SOCIO-CULTURAL INFLUENCES ON VACCINATION-VACCINATORS PERSPECTIVE, STUDY FROM NEPAL

Jetri Regmi
Master’s Thesis
Institute of Public Health and Clinical Nutrition
Faculty of Health Sciences
University of Eastern Finland
May 2014
ABSTRACT

UNIVERSITY OF EASTERN FINLAND, Faculty of Health Sciences
Institute of Public Health and Clinical Nutrition
JETRI REGMI: Socio-Cultural Influences on Vaccination-Vaccinators Perspective, Study from Nepal
Master's thesis, 81 pages, 2 appendices (3 pages)
Supervisors: Sohaib Khan MBBS, MPH, PhD, Lecturer in International Health; Alex Aregbesola MBBS, MPH, Researcher
May 2014

Key words: Vaccine, Vaccination, Immunization, Vaccinator, Expanded Program on Immunization, Perception, Socio-Cultural

SOCIO-CULTURAL INFLUENCES ON VACCINATION-VACCINATORS PERSPECTIVE, STUDY FROM NEPAL

Immunization is a process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccination is one of the most cost-effective and safe strategies to prevent millions of infectious disease episodes and its related deaths around the world. Despite their public health benefits, vaccination programs face the obstacle of public perception of the relative risks and benefits. Vaccine scares and sudden spikes in vaccine demand remind us that the effectiveness of vaccination programs is governed by public perception of vaccination. The aim of this study was to understand the public perception regarding vaccination and the socio-cultural factors that influence these perceptions from the vaccinator’s perspective.

This study employs qualitative study design consisting of thematic semi structured in-depth interviews based on interview guide. The study was conducted in Nawalparasi district of Nepal with 17 vaccinators as respondents. These vaccinators were employed by the District Public Health Office of Nawalparasi and they could understand and respond in Nepali language. All interviews were audio-taped, transcribed verbatim and analysed using content analysis. There were four main themes that were identified from the interviews and each was divided into sub-themes. The main themes identified were general perception of vaccination; life style and socio-economic factors; gender roles and religion and ethnicity.

The vaccinators’ perceived that in general the community had a positive outlook towards vaccination as they understood the benefits and advantages of getting their children vaccinated. Female family member, usually mother or paternal grandmother was the primary care provider of the child and decisions related to vaccinations were made by them. Maternal education is an important governing factor as educated mothers had knowledge and awareness about vaccines and were better equipped to learn more about vaccination. Socio-economic status played an important role in governing the time, resources, knowledge and accessibility for receiving vaccines. Gender of the child, birth order and religion appeared to have minimal influence on whether the child was brought for vaccination or not, however, there was a difference in compliance to vaccination in different ethnic groups.
ACKNOWLEDGEMENT

I would like to express my heartfelt gratitude to my principal supervisor and examiner Sohaib Khan, for his continuous support and guidance through all stages of this study. His painstaking involvement starting from the inception of this research idea to planning of the study, evaluation and correction of the entire thesis has been tremendous and I could never thank him enough for this guidance and encouragement.

I also want to express my gratitude to Alex Aregbesola for his acceptance to be my supervisor for this study. In the same manner, I would like to thank Tiina Rissinen for her willingness to be my examiner. I would also like to thank all the academic and administrative staff of the Institute of Public Health and Clinical Nutrition, University of Eastern Finland at Kuopio for helping create such an intellectual and friendly environment for learning.

Lastly, I would like to express my sincere appreciation to all the participants of this study for their willingness and the quality time which they gave for the interviews. Without them sharing their information, this study would not have taken the shape it has now. My special thanks to everyone who, directly and indirectly supported this study.

Jetri Regmi
May 2014
Kuopio, Finland
# TABLE OF CONTENTS

## Contents

1. INTRODUCTION .................................................................................................................. 9

2. LITERATURE REVIEW ........................................................................................................... 11
   2.1 Background ..................................................................................................................... 11
      2.1.1 History .................................................................................................................... 11
      2.1.2 History of Expanded Program on Immunization in Nepal .................................... 13
      2.1.3 Vaccine Delivery System ..................................................................................... 15
      2.1.4 Vaccine Delivery System in Nepal ..................................................................... 16
   2.2 Socio-cultural Factors affecting vaccination ................................................................. 18
      2.2.1 General Perception of Vaccination ................................................................. 18
      2.2.2 Side-effects of Vaccination ................................................................................. 19
      2.2.3 Rumors .................................................................................................................. 20
      2.2.4 Community Influence ....................................................................................... 21
      2.2.5 Compliance ......................................................................................................... 21
      2.2.6 Utilization of Other Health Services ................................................................. 22
      2.2.7 Distance from Booth/Accessibility ..................................................................... 23
      2.2.8 Socio-economic Status ...................................................................................... 24
      2.2.9 Family structure and Support .......................................................................... 24
      2.2.10 Health Education ............................................................................................. 25
      2.2.11 Maternal Education ......................................................................................... 25
      2.2.12 Trust on Vaccinator .......................................................................................... 26
      2.2.13 Gender Based Difference ................................................................................. 27
      2.2.14 Birth Order ........................................................................................................ 28
2.2.15 Religion

2.2.16 Ethnic Community

2.3 Logical Framework of the study

3. AIM OF THE STUDY

3.1 Objective

3.2 Specific Objectives

4. RESEARCH METHODOLOGY

4.1 Study Area

4.2 Study Participants

4.3 Study Design

4.4 Data Collection

4.5 Data Analysis

4.6 Ethical Consideration

5. RESULTS

5.1 Study Participants

5.2 Socio- Cultural Factors affecting Vaccination

5.2.1 General Perception of Vaccination

5.2.1.1 Perceived Benefits of Vaccination

5.2.1.2 Perceived Side-Effects

5.2.1.3 Rumors

5.2.1.5 Compliance

5.2.1.6 Utilization of other health services

5.2.1.7 Distance from the booth / Accessibility

5.2.2 Life-style and socio-economic factors

5.2.2.1 Occupation and socio-economic status
5.2.2.2 Family Structure and Support .................................................. 50
5.2.2.3 Health Education ...................................................................... 52
5.2.3 Gender ....................................................................................... 53
5.2.3.1 Gender Norms ........................................................................ 53
5.2.3.5 Birth Order ............................................................................. 59
5.2.4.1 Religion .................................................................................. 60

6. DISCUSSION .................................................................................... 63
6.1 Discussion of the findings ................................................................. 63
6.2 Strengths and limitations of study ..................................................... 66
6.3 Implication for practice and further research ...................................... 67
6.4 Reliability and Validity .................................................................... 68

7. CONCLUSION ................................................................................... 70

8. REFERENCE .................................................................................... 71

9. APPENDICES ................................................................................... 81

Figure 1: Immunization Coverage of children 12-23 months (1996-2011), Nepal ............ 14
Figure 2: Vaccine Delivery System in Nepal ......................................................... 18
Figure 3 Framework: Socio-Cultural Factors Affecting Vaccination ......................... 30
Figure 4: Clip of World Map showing Nepal ......................................................... 32
Figure 5: General Health Statistics, Nepal ........................................................... 33
Figure 6: Map of Nepal highlighting Nawalparasi district ...................................... 34
Figure 7: Map of Nawalparasi District Highlighting the Study Area ......................... 34

Table 1: Expanded Program on Immunization ...................................................... 13
Table 2: Characteristics of the Participants .......................................................... 38
### ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AusAID</td>
<td>Australian Agency for International Development</td>
</tr>
<tr>
<td>AHW</td>
<td>Auxiliary Health Worker</td>
</tr>
<tr>
<td>ANM</td>
<td>Auxiliary Nurse Midwife</td>
</tr>
<tr>
<td>BCG</td>
<td>Bacillus Calmette-Guerin</td>
</tr>
<tr>
<td>CDC</td>
<td>Center for Disease Control</td>
</tr>
<tr>
<td>CHD</td>
<td>Child Health Division</td>
</tr>
<tr>
<td>cYMP</td>
<td>Comprehensive Multi-Year Plan</td>
</tr>
<tr>
<td>DoHS</td>
<td>Department of Health Services</td>
</tr>
<tr>
<td>DPT</td>
<td>Diphtheria-Pertussis-Tetanus</td>
</tr>
<tr>
<td>EPI</td>
<td>Expanded Program on Immunization</td>
</tr>
<tr>
<td>FCHV</td>
<td>Female Community Health Volunteer</td>
</tr>
<tr>
<td>GAVI</td>
<td>Global Alliance for Vaccines and Immunization</td>
</tr>
<tr>
<td>HepB</td>
<td>Hepatitis B</td>
</tr>
<tr>
<td>Hib</td>
<td>Hemophilus influenza</td>
</tr>
<tr>
<td>INGO</td>
<td>International Non-Governmental Organizations</td>
</tr>
<tr>
<td>JE</td>
<td>Japanese Encephalitis</td>
</tr>
<tr>
<td>JICA</td>
<td>Japanese International Cooperation Agency</td>
</tr>
<tr>
<td>LMD</td>
<td>Logistic Management Division</td>
</tr>
<tr>
<td>MMR</td>
<td>Measles-Mumps-Rubella</td>
</tr>
<tr>
<td>NGO</td>
<td>Non Governmental Organization</td>
</tr>
<tr>
<td>NIP</td>
<td>National Immunization Plan</td>
</tr>
<tr>
<td>OPV</td>
<td>Oral Polio Vaccine</td>
</tr>
<tr>
<td>PAHO</td>
<td>Pan American Health Organization</td>
</tr>
<tr>
<td>REC</td>
<td>Reaching Every Child Micro-plan</td>
</tr>
<tr>
<td>RHD</td>
<td>Regional Health Directorate</td>
</tr>
<tr>
<td>RI</td>
<td>Routine Immunization</td>
</tr>
<tr>
<td>SIA</td>
<td>Supplementary Immunization Activity</td>
</tr>
<tr>
<td>TT</td>
<td>Tetanus Toxoid</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
</tr>
<tr>
<td>Acronym</td>
<td>Full Form</td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>VDC</td>
<td>Village Development Committee</td>
</tr>
<tr>
<td>WHA</td>
<td>World Health Assembly</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

According to World Health Organization (WHO), “Immunization” is a process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Immunization is one of the most cost-effective strategies to prevent millions of infectious disease episodes and deaths around the world (Ali et al. 2010). Vaccines are preparations which when given evoke immune responses, which lead to the production of antibodies that help combat infectious agents (Saroja et al. 2011).

In the words of Plotkin et al. (2008), “Vaccines – With the exception of safe water, no other modality, not even antibiotics, has had such an effect on mortality reduction.” Vaccination is one of the cheapest and safest methods of primary prevention. It ensures well being of children below five years of age and therefore remains the cornerstone for achievement of Millennium Development Goal 4 - Reduce Child Mortality.

The Center for Disease Control (CDC) has placed vaccination as one of top ten achievements in the field of public health in the twentieth century. Through “herd-effect”, it not only protects individual but also provides protection to the community and thus hinders circulation of the infectious agent. In doing this, effects of vaccination are seen much rapidly, as evident by the eradication of small pox. Thus, vaccine helps healthy individuals stay healthy and therefore aids to human development (CDC 2013). Vaccines are the most effective tools available for prevention and control of infectious diseases. Widespread use of vaccines has prevented millions of premature deaths, paralysis, blindness, and neurologic damage (Halsey 2002).

Despite their public health benefit, vaccination programs face obstacles. One obstacle is public perception of the relative risks of vaccination. Vaccine scares and sudden spikes in vaccine demand remind us that the effectiveness of mass vaccination programs is governed by the public perception of vaccination (Reluga et al. 2006). Each individual and family weigh perceived risks and benefits, reflect on the value of participation, and consider potential consequences of vaccination (Ali et al. 2010).
The importance of vaccination in public health program has motivated researchers to examine how socio-cultural factors impact vaccination programs. Though many studies (Smith 2006, Basel et al. 2012, Bbaale 2013, Hu et al. 2013, Han et al. 2014) have been conducted on various socio-cultural factors and their influence from recipient’s perspective but not much work has been done from the service providers’ point of view. This study aims to explore how socio-cultural factors like perception, socio-economic status, gender roles, religion and ethnicity have influenced the uptake of vaccination in Nawalparasi district of Nepal and this is explored from the point of the vaccinator.
2. LITERATURE REVIEW

2.1 Background

Vaccination is one of the safest modes of disease prevention. Through time, vaccines and the process of vaccination have evolved making the process more scientific, with lesser side-effects and more recipient friendly.

2.1.1 History

History of immunization dates back to many centuries, where prophylactic inoculation against smallpox was practiced in China, India and Persia. It was introduced to England from Turkey and in 1754 it was recommended by the Royal College of Physicians. The first successful scientific inoculation was done by Edward Jenner on 14th May 1796 against small pox. Inspired by Jenner’s work, Louis Pasteur worked on attenuation of viruses and preventive inoculation of viruses other than small pox. Though Jenner was the founder of vaccinations, it was Louis Pasteur who coined the term “Vaccine” (Parish 1965).

Expanded Program on Immunization (EPI) was initiated by WHO in 1974 through a resolution passed at World Health Assembly (resolution WHA27.57), with the aim of eradicating small pox and also targeting six infectious diseases; namely – tuberculosis, poliomyelitis, diphtheria, pertussis, tetanus and measles. Massive vaccination campaigns were conducted by the World Health Organization (WHO) for the eradication of Small pox from 1967 to 1977. Small pox had claimed the lives of many for about two centuries and still was a threat to about 60% of the population, killing it’s every fourth victim. The disease was eradicated with the use of vaccines on 9th December 1979 (The Expanded Program on Immunization 2014). In course of time the emphasis in immunization shifted from the containment of epidemics to their prevention (Streefland 2003).
According to WHO, eradication of any disease includes four strategies namely Routine Immunization (RI), Supplementary Immunization Activity (SIA), Surveillance and Mop-up campaigns. Supplementary Immunization is one of the pillars for disease eradication which complements routine immunization. Main objective of SIA is to immunize children who are either not immunized or partially immunized and also to boost immunity in those children who have been fully immunized. In SIA, every child of susceptible age group is vaccinated, irrespective of the prior immunization status, at the same time. This helps develop herd immunity and hence deprives the virus of any fertile seedbed on which its survival depends (Polio Global Eradication Initiative 2014).

Through the course of time newer vaccine were developed and WHO introduced various vaccines like Hepatitis B, H. influenza, Rota virus vaccines in EPI which were adopted by the WHO member countries in a tailored fashion. After addition of these vaccines, globally, vaccines prevent more than 2.5 million child deaths annually. Introduction of new vaccines like Pneumococcal vaccine and Rota virus vaccine can prevent additional 2 million deaths in children under five years of age (State of the world’s vaccines and immunization 2009).

In 2010, The Decade of Vaccines was launched with the goal “to extend, by 2020 and beyond, the full benefits of immunization to all people, regardless of where they are born, who they are, or where they live”. With this initiative, vaccines against diseases like Malaria, Hepatitis C, E, Dengue fever are in the pipeline for development, which will aim at reducing morbidity and mortality due to vaccine preventable diseases (WHO 2014).

In the inception of EPI, only 5% of newborns were vaccinated against tuberculosis, poliomyelitis, diphtheria, pertussis, tetanus and measles. This coverage accounted for mostly developed countries. By 1990, the global vaccination rate reached 80% and this rise in global immunization rate however has been taking a slow progress over the last century with an estimated coverage of 83%. Currently, 100 million children under one year of age are vaccinated against the third dose of diphtheria-pertussis-tetanus (DPT) vaccine; mostly residing in the developed regions and their regional coverage is over 90%. However, immunization fails to reach about 20 percent of children born in a year which amounts to 24 million globally, of which
majority reside in developing countries. This shows that the trend which was present at the inception of EPI still being carried on and the children of developing countries are still far from the reach of vaccination (WHO 2014).

2.1.2 History of Expanded Program on Immunization in Nepal

From a public health perspective, EPI is a web of rather uniform routine vaccination programs covering the globe (Streefland 2003). EPI was introduced in Nepal in 1979 in three districts (Bara, Kaski and Bhaktapur) with Bacillus Calmette-Guerin (BCG) against tuberculosis and DPT vaccines. By 1989, EPI was expanded to all 75 districts with six antigens (BCG, DPT, Oral Polio Vaccine (OPV) and Measles). The national guideline for EPI is shown in Figure 1. Following WHO guidelines, newer vaccines were introduced in EPI. Hepatitis B (HepB) vaccination was integrated into EPI in 2002 and DPT-HepB combination vaccinations were introduced in 2005. Likewise, Japanese Encephalitis (JE) was introduced in 2007 and DPT-HepB-H.influenza combination vaccine was started in 2009 (Field Guideline for Surveillance of Vaccine Preventable Diseases 2010, Annual Report 2011).

Table 1: Expanded Program on Immunization

<table>
<thead>
<tr>
<th>Type of Vaccine</th>
<th>Number of Doses</th>
<th>Recommended Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>1</td>
<td>At birth or on first contact with health institution</td>
</tr>
<tr>
<td>OPV</td>
<td>3</td>
<td>6,10 and 14 weeks of age</td>
</tr>
<tr>
<td>DPT-Hep B- Hib</td>
<td>3</td>
<td>6,10 and 14 weeks of age</td>
</tr>
<tr>
<td>Measles</td>
<td>1</td>
<td>9 months</td>
</tr>
<tr>
<td>TT</td>
<td>2</td>
<td>Pregnant women</td>
</tr>
<tr>
<td>TT (School Immunization)</td>
<td>1</td>
<td>Grade 1 Students</td>
</tr>
<tr>
<td>JE</td>
<td>1</td>
<td>12-23 months of age</td>
</tr>
</tbody>
</table>

Currently EPI provides vaccinations against BCG, DPT-HepB-Hib, OPV and Measles through routine immunization, Japanese Encephalitis in high risk districts and Tetanus Toxoid (TT) to
pregnant women. EPI services are provided free of cost through EPI clinics – fixed, mobile and outreach which are controlled by the public sector. However, they are also provided by private clinics, Non-Governmental Organizations (NGOs) and International Non-Governmental Organizations (INGOs). The National Immunization Plan (NIP) is governed by national policy outlined by the Comprehensive Multi-Year Plan (cYMP), which is a 5 year plan of action. The Child Health Division (CHD) of the Ministry of Health and Population acts as the lead in all immunization related activities. However, individual district is responsible for the immunization coverage of that particular district (Annual Report 2011).

Since the inception of EPI in Nepal, there has been a steady rise in immunization coverage nationally. Coverage of BCG, which was 22 percent in 1980, had reached 96 percent in 2011. This holds true for the other antigens too. Figure 1 shows the trend in immunization coverage from 1996 to 2011. This has been enabled by various actions undertaken by the CHD to strengthen routine immunization like adoption of Reaching Every Child (REC) micro-plan and activities like Supplementary Immunization Activities for Polio, Measles and Japanese Encephalitis (Annual Report 2011, National Immunization Program of Nepal Reaching Every Village, Multi year Plan of Action 2007-2011).

**Figure 1: Immunization Coverage of children 12-23 months (1996-2011), Nepal**

(Source – Nepal Demographic and Health Survey 2011)
Supplementary Immunization Activities was started in Nepal in 1996, in to support the achievement of eradication of wild polio virus circulation. SIA for polio is conducted every year during the low transmission season. Two doses of oral polio vaccine are given to all the children less than 5 years of age, irrespective of their prior immunization status, during the SIA. Similarly, SIAs are conducted against measles in order to reduce mortality and morbidity due to the disease. The first measles catch-up campaign was conducted in 2004-2005, followed by follow up campaigns in 2008 and 2012-2013. SIA against Japanese Encephalitis was initiated in a phase wise manner in high risk districts from 2006 and 31 districts have been covered until 2011 (Field Guideline for Surveillance of Vaccine Preventable Diseases 2010, Annual Report 2011).

2.1.3 Vaccine Delivery System

Vaccines, though administered worldwide, are manufactured dominantly by a small number of manufacturers which are based in industrialized countries. Up to late 1900’s, the big manufacturer’s were supplying large volumes traditional vaccines recommended by WHO, EPI to Pan American Health Organization (PAHO) and United Nations Children’s Fund (UNICEF) at low prices to be used in developing countries. This was possible as the suppliers sold the same vaccine at higher process to the industrialized countries and thus recouped their production cost (State of the world’s vaccines and immunization 2009).

As of mid-2008, five major firms producing vaccines accounted for more than 80% of global vaccine revenue and the remaining 20% was divided among more than 40 manufacturers located in developing countries. However, in terms of volume, only 14% of the vaccine required to meet global vaccine demand came from the industrialized countries. The remaining 86% was met by suppliers based in developing countries. These suppliers primarily produce traditional vaccines for use in their own countries or to supply to other low or middle income countries (State of the world’s vaccines and immunization 2009).

No longer do the industrialized countries and developing countries use the same vaccines. Industrialized countries prefer second generation vaccines like acellular pertussis vaccines and
combination vaccines like Measles Mumps Rubella and newer vaccines like pneumococcal conjugate vaccines. While the low and middle income countries still use the traditional six vaccines recommended by WHO, EPI (State of the world’s vaccines and immunization 2009).

Therefore, there has been a steady growth in the manufacturing capacity of the suppliers in developing countries. This has been aided by increasing procurement demand by PAHO and UNICEF to meet the vaccine requirements to eradicate polio, eliminate maternal and neonatal tetanus and to reduce measles related deaths in low and middle income countries. In recent times, UNICEF is the largest vaccine buyer for developing countries. The Supply Division of UNICEF based in Denmark procures vaccines that reach about 55% of the world’s children. It is also responsible for procuring vaccines on the behalf of the Global Alliance for Vaccines and Immunization (GAVI) (State of the world’s vaccines and immunization 2009).

2.1.4 Vaccine Delivery System in Nepal

NIP is implemented by the Immunization Section of the CHD of the Department of Health Services (DoHS). Immunization services are provided free of cost mainly through the public sector. However, there has been an increasing trend of immunization service delivery through the private sector. Vaccines and related logistics are provided by the government to the private institutes free of cost (Annual Report 2011).

Vaccine procurement and logistics is managed by the Logistic Management Division (LMD) of the DoHS Nepal. The vaccine need is forecasted by the immunization section of the CHD based on projected target population, wastage rate and targeted coverage rate. The government of Nepal purchases the traditional vaccines (BCG, DPT, TT, OPV and measles). GAVI supports the pentavalent (DPT-Hib-HepB) vaccine and a portion of the cost of OPV for SIA is supported Japanese International Cooperation Agency (JICA) and UNICEF. In addition, organizations like WHO, Australian Agency for International Development (AusAID) and United States Agency for International Development (USAID) support the government at the time of financial shortfall (Annual Report 2011).
After arrival in Nepal, the vaccines are stored at central store at optimal temperature. From the central store, vaccines are distributed to six Regional Cold Stores from which they are further distributed to cold stores in all 75 districts of Nepal maintaining cold chain as shown in Figure 2. Current national policy for vaccine storage is maximum six months at the central level, four months at the regional level and one to two months at district level. Vaccines when distributed are bundled with other related logistics like diluents, syringes and safety boxes (Annual Report 2011).

NIP plays the lead role in all immunization related activities at National level. The Regional Health Directorate (RHD) acts as a facilitator between the national level and district. The main responsibility of implementing immunization program lies on the district which is managed by District (Public) Health Officer. Every district is staffed with an EPI Supervisor and a Cold Chain Assistant who directly supervise the immunization program in that district and are responsible for the smooth operation of the immunization program in that district. Vaccination is carried out at every Village Development Committee (VDC) by vaccinators –Auxiliary Health Worker (AHW) and Auxiliary Nurse Midwife (ANM) with the support of Female Community Health Volunteer (FCHV) (National Immunization Program of Nepal Reaching Every Village, Multi year Plan of Action 2007-2011, Annual Report 2011).
2.2 Socio-cultural factors affecting vaccination

Vaccination programs differ culturally, because they adjust to their environment, being permeated by social and cultural influences (Streefland 2003). Identification of factors that may impact the success of vaccination and identification of acceptable and convenient sites for vaccine delivery, reliable sources for information about the vaccine, e.g. health clinic personnel and community health volunteers, should be considered for successful vaccination programs (Ali et al. 2010). Studies have showed that vaccination coverage is hampered by difficulty in accessing medical care, costs, complex transport, and by users’ characteristics, such as low education, parental knowledge, attitude and family poverty (Luman 2002, Bardenheier et al. 2003, Bardenheier et al. 2004).

2.2.1 General Preception of Vaccination
Besides socio-economic reasons, other influencing factors for vaccination take-up rates are awareness, parental attitude and impacts of vaccine controversies in the public (Lorenz & Khalid 2012). Parental perception on vaccination is a major player on the decision to utilize vaccination program. Strong desire to keep the children and the community healthy and protected against diseases was a consistent theme that influenced people to have their children vaccinated (Bingham et al. 2012).

A study conducted on National Immunization Safety by the CDC showed that parents who considered vaccines safe were more likely to get their children vaccinated compared to those who were neutral and those who thought that vaccines were unsafe (Allred et al. 2005). In addition, parents who considered that vaccines were safe were more likely to be influenced by the health care provider in making decision to vaccinate their children when compared to the parents who think that vaccines are not safe (Smith et al. 2006). A study conducted in Mozambique showed that the strong desire to keep children and the community healthy and protected against diseases influenced them to have their child vaccinated, as most caregivers understood that vaccinations strongly benefitted the child and family (Bingham et al. 2012).

Despite the relatively low risk of vaccine compared to its benefits, parental fear is a major barrier in optimal uptake of vaccines by the children (Tickner et al. 2006). A study showed that parents were more likely not to get their children vaccinated because of the concerns about side-effects (Bardenheier et al. 2004). Similar finding was presented by a study conducted in the US, where parents who did not get their children vaccinated reported safety or side effect concerns as the main reason for their doubts about vaccination (Gust et al. 2008).

2.2.2 Side-effects of Vaccination

Adverse effects of vaccination may be layperson defined and professionally denied, or agreed between both constituencies (Streefland 2003). With the increase in vaccine coverage, the incidence of vaccine preventable diseases has fallen, especially in industrialized countries and the vaccines have fallen prey to their own success. As the diseases prevented by vaccines have
become rare, concerns about potential side effects have risen, both in developed and developing countries, leading to loss of confidence of public in vaccines.

This effect was shown in a British study conducted in 1999. Measles-Mumps-Rubella (MMR) vaccination was linked to autism which fueled the parents with anxiety regarding vaccine safety and brought about the decline in vaccine reception (Wakefield 1999). It had a negative effect on public uptake of measles prevention programs in the UK and elsewhere, with a consequent rise in morbidity and mortality due to measles (Jansen et al. 2003). Similarly, study conducted in the United States showed that parents knowledge of side effects of the vaccines like autism association with vaccination, led to significant difference in vaccination coverage (Freed et al. 2010).

A systematic review exploring the reasons for sub optimal uptake of vaccination showed that following the linkage of triple vaccination MMR with bowel disease and autism, there has been a decrease in the uptake of MMR in countries like England and Sweden. This led to the outbreak of measles in UK, Germany, Ireland, Denmark and the Netherlands (Tickner et al. 2006). Even though scientific research and expert review committees have refuted the association of autism with vaccination, it still remains a major concern to many parents specially residing in developed countries.

Although scientists know that a temporal association between vaccine exposure and a subsequent adverse event does not prove that the vaccine caused the event, identification of such temporally associated events could nonetheless raise public concern (Black et al. 2010).

2.2.3 Rumors

The availability of the internet together with an increased public concern and engagement in interpretation of vaccine adverse event data have increasingly allowed for spurious associations to be promoted as fact (Black et al. 2010).
Rumors in the Muslim community about polio campaign being Western conspiracy to control Muslim population and the belief that polio drops were used as a tool for causing sterility in the children led to a substantial rise in Polio cases in that area (Kapp 2003, Khan 2010, Lorenz & Khalid 2012).

In Austria shortly after introduction of the human papillomavirus vaccine, there were calls for withdrawal of the vaccine because of the death of one teenage athlete (Löwer 2008). Similarly, in the Philippines, and other countries, the alleged fertility restricting potential of tetanus toxoid vaccination became the subject of a large social conflict (Ramos-Jimenez et al. 1999, Feldman-Savelsberg et al. 2000).

### 2.2.4 Community Influence

Community participation in promoting and sustaining health was championed in the Declaration of Alma Ata on Primary Health Care; which stated – “the people have the right and duty to participate individually and collectively in the planning and implementation of their health care” (Alma Ata 1978). Community perception and their participation in vaccination programs aids as a positive reinforcement in parental perception. Parental concern regarding vaccine safety occurs within the context of the community and may be shared by other parents in the same community (Smith et al. 2006).

A study conducted in Canada showed that most of the people who were not vaccinated against H1N1 were encouraged by family members or friends, and participants who did not get vaccinated had family members or friends who discouraged vaccination by providing negative information on vaccination (Boerner et al. 2013). Likewise, a study showed that parents who had first hand experience with children with autistic disorder through family, friends or work were less likely to immunize their children (Wroe et al. 2005).

### 2.2.5 Compliance
Compliance towards vaccination is shaped by various issues. In case of childhood vaccination, it often occurs that mothers are willing to attend the routine vaccination session, but are unable to do so for a pressing reason, such as the need to participate in the harvesting, to attend a funeral, or illness in the household (Streefland 2003). Likewise, difficulty in managing time due to work as the timing of session coincided with work-time was pointed out in one study (Bingham et al. 2012).

In other instances, some vaccines may be more favored by parents than others depending on the route of administration and number of dosage. A study conducted in Sweden showed that MMR vaccines were more rejected than other vaccines as parents perceived that their children were receiving too many vaccines (Alferdson et al. 2004). Similar findings were presented by another study conducted in United States, where children were not immunized as the parents perceived that their children were receiving too many vaccines (Bardenheier et al. 2004). Likewise, parental fear that combination vaccines have more side effects and place more stress on the child’s immune system is another factor influencing the vaccine uptake (Tickner et al. 2006).

In developed countries, where the burden of vaccine preventable diseases is low and parents do not see the impact of the diseases, it is natural for parents to perceive that their children are being shot too many times and this may affect compliance. The notion that vaccine acceptance is influenced by rates of vaccine-preventable diseases is supported by theories from behavioral sciences. For example, a useful framework for understanding vaccine acceptance is the health-belief model, according to which the uptake of a health intervention is associated with perceived susceptibility to and severity of the relevant disease and the intervention's safety and efficacy (Omer et al. 2013).

2.2.6 Utilization of Other Health Services

Care-seeking behavior in resource-poor settings has been described as a hierarchical process, where caretakers first seek less-expensive alternatives before visiting a formal or licensed care provider (Nyamongo 2002).
A study conducted in Uganda showed that mothers who sought prenatal care were associated with a higher likelihood of getting their children fully immunized compared to the counterparts who did not seek prenatal care. This can be attributed to learning sessions that mothers are exposed to during prenatal care where the importance of timely immunization of the baby is emphasized (Bbaale 2013). Children delivered at health facilities were more likely to be fully vaccinated than children delivered at home (Jani et al. 2008, Hu et al. 2013). Similar findings were also seen in Kenya, with over 80% of children delivered at a health facility having received full immunization; the place of birth was found to be one of the predictors of immunization coverage (Maina et al. 2013).

2.2.7 Distance from Booth/Accessibility

Distance of vaccination booths or health center also affects the vaccination uptake, especially, in the context of developing countries. One study conducted in Bangladesh showed that the proximity of health center form the residence was directly proportional to the vaccination coverage (Breiman et al. 2004). A study conducted in Uganda showed that, rural areas are disadvantaged due to poor road networks, especially during rainy seasons resulting in poor vaccination coverage (Bbaale 2013). Similarly, a study conducted in China showed that vaccination coverage was poor in remote areas where it was hard to reach the health services and parents encountered more barriers in reaching the health center (Han et al. 2014).

Another study conducted in India and Pakistan to study the Polio Eradication Initiative in these two countries also showed that pockets of hard to reach areas have low vaccination coverage (Obregon 2009). A recurring concern among parents in Mozambique was the distance to vaccination services, the long queue when they arrived, and the hours of service and that it had an inverse relation with the parents’ intention to vaccinate their children (Bingham et al. 2012).

A study conducted in India showed that children dwelling in urban areas had higher percentage of being fully immunized in comparison to the children dwelling in rural areas (Choi & Lee 2006).
2.2.8 Socio-economic Status

Mother’s occupation and that of her partner are important in the attainment of full childhood immunization. Children whose parents held white-collar jobs were more advantaged compared to those in agriculture, blue-collar jobs, and services/sales (Bbaale 2013). In general, the immunization coverage is lowest among poor populations and in peripheral areas mainly due to inability to afford transportation to bring the child to immunization clinics (Streefland 2003, Han et al. 2014).

One study showed parents of low socio-economic status (low annual income, low level of education) were less likely to be up-to-date with newer vaccines and hence their children were less likely to be vaccinated with these vaccines (Bardenheier et al. 2004). A study conducted in the United States showed that children from low socio-economic background and low paternal education level were less likely to be vaccinated as the parents were less up-to-date with the vaccines (Smith 2006). Similarly, children of mothers having an asset score above the poorest had complete DPT immunization status by 9 months of age in Bangladesh (Breiman et al. 2004). A study conducted in Nepal showed that children of lower socio economic status were more likely to have higher dropout rates (Basel et al. 2012).

On the other hand, children born to mothers of higher socio and economic status were more likely to be fully vaccinated (Choi & Lee 2006). Likewise, another study showed that mothers with a better socio-economic status, such as having occupations and a stable income improved the fully immunization coverage (Hu et al. 2013).

2.2.9 Family structure and Support

The major findings of a study conducted in Uganda showed that the supportive or non-supportive role of significant others influenced the involvement or non-involvement of parents in childhood immunization (Babirye et al. 2011). Similarly, reasons for unintentional missed vaccinations shown by a study were forgetting appointment, lack of time after mother returns from work or having other children commitments (Tickner et al. 2006).
A qualitative survey conducted in Transkei community in Eastern Cape showed that one of the main reasons for not bringing their children to immunization clinics were unavailability of caretaker to either bring the child to the clinic or for the care of other children at home, mother pregnant/mother unable to walk to the clinic or elderly care taker not able to walk to the clinic (Helman & Yogeswaran 2004). This shows that family support is a vital aspect which helps in better uptake of vaccination.

2.2.10 Health Education

Mass media might play an important role in shifting the public’s perception of vaccination (Reluga et al. 2006). Exposure to the media is significantly associated with childhood immunization. This can be attributed to the sensitization messages that parents receive through media to get their children immunized (Bbaale 2013).

Advice given to mothers at health facilities during immunization services was assessed in one study and participants who recalled having been advised on the next date of growth monitoring had children who were three times more likely to receive full immunization (Maina et al. 2013).

Similarly, in one study, community members pointed to a lack of information about particular vaccines, vaccination scheduling and times of services as one of the most common constraints to having a child vaccinated (Bingham et al. 2012).

2.2.11 Maternal Education

Power relations within the household and between kin and friends affect health decision making (Igun 1979). Decisions related to vaccinations and other aspects of a child’s health were generally made within the immediate family by one or both parents, usually the mother - because of her role as primary caregiver and the person who spends the most time with the children (Bingham et al. 2012).
Maternal educational level is an important factor which governs the perception of parents regarding vaccination and hence the uptake of vaccination. A study conducted in Kenya showed maternal education as one of the factors that was significantly associated with immunization coverage (Malina et al. 2013). Likewise, a study conducted in China showed that increasing education level of the parents, especially for mothers can improve the fully immunization coverage among migrant children (Hu et al. 2013). A study conducted in the United States showed that children from low socio-economic background and low paternal education level were less likely to be vaccinated as the parents were less up-to-date (UTD) with the vaccines (Smith 2006).

Another study which looked at the maternal educational level and age at the birth of the child and their knowledge of mandatory vaccines in Italy showed that knowledge about the protective effects of vaccination and mandatory vaccines was higher in mothers with higher educational level and who were of older age (not teenage) and mandatory vaccination were complete in the children of these mothers (Angelillo et al. 1999).

Similar trend follows in developing countries too. A study conducted in Bangladesh revealed that mothers with at least 11 years of formal education were more likely to vaccinated their children completely rather than those with less than 11 years of education or no education at all (Breiman et al. 2004). Likewise, a study conducted in India showed that the likelihood of children being fully vaccinated was higher for children born to literate mother and the presence of literate father made little difference in children receiving full immunization (Borooah 2004). Another study conducted in India showed a direct relationship between childhood immunization and maternal education (Choi & Lee 2006). Similar trend was seen in Nepal, where the dropout rates in children decreased with increase in maternal education (Basel et al. 2012).

**2.2.12 Trust on Vaccinator**

Likewise, maternal trust on vaccinators and the attitude of vaccinators towards the recipients is another factor that wheels the uptake of vaccines. A study which looked at the factors governing maternal decision making regarding their infants vaccination showed that mothers who had open
and trusting relationship with their pediatricians were more likely to accept vaccination compared to the ones whose pediatricians could not address the maternal concerns and give adequate time and knowledge regarding vaccination to the mothers. In such instances, they were more likely to be steered to alternative forms of medicine like homeopathy and reject vaccinations (Benin et al. 2006). Another study showed that health care provider can positively influence the parents towards vaccinating their children especially when the parents are concerned about vaccine safety by building a trusting and respectful relationship with the parents (Smith et al. 2006).

One internet based survey on parental attitude towards vaccination showed that most respondents named their pediatricians as the most important source of information regarding vaccination (Heininger 2006). This shows that health care providers play a major role in uptake of vaccines and hence they should be encouraged to influence parents to vaccinate their children by providing scientific information, addressing their concerns and keeping an open channel for discussion.

### 2.2.13 Gender Based Difference

Gender discrimination is an important factor which guides the uptake of vaccination. A study conducted in India showed that girls were less likely to be fully immunized compared to boys (Borooah 2004). Similarly, another study, also conducted in India, showed that the proportion of boys fully immunized was higher than girls (Choi & Lee 2006). Similarly, one study conducted in Nepal showed that female children were more likely to dropout compared to male children (Basel et al. 2012). In a study conducted in migrant population in China, boys showed higher up to date immunization rate than girls. It indicated son preference toward immunization services in migrant children in China (Han et al. 2014).

However, few studies, on the contrary showed that there was no difference in immunization coverage by gender of the child (Ibnouf et al. 2007, Sarab et al. 2008).
2.2.14 Birth Order

One study showed that greater birth order is associated with full DPT immunization at 9 months of age (Breiman et al. 2004). Another study conducted in India showed that children with more siblings have lower percentage of full immunization coverage (Choi & Lee 2006). This could be explained by the literature mentioned earlier about the parents having prior commitments with other kids or not having care takers to care for children at home.

However, there are also studies which show that there is no difference in immunization coverage by number of children in the family and birth order (Ibnouf et al. 2007, Sarab et al. 2008).

2.2.15 Religion

Religion and spirituality are integral components of socio-demographics (rural culture) and influence perceived vulnerability to infection and perceived severity to infection (Thomas et al. 2013). Religious leaders are highly esteemed, and their authority can convince members of their congregations to accept or reject vaccination (Ruijs et al. 2013). A WHO report from polio endemic region in Nigeria states that only a total of 16% children were adequately vaccinated in that region; the main reason being that the community was predominantly of Muslim background and believed that polio drops were used as a tool for causing sterility in the children and had been shunned by community leaders. This led to a substantial rise in Polio cases in that area (Kapp 2003). Similar beliefs exist in the Pakistan where several religious and tribal leaders express their concern about polio campaign being Western conspiracy to control Muslim population (Khan 2010, Lorenz & Khalid 2012).

Studies conducted in India showed that although religion at the individual level did not play any significant role, residents of predominantly Hindu communities were more likely to participate in the vaccination programs compared to residents of predominantly Muslim communities (Boorah 2004, Choi & Lee 2006, Ali et al. 2010). Similarly, study conducted in Bangladesh showed that children of Non- Muslim religion were associated with full DPT immunization by nine months of age (Breiman et al. 2004).
Likewise, a study conducted in The Netherlands showed that municipalities and geographical entities with orthodox protestant denominations (OPDs) had significantly lower vaccination coverage than municipalities without OPDs (Ruijs et al. 2011). Studies of the influence of religion on African Americans’ health-related behaviors found that rural church-going African Americans sometimes perceive illness as a punishment from God and sometimes believe that a person of strong faith can overcome illness (Holt et al, 2009).

2.2.16 Ethnic Community

Local culture shapes people’s perceptions of risk or perceived vulnerability; people assign value (either positive or negative) to an issue on the basis of their experience, and they trust experts who have cultural backgrounds similar to their own (Kahan et al. 2010). Parental perceptions about vaccine is key to increasing vaccine rates, which are significantly lower among children from minority groups and children living in rural areas (Bynum et al. 2011). Social demographics directly influence perceived vulnerability and severity as purported in the Health Belief Model and these socio-demographics comprise the local rural culture, including religious affiliation (Thomas et al. 2012).

In Gujarati villages in India, caste differences could clash with accessibility requirements so much so that selection of vaccination sites became a critical decision (Streefland 2003). Similarly, findings from another study describe rural communities with low income and geographic challenges to access care are critical points in rural African Americans’ decisions about HPV vaccination for their children 9 to 13 years of age (Thomas et al. 2012).

Disparities in health conditions and health care utilization are evident between local residents and migrants and this phenomenon also exists between recent and long-term migrants, who are more marginalized and vulnerable until they have adapted to the social and cultural norms of a new place (Hu et al. 2013).
2.3 Logical Framework of the study

Figure 3 shows the various socio-cultural factors that affect vaccination.

Figure 3 Framework: Socio-Cultural Factors Affecting Vaccination

- **General Perception**
  1. Benefits of Vaccination
  2. Perceived side-effects
  3. Compliance
  4. Community Influence
  5. Utilization of Health Services
  6. Distance from Booth/Accessibility

- **Religion and Ethnicity**
  1. Religion
  2. Ethnic Group

- **Socio-cultural factors affecting Vaccination**

- **Gender**
  1. Gender Norms
  2. Maternal Education
  3. Trust in Vaccinator
  4. Gender Based Differences
  5. Birth Order

- **Lifestyle and Socio-economic status**
  1. Family and Community Support
  2. Socio-economic Status
  3. Health Education
3. AIM OF THE STUDY

3.1 Objective

The primary objective of this study is to understand and analyze the major socio-cultural influences that shape the trend in the uptake of vaccination as perceived by the vaccinators of Nawalparasi district of Nepal.

3.2 Specific Objectives

The specific objectives of this study are as follows:

1. To understand general public perceptions of vaccines.
2. To probe how lifestyle and socio-economic factors affect vaccination.
3. To examine the role of genders in the uptake of vaccination.
4. To explore the role of religion and ethnicity in uptake of vaccination.
4. RESEARCH METHODOLOGY

4.1 Study Area

This study was conducted in Nawalparasi district of Nepal.

Nepal is a land locked country situated in Southern Asia between India and China as shown in figure 4 and covers 147,181 square kilometers. It is bordered by China; predominantly in the Northern part of the country and the border area measures 1,236 kilometers. Similarly, India borders Nepal predominantly in the Southern part of the country and the border area measures 1,690 kilometers (Central Intelligence Agency.2014).

Figure 4: Clip of World Map showing Nepal

(Source – en.wikipedia.org)
Nepal houses 125 different caste or ethnic groups, which speaks 123 different languages as mother tongue as reported by 2011 national census. It is a predominantly Hindu country, with 81.3% of the population following Hinduism, followed by 9% Buddhists, 4.4% Muslims, 3% Kirat, and 1.4% Christians and remaining unspecified (Central Intelligence Agency 2014). Culture and tradition followed by these groups is governed by the geographical area they reside in, the ethnic group they fall in and the religion they follow. This in turn, shapes their knowledge, attitude and perception.

**Figure 5: General Health Statistics, Nepal**

<table>
<thead>
<tr>
<th>Total population (2012)</th>
<th>27,474,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross national income per capita (PPP international $, 2012)</td>
<td>1,470</td>
</tr>
<tr>
<td>Life expectancy at birth m/f (years, 2012)</td>
<td>67/69</td>
</tr>
<tr>
<td>Probability of dying under five (per 1,000 live births, 2012)</td>
<td>42</td>
</tr>
<tr>
<td>Probability of dying between 15 and 60 years m/f (per 1,000 population, 2012)</td>
<td>197/164</td>
</tr>
<tr>
<td>Total expenditure on health per capita (int'l $, 2011)</td>
<td>68</td>
</tr>
<tr>
<td>Total expenditure on health as % of GDP (2011)</td>
<td>5.4</td>
</tr>
</tbody>
</table>

(Source – WHO, Nepal)

Nawalparasi district lies in the Western development zone of Nepal. It occupies an area of 2,162 square kilometers. Nawalparasi district borders with India (Uttar Pradesh and Bihar) in the South, Palpa and Tanahu districts in the North, Rupandehi district in the West and Chitwan district in the East. It consists of 73 Village Development Committees (VDC) and 1 Municipality. Geographically, it falls under Hilly, Inner Terai and Terai regions; with 17 VDCs falling in the Hilly, 20 VDCs in Inner Terai and 36 VDCs and 1 municipality falling in the Terai region. Nawalparasi district is inhabited by people of different caste, ethnic group and religion (District Development Committee, Nawalparasi. 2014). The geographical location is the primary factor that outlines or shapes the type of community that resides there and culture and tradition that is followed by that community. Therefore, this district was ideal for this study as it is inhabited by diverse ethnic groups with different cultural norms.
Figure 6: Map of Nepal highlighting Nawalparasi district

(Source – en.wikipedia.org)

Figure 7: Map of Nawalparasi District Highlighting the Study Area

(Source – WHO- IPD, Butwal Field Office, Nepal)
4.2 Study Participants

The study participants were selected by using Purposive Sampling. Purposive sampling is described as a random selection of sampling units within the segment of the population with the most information on the characteristic of interest (Guarte & Barrios 2006). Purposive sampling technique is a type of non-probability sampling that is most effective when one needs to study a certain cultural domain with knowledgeable experts within and the inherent bias of the method contributes to its efficiency (Tongco 2007).

Altogether, 17 participants (vaccinators) were interviewed for this study. The eligibility criteria included:

1. Currently working in the position of vaccinator in Nawalparasi district,
2. Vaccinators employed by the District Public Health Office, Nawalparasi,
3. Ability to understand and respond in Nepali language and
4. Being able to give time for the interview.

4.3 Study Design

Study was conducted as qualitative study. It consisted of thematic semi structured in-depth interviews. Qualitative research method is a branch of research which emphasizes on words rather than quantification in the collection and analysis of data (Bryman 2004). It is used when the study requires openness, in-depth and detailed inquiry of interest (Patton 2002). Therefore, qualitative approach was used in this study as it was appropriate to meet the aims of this study.

4.4 Data Collection

Data collection in this study was carried out through thematic semi-structured in-depth interviews. These interviews were guided by an interview questionnaire which consisted of open ended questions. These questions aimed at exploring and probing the vaccinator’s perspective of the socio-cultural factors that affect the uptake of vaccination. Questions were designed on the
basis that “open-ended questions and probes yield in-depth responses about people’s experiences, perceptions, opinions, feelings, and knowledge” (Patton 2002 p. 4). The open-ended questions in the guide were tailored in such a way that the interviews were flexible.

This method was employed to generate a dialogue between researcher and the participants in order to probe into the phenomena in detail. In-depth interview is an instrument that enables one to gain access to other person’s perspective, and it is widely used in qualitative research to obtain detailed data (Patton 2002; Bryman 2004; Jeffrey et al. 2009).

The interview guide was designed to focus on the topics such as perceptions of the vaccinators that affected the uptake of vaccination: How factors like gender related factors – maternal education, gender roles in the community, health education shaped utilization of vaccination; the role played by religion and how its changing trend affects vaccination; how community’s ethnical norms shape the perception of its people and how it affects the uptake vaccination. The interview guide was developed based on the literature review and refined based on piloting.

Interviews were conducted from January 2014 to February 2014. All the interviews were face to face and were conducted in Nawalparasi district, at or near the health centre where the vaccinator was employed. Each interview took about 30 to 45 minutes. Location was usually some road side tea shop or some secluded room near the health centre (store room, cold room) where the interview would not be disturbed and participants could express their views without any hesitation. Interviews were conducted in Nepali and participants sometimes used local dialect to express the view of the community. Interviews were recorded using voice recorder (Olympus DS2000), field notes and non verbal gestures were also noted. Data collection through these interviews continued until data saturation point was achieved – a point when little or no new or relevant data or theme is been generated (Bryman 2004; Dantas 2009).

4.5 Data Analysis

Recorded interviews were transcribed verbatim. Transcriptions were carefully read and double-checked for accuracy by language expert. Themes were identified and data was analysed.
Analysis was based on content analysis which involved organizing and categorizing emergent concepts systematically under the identified specific themes. Contrasting data were also taken into consideration during the analysis (Bryman 2004).

There were four main themes that were identified from the interviews and each was divided into sub-themes. Main themes identified were – general perception of vaccination; life style and socio-economic factors; gender norms and religion and ethnicity. Results from each theme and their sub-themes are summarized and direct quotations from the participants, best describing the themes are included.

4.6 Ethical Consideration

Qualitative methods are highly personal and interpersonal in nature, and such inquiries usually take researchers into the real world of the participants as what is inside them is being opened up through in-depth interview, thus there is need for ethical framework (Patton 2002). Approval to carry out this research was obtained from the Expanded Program on Immunization Section of Child Health Division, Department of Health Services, Ministry of Health and Population, Nepal and the District Public Health Office, Nawalparasi, Nepal. Prior to the interview, proper verbal consent was taken from the participant without giving any hint of partiality about that matter.

Other ethical issues that were considered in this study include the fact that the participation in the study was completely voluntary. The privacy of the participants was duly respected as they were not compelled to respond to questions which they were not comfortable with. The identities of the participants were made anonymous and collected data cannot be traced to any of them.
5. RESULTS

5.1 Study Participants

There were 17 participants (vaccinators) who were interviewed. All the interviews were transcribed verbatim and analyzed. Of the total participants, 9 (53%) participants were male and 8 (47%) were female. Average duration of service for each vaccinator was 18 years, with the maximum duration of service being 35 years and the minimum duration being 10 months. Of the total vaccinators, 2 were temporary vaccinators (who worked only during days of immunization session) and 15 were permanent (holding permanent government jobs). Detailed characteristics of the participants are represented in Table 2.

Table 2: Characteristics of the Participants

<table>
<thead>
<tr>
<th>S.No</th>
<th>Age (years)</th>
<th>Sex</th>
<th>Duration of Service (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60</td>
<td>Male</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>53</td>
<td>Female</td>
<td>31</td>
</tr>
<tr>
<td>3</td>
<td>60</td>
<td>Male</td>
<td>35</td>
</tr>
<tr>
<td>4</td>
<td>42</td>
<td>Female</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>53</td>
<td>Male</td>
<td>34</td>
</tr>
<tr>
<td>6</td>
<td>45</td>
<td>Female</td>
<td>21</td>
</tr>
<tr>
<td>7</td>
<td>54</td>
<td>Male</td>
<td>30</td>
</tr>
<tr>
<td>8</td>
<td>40</td>
<td>Female</td>
<td>19</td>
</tr>
<tr>
<td>9</td>
<td>40</td>
<td>Female</td>
<td>11 * also involved in FP, Safe Motherhood, Nutrition</td>
</tr>
<tr>
<td>10</td>
<td>56</td>
<td>Male</td>
<td>24</td>
</tr>
<tr>
<td>11</td>
<td>25</td>
<td>Male</td>
<td>0.8 (temporary vaccinator)</td>
</tr>
<tr>
<td>12</td>
<td>24</td>
<td>Female</td>
<td>3 (temporary vaccinator)</td>
</tr>
<tr>
<td>13</td>
<td>56</td>
<td>Male</td>
<td>32</td>
</tr>
<tr>
<td>14</td>
<td>42</td>
<td>Female</td>
<td>15</td>
</tr>
<tr>
<td>15</td>
<td>20</td>
<td>Female</td>
<td>1.5</td>
</tr>
<tr>
<td>16</td>
<td>50</td>
<td>Male</td>
<td>4 y</td>
</tr>
</tbody>
</table>
5.2 Socio-cultural factors affecting vaccination

Socio-cultural factors affecting vaccination as perceived by vaccinators included perception of the community, knowledge about benefits of vaccination, perceived side-effect, their compliance, influence of community and community leaders, rumors about vaccination, utilization of other health services and distance from immunization booth and its accessibility and their role in utilization of vaccination was explored. Likewise, life-style and socio-economic factors including family structure and support, health education, occupation and socio-economic status were probed. Prevalent gender roles in the community, maternal education, and maternal trust on vaccinator, gender discrimination and birth order of the child are gender related factors that shape the utilization of vaccination. And, finally, the role played by religion and ethnicity was examined.

5.2.1 General perception of vaccination

General perception as perceived by vaccinator showed that the community had a positive outlook towards vaccination. Every respondent stated and emphasized that the community had a positive attitude towards vaccination.

One of the vaccinator stated

“……they (community) know that immunization is preventive. When they get the news that the immunization session is ongoing, they come to get their children vaccinated. Yesterday, there was immunization session at ward no. 1, Tharu (one ethnic group) people came looking for the session….They are well aware and enthusiastic about immunization program compared to other programs….. Sometimes, they even call just after the baby is born to know about vaccination timing. So, it is not very difficult for us reach the community and vaccinate the children……”
One vaccinator, working near the Indian border VDC describes the perception of the parents in this manner

“….In fact, they give examples saying that vaccinating your child is like tending to your kitchen garden and making a fence around it, similarly vaccinating your child is like drawing a fence around him so that he is protected from diseases…..”

Likewise, another vaccinator, from hilly VDC related his experience as

“….everyone understands the importance of vaccination. They come with their vaccination cards and show it to me and ask what time they should come for the next dose. They are proactive and they want to protect their children from diseases…. Sometimes, when the vaccination day coincides with holidays, some parents even call the vaccinators on their mobile phones and ask them about the timing of the next session….”

Perception is shaped by various factors like perceived benefit, side effect of vaccines, their outlook towards general health services, influence of community leaders and community on vaccination, rumors about vaccination. These factors were probed and explored during the study which revealed following findings.

5.2.1.1 Perceived benefits of vaccination

In general, vaccinators perceived that the community understood the benefits and advantages of getting their children vaccinated. They related that the community understood that vaccinations are preventive in nature. The vaccinator’s statements made it clear as to why the community had a positive outlook towards vaccination.

One vaccinator said

“…..I think this is because they know the importance of vaccines. They know that if they don’t vaccinate their kids, they may be prone to various diseases. People understand that vaccines have a protective effect……”
Likewise, another vaccinator said

“….. (Community) has a positive outlook towards immunization. They understand that immunization protects their children from diseases like tuberculosis, measles, and diphtheria. They know that immunizing their children against these diseases protects their children and therefore have a positive approach to immunization……”

Similarly, the vaccinators explained the reason as to how the community understood the benefits of vaccination.

“….this change has been brought about by the effect of vaccination that is clearly visible. For example, in earlier days we saw so many children die because of tetanus, but now we rarely see it, similarly with tuberculosis. So children get less sick and are healthier, so the community sees a visible difference…..”

“……For example, in the past, there were so many cases of paralysis due to polio, but there hardly is one, so they have directly seen the benefits of vaccinating their children so they understand …..”

5.2.1.2 Perceived side-effects

According to the vaccinators, there were some perceived side effects of vaccination in the community. There were certain instances where the parents were reluctant to vaccinate their children stating their child would cry or the child is sick or weak. However, the vaccinators pointed out that with proper dissemination of health education and counseling, this was counteracted effectively.

One of the vaccinator related his experience

“…..We have most difficulty dealing with “Desi(a typical term used to describe people from the plains)….. They give small cause not to bring their children….. like, it will hurt my child … mm.. he is not feeling well. We have to explain and counsel a lot…..”
Another vaccinator said

“……In the past, people didn’t want to vaccinate their children saying it will hurt his leg or my baby will cry. But now, they vaccinate even if the child cries….. Most people understand the importance of vaccination; they understand that even if the child cries or has fever, the vaccine will do well for him”

Likewise, another vaccinator also shared her experience

“……For example, recently, there was one child, we had to go looking for him, and still the parents were hesitant to vaccinate their child stating that the baby was too weak. The child is already 8 months old and has just received first dose of DPT…..”

Similarly, another vaccinator said

“…..in the past, people used to get worried when their children developed fever or rashes after vaccinating against DPT and measles, but now they have understood that it is just temporary effect and they come to vaccinate their children despite these effects….“

5.2.1.3 Rumors

In general, rumors regarding vaccination in Nawalparasi district were minimal and did not have a strong hold on the perception of the community. Therefore it was not a very strong factor for shaping the perception towards vaccination.

One vaccinator related his experience

“……In case of SIA, like Measles campaign last year, there was a rumor that a child died in Bajura (Western Part of Nepal) after receiving the vaccine; a lot of people were hesitant after that. Some people didn’t even come for the SIA, but it actually did not affect routine immunization……. Even though there were lots of queries from the public regarding the safety of vaccines, we gave those explanations and details about working of the vaccine, so the people came to get their children vaccinated….. Nothing has affected routine immunization till now……”
Another vaccinator’s response was

“…..I have not heard about bad rumors regarding vaccines in these 9 wards I work in….well, we did hear about the AEFI incidents that occurred in Western Nepal. I heard it from a few people, they (community) were a bit worried but it actually did not affect the immunization program. The people were curious about the events but it did not stop them from coming for vaccination sessions…….”

Similarly, another vaccinator related her response

“…….From the western part of Nepal, there was news stating that 2-3 kids died after receiving DPT….That shook us too, we got scared, we have not made the medicine, and we just administer it as we have been taught. We have no idea how it is handled before it has reached us, so we can’t guarantee its safety……. Even the community was scared, they posed us various questions and we could not answer them until we knew the truth about that place. May be the vaccine was contaminated or there was some manufacture defect……. We were very careful in cold chin regulation as well as vaccine administration. It was difficult to deal with them, but we gave through counseling. We gave the explanation that vaccine which was diluted the one day before……. We told them what was told to us from the central level. We told the community that we are very diligent in administering the vaccines. Then it was fine, people did come for vaccinations…….”

5.2.1.4 Community influence

Community and community leaders play a role in shaping the perception of the people. The interview showed that the people of the community are influenced by community leaders and these leaders, in general, have a positive outlook towards vaccination.

One vaccinator said
“…..They support immunization, leaders like “Adhakshya” “Mukhiya” (community leaders), support immunization…”

Likewise, another vaccinator related his experience as
“…..When they (community leaders) give out the message to the community, they see it as reinforcement. “Oh, such person has said good thing about immunization, I think I should take my child for vaccination”; this is the general outlook of the community….”

However, one vaccinator pointed out that
“…..Political leaders are not helpful, they don’t obstruct that is one thing, but don’t exactly support. They just say they will support during election time, other times we don’t even see them….”

When probed about the views of the religious leaders and how it affects the community, one of the vaccinator summarized his view as
“…..The Muslim leaders don’t say immunization is bad or the child shouldn’t go for vaccination. They are neutral. Even the Hindu religious leaders don’t seem interested… the community is of course indirectly motivated when they see the children of the leaders being vaccinated”

Also, neighborhoods in which people live in shape their perception. People are influenced by others living in the community and try to learn and adapt behaviors from them and bring their children for vaccination.

One such example was cited
“…..Harijans” (one ethnic group) living in their own communities are difficult to reach and need more pushing. Whereas, “Harijans” living in Tharu (another ethnic group) communities or are mixed together are very proactive, just like Tharus. They see and learn from Tharus …..they learn by seeing others and take their children for vaccination…..”
Similarly, another vaccinator talked about another ethnic group

“……Also, there is a difference in the understanding of the Badi community (one ethnic group) depending on the area of residence. Badi people living in the municipality have a much better understanding compared to the ones living in the villages. They see how others are living and what they are doing (community influence) and they also try to incorporate similar habits in their lives too…..”

Another vaccinator said

“….so many have already understood (the importance of vaccination), but some look at what others are doing and do it out of their influence…..for example, when people see educated parents vaccinate their children, they also bring their children for vaccination”

One vaccinator talked about the indirect effect community

“……In the past, few communities like “Kumal” and “Bhote” felt that immunization was not necessary. But they have seen other communities like “Brahmin”, “Kshetri” come for immunization, and so they have learned from the others in the community and have changed their attitude……

For example, when some kids get vaccination, parents who have kids are inquisitive about what they went to the health center for, what did they get, why did they get the vaccines; they are inquisitive about vaccines……ask more about it and then they get their children vaccinated too. It is usually the “Kumal” and “Bhote” community in which this practice is prevalent….”

5.2.1.5 Compliance

Despite the positive attitude of the community towards vaccination, vaccinators said that a major challenge was posed by poor compliance. The reasons for poor compliance as stated by vaccinators are - women going to paternal home or to India during festive season (that lasts for a month in Nepal) and time constrain due to work.
“….usually during the festive season, women go to their paternal house for long time, which results in some dropouts…..”

“…..In some cases, the mothers go to their paternal home in India for a long time, at that time; the child misses his vaccination schedule….“

Also, the vaccinators had different perspectives when asked about the impact of knowledge about vaccination on the compliance rate.

One vaccinator pointed out
“…….people who have no knowledge about the good and bad effects of immunization; it is difficult to make them understand. The dropout rates are higher in such people…”

However, another vaccinator responded as
“…….The main reason that people don’t come for vaccination is because they don’t know or remember about the days of routine immunization sessions, or when they should bring their children …..
They know about the effects of vaccines, they know its advantages but they forget the timing of the sessions and their child’s schedule. That is the problem. So after we remind they come for vaccination…..”

It was pointed out in the interviews that parental education played a role in the compliance of the parents towards immunization.

“…….educated parents are vey punctual about the immunization timing. If they have gone out on the day immunization sessions are scheduled, they make it a point to come back and vaccinate their child that very day. Whereas, in uneducated parents, the outlook is more flexible; “yo sait na huin to dusar dain huin’ (local dialect), which means “if not this time, may be another day”. If they can’t manage to bring the child on the particular day, they say that there’s always a next time…….”
5.2.1.6 Utilization of other health services

The interviews revealed that the community relied and visited health centers more than traditional healer. However the trend of the community to visit traditional healers was still prevalent. The community relied on the popular sector as well. But it was the professional sector that the community believed in.

One of the vaccinator said

“……Now most of the general health care services and medicines are free, so people come to health posts even for trivial things…… During the summer, there can be about 60-70 cases in a day…. In the past, health care was not available so easily and people had to pay, but now it’s different…… Only if they are tired of going to health centers then only they go to traditional healer…. ”

Another vaccinator cited an example as follows

“……For example, if there is a case of snake bite, in the past, they would take the patient to traditional healer and then to the health center, but now first they come to the health center and then only they go to the traditional healer (Laughing)……”

One vaccinator pointed out

“……they (community) may not come to health center for delivery but the day the child is born or the next day, they bring the child for vaccination……”

It was also pointed out that the traditional healers had a positive outlook towards professional sector.

“….Yes, the trend of traditional healer still exists. The traditional healers now say that a person needs both “Dawa aaur Dua”(local dialect), meaning both medicine and faith so they tell them(people) to go to health center too. Traditional healers also send their children for immunization…..”
However, one vaccinator working in the terai area said

“……Most people prefer to go to traditional healer and then to the health center. And even when they get medicines from the health center, they take it first to the traditional healer with the belief that they will work better if they are offered to the traditional healers first. This kind of belief is prevalent in almost all kinds of communities that live in this locality…..”

5.2.1.7 Distance from the booth / Accessibility

Another factor that was looked into by this study was the effect accessibility of vaccination booths had on uptake of vaccination by the community. It showed that the accessibility and strategic location of vaccination booths made it easier for the people to come for vaccination as they did not have to spend much time or resource to bring their children to the booths.

One vaccinator outlined her experience as

“Yes, distance does make a difference. For example, in this area, there are some far off places, and it does contain mixed community, but somehow, may be because the booth was far, people didn’t come for vaccination…… in the past… there was a place where people had to walk for about 2 hours to bring their child for vaccination …..that was about 10 years ago. Now, there is an immunization booth is in their accessible area, so they come for vaccination……. Laughing….but it is a bit far for us. Now, we have to walk about two hours to reach there……”

Another vaccinator said

“…… in the earlier days, I think there were some unvaccinated children because the booths were far, but nowadays, there are health centers nearby, so they are vaccinated …. It is not difficult for them to come ….”
5.2.2 Life-style and socio-economic factors

Of the factors affecting the utilization of vaccination services, life style and socio-economic factors play an important role as they determine the time, resources, knowledge and accessibility of the community. These factors were explored during this study which yielded the various results.

5.2.2.1 Occupation and socio-economic status

Another aspect explored in this study was the impact occupation and socio-economic status had on the utilization of the vaccination services. It was pointed out in the interviews that it was more challenging for working mothers. Mothers either worked in fields or, as daily wage earners had difficulty bringing their children on time for vaccination; and at instances, even faltering to bring them at all. Likewise, it was noted that people with higher socio-economic status readily brought their children for vaccination when compared to the people of lower socio-economic status as they were busy in working to run their household.

One of the vaccinator clearly explained the situation as

“…..even though they understand, if the timing coincides with their working time in the fields, in that time, no matter what, they choose their work to immunization. They say that they will bring their children the next month rather than missing their work…..

……People working in daily wages, they have to lose 3-4 hours of their work timing if they come for vaccination, which means they may not have food to eat that day, so they only come if the immunization session is arranged in favor of their working time …..Therefore, we also time the immunization schedules according to their timing. For example, out work timing is from 10:00 to 15:00, but they say that at 8:00 they have to go to the fields, so I start the session at 6:00 or 7:00 so that they don’t miss the session going for work…..”

Similarly, another vaccinator also pointed out the same fact saying
“……Both the educated and uneducated women listen to us and even understand, but they give priority to their work than their health. If they have to go for harvest at 7:00, then how much ever you tell them, they will not listen to you and will go for harvest…. As I said earlier, there is a difference, especially in the lower socio-economic group. In the upper group, there is not visible difference. The difference is generally due to the work and busy schedule and poverty……”

Another vaccinator said

“……People who work in offices or are daily wage earners are a bit irregular than mothers who are home makers. May be it’s because they are busy, that they are late. …..children of daily wage earning mothers come late for vaccination because the mother is busy, but they do come for vaccination. They go for work and come back around 12:00 and then bring their children for vaccination……”

5.2.2.2 Family structure and support

Family support is vital in the context of uptake of vaccination. According to the interviews, it was shown that the families lived in joint family structure and received support from the family. There were different cultural norms that dictated the movement of women and since it is primarily mothers and grandmothers who bring children for vaccination, family support was vital. Also, in case of nuclear families, support from neighbors and community was highlighted in the interviews. However, the fact that it was more challenging for mothers living in nuclear family to bring the child for vaccination was outlined.

One vaccinator said

“……for people living in joint family, grandmothers, aunties bring the child. In case of single mother sometimes they come themselves by managing their time. It is a bit difficult for them compared to the others……

……..if the mother has only one child and lives in nuclear family, she comes in time to vaccinate her child. Sometimes, some women even come carrying one child in her arms and another one walking with her. Well there is a difference in women living alone or in
joint family. For women whose husbands live abroad and send money, those women are financially independent and others also help her. But for women who are alone, it is a bit more difficult, they don’t get much support from the community…….”

Another vaccinator said
“…… Of course, family structure is important. Single mothers, especially of low socio-economic status, may be due to their work and necessity of work, they forget to bring their children for vaccination or forget about the sessions……..          ............However, in joint family structure, even if the mother is busy, other family members like grandparents, aunties help the mother and bring the children for immunization. They even help in raising the child and not just in vaccination……”

One vaccinator working in the Terai area said
“…..In this area, they live in joint family, their culture is to live in joint family, so someone or the other brings the child for vaccination It is mostly the grandmothers who are free and bring the child…… I have not seen any cases of unwed mothers or single mothers…….Women living in nuclear families usually come themselves. They ask us to finish their vaccination soon because there is no one at home or they have locked their homes and come……Sometimes, even the elder sisters bring their younger siblings for vaccination if the mother is busy or alone. Even others tell us “Who ker mahatari nahi lea aitin, unko pathadaha”, this child’s mother has not come, vaccine him and send him home soon……”

Likewise, another vaccinator said
“……Well, in case of nuclear families, they come, sometimes by themselves, sometimes with some friend. It is much easier for women living in nuclear families, the husband makes the living and she can conduct her household and make her own decisions. While women who live in joint family have to listen to the elders……”

One vaccinator related his experience as
“……In case of women living in nuclear families, their husbands, some family member or relative or even neighbors bring the child for vaccination. Even if there is no one, the neighbor helps the mother and takes the child for vaccination. I have come across such instance many times…..”

In course of the interview, I witnessed similar trend in one of the health posts. One daily wage earning lady was given preference, she did not have to wait in line for her turn and the other people waiting did not mind her getting preferential treatment. This showed that the community was understand and was harmonious.

5.2.2.3. Health education

Health education makes a tremendous impact in how the people understand vaccination and perceive it importance and hence, shapes their acceptance or rejection of vaccination. The interviews showed that health education received through media - television and radio commercials were a primary source of health education. Likewise, FCHV and mother groups were also a prime method of spreading the message of vaccination in the community and hence governing their decision to vaccinate their kids.

One vaccinator said

“….I think this change is brought about by seeing and learning from others and also the influence of advertisements about vaccination. They listen to radio and watch television and are more aware. These advertisements incorporate health messages regarding immunization, as to why a child should be vaccinated and why it is important to children less than 5 years of age. These advertisements are interesting and are able to grasp people’s attention……. May be because, the FCHVs go to the villages relaying messages about vaccines and people understand about it. May be it is because there is a lot of promotion about vaccines that people readily accept it…….”

Similarly another vaccinator related that
“…….We also give them health education repeatedly; we also involve FCHVs to give messages regarding vaccination……. FCHVs keep emphasizing about the advantages of vaccinating their children, so people understand……………
………….There are so many health related programs and most of them target mother and children and put an emphasis on immunization and safe motherhood. So, it is discussed everywhere…………..
…………..Likewise, there are mother group meetings where immunization is discussed. So, the advantages of immunization are discussed everywhere and the mothers are aware about immunization, so that they have a very positive outlook towards immunization….”

Similarly another vaccinator related his experience as

“….I have been working in this area since 2046 B.S (1989 AD), I work here endlessly and even the FCHVs have been working tirelessly. They also hold monthly meetings with mother groups and talk about immunization. Even I reach these villages regularly and attend these meetings and give health education. We also go to schools to give information and health education regarding vaccines (meaning that the school going children will relay the health education messages to their parents). So the parents and the community have information regarding the benefits of vaccines which gives them a positive outlook towards vaccines……

5.2.3 Gender

The gender role prevalent in the community forms one major factor that shapes the perception of the people and contributes to the utilization of vaccination by that community. Within gender, there are issues like gender role in the community, maternal education, and maternal trust on the vaccinator, gender difference and birth order which help to shape the community’s outlook on vaccination.

5.2.3.1 Gender norms
There were different gender norms that were explored during the interviews. Nawalparasi district, being inhabited by people of different ethnic and religious groups, have different traditions and values which shape their cultural norms. Cultural practices like “Burkha”, “Purdah”, “Ghumto” systems entail that women not leave the household without an additional piece of clothing covering their head and face, was present in certain communities. These practices dictated as to who would bring the child for vaccination. In areas where these were practiced, it was usually the grandmother or some other family member who brought the child for vaccination. However, there were certain ethnic groups where women were free to move about without the aforementioned covers. In such areas, it was predominantly mothers who brought the child for vaccination.

One example cited by a vaccinator

“……In the Brahmin and Kshetri community, usually women don’t come out of their homes till 14-15 days of having a baby, at that time, the grandmother or some female member of the family brings the child for vaccination……”

Another similar cultural norm was stated by a vaccinator working in the terai area

“……In inner village area, the mothers are in “Ghumto” which covers their heads and faces and don’t even come out of their homes, in such instances, the grandmothers or aunties or fathers bring the child for vaccination……”

Likewise, another vaccinator said

“……They practice “Purdah system”, where the young women of the household are not allowed to move about freely and have to remain indoors. So, the grandmothers bring their children for vaccination…… Even if they come out, they come out covering themselves with some cloth, wearing something like a “Burkha…… Only if the child is very young, the mother brings the child otherwise the grandmother brings the child…… More than father, it is usually the female family member like grandmother, aunty or even elder sister, who brings the child for immunization. In my experience, a father bringing a child the immunization booth, that is a very rare scene”
Similarly, another vaccinator explained about the Muslim community, where women wear “Burkha”

“…….Muslim women come in “Burkha”, when women come for vaccination, they are accompanied by other family members…….”

However, there were also, areas where women were not restricted

“…..Well…. there is no restriction in movement of women, newlyweds or young mothers in this area. This area mostly consists of Tharu population and they have no such rules here. But may be in the area bordering India they have such rules but not in this area…”

5.2.3.2 Maternal education

Maternal education plays a vital role in shaping the community’s and family’s perception. This study showed that maternal education is important governing factor in the uptake of vaccination. However, other factors like the inherent attitude and personality of the mother contribute to utilization of vaccination too.

One vaccinator said

“……Educated mothers have health education too…..they understand the importance and have upper hand in raising their baby. Whereas the uneducated mothers, they don’t have much information as well as awareness……. Educated mothers themselves look at the immunization cards and say that a particular dose is taken…. 

…….. Like, there was a mother who came today and said that she was there for 3rd dose of DPT. Educated mothers ask and are interested whereas uneducated mother don’t seem to care much…….It is a bit difficult for uneducated mothers. They need more time to understand and develop awareness…… even the uneducated mothers now know that once the child is born, he should be vaccinated…..However, educated mothers are more proactive when it comes to the service uptake…….”

Another vaccinator said
“……Educated mothers understand things much easier. But again, some ladies get really arrogant and think that we (vaccinators) don’t know anything. Uneducated mothers are more patient and listen to us, they ask us questions, they have the spirit to learn and understand more…….”

However, the perception of another vaccinator was a bit different

“……The main thing in my perception is that if we are able to influence and create awareness in the mother, then makes no difference whether the mother is educated or not…….if the mother is smart and proactive, then she asks her neighbors and comes to the health center for vaccination. If the mothers are proactive, they come with their neighbors for vaccination. It actually depends on the mother……. …..The educated mothers bring their children for vaccination, whereas, the uneducated mothers are more proactive, ask us more questions and even take our phone numbers and call us if they don’t understand…….”

Another vaccinator pointed out about the different aspect brought forth by education

“…… Educated mothers are more arrogant than illiterate mothers and it is the illiterate ones who ask more questions and respond better to health education messages that are given…….In my village, there is one person, he is educated, his son and daughter in law have Bachelor degree and work as teachers, yet they are irregular when it comes to vaccinating his grandchild. Last time, they brought the child after 2 months. I actually scolded him…….”

5.2.3.3 Trust on vaccinator

Maternal trust on vaccinator is another important aspect which aids to the utilization of vaccination services. This study showed that one of factors that shaped the service utilization was the gender of the vaccinator and hence ability of the mother to trust the vaccinator. Since, it was females who were more involved in taking the children for vaccination, and the community follows certain gender rules like restricted movement of women; the influence of gender of the vaccinator was yet another domain which was explored. The vaccinators perceived that in
general, the gender of the vaccinator did not act as a hurdle for the women to bring their children or come for immunization. Of the 17 vaccinators interviewed, only one vaccinator mentioned the preference of female vaccinator to male vaccinator. While, only one male vaccinator out of the nine male vaccinators mentioned the need of a chaperone while interacting with young mothers. The response of the vaccinators was as follow-

One male vaccinator replied

“……no it does not matter that I am a male vaccinator, they don’t feel shy to come to male vaccinator, at least not when it comes to vaccination. Because, I am also involved in giving the mothers their TT shot during their antenatal period….. So they don’t feel shy to come to male vaccinator…. Laughing…. They don’t show their faces but they come for TT vaccines and ask to get them vaccinated…..”

One female vaccinator said

“……Muslim women come in their “Burkhas”. However they do come for vaccinations even if they don’t show their faces…….Some even go to male health workers but some just return without vaccinating saying “didi jab aile tub hum aile”, meaning I will come back when the female health worker is here…….”

Likewise, another male vaccinator said

“……I have not had the instance that they don’t talk to me because I am a male, they listen to me, but I have a FCHV with me too. They come wearing their “Burkha”, but they do come and ask if they have some queries too…..”

5.2.3.4 Gender based difference

Gender based difference was not seen in this study in reference to vaccination service utilization. However, other issues like want of male child, female feticide, difference in education were pointed out. The reason for such difference was pointed out to be knowledge about the importance of vaccines and free vaccine service delivery.
One vaccinator stated

“……there is no discrimination when it comes to vaccination. They bring both son and daughter alike. …..There is a difference when it comes to providing education. They send the sons to private schools. There’s also a difference on what they are fed and how they are raised. But in case of vaccination, there is no difference….

…….In my opinion, the reason is that vaccines are provided free of cost. They don’t have to spend their money for vaccination. All they have to do is bring their child to the booth, and that doesn’t cost any money….

……..Other things require money, so may be their thought is that some day they will marry and send their daughters off so why invest in her. Sons, on the other hand, will stay with them and support them later on. I think that is their thought in my opinion…..”

Similarly, another vaccinator said

“…….communities like “Baniya”, “Gupta” (mainly inhabitants of the teria), do show preference to the boys compared to the girls. But again, this preference is not much seen in case of immunization. May be this is because they understand the importance of vaccines. Be it son or daughter, if they fall sick, it will be problem. For example, if the daughter gets polio, it is not very good…….”

Similarly another vaccinator added

“…….There has never been much gander based difference or preference when it comes to immunization in my area. (He says laughing)….. In the past, when they didn’t bring the kids for vaccination, they didn’t bring both son and daughter. Now, when they readily bring the kids, they bring both…….”

During the course of interview, one vaccinator mentioned about female feticide

“…….Of course there is a difference in how sons and daughters are treated, however, not in immunization. In other instances, for example, women who come for antenatal checkup and have 2 daughters, they want to know about the sex of the fetus and do not hesitate in opting for female feticide…….”
“……. But for daughters, they are not partial incase of immunization. It may not be very
difficult for them to opt for female feticide, but once the baby is born, they want their
baby to be healthy. There is visible want of male child before the baby is born, but after
birth, when it comes to immunization, there is no difference in immunization uptake…. .”

5.2.3.5 Birth order

This study showed no difference made by birth order on to uptake of vaccines. It showed that the
awareness about the advantages of vaccination played the major role. However, one incidence,
where the parents didn’t vaccinate the child in order to harm the child was also brought forth
during the interview.

One of the vaccinator said

“…….When the daughter in law has a kid, the mother in law, tells them about vaccines
saying “even though we didn’t vaccinate our children, we should vaccinate our
grandchildren” and bring them for vaccination. Now, most people have small families,
y they don’t have many kids………”

Likewise, another vaccinator said

“….Even if they have many kids, they will vaccinate their children thinking they will
have problem if the child gets sick, so they vaccinate the child despite the birth order.
They do this so that the child does not fall sick…..they bring their children alike for
vaccines. They also bring their older children for JE…..”

During the course of interview, one vaccinator related his experience was follows

“…….Sometimes, especially in the Plain area, they have many kids and the parents have
trouble even rearing their children, so they in order for the child to be sick and die, they
don’t vaccinate the kids……….I have seen this happen once or twice 0.1%. It does not
matter whether the kid is son or daughter; they just want the child to die. There are some
stupid people like that too. ..... I gave this example because there was such family in my
catchment area about 3-4 years ago. The family had 4-5 kids, and they didn’t bring the
child for immunization. The child had received only BCG and did not come for other vaccines. So, we went looking for the child and we found that the parents deliberately didn’t want to vaccinate the child so the child would die, because it was expensive for them to care for so many children……..”

5.2.4 Religion and ethnic group

Nawalparasi district is inhabited by communities of different ethnical and religious groups. The aim was to explore how their traditions and cultural norms dictated the uptake of vaccination.

5.2.4.1 Religion

Most of the inhabitants of the district were Hindus and just a few were Christians and Muslims. The interviews showed that religion was not the guiding factor for the uptake of vaccination. The trend was different in the past; however, with increased knowledge and awareness of the community regarding the benefits of vaccination, there has been substantial change in the perception of people of all religions.

One vaccinator expressed his experience while working in the Christian community as

“…….in the past, Christians attributed everything to the God and said god would heal them and not come to the health center. If we asked them to come for vaccinations, they said that people of their religion didn’t have to vaccinate children as God would take care of them. We would counsel them that it was ok if they were to listen to their God but also, they should come for health care and vaccinations.

One vaccinator that had been working for the past 3 years said

“…….about religion, I have heard that some Christians refuse vaccines but then I have never come across these people…..”

Similarly, one vaccinator gave example of Muslims residing in his catchment area
“……Muslim women come in their “Burkhas”…… they do come for vaccinations even if they don’t show their faces. There is not much difference due to religion in vaccination, but there is some in family planning. Muslims don’t say no the immunization……”

Likewise, another vaccinator said

“……I can’t say for all Muslims but at least the Muslims in this area are very forward when it comes to health related issues. They are very proactive, they are more enthusiastic than other communities when it comes to immunization, at least the Muslims in this area…..

…..They (Muslims) do come for vaccinations; sometime they even come looking for certain vaccines. Once, there was shortage of J.E vaccine for a few months, at that time, they came every month for 2-3 months asking about the vaccine, I felt very happy to see that they were so dedicated……”

5.2.4.2 Ethnic group

Nawaparasi district is home to people of different ethnic groups, each following their own cultural norm which dictates their approach to the uptake of vaccination. Also, there is a blending of these cultural norms in mixed communities. The interviews showed that Tharu community was most proactive when it came to the utilization of vaccination. People belonging to the “Pahade” (hilly area) culture were more flexible and easy to approach compared to the “Madhese” (Plain area).

One vaccinator said

“……In this mixed community, it is bit challenging to reach the people with predominantly terai (living in plains) culture; we have to tell them repeatedly that they should come for vaccination when compared to that of pahade (people from hilly area) culture…………Choudhary people are most enthusiastic about immunization. They come asking and looking for immunization session. Yadavs (ethnic community from the plains) are educated but still a bit reluctant about vaccination…..
When asked, why it is difficult to approach "Yadav" community

“…… they are busy because they have a lot of household work…..”

Another vaccinator also said

“…..Let me say this, this area has people from hilly area “Pahade” and from plains “Madhese”. Pahade people, even if they are uneducated, they understand soon and adapt it in their life. Whereas, Madhese, they take longer to understand and bring it in their life …..Now they are slowly adapting….”

Also, another vaccinator mentioned

“……In some communities like “Brahmin”, “Kshetri”, “Newar”, “Gurung”, “Thakuri” – upper socio-economic; the uneducated mothers feel that they lack the knowledge and ask more questions compared to the lower socio-economic groups…. May be it is because they are busy and due to their lack of knowledge that they don’t find it important to ask or understand about immunization related messages….. For example, most of them are daily wage earners, if they don’t work and bring their children for immunization, they may not have anything to eat for dinner. So, this may be a prime reason……”

Similarly, another vaccinator said

“……The understanding is also different in different communities. Like, the women of Tharu community have a quick and long lasting understanding; we don’t see this kind of effect in women Badi community…… May be because, they get married and come from India…… they are comparatively poorer and have to earn daily wages and work in the fields. They don’t have a lot of leisure time or time to think…..

……All they are worried about and are concerned with is their daily work which will earn them money to help feed them. So we have to keep reminding them time and again. They are more concerned about their work than their health. So, we have to pay more attention to this group. For the other two groups, they are self motivated and hence come timely for vaccination……”
6. DISCUSSION

6.1 Discussion of the findings

This study provided insight into vaccinator’s perspective of socio-cultural factors that influence the uptake of vaccination by the people residing in Nawalparasi district of Nepal. Consistent with other studies on vaccination (Bardenheier et al. 2004, Allred et al. 2005, Smith et al. 2006, Tickner et al. 2006, Gust et al. 2008, Lorenz & Khalid 2012), this study showed that parental perception is a major factor that frames the utilization of vaccination services. The general perception as perceived by vaccinators showed that the community had a positive outlook towards vaccination as they understood benefits and advantages of getting their children vaccinated; which was consistent with findings from other studies (Bingham et al. 2012, Omer et al. 2013).

Unlike the findings of other studies (Wakefield 1999, Jansen et al. 2003, Streefland 2003, Tickner et al. 2006, Löwer 2008, Freed et al. 2010), there were not many strong perceived side-effects or rumors (Ramos-Jimenez et al. 1999, Savelsberg et al. 2000, Kapp 2003, Löwer 2008, Black et al. 2010, Lorenz & Khalid 2012) which made a huge impact on the decision about vaccination and they were dealt efficiently by the vaccinators through health education. However, there were certain instances where the parents were reluctant to vaccinate their children stating their child would cry or the child was sick or weak.

Despite the positive attitude of community towards vaccination; poor compliance due to time constrain because of work was also identified as shown by other studies (Streefland 2003, Bingham et al. 2012). But, more importantly, the community saw the positive effect vaccines had on the mortality reduction in neonatal tetanus and prevalence of polio, which in fact, had a greater influence in their decision making. As a part of the factors that shape the general perception, the findings of this study were consistent with that of other studies (Wroe et al. 2005, Smith et al. 2006, Boerner et al. 2013) that show that community and community leaders do
influence the decision making behavior of the people. Also, the traditional healers had a positive outlook towards immunization and supported vaccination program.

In support of earlier studies (Streefland 2003, Bardenheier et al. 2004, Bbaale 2013, Hu et al. 2013) lifestyle and socio-economic factors were perceived in this study to be of importance in decision to vaccinate the child. These factors play an important role as they determine time, resources, knowledge and accessibility of the community. The study being consistent with other previous studies (Helman & Yogeswaran 2004, Tickner et al. 2006, Babirye et al. 2011) showed that people living in joint family structure received support from family and it was more challenging for mothers living in nuclear family to bring their child for vaccination.

Likewise, socio-economic status of the parents and the job they hold also make a difference in utilization of vaccination services (Streefland 2003, Bardenheier et al. 2004, Breiman et al. 2004, Choi & Lee 2006, Smith 2006, Basel et al. 2012, Bbaale 2013, Hu et al. 2013, Han et al. 2014). It was pointed out that it was more challenging for working mothers to bring their children for vaccination. Similarly, it was noted that people with higher socio-economic status readily brought their children for vaccination when compared to the people of lower socio-economic status as they were forced to make daily earning to run their household.

Accessibility of vaccination booth was shown to be a positive factor for the uptake of vaccination (Breiman et al. 2004, Choi & Lee 2006, Obregon 2009, Bingham et al. 2012, Bbaale 2013, Han et al. 2014). It may be due to the fact that accessibility and strategic location of vaccination booths made it easier for people to come for vaccination as they did not have to spend much time or resource to bring their children to booths for vaccination.

Decisions related to vaccinations were generally made by mother or other female member of the family, usually paternal grandmother; they were primary caregiver and the person who spends most time with the children as consistent with (Bingham et al. 2012). Therefore, maternal education, as previously established, (Borooah 2004, Breiman et al. 2004, Choi & Lee 2006, Smith 2006, Basel et al. 2012, Hue et al. 2013, Malina et al. 2013), as an important governing factor in uptake of vaccination, was also shown in this study. Vaccinators perceived that
educated mothers had more knowledge and awareness about vaccines than uneducated mothers and were better equipped to learn more about vaccination.

Maternal trust on vaccinator was shown to be another factor that influenced the uptake of vaccination by previous studies (Benin et al. 2006, Heininger 2006, Smith et al. 2006). Since, women were more involved in taking the children for vaccination, and communities follow certain gender rules; the gender of the vaccinator and hence ability of the mother or grandmother to trust the vaccinator was also important. In this study, the vaccinators perceived that the gender of vaccinator did not act as a hurdle for women to bring their children for vaccination.

There was no difference in immunization coverage by gender of the child and the birth order of the children. This finding was similar to other studies (Ibnouf et al. 2007, Sarab et al. 2008) on immunization. Interviews revealed the want of male child and female feticide. This may be attributed to cultural practice of the son taking care of the parents in old age and daughters being married off to another household. The reasons for gender indifference in the uptake of vaccination were pointed out to be free vaccine service delivery and knowledge about the importance of vaccines.

Influence of religion and culture on the perception and decision making behavior has been studied by many researchers. Literature shows that devout Muslims and Christians are more rigid in their perception about utilization of health care programs like vaccination (Boorah 2004, Choi & Lee 2006, Ali et al. 2010, Khan 2010, Ruijs et al. 2011). This study showed that similar trends existed in the past; however, with increasing knowledge and awareness of the community regarding benefits of vaccination, there has been substantial change in the perception of people, and uptake of vaccination is not altered by the religion; especially the Muslim community was shown to be proactive towards the vaccination program.

Nawaparasi district is inhabited by people of different ethnic groups, each following their own cultural norm which dictates their approach to the uptake of vaccination. The study showed that Tharu community was most proactive when it came to utilization of vaccination. Further, geographical location of the people also played a significant role in the perception of the people,
with communities belonging to the “Pahade” (hilly area) culture being more flexible and easy to approach compared to the “Madhese” (plain area). Also, blending of these cultural norms in mixed communities was reported by the vaccinators.

Thus, the results of this study have supported the assumption that socio-cultural factors are perceived as an influencing factor in uptake of vaccination. The finding shows that vaccinators perceive that the community has positive outlook towards vaccination program. In general, the positive attitude was supported by family, community, community and religious leader. In practice, the commitment of the parents to vaccinate their children was high, only hampered by lack of time or adequate information. This high rate of vaccination was attributed to the visible advantages of vaccines as evident by improved child health in the community. Other supporting factors were high level of health education, accessibility to vaccination services and availability of free vaccination services.

6.2 Strengths and limitations of study

In accord with Patton (2002), this qualitative study on vaccinator’s (service provider) perception based on thematic semi-structured in-depth interviews with interview guide as the instrument of data collection was found to be effective. This study generated quality and relevant data which gives understanding about the socio-cultural factors that influence the uptake of vaccination in Nawalparasi district of Nepal.

This study has focused on the perspective of the service provider which has not been widely studied in the past as evident by limited data generated from literature review. Most of the previous studies in the field of socio-cultural factors influencing vaccination have been conducted from the service recipients’ point of view. Therefore, this study aims to complete the circle which could outline the socio-cultural factors that influence the utilization of vaccination.

Furthermore, this study was conducted in Nepal, where research, in general, is still in its infantile stage. Not much scientific information about the practices and trends about service delivery and utilization are available at national or global platform pertaining to Nepal. Thus, this study aims
to take a step towards availability of quality scientific information regarding vaccination in Nepal.

Primary investigator being Nepali and use of Nepali language for communication in this study helped as the respondents could interact and answer with ease. The non-verbal gestures were also identified and translated. On the other hand, this criterion may be considered as a limitation as well, as some of the vaccinators were more comfortable with their local dialect and the use of Nepali may have led them to exclude certain crucial information. Also, the respondents being vaccinators could have introduced a potential bias as they could have felt that their answers would reflect on their work and the proficiency with which they do their work.

Despite the fact that Nawalparasi District is a suitable setting for this research as it is home to people of different ethnic groups and religions following specific cultural norms; the sample size of this study can be regarded as a limitation. It was quite small to represent the all the cultural norms of that area. Unlike in quantitative study where the issues of generalization or representative sample is of concern, still, the sample size of this study can be looked at as a limitation.

Another limitation of this study was the geographical inaccessibility as the interviews were conducted in areas that were geographically accessible to the researcher on a car or motorbike. Nevertheless, this study was effective as it tried to incorporate respondents from different geographical areas (hilly area and area bordering India), which have different socio-cultural norms; areas with high and low immunization coverage; male and female vaccinators and different service duration.

6.3 Implication for better practice and further research

Having gained the understanding about the perceptions of the vaccinators on the socio-cultural factors influencing vaccination; this study provides as a piece of information to the public health sector, especially in Nepal. It further shows that the knowledge about the benefits of vaccinating
the children is the major factor that has brought about the positive perception in the community about vaccination.

Compliance related issues and forgetfulness of the parents was perceived to be the most common constrain in achieving complete immunization of the children by the vaccinators. Female Community Health Volunteers’ can take up the role of health educators. By providing information about the benefits of vaccination they can influence the community’s decisions on vaccination by developing educative programs, focusing on the importance of vaccination, their schedule and the location of the vaccination booths. These programs can be conducted as interactive workshops, group discussions and counseling session. Also, awareness about vaccination can be incorporated during the antenatal check-up and counseling sessions. Therefore, vaccination programs should bear these factors in mind while designing their projects.

Furthermore, this study also brought forth the perceived need of the vaccinators for capacity building. Need for refresher training on vaccination, management of adverse events following immunization and newer vaccination so as to strengthen and improve the quality of service delivered was highlighted by this study. Health care providers being one of the primary sources of health education; should be reinforced with necessary information so that they can act as pillars supporting the immunization program and the community can rely on them. In addition to the above, issue that the actual number of children less than five years of age targeted by EPI in the catchment area of the vaccinators was much less that that provided from the central level; leading to erroneous data regarding vaccination coverage.

Further research aiming to explore similar domain with a larger sample size from different geographical settings, that would investigate specific social and cultural influences on vaccination is needed.

6.4 Reliability and Validity

Reliability is the degree of consistency or stability of an instrument used in a research and validity is the degree of accuracy of accounts that are generated from a research (Bryman 2004;
Reliability and validity are vital criteria used to establish and access the quality of a research (Bryman 2004). For this study, the interview guide was pre-tested in pilot interviews with three vaccinators, who were excluded from the actual study sample. The participants had no problems in understanding the questions. Modifications were made to interview guide accordingly. Each interview process was treated in similar manner, without displaying any partiality or interference about the issues. However, a potential bias could have been introduced owing to the fact that the respondents were holding jobs as vaccinators. Research team proof read and double checked the text for accuracy.
7. CONCLUSION

This study provides data on the influence that social and cultural factors have in the community from the vaccinators’ point of view. It shows that in general, there is a strong and positive commitment towards vaccination program in Nawalparasi district of Nepal. The most important factor that governs this perspective is the knowledge about the advantages of getting the children vaccinated and the decline in the prevalence of vaccine preventable diseases in the community. Positive role of family and community in supporting vaccination was highlighted. Ethnic, cultural and gender factors showed that despite prevalent norms, their perception towards vaccination remained positive. Also, maternal education was found to be vital factor. Issues like religion, gender of the child and birth order of the child appeared to have minimal influence. Socio-economic status of the family and profession of mother were major factor as they dictated the time available take their children to vaccination booths. Accessibility of the vaccination booths made it easier for working mothers to take their children for vaccination and improved their compliance.
8. Reference


Importance of background rates of disease in assessment of vaccine safety during mass immunisation with pandemic H1N1 influenza vaccines. The Lancet 2010; 374(9707):2115-2122


Borooah VK. Gender bias among children in India in their diet and immunisation against disease. Social Science and Medicine 2004; 58(9): 1719-1731.


Choi JY, Lee SH. Does prenatal care increase access to child immunization? Gender bias among children in India. Social Science and Medicine 2006; 63(1): 107-117

EPI Fact Sheet. World Health Organization Regional Office for South East Asia. 2012


[District Development Committee, Nawalparasi]. www.ddcnawalparasi.gov.np/ (last accessed on 24/03/2014)

en.wikipedia.org (Last accessed on 29/04/2014)


Feldman-Savelsberg P, Ndonko FT, Schmidt-Ehry B. Sterilizing vaccines or the politics of the womb: retrospective study of a rumor in Cameroon. MAQ 2000;14:159–79.

Field Guidelines for Surveillance of Vaccine Preventable Diseases, Government of Nepal and WHO.2010


Helman CG, Yogeswaran P. Perception of childhood immunizations in rural Transkei – a qualitative study. SAMJ 2004; 94(24)


Pakistan struggles to eradicate Polio. The Lancet 2007; 7


Streefland PH. Introduction of a HIV vaccine in developing countries: social and cultural dimensions. Vaccine. 2003; 21(13-14):1304-1309


Tongco MCD. Purposive sampling as a tool for information selection. Ethnobotany Research and Applications 2007:147-158


World Health Organization, Nepal. (Last accessed on 31/1/2014) http://www.nep.searo.who.int/EN/Section4/Section29/Section89.htm


State of World’s vaccines and immunization. World Health Organization. 2002

Polio Global Eradication Initiative. World Health Organization. 
http://www.polioeradication.org/Aboutus/Strategy/Supplementaryimmunization.aspx (last accessed on 15/12/2013)

9. APPENDICES

APPENDIX 1

Interview Guide

1. What do you think people, in general think about immunization program (Perception/compliance)? Is it uniform throughout the community- if not how? (education, ethnic community, religion, family structure)
2. When you go for vaccinations, who do you encounter most with the children/who opens the door mostly?
   When children are brought for vaccinations who accompany them mostly?
   (Individual/family setup-support/single parent)
3. Why do you think they are brought by these people?
4. How difficult is it to relay to them messages about immunization?
5. Do you think there’s a difference in uptake of vaccines or immunization related message by them? How? Why? (Maternal education, birth order, single parent, religion, ethnic community, occupation, gender difference)
6. How about other health services? (Klienman model)
7. Are there particular people (leaders), that the people listen to? (Community)
8. Do they listen when approached by these leaders?
9. How are they influenced by community leader/religious leaders?
10. Are there any rumors about vaccines? What?
11. How have they affected vaccination? Trends in change of immunization uptake pattern? In community? Particular religion/Ethnic Groups?
12. What do you think should be done to improve immunization? What are the loop-holes? How can it be changed? Has this been discussed before, if yes, by whom/has it been implemented?
Appendix 2 (1/2)

Ethical Permission

Government of Nepal
Ministry of Health & Population
Department of Health Services
Child Health Division

Ref. No. 1071

To,
District Health Office,
Nawalparasi

Ref: Support for Research Process

Dear Sir,

This is in reference to Dr. Jetri Regmi, conducting her Master’s thesis research about “Socio-cultural influences on vaccination – Vaccinator’s perspective in Nepal” in Nawalparasi district. This research is a part of the Master of Public Health program run by the Institute of Public Health and Clinical Nutrition at the University of Eastern Finland.

I request you to provide her with the necessary support for research process as needed.

Sincerely,

Dr. Shyam Raj Upreti
EPI Chief,
Child Health Division,
Ministry of Health and Population.