*	*100.0*
No		*37*	*39.8*
Yes		*56*	*60.2*
By informing the seniors		*93*	*100.0*
No		*28*	*30.1*
Yes		*65*	*69.9*
Others (respond to accidents)		*93*	*100.0*
No		*75*	*80.6*
Yes		*18*	*19.4*
	Call Rescue	*9*	*7.2*
	Radio station	*3*	*2.4*
	Help on duty	*2*	*1.6*
	Call 191	*1*	*0.8*
	Call 31	*1*	*0.8*
	Check for seriousness	*1*	*0.8*
	Clear road	*1*	*0.8*

4.4 Response to road traffic injuries incidents

Response was measured with the time of response from traffic police and ambulance, ability to handle, confidence of using first aid kits, ability to handle the situations as well as mode of information they received when the accident happens.

There had been four categories for the response time from the ambulance and it has been answered from 119 traffic police. Half of them responded that EMS reaches the site within 10 minutes of the first call. Again half of them responded that they have handled RTI some time before and they had done different activity while handling RTI. One-third allotted different work during the scenario. 80% run according to the situation. Half of them had handled with support whereas one-third of them could handle with supervision. About 70% had the experience of handling the crowed atmosphere and they had handled with different activity. Vast majority of them did clearing the roads whereas some ignored them and kept working. Calling 191, informing head office and taking care of the victims was the response given by them about the experience of RTI cases.

Response time within the critical 10 minutes was considered as the good and 75% of them responded within the allotted time. Majority of them don't carry first aid kits and 90% of those who carry it had the confidence of using it. More than 50% used to get the information from main office and other mode of information were 1669 (emergency number), during duty, public and from radio.

Table 4.5 Response to road traffic injuries incidents

Response	Number	Percent
Time duration of EMS response	119	100.0
Within 8 minutes	25	21.0
8-10 minutes	34	28.6
10-15 minutes	34	28.6
More than 15 minutes	26	21.8

Table 4.5 Response to road traffic injuries incidents (cont.)

Response		**Number**	**Percent**
Ever handled RTI alone		123	100.0
Yes		62	50.4
No		61	49.6
Allot different work		*61*	*100.0*
No		*43*	*70.5*
Yes		*18*	*29.5*
Run according to the situation		*61*	*100.0*
No		*12*	*19.7*
Yes		*49*	*80.3*
With support		*61*	*100.0*
No		*30*	*49.2*
Yes		*31*	*50.8*
With Supervision		*61*	*100.0*
No		*39*	*63.9*
Yes		*22*	*36.1*
Others (coordinate)		*61*	*100.0*
No		*58*	*95.1*
Yes		*3*	*4.9*
	Call ambulance	*1*	*1.6*
	Inform Radio Station, Police station, Rescue team	*1*	*1.6*
	Rescue and Emergency person	*1*	*1.6*

Table 4.5 Response to road traffic injuries incidents (cont.)

Response	**Number**	**Percent**
Experience of Crowded atmosphere	122	100.0
No	35	28.7
Yes	87	71.3
Clear the road	*87*	*100.0*
No	*10*	*11.5*
Yes	*77*	*88.5*
Ignoring and working	*87*	*100.0*
No	*80*	*92.0*
Yes	*7*	*8.0*
Others (crowded atmosphere)	*87*	*100.0*
No	*77*	*88.5*
Yes	*10*	*11.5*
Clear the road and crowd	*5*	*5.7*
Call 191	*1*	*1.1*
Call Narenthorn	*1*	*1.1*
Inform head office	*1*	*1.1*
Safety advise	*1*	*1.1*
Take care of the victim	*1*	*1.1*
Response time of Police	120	100.0
Within 8 minutes	60	50.0
8-10 minutes	33	27.5
10-15 minutes	26	21.7
More than 15 minutes	1	0.8

Table 4.5 Response to road traffic injuries incidents (cont.)

Response	Number	Percent
Carry first-aid kits	120	100.0
No first aid kits	110	91.7
Have the kits but carry sometime	5	4.2
Have the kits and always carry	5	4.2
Confident on using first aid kits	8	100.0
No	1	12.5
Yes	7	87.5
Ever used first aid kits	10	100.0
No	1	10.0
Yes	9	90.0
Common mode of information	121	100.0
By 1669	12	9.9
When on duty	2	1.7
From main office (geo mapping)	69	57.0
Call from general public	16	13.2
Others (mode of information)	22	18.2
By 1669, On duty, Office, Public	5	5.0
On duty, Office, Public	3	3.0
Duty, public	3	2.0
Office, Public	2	2.0
On duty, Office	2	2.0
Person from Radio	2	2.0
By 1669, Office, Public	2	2.0
Duty	1	1.0
By 1669, Office	1	1.0
Information	1	1.0

4.5 General characteristics of traffic police, knowledge, experience and response to emergency call

When the general characteristics, knowledge and experience were cross tabulated with response to emergency call to traffic police; it had different results and it is listed in table 4.6.

Trained on handling was statistically significant with response time within 10 minutes having p-value 0.040. 85% of those who had training responded within the critical time period of 10 minutes, whereas just less than 70% who were not trained did not respond on time. Hence, training plays an integral part for the response of the traffic police.

Rest of the variable had no significant association between general characteristics, knowledge, experience and response to emergency call to traffic police. Among the ages of 27 to 60 years traffic police who responded within 10 minutes of the call they received; had no association with p-value 0.102. However, 86% of traffic police who were in age group 50 and higher responded within 10 minutes. Most of the traffic police had education level below bachelors and some were till bachelors and higher also had no significant association with the response time with p-value 0.579. Irrespective of education status the response time of traffic police does not change and it bears no significance.

Even though they had numbers of years as working experience there was no significant association between years of working and the response time with p-value 0.175 but it was reflected that, with increasing years of working, the response gets better. It is understandable that with p-value 0.165 the level of knowledge has no association with the response time of within 10 minutes.

About 76% of them had the confidence to manage RTI but it still had the p-value 0.408 which is not statistically significant. Those who had training on rescuing which was 73%, was not statistically significant with p-value 0.443. 76% of those

who had experience of post-crash rescuing responded within 10 minutes but it did not have statistical significance with p-value 0.915.

Table 4.6 Relationship between general characteristics, knowledge, experience and response

	Total response	**Response time within 10 minutes**		
		Number	**Percent**	**p-value**
Age (in years)				.102[1]
27-39	18	13	72.2	
40-49	60	41	68.3	
50-60	44	38	86.4	
Highest Education				.579[1]
Below bachelors	79	61	77.2	
Bachelors and above	44	32	72.7	
Years of Working as Traffic Police				.175[1]
1-9	50	34	68.0	
10-19	29	22	75.9	
20-37	35	30	85.7	
Level of Knowledge on post-crash injury				.165[1]
Need Improvement	47	39	83.0	
Fair	48	32	66.7	
Good	28	22	78.6	
Trained on handling				.040[1]
No	51	35	68.6	
Yes	65	55	84.6	

Table 4.6 Relationship between general characteristics, knowledge, experience and response (cont.)

	Total Response	Response time within 10 minutes		p-value
		Number	Percent	
Ability to manage RTI				.408[2]
No, yes with help	113	86	76.1	
Yes without help	8	5	62.5	
Ever been trained on rescuing				.443[1]
No	52	41	78.8	
Yes	66	48	72.7	
Ever got the experience of post-crash rescuing				.915[1]
No	26	20	76.9	
Yes	83	63	75.9	

1 p-value by chi-square test

2 p-value by Fisher exact test

4.6 General characteristics, knowledge, experience and handling of RTI.

When the general characteristics, knowledge and experience were cross tabbed with handling of RTI from traffic police; it had different results and it is listed in table 4.7.

One of the exciting finding from this table 4.7 shows the existence of significant association between ever handled the RTI alone and trained on handling, trained on rescuing as well as ever experience on post-crash rescuing. This means that training and experience could build the handling of RTI. When they were trained on handling (p-value= 0.026), ever trained on rescuing (p-value=0.016) and if they had ever have experience of post-crash rescuing (p-value=0.000). So, handling bears a significant association on training and experience of rescuing.

There was no significant association between the age and the handling of the RTI alone with p-value 0.855. However, the pattern shows that with the increasing age the handling of RTI has become better. The percentage of handling has started getting better gradually. Most of the traffic police had education level below bachelors and some were till bachelors and higher also had no significant association with the handling with p-value 0.587. Even though they had numbers of years as working experience there was no significant association between years of working and the handling with p-value 0.744. The trend of those slowly is increasing pattern with the increase of years in the work. It is understandable that with p-value 0.380, the level of knowledge had no association with the handling of RTI. Majority of traffic police answered that they could manage with help, still there is no significant association between ability to manage and handling with p-value 1.000. Exactly half of them answered that they have the ability to handle alone even though it does not show any statistical significance.

Table 4.7 Relationship between general characteristics, knowledge, experience and handling of RTI

	Total	Ever handled RTI alone		p-value
		Number	Percent	
Age Group (in years)				.855[1]
27-39	18	8	44.4	
40-49	60	30	50.0	
50-60	44	23	52.3	
Highest education				
Below bachelors	79	43	54.0	.232[1]
Bachelors and above	44	19	43.0	
Years of Working as Traffic Police				.744[1]
1-9	50	24	48.0	
10-19	29	15	51.7	
20-37	35	20	57.1	
Level of Knowledge on post-crash injury				.380[1]
Need Improvement	47	20	42.6	
Fair	48	26	54.2	
Good	28	16	57.1	
Trained on handling				.026[2]
No	51	19	37.3	
Yes	65	38	58.5	
Ability to manage RTI				
Yes with help, no ability	113	57	50.0	1.000[2]
Yes without help	8	4	50.0	
Ever been trained on rescuing				.016[1]
No	52	20	38.5	
Yes	66	41	62.1	
Ever got the experience of post-crash rescuing				.000[1]
No	26	5	48.0	
Yes	83	50	51.7	

1 p-value by chi-square test

2 p-value by Fisher exact test

4.7 General characteristics, experience and knowledge

When different level of knowledge was cross tabulated with several variables like age, highest education, years of working, handling, ability to manage, trained on rescuing and experience on post-crash, there was one variable which showed the statistical significant with knowledge.

Age in years showed the statistical significance with knowledge having p-value 0.009. Around 39% of younger traffic police had good knowledge on post crash handling and about half of them had fair knowledge. One third of senior had good knowledge whereas half of them needed improvement on the level of knowledge. Level of education did not have significance with p-value 0.105 but again those who were less educated than bachelors had good knowledge on post crash.

Numbers of years as traffic police did not have significance with p-value 0.304 and knowledge does not change its percentage with number of working years instead those who had less working years showed better knowledge. Neither training nor ability to manage increase the knowledge which has p-value 0.380 and 0.360 respectively and those who had good level of knowledge were also less. Only one-fourth of those who had training had good knowledge on post-crash rescuing. Training on rescuing and experience of post-crash also has no significance on the matter and level of knowledge which has p-value 0.956 and 0.924 correspondingly. However, those who had training had fair knowledge as well as those who had the experience had better fair knowledge in comparison to others.

Table 4.8 Relationship between general characteristics, experience and knowledge

	Total responses	Need Improvement		Fair		Good		p-value
		Number	Percent	Number	Percent	Number	Percent	
Age in Years								.009[1]
27-39	18	3	16.7	8	44.4	7	38.9	
40-49	60	22	36.7	30	50.0	8	13.3	
50-60	44	22	50.0	10	22.7	12	27.3	
Highest education								.105[2]
Below bachelors	79	31	39.0	26	33.0	22	27.8	
Bachelors and above	44	16	36.0	22	50.0	6	13.6	
Years of Working as Traffic Police								0.304[1]
1-9	50	19	38.0	19	38.0	12	24.0	
10-19	29	7	24.1	15	51.7	7	24.1	
20-37	35	16	45.7	11	31.4	8	22.9	
Trained on handling								.380[1]
No	51	18	35.3	22	43.1	11	21.6	
Yes	65	29	44.6	20	30.8	16	24.6	

Table 4.8 Relationship between general characteristics, experience and knowledge (cont.)

	Total responses	Need Improvement		Fair		Good		p-value
		Number	Percent	Number	Percent	Number	Percent	
Ability to manage RTI								.360[2]
no, yes with help	113	42	37.0	44	39.0	27	24.0	
yes without help	8	4	50.0	4	50.0	0	0.0	
Ever been trained on rescuing								.956[1]
No	52	18	34.6	21	40.4	13	25.0	
Yes	66	24	36.4	27	40.9	15	22.7	
Ever got the experience of post-crash rescuing								.924[1]
No	26	10	38.5	11	42.3	5	19.2	
Yes	83	31	37.3	33	39.8	19	22.9	

1 p-value by chi-square test

2 p-value by Fisher exact test

CHAPTER V
DISCUSSION

This was a cross-sectional study conducted in Nakon Ratchasima Province and the discussion are based on findings collected from 123 traffic police who were working and were on duty. The results of this study might be used to access the response of traffic police on basis of general characteristics, knowledge and experience. Probably, this might help traffic police to be more active; as this may access them and eventually aid to the decrease RTI cases in Thailand which is high and alarming.

5.1 Response

In this study, response on RTI among Royal Thai Traffic Police is the dependent variable. Response was evaluated with the different variables and responses within ten minutes were considered as the standard response, different studies considered this time frame as normal. Response time is best within 10 minutes, according to the study done on UK. (33, 34) Response was better in this study when they were trained on handling the RTI cases. 85% of those who had training had good response and had higher percentage of response within 10 minutes.

There was statistical significance between the handling of RTI alone with training on handling and rescuing as well as with experience. Different studies have also suggested that training had made the difference among the community leaders as well as laypersons that had no knowledge of handling the cases have started dealing the cases well and made the benefits to decrease the cases of disability and mortality.(35, 36) Hence, training of traffic polices have got good advantage and better value to create awareness and promote the health aspect and treat the severe cases like RTI.

5.2 Age

It was found in this study, as the age increases the response gets better but it has no significance to react the accidents. There were no study related to the response and age but one of the studies done on the peer-based approach says that younger age has more chances of accident because of peer pressure of speed and irresponsibility. (37) Similarly the age group in this study also suggests that elder age group has better response than others. With the increasing age the pattern of handling of the RTT got better too. It shows that the age has good response to the RTI incidents cases and responsibility.

5.3 Education

Around 65% of the traffic police had education level below bachelors which had no significance on responding to RTI. It also links to the situation according to the paper from low income and middle income countries that if training such as basic first aid trainings are given to any professional, they could manage the post-crash management irrespective to their education level. There was also a study referring that training the laypersons with practical demonstrations could be very handy and could be helpful on casualties for pre-hospital trauma care.(44) Practical education of the different stakeholders such as drivers, community leaders has showed good results. Similarly, training has got the statistical significance on the response as well as the handling of RTI. It has showed the evidence in different sets of research that training the individual to assist have been the influential factor on decreasing the cases of mortality and disability.(42-45)

Training on handling the cases and ability to manage the cases has inter-relationship though in this study it has also significance. One of the study done in Northern Iraq show that when the training was given to rural people there was impressive figure which shows more than one third of the reduction of decrease of the mortality and the response time of the first medical help was also much quicker than earlier.(44)

Even though training on rescuing and experience of post crash rescuing had no significance on the response time in this study but there is some evidence from the past study that there is some relevancy on the experience of the individual. Different drivers were tested in different conditions and it was summarized that it can have few features related to it. The experience definitely has some significance when it was done among the drivers of different category. Similarly there was research done on the foggy situation where novice driver had more accidents then experienced drivers which suggest that experience have slight advantage over inexperience. (51)

5.4 Knowledge

Out of 123 respondents, merely 23% could be categorized as the good level of knowledge who had answered nine different answers on knowledge category. Out of which four answers had got more than 80% correct answers. Because the prehospital care was lacking in the developing countries a study was done in Mahajanga Medical School in Madagascar with 26 taxi drivers. The result were positive and they had positive response from the training and was helpful in the building of the knowledge of those taxi-driver.(42) Similarly same was done in Uganda and they had positive response on knowledge and controlling the hemorrhage.(49) Hence, it is better to have knowledge and help on the betterment of post crash by first responder which could be police in our case.

Knowing one of the many things is part of the system but it does not mean that it is all for the daily living. With knowledge having no significant p-value with handling the RTI alone resembles similarity in Iranian drivers. It shows that that attitude and practice of the driver should be better to bring the change regarding the road traffic crashes not knowledge and education.(50)

There have been different studies about the knowledge and other similar related variables and results have been different. Similarly in this study too knowledge has been checked for different variables and it shows that if anyone has knowledge, it does not mean that there will be good outcome as well. Various studies on the knowledge of an individual such as taxi-drivers, laymen has been done and it shows that

knowledge and attitude has no relation in the practical life; rather it is the practice which makes the differences.(50) Likewise in the social cognitive theory also it states that practicality makes the difference and if we expose some individual to certain prospect then it will be easier to accommodate and hence get the better results. They become used to the surrounding conditions and they are able to deal properly.(40)

5.5 Communication and coordination

In this study, there are different modes of communication such as calling 1669 (emergency call number), call from general public, geo mapping and many others. They don't have any specific modes of communications but according to finding from this paper it says that main office and calling 1669 are the mostly used mode of communications. Communication used in one of the Nigerian prehospital system says that centrally controlled communication network is the integral for the reduction of morbidities and mortalities.(48) One of the shortcomings of this research was also that there were not many strong questions on the communication aspect of the traffic polices. It had few questions on communication which was calling emergency number and using geographic information system (GIS). GIS being one of the modes of the communication between the traffic police and health personal, it serves as the vital components for the reduction of the road traffic injuries. It is also demonstrated from the study in Turkey that with the help of GIS they were able to reach the accident site within ten minutes. The result was more than 90 percent of the cases were tracked. Hence, GIS is an integral part for the proper response.(53)

It was one of the positive aspects that traffic police demonstrated in the response which was confidence. They answered that they can handle the victims with assistance. Since so many traffic police answered that they don't follow the guidelines exactly; handling of the traffic police could be questioned. It is again supported by another response; about carrying of first-aid kits. With p-value having no significance, they showed no confidence of handling RTI alone. One of the studies shows that coordination plays the vital role in the post-crash management. One study also shows

that coordination among the triage and dispatch of the victims in different stakeholders can help in decreasing the disability and death.(47,48)

Since this was a cross-sectional study carried on the small sample of traffic police from one province, hence this cannot be generalized for all. During the study of research there was no plan to visit the field and it was conducted with the self-administered so it might not give the exact scenario and perspective of response of traffic police. Most of the respondents did not carry first aid kits and researcher could not assess about the same. It could also have recall bias because questionnaire contains some of the part of experience, time factor as well as number of cases seen. Ranking of the respondents were not in the questionnaire as it might make the difference in the level of knowledge too. One of the pitfalls of this might be the questionnaire on responses. It had very few questions which can answer the direct response of the traffic police. The response part of the questionnaire was mainly relied on the other part of the questionnaire like experience and ability.

CHAPTER VI
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This study, "response to RTI among Royal Thai Traffic Police in Nakon Ratchasima Province", was conducted to assess the response to RTI. It also assesses the knowledge on post-crash injury on RTI. In addition, it determines the association of general characteristics and experience with knowledge of traffic police. Eventually it finds the association of general characteristics, knowledge and experience with response within ten minutes and handling of RTI too. This cross sectional study was done in 12 police stations of Nakon Ratchasima province. It was a self administrated questionnaire and it had 4 sections; general characteristics, knowledge on post-crash, experience on handling and response. The total population was 140.

On the basis of the interpretation drawn through the results of this study, following conclusions are made:

Out of 123 respondents, the age ranges from 27 to 60 years and half were among 40-49 age group. Thirty traffic police was available in Mueang police station, which was maximum and rest had only 10 in each stations. Just about 35% had attained bachelors or more and rest was educated below bachelors. Vast majority of them were married and few were single and divorced. Monthly income of the traffic police was around 25000 baht and half answered that it was not enough.

Out of 9 questions on knowledge, 4 had more than 80% correct answers. Roughly 22% had good knowledge on the overall score.

Around 65% had personal experience of accidents. More than half were trained on handling cases. They were able to handle and coordinate the accidents which were above 90%. The guidelines of handling RTI were followed by few of them only. Most of them had the experience of post-crash rescuing but about 55% did not have training on rescuing.

When they were reported about the accidents, half of them responded within 10 minutes and 10 minutes are considered as the good response to deal with RTI. About 50% had handled RTI alone some or other time and they used to divide the task by allotting different work, run according to the situations, and work with support and supervision. Around 71% had the experience of RTI and mostly they did was clearing the road (88.5%), call emergency number and managing situation. They did not carry the first aid kits although they were provided and few had confidence of using it. The common mode of information about accidents were emergency call 1669, general public, and on duties. Response time within 10 minutes was considered as the good response and it was only statistically significant when they were trained on handling with p-value of 0.040. Rest of the variable did not have any significance on the response time within 10 minutes. But on cross tabulation of the handling RTI alone with general characteristics, knowledge and experience; few had statistical significance. Training (0.026), trained on rescuing (0.016), experience of post-crash rescuing (p-value<0.001) had statistical significance. Meanwhile only age had statistical significance (0.09) when it was cross-tabulated with knowledge.

6.2 Recommendations

The recommendations for the RTI are based on the results found from this study.

1) Regular refresher course should be given to them to keep their knowledge updated. Senior traffic police should be given more frequent courses since the younger ones had good knowledge, however younger should not be neglected.

- At least, emergency call should be made more effective.
- Head injury and CVS detection and triage should be made promptly.
- Use of geo-mapping to assess the location.
- Positioning of the victims should be taught.

2) Carrying first aid kits and managing, it should be effective and also should be strict.

3) To update their knowledge, video presentation or new technology should be used in every police station so that they get an idea to deal with the RTI cases.

4) Training has been very fruitful for the positive response so they should be given training with practical demonstration.

6.3 Future research

1) There should be more research on the topics of RTI in Thailand, since it is one of the highest in this region. Therefore, other approach like qualitative research and mixed method might be used to find the causes of RTI.

2) Awareness and handling RTI should be assessed about the traffic polices.

3) Why are uses of first aid kits limited?

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APPENDICES

APPENDIX A
QUESTIONNAIRES

Respond to Road Traffic Injuries among the Royal Thai Traffic Policemen IN Nakon Ratchasima Province

ID: ……..

Part 1: General Characteristics: Please allow me to ask about yourself.

1. Age…….. Years
2. Police station ……
3. Highest education

❒ Below than bachelors ❒ Bachelors ❒ Higher than bachelors

Your field of study……

4. Marital status ❒ Single ❒ Married ❒ divorced ❒widowed ❒ separated
5. How many members are there in your family? Total..... Male..... Female.....
6. How many members are dependent on you? Total.....Male..... Female.....
7. Your monthly income …… Baht.

Is it enough for monthly expense? ❒ No ❒ Yes

8. Years of working as traffic police ……..…… years
9. Have you ever had personal experience on road traffic injury?

❒ No ❒ Yes

Part 2: Knowledge on post-crash

1. Detection of types of injured cases for triage ❒ Yes ❒No ❒don't know
2. Call 1669 immediately after accidents. ❒ Yes ❒No ❒don't know
3. You have to take the injured case to the nearest health facilities when you see accidents. ❒ Yes ❒No ❒don't know
4. We have to use geo-mapping to locate the accident site. ❒ Yes ❒No ❒don't know
5. The transfer technique of log rolling is important to prevent more injuries ❒ Yes ❒No ❒don't know
6. Head injury and cardio-vascular injury should be addressed earlier. ❒ Yes ❒No ❒don't know
7. Fracture cases should be transported with stability. ❒ Yes ❒No ❒don't know
8. You should keep the victims of respiratory cases in recovery position. ❒ Yes ❒No ❒don't know
9. Try to seize the blood flow, when you see the accidents. ❒ Yes ❒No ❒don't know

Part 3: Experience

1. Are you trained on handling the RTI cases? ❒ No (*go to Q.3*) ❒ Yes
2. If "yes", how long ago were you trained? ……years……. months
3. Can you manage the RTI incidents?
   ❒ No ❒ Yes, with help ❒yes, without help
4. Do you have any guidelines for RTI? ❒ No ❒ Yes
   a) Do you follow guidelines? ❒ No(*go to Q5*) ❒ Yes
   b) Are you trained according to the guidelines? ❒ No ❒ Yes
5. Have you ever been trained on rescuing? ❒ No ❒ Yes
6. When was the last time did you go to the accidents site? .....days……weeks
7. How many RTI cases a month have you dealt on average in the last one year? ……cases
8. How many RTI cases have you seen last month? .....cases
9. Have you ever got the experience of post-crash rescuing? ❒ No (*go to Part 4*) ❒Yes
10. How did you respond to the accidents? (*multiple answers*)
    ❍By calling 1669 ❍ by informing the seniors ❍ others ……..

Part 4: Respond to road traffic injuries incident

1. How fast do Emergency Medical Services respond?

❒ Within 8 minutes ❒ 8-10 minutes

❒ 10-15 minutes ❒ More than 15 minutes

2. Have you ever handled the RTI alone?

❒ No ❒ Yes (*go to Q4*)

3. If "No", how do you coordinate within your colleagues /subordinate? (*multiple answers*)

❍ Allot different work each individual

❍ Run according to situation

❍ With support

❍ With supervision

❍ …….

4. Have you ever experienced the crowded atmosphere after accidents?

❒ No (*go to Q 6*) ❒ Yes

5. If "yes", how do you respond to it? (*multiple answers*)

❍ By asking them to clear the road ❍ Ignoring and doing work

❍ Others (*please, specify*) …….

6. How fast do you respond the accidents from the time you are informed?

❒ Within 8 minutes ❒ 8-10 minutes

❒ 10-15 minutes ❒ More than 15 minutes

7. Do you carry all the first aid kits with you?

❒ No first aid kits (*go to Q9*) ❒ Have the kits but ever

❒ Have the kits but carry sometimes ❒ Have the kits and always carry

8. If sometimes and always carry the first aid kits,

8.1 Are you confident on using first aid kits? ❒ No ❒ Yes

8.2 Have you ever used first aid kits? ❒ No ❒ Yes

9. What is the most common mode of information about accidents? (*only one answer*)

❒ By 1669 ❒ when on duty

❒ From main office (geo mapping) ❒ Call from general public

❒ Others ……

แบบสอบถาม

การตอบสนองต่อการบาดเจ็บจากการจราจรทางถนนของตำรวจจราจร จังหวัดนครราชสีมา

เลขที่: ……..

<u>คำชี้แจง</u> โปรดทำเครื่องหมาย □ ลงใน ( ) หรือเติมข้อความลงในช่องว่างที่ตรงกับความเป็นจริงเกี่ยวกับตัวท่านและการปฏิบัติงานของท่าน

ส่วนที่ **1:** คุณลักษณะทั่วไป

1. ท่านอายุ …….. ปี
2. ท่านปฏิบัติงานที่สถานีตำรวจ……
3. การศึกษาสูงสุดของท่าน

❒ ต่ำกว่าระดับปริญญาตรี ❒ ปริญญาตรี ❒ สูงกว่าระดับปริญญาตรี

จบสาขา……

4. สถานภาพสมรส ❒ โสด ❒ แต่งงาน ❒ หย่า ❒ หม้าย ❒ แยก
5. จำนวนสมาชิกในครอบครัว รวม..... ชาย..... หญิง.....
6. จำนวนสมาชิกในครอบครัวที่ท่านต้องรับภาระเลี้ยงดู รวม..... ชาย..... หญิง.....
7. ท่านมีรายได้ …… บาท/เดือน

รายได้เพียงพอสำหรับค่าใช้จ่ายแต่ละเดือนหรือไม่? ❒ ไม่เพียงพอ ❒ เพียงพอ

8. ระยะเวลาการปฏิบัติงานในหน้าที่ตำรวจจราจร …….…… ปี
9. ท่านเคยประสบอุบัติเหตุจากการจราจรทางถนน และได้รับบาดเจ็บ หรือไม่?

❒ ไม่เคย ❒ เคย

ส่วนที่ **2:** ความรู้เกี่ยวกับการจัดการหลังเกิดอุบัติเหตุทางถนน

1. ต้องประเมินผู้ประสบอุบัติเหตุได้ว่ามีการบาดเจ็บชนิดใด ❒ ใช่ ❒ไม่ใช่ ❒ ไม่ทราบ
2. โทรแจ้ง 1669 ทันทีที่มีอุบัติเหตุเกิดขึ้น ❒ ใช่ ❒ ไม่ใช่ ❒ ไม่ทราบ
3. ต้องนำส่งผู้บาดเจ็บไปสถานพยาบาลที่ใกล้ที่สุด ❒ใช่ ❒ไม่ใช่ ❒ไม่ทราบ
4. การระบุจุดเกิดเหตุได้แม่นยำ ต้องใช้แผนที่บอกพิกัด ❒ใช่ ❒ไม่ใช่ ❒ไม่ทราบ
5. การเคลื่อนย้ายผู้บาดเจ็บ ควรใช้เทคนิคการกลิ้งไปทั้งตัวแบบท่อนซุง

❒ใช่ ❒ไม่ใช่ ❒ไม่ทราบ

6. ผู้บาดเจ็บทางสมองและระบบเส้นเลือดหัวใจต้องได้รับการช่วยเหลือก่อน

❒ใช่ ❒ไม่ใช่ ❒ไม่ทราบ

7. การเคลื่อนย้ายผู้บาดเจ็บกระดูกหัก ต้องตรึงกับอุปกรณ์เคลื่อนย้ายให้มั่นคง

❒ ใช่ ❒ไม่ใช่ ❒ไม่ทราบ

8. ท่าพักฟื้นของผู้บาดเจ็บระบบทางเดินหายใจคือท่านอนตะแคง ศรีษะต่ำ

❒ใช่ ❒ไม่ใช่ ❒ไม่ทราบ

9. หากผู้บาดเจ็บมีเลือดออก ต้องทำการห้ามเลือดทันที

❒ใช่ ❒ไม่ใช่ ❒ไม่ทราบ

ส่วนที่ **3:** ประสบการณ์การจัดการและดูแลผู้บาดเจ็บ

1. ท่านเคยได้รับการศึกษา หรือฝึกอบรมการดูแลผู้บาดเจ็บจากการจราจรทางถนนหรือไม่?

❒ ไม่เคย (*ข้ามไปตอบข้อ 3*) ❒ เคย

2. ถ้า"เคย" ท่านได้รับการศึกษาหรือฝึกอบรม มานานเพียงใดแล้ว? ……ปี……. เดือน

3. ท่านสามารถจัดการเมื่อเกิดการบาดเจ็บจากการจราจรทางถนนได้หรือไม่?

❒ ไม่ได้ ❒ ได้ แต่ต้องขอความช่วยเหลือ ❒ได้ โดยไม่ต้องขอความช่วยเหลือ

4. ท่านมีคู่มือการปฏิบัติเมื่อเกิดการบาดเจ็บจากการจราจรทางถนน หรือไม่? ❒ ไม่มี

❒ มี

ก.ท่านปฏิบัติตามคู่มือหรือไม่? ❒ ไม่ปฏิบัติ(*ข้ามไปข้อ5*) ❒ ปฏิบัติ

ข.ท่านได้รับการฝึกอบรมตามเนื้อหาในคู่มือหรือไม่? ❒ ไม่ใช่ ❒ ใช่

5. ท่านเคยได้รับการฝึกการกู้ชีพหรือไม่? ❒ ไม่เคย ❒ เคย

6. ท่านอยู่ในที่เกิดอุบัติเหตุทางถนน ครั้งสุดท้ายเมื่อใด? .....วัน……สัปดาห์

5. ในรอบ 1 ปีที่ผ่านมา มีผู้บาดเจ็บจากการจราจรทางถนน เฉลี่ยเดือนละกี่ราย? ……ราย

7. ในรอบ 1 เดือนที่ผ่านมา มีผู้บาดเจ็บที่ท่านได้ช่วยจัดการดูแลจำนวนกี่ราย? .....ราย

8. ท่านเคยมีประสบการณ์การกู้ชีพหลังอุบัติเหตุหรือไม่? ❒ ไม่เคย (*ข้ามไปส่วนที่ 4)* ❒ เคย

9. ท่านดำเนินการอย่างไร เมื่อมีอุบัติเหตุเกิดขึ้น ? (ตอบได้มากกว่า 1 ข้อ)

❍ เรียก 1669 ❍ รายงานผู้บังคับบัญชา ❍ อื่นๆ โปรดระบุ ……..

ส่วนที่**4:** การตอบสนองต่อการเกิดการบาดเจ็บจากการจราจรทางถนน

1. หน่วยบริการการแพทย์ฉุกเฉิน ตอบสนองต่อการแจ้งอุบัติเหตุ ภายในระยะเวลาเท่าใด?

❒ ภายใน 8 นาที ❒ 8-10 นาที

❒ 10-15 นาที ❒ มากกว่า 15 นาที

2. ท่านเคยจัดการกับการบาดเจ็บจากการจราจรทางถนนแต่เพียงลำพังหรือไม่?

❒ ไม่เคย ❒ เคย (*ข้ามไปข้อ 4*)

3. ถ้า "ไม่เคย" ท่านประสานกับเพื่อนร่วมงาน / ผู้ใต้บังคับบัญชาอย่างไร? (*ตอบได้มากกว่า 1 ข้อ*)

❍ มอบหมายความรับผิดชอบแตกต่างกันแต่ละบุคคล

❍ ดำเนินการตามสถานการณ์

❍ ด้วยความช่วยเหลือ

❍ ด้วยการให้คำแนะนำ

❍ …….

4. ท่านเคยมีประสบการณ์จัดการกับประชาชนจำนวนมาก ที่อยู่ในสถานที่เกิดอุบัติเหตุหรือไม่?

❒ ไม่เคย (*ข้ามไปตอบข้อ 6*) ❒ เคย

5. ถ้า "เคย" ท่านตอบสนองอย่างไร? (*ตอบได้มากกว่า 1 ข้อ*)

❍ ให้ประชาชน ออกไปจากที่เกิดเหตุ ❍ ปฏิบัติงานโดยไม่สนใจประชาชนที่มุงดู

❍ อื่นๆ (โปรดระบุ) …….

6. นับจากเวลาที่ท่านได้รับแจ้งเหตุ ท่านตอบสนองรวดเร็วเพียงใด?

❒ ภายใน 8 นาที ❒ 8-10 นาที

❒ 10-15 นาที ❒ มากกว่า 15 นาที

7. ท่านนำชุดปฐมพยาบาลไปด้วยหรือไม่?

❒ ไม่มีชุดปฐมพยาบาล (*ไปตอบข้อ 9*) ❒ มีชุดปฐมพยาบาลแต่ไม่ได้นำไป

❒ มีชุดปฐมพยาบาลแต่นำไปด้วยบางครั้ง ❒ มีชุดปฐมพยาบาลและนำไปด้วยเสมอ

8. ถ้าท่านนำชุดปฐมพยาบาลติดตัวเสมอ หรือบางครั้ง

8.1 ท่านมีความมั่นใจในการใช้ชุดปฐมพยาบาลหรือไม่? ❒ ไม่มั่นใจ ❒ มั่นใจ

8.2 ท่านเคยใช้ชุดปฐมพยาบาลหรือไม่? ❒ ไม่เคย ❒ เคย

9. ท่านได้รับข่าวสารการเกิดอุบัติเหตุทางถนน จากแหล่งใด**<u>มากที่สุด</u>**? (*ตอบเพียง 1 ข้อเท่านั้น*)

❒ จากโทร. 1669 ❒ จากจุดที่ปฏิบัติงาน

❒ จากสถานีตำรวจที่สังกัด ❒ ประชาชนทั่วไปโทรแจ้งเหตุ

❒ อื่นๆ ระบุ .....

APPENDIX B
INFORMATION SHEET

EC-3 Form

Information sheet

- **Title of project**

Response to road traffic injuries among the Royal Thai Traffic Police in Nakon ratchsima Province, Thailand

- **Study site**

Nakon ratchsima Province, Thailand

- **This project is conducted by** Mr. Bijaya Shreshta **under the supervision of major advisor as follows:** associate professor Dr. Oranut Pacheun, Dr. P.H. Department of Community Health Faculty of Public Health, Mahidol University.

- **Brief background , rationale: (use simple word, understandable by volunteer participants)**

Road traffic injuries are the major public health concern globally. Currently more than 1.2 millions dies every year and 20 to 50 million get injured. It is the 8th leading cause of the death now and if the situation persists like this, by 2030 it will be 3rd leading cause of the death hence resulting in huge economic burden. One of the major problems of the road traffic injuries are, majority of the deaths are from productive age group; 15-29. When these group of the people dies or gets disabled there will be huge burden to the society as well as country.

Middle and low income countries have the higher number of deaths due to the road traffic injuries. Thailand is one of the middle income country and road traffic injuries are the major three public health problems in the country now. The number of the motor bike accidents and deaths toll is as high as 74% in Thailand. The economic

burden due to this is more than US$2500 and which covers 3% of GDP. According to the data, in Thailand two people dies every hourly.

The number and figure suggest that we have to work hard in order to bring the statistics of the road traffic injuries to low and Thailand has also its ambitious plan of getting it down to 10 per 100000 populations by the end of decade of action plan. So by including the traffic police we would like to have a trans-disciplinary approach to the major problems for the society. Many countries have tried with different lay people so Thailand also should work with at least some responsible people who are the in every phase of the accidents like pre-accidents, during accidents and post accidents.

Objectives

- To find the response of the Royal Thai Traffic Police after accidents.
- To assess the knowledge of the Royal Thai Traffic Police pre-hospital care.
- To assess the procedure of communication and coordination during RTI.
- To find the association between:

i. General characteristics of traffic police, knowledge, experience and response to emergency call.

ii. General characteristics of traffic police, knowledge, experience and handling of RTI.

iii. General characteristics, experience and knowledge.

- **You are invited to be a volunteer/subject to participate in the project:**

Response to road traffic injuries among the Royal Thai Traffic Police in Nakon ratchsima Province, Thailand. This study shows that the response of the royal Thai traffic police to road traffic injuries and their communication and co-ordination to make the efficiency and use of their contacts and knowledge in order to overcome the emerging public health problem in the country. The eligibility is such that you are the Thai traffic police working for road safety. Your answers will help us to assess your knowledge and response to road traffic injuries. In case you don’t meet the criteria of good knowledge we can give recommendation for better training to make you more knowledgeable and be more aware for the situations.

- **Researcher activities which involving you when you volunteer to participate in this research project will be as following: (focus on the parts that involve volunteers/ subjects).**

You are requested to answer the self-administrated questionnaire as given to you. We are thankful for all the support which you gave us by volunteering and serving for the betterment of the Thai people.

- **Periods of time that you will be involved in this research activities (treatment/data collection).**

You have to give about half an hour for answering the questionnaire as it is self administrated. You can take your time long too and have the breaks if you want.

- **Expected benefits of the project to you and to others:**

It will have huge benefits in many aspects. If we get to know the status of the knowledge and response, we can recommend for the better training facilities so that you become one of the responsible and important person in the society in case of emergency cases. Besides the society, you can help the nations by reducing the burden of disability and eventually decrease the economic loss to some extent.

- **Risks or any understandable that may occur to you caused by this research and measure or prevention and risk reclusion method which will be provided during participation in the project.**

If you feel uncomfortable answering any questions, you can skip the question. Furthermore you can stop answering the questions any time if you are uncomfortable with the questions. You can withdraw from research anytime you like without any explanations**.**

- **How can you securely store data and keep them confidential? (such as how to take care data, where are data storage who will access, and how to destroy data and when)**

The researcher will be using the coding system to keep the paper confidential. We will never expose the name of the respondents. The researcher will explore, interpret and note down all the information obtained by himself avoiding

revealed off the respondents confidentiality also enter the data himself and with the help of expert. After that we will analyze data and elucidate. The data will be destroyed after they have been used.

- **The right of the subject (he /she) to withdraw from the project.**

  You will be respected and each of you could withdraw at anytime in the study period if you don't feel like to providing information more and/or when you would feel a sensitive question has to be answered.

- **Contact address of the authorized persons in case of emergency.**

Mr. Bijaya Shrestha
Student ID: 5637192 PHMP/M
MPH International program
Faculty of public health, Mahidol University
V.M mansion room no. 303, rajawithi soi -2
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APPENDIX C
INFORMED CONSENT FORM

Informed Consent Form

Project title: Response to road traffic injuries among the Royal Thai Traffic Police in Nakon ratchsima Province, Thailand.

Responsible person(s) and institute: Mr. Bijaya Shrestha

Student ID: 5637192 PHMP/M

MPH International program

Faculty of public health, Mahidol University

Bangkok 100400 Thailand.

Date…….

(Day/month/year)

I (Mr./Mrs./Ms)

……

Home address……

Street……

Sub district……..District……

Province…….Postal code……....

City……..

I have read and understood all statements in the **information sheet.** I have also been explained the objectives and methods of the study, as well as possible risks and benefits that may happen to myself upon the participation in the study. I understand that the information will be kept

confidential and my name will not be declared in any case. I shall be given a copy of the signed **informed consent form**.

I have the right to withdraw from the project at any time without any adverse effects upon myself.

Signature…… (respondent/informant)

(…….)

Signature …….. (researcher)

Bijaya shrstha

Informed consent form version _____

เอกสาร จธ.4

หนังสือยินยอมตนให้ทำการวิจัย

โครงการวิจัยเรื่อง การตอบสนองต่อการบาดเจ็บจากการจราจรทางถนนของตำรวจจราจร จังหวัดนครราชสีมา

วันที่ให้คำยินยอม วันที่ …….. เดือน ……..

พ.ศ…….....

ข้าพเจ้า (ยศ.....) ……..…….……ขอทำหนังสือนี้ไว้ต่อหัวหน้าโครงการเพื่อเป็นหลักฐานแสดงว่า

ข้อ 1. ก่อนลงนามในใบยินยอมตนให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยให้ทราบถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย อันตราย หรืออาการที่อาจเกิดขึ้นจากการวิจัย รวมทั้งประโยชน์ที่จะเกิดขึ้นจากการวิจัยอย่างละเอียด และมีความเข้าใจดีแล้ว

ข้อ 2. ผู้วิจัยรับรองว่าจะตอบคำถามต่างๆ ที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบัง ซ่อนเร้น จนข้าพเจ้าพอใจ

ข้อ 3. ข้าพเจ้าเข้าร่วมโครงการวิจัยนี้โดยสมัครใจ และข้าพเจ้ามีสิทธิที่จะบอกเลิกการเข้าร่วมในโครงการวิจัยนี้เมื่อใดก็ได้ และการบอกเลิกการเข้าร่วมวิจัยนี้จะไม่มีผลต่อการปฏิบัติงานหรือสวัสดิการอื่นๆที่ข้าพเจ้าจะพึงได้รับต่อไป

ข้อ 4. ผู้วิจัยรับรองว่า จะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับ และจะเปิดเผยได้เฉพาะในรูปที่เป็นสรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่างๆที่เกี่ยวข้อง กระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ข้อ 6. ผู้วิจัยรับรองว่า หากมีข้อมูลเพิ่มเติมที่ส่งผลกระทบต่อการวิจัย ข้าพเจ้าจะได้รับการแจ้งให้ทราบทันทีโดยไม่ปิดบัง ซ่อนเร้น

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้วมีความเข้าใจดีทุกประการ และได้ลงนามในใบยินยอมนี้ด้วยความเต็มใจ

ลงชื่อ …… ผู้ยินยอม

(……..)

ลงชื่อ ……..……...…

ผู้วิจัย

(……..)

APPENDIX D
PROOF OF ETHICAL CLEARANCE

Certificate of Approval
Ethical Review Committee for Human Research
Faculty of Public Health, Mahidol University

COA. No. MUPH 2014-022

Protocol Title :	RESPONSE TO ROAD TRAFFIC INJURIES AMONG THE ROYAL THAI TRAFFIC POLICE IN NAKON RATCHASIMA PROVINCE
Protocol No. :	195/2556
Principal Investigator :	Mr. Bijaya Shrestha
Affiliation :	Master of Public Health (International Program) Faculty of Public Health, Mahidol University
Approval Includes :	1. Project proposal 2. Information sheet 3. Informed consent form 4. Data collection form/Program or Activity plan
Date of Approval :	14 January 2014
Date of Expiration :	13 January 2015

The aforementioned project have been reviewed and approved according to the Declaration of Helsinki by Ethical Review Committee for Human Research, Faculty of Public Health, Mahidol University.

S. Nanthamongkolchai

(Assoc. Prof. Dr. Sutham Nanthamongkolchai)
Chairman of Ethical Review Committee for Human Research

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BIOGRAPHY

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