

A Study on Knowledge & Practice of Vaccination Program in Alia Madrasah in Dhaka City of Bangladesh

A dissertation is submitted for the partial fulfillment of the course Pharmaceutical Research of the Department of Pharmacy, East West University for the Degree of Masters of Pharmacy in Clinical pharmacy and Molecular Pharmacology

Submitted By

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Declaration By The Candidate

I, **Md. Mohin Uddin**, hereby declare that the dissertation entitled “**A study on Knowledge & Practice of Vaccination Program in Alia Madrasah in Dhaka City of Bangladesh**” submitted by me the Department of Pharmacy, East West University, in partial fulfillment of the requirements for the degree of Masters in Pharmacy (M. Pharm) is a confide record of original survey work carried out by me under the supervision and guidance of **Nazia Hoque**, Senior Lecturer, Dept. of Pharmacy, East West University.

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Certificate By The Supervisor

This is to certify that the dissertation entitled “**A study on Knowledge & Practice of Vaccination Program in Alia Madrasah in Dhaka City, Bangladesh**” submitted to the Department of Pharmacy, East West University, in partial fulfillment of the requirements for the degree of Masters in Pharmacy (M. Pharm), was carried out by **Md. Mohin Uddin, ID No.: 2013-3-79-031** under my supervision and no part of this dissertation has been or is being submitted elsewhere for the award of any Degree/Diploma.

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Endorsement by the Chairperson

This is to certify that the dissertation entitled “**A study on Knowledge & Practice of Vaccination Program in Alia Madrasah in Dhaka City of Bangladesh**” is a genuine survey work carried out by **Md. Mohin Uddin**, under the supervision of **Nazia Hoque**, Senior Lecturer, Dept. of Pharmacy, East West University.

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Dedication

*This Survey Paper is Dedicated
To
My Beloved Parents*

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My study was totally a survey based work to identify the knowledge & practice of vaccination program in Alia madrasah and Govt. & Non-Govt. organizational activities and its implementation status to Alia madrasah for vaccine, dental & eye glass. I would like to give special thanks to the Leaders of different madrasahs of Dhaka for giving me opportunity to collect data under their rules and regulations.

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ABSTRACT

The present study was aimed to identify the knowledge & practice of vaccination program in Alia madrasah and know the Govt. & Non-Govt. organizational programs and its implementation status of vaccination in those madrasah. The knowledge & awareness of the teacher of Alia madrasah was investigated in the present study.

The information were collected from the principal/leaders of the Alia madrasah which were situated in Dhaka district. The study was carried out during the period of July, 2015 to October, 2015. Data were collected through structured questionnaires and present them in percentage.

Among 35 Alia madrasahs, most of the principals have a little knowledgeable about vaccination. The rates of vaccination in these sectors were not up to the mark and Govt. & Non-Govt. organization should take necessary steps to ensure maximum rate of vaccination.

The study found that among 35 madrasah, (69%) madrasahs have arranged the vaccination program & 11(31%) madrasahs have not arranged vaccination program. Government has given vaccine in 19 (79%) madrasah and Non-Govt. organizations have given vaccine in 5 (21%) madrasahs among 24 vaccinated madrasahs. Madrasah leader did not arrange vaccination program for their student due to unavailability of vaccination team (73%) and few cases money problem have been raised among those are not take vaccine. It can be said that financial conditions of Alia madrasahs have no effect on vaccine acceptability. But, most of the Alia madrasahs leader asked to arrange vaccination program without cost. It depends on the awareness of vaccination program.

These findings indicate the need for further advocacy for increased knowledge on the importance of vaccination and affordable public immunization should focus on Alia madrasah.

Chapter One
INTRODUCTION

1.INTRODUCTION

Vaccination has greatly reduced the burden of infectious diseases. Only clean water, also considered to be a basic human right, performs better. Paradoxically, a vociferous antivaccine lobby thrives today in spite of the undeniable success of vaccination programs against formerly fearsome diseases that are now rare in developed countries.

Vaccination has also been highlighted as one of the main reasons for the fall in health disparities both within and across countries in the last century. It was recently estimated that since 1924, vaccinations have prevented 103 million cases of childhood infection, representing approximately 95 percent of infections that would have occurred, including 26 million in the last decade alone. (Van Panhuis, W.G., *et al.*, 2013).

In only the first decade of the twenty-first century, an estimated 2.5 million deaths of children younger than five were prevented worldwide by vaccines. Given the relative successes of the GAVI Alliance (formerly, the Global Alliance for Vaccines and Immunization) and the recent call by the World Health Assembly for a global vaccine action plan to guide the world for the next 10 years, the world is focusing much attention, justifiably, on various aspects of macropolicy and planning for the progressive expansion of global vaccine efforts. ([Phillip Nieburg](#) et al, 2011)

The widespread success of vaccinations has led one medical report to comment that “next to clean water, no single intervention has had so profound an effect on reducing mortality from childhood diseases as has the widespread introduction of vaccines (*CP Howson, et al., 1991*)

There have been significant developments in the production of new and improved vaccines in recent years. Yet, there remains the question of whether the expanded availability of vaccines will reach those in need. There is increasing evidence that public acceptance of a vaccine requires intensive communication effort that addresses information needs and concerns of a variety of stakeholders such as health care providers, families, and community leaders in a target population. Immunization programs are also affected by the interplay of local and national politics. Challenges have ranged from isolated episodes of non-acceptance (due to religious,

ethical, and medical considerations) to active political mobilization against immunization programs driven by political and conspiratorial arguments. This is of particular concern considering recent growing evidence of declining confidence in governments in developed and developing countries. (Waisbord, S. et. Al., 2005)

The needs for information to motivate target populations and respond to misunderstandings have led to an increase in research to assess perceptions and attitudes related to the use of vaccines.

Despite this progress, vaccine-preventable diseases remain a major cause of morbidity and mortality. Adoption of new vaccines by low- and middle-income countries (where disease burdens are often the highest) has been slower than in high-income countries. In some countries, coverage of measles-containing vaccine in rural areas is 33% lower than in urban areas. Similarly, the measles vaccine coverage rate for the richest fifth of the population in some countries is up to 58% higher than for the poorest fifth. Coverage can also be very low in settlements of the urban poor, especially in cities with transitory migrant populations, and in indigenous communities. Geographical distance from health centres is not the only determinant of low coverage; inequities are also associated with other socioeconomic determinants, such as income levels and the educational status of the mother. A special geographic focus is needed on lower-middle-income countries with large populations, where the majority of the unvaccinated live. Reaching underserved populations will be especially challenging, but inequities need to be tackled because these populations often carry a heavier disease burden and may lack access to medical care and basic services, with the fragile economies of individuals and their families suffering a severe disease-related impact as a consequence. (World Health Organization Global Vaccine Action Plan 2011-2020, 2015)

The acceptance of this vaccination has increased but levels of full immunization coverage are less than satisfactory and can be improved. Moreover, there are still large variations among different levels of education and socio-economic factors. In Alia madrasah vaccination program is not satisfactory level. They are not so aware about vaccination & its importance.

In this paper, I draw upon data from the principals of the Alia madrasah through questionnaires. I wanted to show that indeed, maximum madrasah want vaccine. Here, most of the students are unprivileged and they are not capable to spend money for these activities.

The paper unfolds as follows. It provides an overview of education system of Alia madrasah and vaccination status of this madrasah in Bangladesh. I present that the leader of Alia madrasah are not keeping necessary knowledge about vaccine and even documentation of vaccinated student. Madrasah in the sub-continent, therefore, are alleged to exclusively rely on external finance and private donations made for religious purposes. Madrasah education is a system whereby Islamic branches of knowledge are taught besides the teaching of general branches of knowledge. Madrasahs are generally known as “religious schools”. According to Dr. Manaros B. Boransing, “*Madrasah* (pl. *madaris*) generally refers to Muslim private schools with core emphasis on Islamic studies and Arabic literacy.” Madrasahs are usually privately-operated schools, which rely on the support of the local community or foreign donors and Governments, particularly from Islamic or Muslim countries.

1.1 IMMUNIZATION

Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert between 2 and 3 million deaths each year. It is one of the most cost-effective health investments, with proven strategies that make it accessible to even the most hard-to-reach and vulnerable populations. It has clearly defined target groups; it can be delivered effectively through outreach activities; and vaccination does not require any major lifestyle change. (World Health Organization Health Topics Immunization 2015)

Immunization has helped drive this reduction in child mortality: coverage of vaccines that have been in use since the inception of the Expanded Programme on Immunization has expanded, and new vaccines have been introduced. Vaccines against hepatitis B and *Haemophilus influenzae* type b have become part of national immunization schedules in 179 and 173 countries, respectively; poliomyelitis is nearing eradication; and a large number of deaths from measles are being averted every year. The number of deaths caused by traditional vaccine-preventable diseases (diphtheria, measles, neonatal tetanus, pertussis and poliomyelitis) has fallen from an estimated 0.9 million in 2000 to 0.4 million in 2010. New and increasingly sophisticated vaccines that have become available in the last decade, including pneumococcal conjugate vaccine and vaccines against infection with rotavirus and human papillomavirus, are currently being rolled out globally. Efforts are being made to shorten the time lag that has historically

existed in the introduction of new vaccines between high- and low-income countries. For example, pneumococcal conjugate vaccines were introduced in low-income countries approximately a year after being introduced in high-income countries. (World Health Organization Global Vaccine Action Plan 2011-2020 (2015))

1.1.1.About Vaccine

A vaccine is a biological preparation that improves immunity to a particular disease. A vaccine typically contains an agent that resembles a disease-causing microorganism, and is often made from weakened or killed forms of the microbe, its toxins or one of its surface proteins. The agent stimulates the body's immune system to recognize the agent as foreign, destroy it, and "remember" it, so that the immune system can more easily recognize and destroy any of these microorganisms that it later encounters. (World Health Organization Health Topics Vaccines 2015)

It is also one of the most economical interventions of modern age, against some of the most lethal and debilitating diseases like smallpox, poliomyelitis, influenza etc. (Chowdhury *et al.*, 2003). Childhood vaccination or child vaccination is the process of administering vaccines on children to stimulate their immune systems to develop adaptive immunity to a disease. Significant reduction of child mortality and finding a cost effective way to improve child health, particularly for poor households residing in high-disease prone regions, is the fundamental principle of childhood vaccination.

A vaccine is any preparation intended to produce immunity to a disease by stimulating the production of antibodies. Vaccines include, for example, suspensions of killed or attenuated microorganisms, or products or derivatives of microorganisms. The most common method of administering vaccines is by injection, but some are given by mouth or nasal spray.

Unlike traditional pharmaceuticals, vaccines are prophylactic medicines designed to prevent rather than treat disease. Essentially vaccines help reduce the risk of a disease by introducing a killed or attenuated version of the disease-causing organism to the body's immune system. If our immune system then encounters the disease-causing germ, quick recognition allows our body to

fight infection with a rapid and effective immune response. In this way, vaccines mimic the body's natural immunity.

1.1.2.Purpose of vaccine

The purpose of a vaccine is to provide the person receiving it with immunity to a particular microorganism. These vaccines are injected into the bloodstream of the person, sometimes at an early age. In some cases, they give lifelong immunity, but in other cases, the vaccination must be repeated at regular intervals. The point, though, is to keep the person disease-free from some of the most damaging entities that humanity faces such as the influenza virus, for example. Ultimately, an appropriate vaccine could even spell the end of HIV, although this seems some way off yet.

Vaccines, medicines containing a preparation of weakened or dead microbes of the kind that cause a particular disease, are administered to stimulate the immune system to produce antibodies against that disease. They are used to force the body's white blood cells to develop a response to the specific pathogen and rid the body of the invading microorganisms.

Immunization can occur naturally when an untreated microbe in the environment is received by a person who has had no prior exposure to that microbe and, therefore, has no pre-made antibodies for defense. The immune system of an otherwise healthy individual will eventually create antibodies for the microbe, but this is a slow process and, if the microbe is deadly, there may not be enough time for the antibodies to begin being used to inactivate the microbe before serious symptoms or even death can occur. Artificial active immunization (vaccination) was created to boost the immune system's abilities to more quickly respond. In this process, the microbe is introduced into the person before they have been exposed to take it in naturally from the environment or directly from an infected person. Microbes to be used in a vaccine are treated to weaken them (attenuated live vaccines) so that they will not cause disease in the person receiving the vaccination. Depending on the type of microorganism for which immunization is desired, vaccines can be used made from the attenuated pathogen, from entirely inactivated ("dead") microbes, from incomplete particles of the microbe, or treated toxins from the germ.

1.1.3.How Vaccines Work?

Vaccines help develop immunity by imitating an infection. This type of infection, however, does not cause illness, but it does cause the immune system to produce T-lymphocytes and antibodies. Sometimes, after getting a vaccine, the imitation infection can cause minor symptoms, such as fever. Such minor symptoms are normal and should be expected as the body builds immunity. Once the imitation infection goes away, the body is left with a supply of “memory” T-lymphocytes, as well as B-lymphocytes that will remember how to fight that disease in the future. However, it typically takes a few weeks for the body to produce T-lymphocytes and B-lymphocytes after vaccination. Therefore, it is possible that a person who was infected with a disease just before or just after vaccination could develop symptoms and get a disease, because the vaccine has not had enough time to provide protection. (Centers for Disease Control and Prevention Understanding How Vaccines Work 2013)

Types of Vaccines and preventable diseases

	Vaccine Types	Licensed Vaccines
Live attenuated vaccines	Consist of weakened viruses or bacteria that the immune system cannot differentiate from a stronger, naturally occurring infection and consequently mounts a strong response similar to that induced by the natural disease.	BCG, cholera (oral), influenza(intranasal), measles, mumps, polio(oral), rotavirus (oral), rubella, smallpox, typhoid (oral), varicella, yellow fever.
Inactivated vaccines	Contain either whole or portions of killed bacteria or viruses and require several doses, generally to ‘prime’ the immune system and then ‘boost’ the immune response to	Hepatitis A, influenza, Japanese encephalitis, polio, Q fever, rabies, tick-borne encephalitis.

Toxoid vaccines	provide protection. Contain toxins produced by bacteria that have been inactivated to avoid toxic effects while producing a protective immune response.	Diphtheria, tetanus.
Sub-unit vaccines	Consist of specific proteins purified from viruses or bacteria that are capable of generating an immune response.	Anthrax, influenza, pertussis.
Polysaccharide vaccines	Contain purified sugar molecules taken from the surface of bacteria that can stimulate the immune system to generate antibodies.	Meningococcal, pneumococcal, typhoid.
Conjugate vaccines	Contain polysaccharides joined to immunestimulating molecules to develop a more robust immune response.	Haemophilus influenzae b, meningococcal, pneumococcal, typhoid.
Recombinant vaccines	Consist of virus proteins or live weakened viruses or bacteria produced using recombinant genetic engineering.	Hepatitis B, human papillomavirus, rotavirus (oral, reassortant).

1.1.4. Five Important Reasons to Vaccinate a Child

1. **Immunizations can save a child's life.** Because of advances in medical science, a child can be protected against more diseases than ever before. Some diseases that once injured or killed thousands of children, have been eliminated completely and others are close to

extinction— primarily due to safe and effective vaccines. One example of the great impact that vaccines can have is the reduction of polio in the Bangladesh. Polio is most-feared disease, causing death and paralysis across the country, but today, thanks to vaccination, there are a very few reports of polio in the Bangladesh.

2. **Vaccination is very safe and effective.** Vaccines are only given to children after a long and careful review by scientists, doctors, and healthcare professionals. Vaccines will involve some discomfort and may cause pain, redness, or tenderness at the site of injection but this is minimal compared to the pain, discomfort, and trauma of the diseases these vaccines prevent. Serious side effects following vaccination, such as severe allergic reaction, are very rare. The disease-prevention benefits of getting vaccines are much greater than the possible side effects for almost all children.
3. **Immunization protects others ones care about.** Children in the Bangladesh still get vaccine-preventable diseases. In fact, we have seen resurgences of measles and whooping cough (pertussis) over the past few years. In 2010 our country had over 21,000 cases of whooping cough reported and 26 deaths, most in children younger than 6 months. Unfortunately, some babies are too young to be completely vaccinated and some people may not be able to receive certain vaccinations due to severe allergies, weakened immune systems from conditions like leukemia, or other reasons.
4. **Immunizations can save ones family time and money.** A child with a vaccine-preventable disease can be denied attendance at schools or child care facilities. Some vaccine-preventable diseases can result in prolonged disabilities and can take a financial toll because of lost time at work, medical bills or long-term disability care. In contrast, getting vaccinated against these diseases is a good investment and usually covered by insurance. The Vaccines for Children program is a federally funded program that provides vaccines at no cost to children from low-income families.
5. **Immunization protects future generations.** Vaccines have reduced and, in some cases, eliminated many diseases that killed or severely disabled people just a few generations ago. For example, smallpox vaccination eradicated that disease worldwide. By

vaccinating children against rubella (German measles), the risk that pregnant women will pass this virus on to their fetus or newborn has been dramatically decreased, and birth defects associated with that virus no longer are seen in the United States. ([Centers for Disease Control and Prevention](#) Five Important Reasons to Vaccinate Your Child 2015)

1.2.IMMUNIZATION IN BANGLADESH

Vaccination against some of the most lethal and debilitating diseases is one of the most cost-effective intervention of modern times. Smallpox which historically caused so much death and suffering is now a thing of the past. Poliomyelitis, another disabling disease, is now set to be eradicated. The single intervention that has made these to happen is vaccination. Recent studies have also documented the positive health equity effects of vaccinations. Analysing longitudinal data on mortality and measles immunization from Bangladesh, (Koenig *et al.* 2001) demonstrated that it was the most vulnerable children (in terms of socio-economic status) whose differential mortality risk was most reduced from vaccination.

Bangladesh has a long history of vaccinating its population. The British colonial papers suggest that variolation or inoculation, the predecessors of vaccination, was in practice in this part of the Indian Sub-continent as far back as 1731; *Tikadars*, a group of professional inoculators, provided inoculation against smallpox against a fee. The modern Expanded Programme on Immunization (EPI) was launched in 1979 but intensified in 1986. EPI programme is regularly conducting CES to find out the status of EPI coverage all over the country since last 10 years, the highest national valid coverage of fully vaccinated children found in 1994 was 62 percent. Otherwise the coverage was always below 59 percent. Although the coverage of BCG (First dose of vaccine children ever receives) is more than 94 percent for the last 4 years and it was never below 86 percent for the last 10 years (CES, 2002). It is also a concern for the programme that why we cannot reach 100 percent of the targeted children even for the single dose of BCG vaccination. Despite the continuing concerns and interests of all stakeholders on EPI, which has made remarkable success in Bangladesh, why half of the children are not fully immunized remains a key area of investigation

Bangladesh was never able to achieve the target of Universal Child Immunization (UCI) of 80 percent and the plateauing of the coverage rate is even more frustrating. Researchers have looked at the reasons for such plateauing in coverage and have identified factors which are both demand and supply related (H A SUFI 2005). In a recent field level review of routine EPI (routine EPI is distinguished from the others such as the National Immunization Days; whereas the former is a regular monthly activity that provides vaccination against the six diseases, the latter is a campaign done twice a year for eradicating Polio) in northern Bangladesh, participants representing the government and development partners identified the challenges facing the programme. Most of the problems identified were supply- related. It was discovered later that of the previous four scheduled sessions only two were held. A less than adequate support for routine EPI from the higher levels of the government and development partners was also identified.

1.2.1. History of vaccination in Bangladesh

The first vaccination programme that was implemented in the geographical region of Bangladesh took place in the 1960s when Bangladesh was still a part of Pakistan. Vaccination against cholera through injection of killed cholera bacteria used to be an elaborate anti cholera programme in the 1960s. However, several studies, including an extensive study carried out by Pakistan SEATO Cholera Research Laboratory (PSCRL) (Now known as International Centre for Diarrheal Disease Research, Bangladesh (ICDDR,B)) proved that the vaccine had no efficacy in providing protection against cholera. As a result of this, WHO recommended discontinuation of this vaccine.

However, further trials were undertaken to find an effective vaccination against cholera. A large scale field trial of two new cholera vaccines was carried out in the Matlab field area of ICDDR,B. The efficacy of these vaccines are still questionable but one of these two vaccines was oral killed whole cell vaccine which is still used by ICDDR,B . This vaccine, with the help of preventive measures such as hand washing and home water treatment system, may have helped decrease annual deaths from cholera but overall morbidity remains high. It is estimated that there are at least 300,000 severe cases and 1.2 million infections in people in Bangladesh each year

(Independent University 2012). Apart from this, a programme called Expanded Programme on Immunization (EPI) was initiated in 1980. It is considered the most successful public health intervention in Bangladesh, and has contributed significantly to reducing mortality and morbidity from vaccine-preventable.

1.2.2. History of EPI in Bangladesh

For prevention of diseases EPI started functioning officially on 7th April, 1979 in Bangladesh for vaccination against diphtheria, tetanus, whooping cough, tuberculosis, measles and poliomyelitis. Up to 1985 only 2% of children <23 months were immunized because there were limited number of EPI vaccination centers which does not cover whole Bangladesh. In the year 1985 Government of Bangladesh committed to share global universal child immunization programme. For this reason from 1985 to 1990 intensification of EPI began in phases and from 1990 to 1994 refresher training and introduction of EPI sentinel surveillance sites had been initiated. In 1995 first National Immunization Day (NID) was performed. Total eighteen NID was performed till date. So routine vaccination, NID, surveillance and outbreak response immunization is going on till date and EPI coverage was 86% up to 1998 in 12 months to 23 months old child.

EPI service was made available to all target groups in phases in 1995; AFP and NT Surveillance started in 1997. Introduction of Hepatitis- B vaccination in EPI programme was started in 2003. Tuberculosis is a disease of great significance associated with a high rate of mortality and morbidity especially in developing countries like Bangladesh.

Poliomyelitis is amongst the most feared of the communicable diseases, incidence is highest in developing countries, especially where immunization coverage is low and sanitation is poor. India, Pakistan and Bangladesh have accounted for 70% of reported polio cases worldwide. A major step towards global eradication was made in 1994 and paralytic poliomyelitis decreased by 83%. The expanded programme on immunization of weekly epidemiological record has led to steady decline in the world incidence of poliomyelitis since 1973, and total eradication of poliomyelitis from America been one of the major health achievements of the 20th century.

In Bangladesh, the number of neonatal tetanus deaths has decreased substantially in the past 2 decades. In May 2008 the Health and family Welfare, carried out an evaluation using standard WHO protocol to determine whether neonatal tetanus had been eliminated in Bangladesh. According to the survey results Bangladesh has achieved Maternal and Neonatal Tetanus (MNT) elimination. WHO received report of 14,529 cases of tetanus globally in 2006 while 290,000 deaths were estimated by WHO during the period of 2000-2003. In Bangladesh total 828 cases of tetanus were reported in 2007 while 824 cases of tetanus were reported after the neonatal period through passive surveillance. In the year 2007 total 86 cases of diphtheria was reported through AFP and EPI Diseases surveillance network in Bangladesh and 62% of these were 15 years of age. WHO received reports of 3,978 cases of diphtheria worldwide in 2006, a remarkable decrease from the epidemic years of 1994-95, when 54,811 and 56,966 cases were reported worldwide respectively (Islam Md. Darul et. Al., 2010).

Progress

- More than 100 million infants are immunized each year, saving 2-3 million lives annually.
- Global mortality attributed to measles declined by 71 percent from an estimated 542,000 deaths in 2000, to 158,000 in 2011.
- The prevalence of polio has declined dramatically since 1988, from more than 350,000 cases to 223 confirmed polio cases in 2012. Only three countries remain endemic – Afghanistan, Nigeria and Pakistan – down from more than 125 countries in 1988.
- Immunization coverage against HepB and HiB has been increasing since 1990 – 180 and 177 countries now include HepB and HiB respectively into infant immunization schedules.

1.2.3.The side effects of vaccination

Most side effects from vaccination are mild and short-lived. It's quite common to have redness or swelling around the injection site, but this soon goes away. Younger children or babies may be a bit irritable or unwell, or have a slight temperature. Again, this usually goes away within one or two days.

In much rarer cases, some people have an allergic reaction soon after a vaccination. This is usually a rash or itching that affects part or all of the body. On very rare occasions, a severe allergic reaction may happen within a few minutes of the vaccination. This is called anaphylactic

reaction. It can lead to breathing difficulties and, in some cases, collapse. Anaphylactic reactions are extremely rare (fewer than one in a million) and these reactions are completely reversible if treated promptly.

1.2.4. Misinformation (false or misleading information)

The timing and widespread use of vaccines make them easy scapegoats to be blamed for all sorts of serious illnesses. Of course not all vaccine safety concerns are misinformation—only those that persist despite the evidence against them. Even when the concern stops being an issue for most in the scientific community, it may remain an issue for many others with vested interests—whether politicians, lawyers, journalists or the group that concerns health professionals the most: well-intentioned but misinformed parents trying to understand and alleviate their child’s afflictions. Many media stories use faulty reports and parental concerns to depict a “controversy” about vaccines, failing to mention that the scientific community does not feel that a controversy exists.

In spite of the substantial evidence now available that allows rejection of the hypotheses that vaccines cause autism, there are some who continue to state that there is a causal association. These claims, once based on missing information, now fall into the category of misinformation. Unfortunately, the misinformed person with a fixed opinion about vaccines has many sophisticated tools to disseminate misinformation, creating confusion about vaccine safety. Misinformation comes in many packages and may be widely publicized by the media and others causing lowered immunization levels and disease risk.

For example, a misinformed couple in Tennessee, confused about vaccine safety because of what they had read on the Internet, decided to delay their daughter’s vaccinations. Sometime later, the baby girl was stricken with a form of meningitis that could have been prevented by a vaccine.

Misinformation about vaccines is frequently encountered on the Internet. Some Web sites, for instance, oppose the immunization of infants and children. They express a variety of claims that are largely unsupported by peer-reviewed scientific literature.

Misinformation Web sites tend to rely on emotionally-filled anecdotes about bad things that happened to children or were first recognized—*coincidental in time* with vaccine administration—while ignoring or distorting scientific studies.

Unfortunately for communities, anti-vaccination movements have also had a negative effect on public health through the years. One study, for example, showed that movements against the whooping cough vaccine caused whooping cough epidemics in several countries.

1.3.ALIA MADRASAH IN BANGLADESH

Madrasah education is a system whereby Islamic branches of knowledge are taught besides the teaching of general branches of knowledge. Madrasahs are generally known as “religious schools”. According to Dr. Manaros B. Boransing, “*Madrasah* (pl. *madaris*) generally refers to Muslim private schools with core emphasis on Islamic studies and Arabic literacy.”

Madrasahs are usually privately-operated schools, which rely on the support of the local community or foreign donors and Governments, particularly from Islamic or Muslim countries.

1.3.1.History of Madrasah Education Board of Bengal (BMEB)

Alia Madrasah was established in 1780 by British government and formed Madrasah education Board of Bengal. Madrasah Education was then started formally. Consequently Madrasah Education was reformed. Especially late Fazlul Haq the prime minister declared in a prize giving be modernized and an Arabic University should be established”.

To materialize this declaration of share-E-Bangla a committee named Moula Box was formed. This committee, along with the advice of establishing a University for Madrasah students, advises in the following way for the entire development of Madrasah Education. In 1947 after having the independence of Pakistan many commissions was formed for the development of Madrasah Education. Among them in 1949 “West Bengal Educational System Reconstruction Committee” and in 1963-64 the name of Arabic University are especially mentionable.

In 1971 after having the independence of Bangladesh, step has been taken for the active modernization of Madrasah Education. Bengali, Mathematics, English, Social science, General Science are made compulsory. In 1978 Madrasah Education Board was formed under Ordinance for the Modernization of Madrasah Education. The Madrasah Education Board started its activity independently in 1979. With the passage of time of Madrasah Education, in 1978 humanity and

science faculty are included in Alim level and in 1980, Fazil degree was given the standard of Education of H.S.C level.

In the successive step of Education in 1985 dakhil level was given the standard of education of S.S.C. and in 1987 Alim level was given the standard of education of H.S.C for massive reformation of entire education system. As a result the Madrasah student having learnt the root lesson of Islam against themselves with the modern education system. For the revolutionary development of modern science and technology, Bangladesh like other countries of the world, faces a very strong and tough challenge. For facing this challenge, boldly, humanity, science, business and technical education has been included with Madrasah Education. Mean while a law has been passed for the education & the standard of education of Fazil and kamil with those of B.A. and M.A. degree in general education. In fact, action steps are already taken to modernize this curriculum.

In fact, the dream that our noble leader Share-E-Bangla A.K. Fazlul Haq dreamt long before sixty seven years, is going to be materialized although it is very late. At present 30% are the Madrasah students of the total number of students.

So we can certainly say that after having crossed a very hazardous and very troublesome way, Madrasah Education has come to this qualified stage of standard of education. (Bangladesh_Madrasah_Education_Board 2015)

1.3.2.The Objectives of Madrasah Education

Islam has encouraged acquiring knowledge. The first such guidance is found in Sura al-Iqra of the Holy Quran where Allah orders believers, "بِسْمِ رَبِّكَ الَّذِي خَلَقَ" (Read in the name of your Lord)". In one of Hadiths, the Prophet Muhammad (pbuh) said, "The seeking of knowledge is incumbent for every Muslim." In another Hadith, the Prophet Muhammad (pbuh) mentioned, "If anyone travels on a road in search of knowledge, Allah will cause him to travel on one of the roads of Paradise. The angels will lower their wings in their great pleasure with one who seeks knowledge. The inhabitants of the Heavens and the Earth and (even) the fish in the deep waters will ask forgiveness for the learned man. The superiority of the learned over the devout is like that of the moon, on the night when it is full, over the rest of the stars. The

learned are the heirs of the Prophets, and the Prophets leave (no monetary inheritance), they leave only knowledge, and he who takes it takes an abundant portion.” Since Allah SWT has encouraged all of us to read, now one might ask the question, “What should we read?” The answer is not provided in this verse. Now the question might arise should we read only the Holy Quran? Or does it also refer to other source of knowledge?

The scholars have different views regarding the above concept of acquiring knowledge. There are also different approaches regarding which types of knowledge are obligatory for a believer. One of the most important views was put forward by the following Hadith narrated by Anas Ibn Malik (r): **يسئء ءغفر الء لم بط ال ان و مسء لم كلء لء ف رءضة الء لم ط لب** (r): **بءر فء الء ءءء ان ءءء شءء كلء له** “Seeking Knowledge is a Duty upon every Muslim, and everyone in the heavens and on earth prays for forgiveness for the seeker of knowledge, even the fish in the sea”. In its interpretation, majority jurists are on the views that every Muslim is obliged to acquire Islamic knowledge up to which a person can make a difference between haram and halal and he becomes able to lead his life according to the right path. On this point of view, it can be said that seeking Islamic knowledge is Ibadah.

1.3.2.1 Goals of Madrasah Educations:

This Madrasah was established for the sake of high noble goals which are as following:

- Spreading the message of Islam in Bangladesh as a whole through learning and Islamic education.
- Spreading pure Islamic science within the rising generations and ingraining the genuine Islamic creed in the hearts of people.
- Teaching Arabic language, the language of the Holy Quran, and the prophetic tradition and spreading it among the Muslims of Bangladesh.
- Streamlining religious and modern sciences under Islamic principles.
- Educating students who join the Madrasah from different angles, graduating scholars who specialize in Islamic sciences and Arabic language, and jurists in Islam equipped with knowledge that will qualify them to preach the faith and to solve the problems of Muslims in light of the Quran and Sunnah and in light of the practice of the previous companions.

- Planting the spirit of Islam, as well as deepening practical religion in the life of individuals and the society, through sincere worship of Allah and the practice of his prophet.
- Graduating orators and propagators of Islam, as well as preparing those who exert themselves for the sake of God, and bringing up leaders who strive to raise the religion in the nation and in the society.
- Preparing writers, editors, and Muslim thinkers in order for them to solve the urgent problems and correct the strayed society, as well as correct the wrong creeds.
- Guiding poor orphans and Muslim children, and educating them on the Islamic way.

1.3.3.Types of Madrasah in Bangladesh

There are two types of Madrasahs in Bangladesh. One is known as *Alia Madrasah* and the other is known as *Qawmi Madrasah*.

a) Alia Madrasahs

Alia Madrasahs offer both religious education and modern general education. The establishment of these Madrasahs, the appointment of teachers, and the curriculum all follow government regulations as mandated by the Madrasah Education Board.

b) Qawmi Madrasahs

Qawmi Madrasahs are non-governmental educational institutions. They represent a private system of Madrasah education. The equivalent of primary education in Qawmi Madrasahs has a duration of six years. It is important to note here that it was rather difficult to understand from Qawmi Madrasah officials the sequence of their primary educational system. This was due to the fact that they mainly use a subject-based system rather than a grade-based system. That is, students are taught subjects without a clear class-graduated system. It is not feasible to try to “impose” class-graduated terminology on their primary educational system. For example, a Nourani model of education (explained in further detail below) used in Qawmi Madrasahs entails teaching students about a variety of religious and linguistic subjects. The focus of Qawmi Madrasah officials is on delivering all the subjects included in the Nourani curriculum, but without a clear time-sequence that follows what is expected in a grade-based system.

The final stage of the Qawmi Madrasah education is called Daurah Hadith, in which Hadith certificates are awarded to the students after successful completion of the “Daurah” class. The

Hadith certificate is somewhat equivalent to a Kamil degree in Alia Madrasahs. More specialized higher courses of a two- to three-year duration are also conducted in some of the Qawmi Madrasahs.

1.3.4.A short description of Alia Madrasah

Alia Madrasah was established in 1780 by British government and formed Madrasah education Board of Bengal. Madrasah Education was then started formally. Consequently Madrasah Education was reformed. Especially late Fazlul Haq the prime minister declared in a prize giving ceremony in Kolkata Alia Madrasah in 1939, “I want the spread of Madrasah Education should be modernized and an Arabic University should be established”. To materialize this declaration of share-E-Bangla a committee named Moula Box was formed. This committee, along with the advice of establishing a University for Madrasah students, advises in the following way for the entire development of Madrasah Education. In 1947 after having the independence of Pakistan many commissions were formed for the development of Madrasah Education. Among them in 1949 “West Bengal Educational System Reconstruction Committee” and in 1963-64 the name of Arabic University are especially mentionable. (Amin Muhammad Boni 2013)

1.3.4.1.Degrees Offered under Alia Madrasah System

Bangladesh Alia Madrasah education system consists of the following degrees/certifications:

- Ibtadayee or Junior Dakhil Certificate & Junior School certificate (JDC/JSC);
- Dakhil (SSC Equivalent)
- Alim, (HSC Equivalent)
- Fazil (BA Equivalent), and
- Kamil (Masters Equivalent).

Chapter Two
LITERATURE REVIEW

2.LITERATURE REVIEW

In the year 1982, Henderson et al. mentioned that from the early 1990s coverage evaluation surveys have been carried out regularly in Bangladesh. Done with technical assistance from World Health Organization (WHO), United Nations Children's Fund (UNICEF), and the Immunization and Other Child Health (IOCH) project, the surveys are carried out by the government of Bangladesh in association with selected non-governmental organizations (Henderson et al., 1982).

Clark & Chakraborty et al. observed that Government immunization service statistics in 1984 shows that the national coverage for BCG was 1.5 percent, D.P.T. (3 doses) was 14 percent, polio (3 doses) was 1.1 percent and measles was 0.9 percent (Government of Bangladesh, 1985's). Now WHO/UNICEF estimates, 2013 shows that the national coverage for BCG was 99 percent, DPT1 99 percent, DPT3 97 percent, polio 97 percent. Demographic studies of childhood immunization differential have often shown household Socio-economic factors and parental education as important factors in explaining different immunization levels among and within societies (Clark 1983; Chakraborty et al. 1987).

In 2001, a team of researchers have also documented the positive health equity effects of vaccinations. Analysing longitudinal data on mortality and measles immunization from Bangladesh, it was the most vulnerable children (in terms of socio -economic status) whose differential mortality risk was most reduced from vaccination (Koenig et al., 2001).

After 1 year later, Syed M. Akramuzzaman and team member have evaluated the vaccine effectiveness and to assess risk factors for measles in Dhaka, Bangladesh. To improve measles control in urban Dhaka missed immunization opportunities must be reduced in all health care facilities by following WHO guidelines. For measles elimination, more than one dose of vaccine would be required (Syed M. Akramuzzaman et. al., 2002)

In 2003, Chowdhury *et al.*, mentioned that vaccination is one of the most economical interventions of modern age, against some of the most lethal and debilitating diseases like

smallpox, poliomyelitis, influenza etc. Significant reduction of child mortality and finding a cost effective way to improve child health, particularly for poor households residing in high-disease prone regions, is the fundamental principle of childhood vaccination. (Chowdhury *et al.*, 2003).

Chowdhury A Mushtaque R has found that immunization coverage was higher for children whose mothers were more educated. Children whose fathers had a higher-status occupation (salaried employment) were two-and-a-half times more likely to be immunized than children whose fathers held a lower-status job, e.g. day-labourer. The coverage for the poorest quintile was 70% of the well-to-do. Children residing in urban areas were more likely to be fully immunized than their rural counterparts (70% vs 59% for children aged 12-23 months). Within urban areas, the situation in slums was worse. Large differences existed among the various administrative regions of the country. The study identifies children of various disadvantaged groups as having a lower coverage. Managers of immunization programmes must realize that only through removal of such disparities among groups will overall coverage be increased. (Chowdhury A Mushtaque R. 2003)

In the same year A. Mushtaque et. al published a paper, they examined inequalities in the use of, and access to, vaccination service in Bangladesh by analyzing national and small area-based datasets. The analysis showed that female children had a lower immunization coverage than male children—the difference persists for all antigens and widens against girls for higher doses. The immunization coverage was higher for children whose mothers were more educated. Children whose fathers had a higher-status occupation (salaried employment) were two-and-a-half times more likely to be immunized than children whose fathers held a lower-status job, e.g. day-labourer. (A. Mushtaque et. al., 2003)

In developing countries, immunisation programmes must compete with other strategies to improve public health and quality of life. Studies of long-term effects of immunisation programmes are rare. F Breiman Robert et. al assessed associations between vaccinations and mortality over 15 years after the introduction of routine infant immunisation programmes in Matlab, Bangladesh. By contrast with previous findings, they noted substantially reduced mortality among children who received DTP vaccine. This effect could be due to actual

protection against pertussis disease and secondary illnesses or to a non-specific benefit, although they cannot rule out epidemiological artifact. Our findings show the value of population-based health surveillance systems. (F Breiman Robert et. al., 2004)

In 2005, H A Sufi mentioned that after launching of Expanded Programme on Immunization (EPI) in 1974, against six killer diseases polio, diphtheria, tuberculosis, pertussis, measles and tetanus, today the coverage has raised nearly 75 percent from only 5 percent of all children of the world within their first year of life. About 34 million infants are not immunized against these killer diseases annually. (H A Sufi 2005)

Traditionally, madrasah are Islamic learning institutions, aimed at building a generation of Islamic scholars and leaders. The word ‘madrasah’ means ‘center of learning’ in Arabic. They provide free religious education, boarding and lodging. For these reasons, they are essentially schools for the poor. Although several studies have been undertaken to analyze the madrasah curriculum and its impact on the students, the role and attitudes of madrasa teachers, and the challenges they face, have largely been neglected. (Rahman & Burki et al., 2005).

Levin A et al. evaluated the incremental health and programmatic cost impacts of theoretical new vaccine products as compared to the standard vaccine products in multi-dose vials in Cambodia, Ghana, and Bangladesh. They use a cost-effectiveness model to estimate the impacts of introducing four thermo stable vaccines with single-dose presentations: measles, yellow fever, bacille Calmette-Guerin, and diphtheria–tetanus–pertussis–hepatitis B. The effectiveness of all of the vaccines increases with the thermo stable formats. The incremental costs associated with the introduction of thermo stable vaccines increases for three out of four vaccines. (Levin A et al., 2007)

In 2008, Daniel A. Salmon & his team stated that immunizations have been remarkably successful in preventing disease. When high levels of immunization coverage are sustained, disease is reduced and public attention shifts to concerns about vaccine safety rather than fear of the diseases. The great majority of providers for exempt children had similar attitudes about vaccine safety, effectiveness and benefits as providers of non-exempt children. Effective

continuing education of providers about the risks and benefits of immunization and including in vaccine recommendations more information on pre and post licensing vaccine safety evaluations may help address these concerns (Daniel A. Salmon et. al., 2008)

In a study it has been found that inactivated influenza vaccine reduced proven influenza illness by 63% in infants up to 6 months of age and averted approximately a third of all febrile respiratory illnesses in mothers and young infants. Maternal influenza immunization is a strategy with substantial benefits for both mothers and infants. (K. Zaman et al., 2008)

In 2009, Rahman M et al., established the hypothesis that predisposing, enabling and household needs influence the complete vaccination status of children. Approximately 60% of the children in rural Bangladesh were fully immunized. They have found that the full vaccination rate increased with an increase in the previous birth interval and the education level of the mother. Women with the highest wealth index were significantly more likely to fully immunize their children. Distance from health facility, parity, mother's age, mass media, children's sex and tetanus toxoid injection were also significantly positively associated with full vaccination. (Rahman M et al., 2009)

In the same year, World Health Organization has found that in developing countries more vaccines are available and more lives are being saved. For the first time in documented history the number of children dying every year has fallen below 10 million – the result of improved access to clean water and sanitation, increased immunization coverage, and the integrated delivery of essential health interventions. Yet despite extraordinary progress in immunizing more children over the past decade, in 2007, 24 million children – almost 20% of the children born each year – did not get the complete routine immunizations scheduled for their first year of life (World Health Organization 2009)

Only a few works were done so far in Madrasah regarding the vaccination program. (Chowdhury et al., 2003) examined inequalities in the use of, and access to, vaccination service in Madrasas of Bangladesh by analyzing national and small area-based datasets. The analysis showed that

Madrasa students had lower immunization coverage than other students due to inadequate knowledge about the vaccination of the Madrasah teachers.

Islam Md. Darul and his team mentioned that vaccination against Hepatitis B and H. Influenzae have been introduced in the vaccination programme recently. The success in the EPI programme decreased the mortality and morbidity of the vaccine preventable diseases. The Government of Bangladesh continues the EPI programme to combat the infectious diseases and thus, to reduce the infant mortality rate, for which Bangladesh is appreciated recently by the United Nations (Islam Md. Darul et al., 2010)

David Canning et al. investigated the effects of ante-natal maternal vaccination against tetanus on the schooling attained by children in Bangladesh. They found that maternal vaccination prevents the child from acquiring tetanus at birth through blood infection and substantially reduces infant mortality and may prevent impairment in children who would otherwise acquire tetanus but survive. They also found that significant schooling gains from maternal tetanus vaccination for children whose parents had no schooling, showing a large impact on a small number of children (David Canning et al., 2010)

In 2012, Afzal Nasrin Afzal & her team identify the characteristics that have an influence on the vaccination coverage of children and the determination of the pattern of such influence are very important since the government can reschedule the policy to immunize each and every child. They examined the factors that manipulate the vaccination coverage in terms of five major vaccines using the Bangladesh Demographic and Health Survey (BDHS)-2007 data. The results of their study strongly suggest that mother's education and economic status play a vital role significantly in improving the vaccination coverage (Afzal Nasrin Afzal et al., 2012)

J. Andrews-Chavez *et al.* have designed a study which was to investigate if the mothers' demographics and household characteristics—including type of use of cooking fuel, energy and toilet facilities—have any implication for complete immunisation rates among their children. Immunisation coverage was positively associated with the mother's education and with household characteristics such as toilet facility, electricity and involvement in a microfinance

group. Their findings indicate the need for further advocacy for increased knowledge on the importance of vaccination and affordable public immunization programs focusing on higher risk households such as those with pit facilities, lack of electricity and no participation in a microfinance group. Such households warrant further attention and can be targeted for immunization coverage. (J. Andrews-Chavez *et al.*, 2012)

Health education programs are not part of the regular school curriculum in developing countries including Pakistan. Many schools in the targeted townships participated in immunization activities but they were not carried out regularly. In the wake of low immunization coverage in Pakistan, schools can be used as a potential venue not only for non-EPI vaccines, but for a catch up vaccination of routine vaccines. The most common vaccination campaign in which schools participated was Polio eradication program. Cost of the vaccine, side effects, and parents' lack of information were highlighted as important limiting factors by school administration for school-based immunization programs. Permission from parents, appropriateness of vaccine-related information, and involvement of teachers were considered as important factors to improve participation (Soofi SB *et. al.*, 2012)

In 2012, FN Shoma has design a study, She want to know the Immunization (EPI) coverage, dropout rate and factors influencing dropout. The study findings suggested that despite the effort taken by Government and NGOs to expand coverage, dropout rates are unacceptably high. To combat this challenge counseling and motivation on EPI, improvement of information system, health education and training of health workers are required. (FN Shoma 2012)

After one year later, Md. Tanvir Haider Tanna *et. al.* conducted a study to evaluate the rate of vaccination and its impacts on the children in four upazilas which were Noakhali sadar, Begumgonj, Companygonj and Chatkhil of Noakhali district. It was found that all interviewed parents of all ages and educational levels are aware about vaccination of their child. The study conducted on the rate of giving vaccines, (Tuberculosis, Polio, DPT, Measles and Hepatitis B) showed serious reactions in a few children after taking vaccine and occurrences of disease after taking the corresponding vaccine. The rate of vaccination in the four upazilas- Noakhali sadar,

Begumgonj, Companygonj and Chatkhil were found to be 84, 86.6, 75.4 and 82%, respectively. (Md. Tanvir Haider Tanna et. al., 2013)

In the same year, M. Raysul Haque et. al. demonstrated the eventual influence of maternal education status on measles vaccination coverage among children of age 9 to 59 months in Bangladesh. A nationally representative data Bangladesh Demographic and Health Survey (BDHS) 2007 was used for this purpose. The result showed that mother's education level is positively and statistically significantly associated with the likelihood of a child being vaccinated for measles after controlling for all other potential factors (S. M. Raysul Haque et. al., 2013)

Iqbal Ansary Khan et. al. have studied the feasibility study of an oral cholera vaccine was carried out to test strategies to reach high-risk populations in urban Mirpur, Dhaka, Bangladesh. Their study was cluster randomized, with three arms: vaccine, vaccine plus safe water and hand washing practice, and no intervention. High risk people of age one year and above (except pregnant woman) from the two intervention arms received two doses of the oral cholera vaccine (Iqbal Ansary Khan et. al., 2013)

In 2004, Nelson CB mentioned that Cholera is an endemic and epidemic disease in Bangladesh. On 3 March 2013, a meeting on cholera and cholera vaccination in Bangladesh was convened by the Foundation Merieux jointly with the International Centre for Diarrheal Disease Research, Bangladesh (ICDDR, B). The purpose of the meeting was to discuss the investment case for cholera vaccination as a complimentary control and prevention strategy. Findings showed the oral vaccine to be highly cost-effective when targeting ages 1-14y, and cost-effective when targeting ages 1+y, in high-burden/high-risk districts. Regardless of cost-effectiveness (value), the budget impact (affordability) will be an important determinant of which target population and vaccination strategy is selected. Most importantly, adequate vaccine supply for the proposed vaccination programs must be addressed in the context of global efforts to establish a cholera vaccine stockpile and supply other control and prevention efforts. (Nelson CB 2014)

Dimitrov DT et. al concluded that continuous mass vaccination would be more effective against endemic cholera than periodic campaigns. Vaccinating children averts more cases per dose than

vaccinating all age groups, although vaccinating only children is unlikely to control endemic cholera in Bangladesh. Careful consideration must be made before generalizing these results to other regions. (Dimitrov DT et. al., 2014)

Recently, a study has done to see the effect of mother's employment on child vaccination. Mother's Employment, Father's Education, Mother's Age at First Birth, Birth Order and Gender of Household Head were taken as independent variables. The results executed that the mothers who were unemployed had less probability to immunize their children. They have found that the highly educated fathers had more likelihood to vaccinate their children compared to the uneducated fathers. Young mothers had fewer chances to vaccinate their children compared to the old mothers. The 1st born children had more chances to get vaccine compared to the children who had more than 4th -5th birth order. It was suggested that the male and female should give equal chances of employment in country. (Samra Subhani et al., 2015)

In 2015, J. Driessen has found that early childhood health interventions have long-term effects on cognitive development, educational achievement and adult productivity. From this study, it has been found that age-appropriate vaccination raises the probability that a boy has enrolled in school by 7.4 percentage points but appears to have no effect on girls' enrolment (J. Driessen 2015)

Chapter Three
MATERIALS AND
METHODS

3. MATERIALS & METHODS

3.1 Study design: The present study was aimed to identify the knowledge & practice of vaccination program in Alia madrasah and know the Govt. & Non-Govt. organizational programs and its implementation status to Alia Madrasah for vaccination

Data were collected from principal of those institutions using structured questionnaire. The questionnaire was in two parts. The first part was respondent & institution details and the 2nd part was gathered demographic information of the madrasah such as number of students, yearly/monthly budget, boys or girls or combined madrasah so on. In 2nd part was also contained the vaccination related questions like vaccination status, vaccination record, cost of vaccination etc. The first part contains 6 questions. The second part collected information on attitude and practice about vaccination of the principals of Alia madrasah. There were 13 questions in the second part.

3.2. Study instruments and instruction manual

Based on objectives of the study, a structured questionnaire was developed and administered in the survey. While designing the questionnaire, specific objectives of the study were considered to ensure that information relevant to the purposes of the study and data could be collected with maximum reliability and validity. The questionnaire was prepared for the overall appropriateness of survey methodology, effectiveness of the field organization, length of the interview.

Study area: The study was done in the some Alia madrasah of the Dhaka districts.

Data collection: After preparing the questionnaire, the data were collected from the target sites during July, 2015 to October, 2015. The respondents were asked to verbally answer a structured set of questionnaires. The data were collected from the respondents through face-to-face or over the phone interview. The questions were asked systemically in a very simple manner in Bengali and the information was recorded on the survey schedule.

3.3STRUCTURED QUESTIONNAIRES

PART-1: DETAILS OF RESPONDENT& INSTITUTION

1. Name of madrasah
2. Type of madrasah:
 - Kamil
 - Fazil
 - Ibtadayee
 - Dakhil
 - Alim
3. Address of the madrasah
.....
4. Name of Respondent.....
5. Designation of Respondent.....
6. Contact number of Respondent.....

PART-2: VACCINATION RELATED QUESTION

1. How many students read in your madrasah?
 -
2. Is it a boys or girls or combined madrasah?
 -
3. How much is your madrasah's annual/monthly budget?
 -
4. Do you arrange vaccination program for your students?
(•YES • NO)(if answer is YES then ask him below question but if the answer is NO the ask no. 09 question)
5. From where would you accept vaccine?
 - NGO (.....)
 - Government
 - Other (.....)

(if answer is YES then ask him below question but if the answer is NO the ask no. 09 question)
6. Does anyone offer vaccine without cost for your madrasah?
(•YES • NO)(if answer is NO then ask no. 11 question)

7. Who are they?

Ans:

8. Do you keep vaccination record for each student?

(•YES • NO)

9. Why don't you arrange vaccination program?

- Money Problem
- Religious Issue like haram
- Have not thought it is important
- Other (.....)

10. If says haram would you tell me the reference? Describe why it is haram?

Ans:

11. Do you want vaccination program without cost?

(•YES • NO)

12. Do you accept other medical care such as eye glass/dental checkup?

(•YES • NO)

13. Who are they?

Ans:

Chapter Four
RESULT AND
DISCUSSION

4.1.RESULT

A study on knowledge & practice of vaccination program in Alia madrasah and know the Govt. & Non-Govt. organizational programs and its implementation status of vaccination in this madrasah.

Information was collected for the survey from the principal/leaders of the Alia madrasah. Data were collected through structured questionnaires and present them in a percentage. I have found that among 24 (69%) madrasahs have taken vaccine & 11(31%) madrasahs have not taken vaccine. Government has given vaccine in 19 (79%) madrasah and Non-Govt. organizations have given vaccine in 5 (21%) madrasahs among 24 vaccinated madrasahs. I have summarized the finding of my questionnaires and found that vaccination programme has implemented in madrasahs but the number must be increased with the help of Govt. or Non-Govt. organization. I strongly believe that this study will provide valuable information for govt. and non govt. organization to expand their program in near future.

4.1.1.PROFILE OF THE ALIA MADRASAH

- Principals of madrasah have madrasah degree & vast Islamic knowledge
- Most of the madrasahs are MPO listed and have government facilities as well
- Teachers of Alia madrasah have got their salary from Government and other sources to maintain Alia madrasah activities including tuition fees of students, in certain case from Zakat, Fitr during Ramadan.

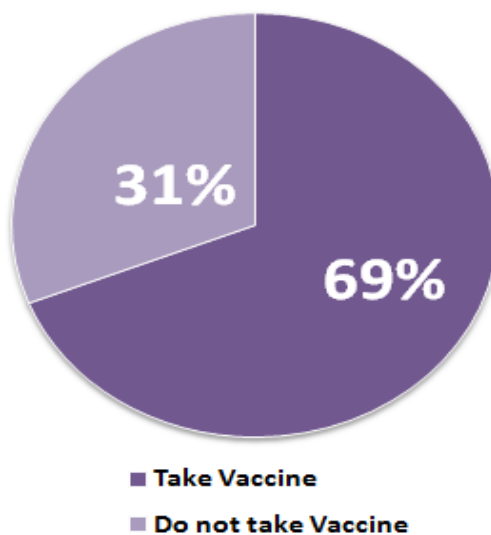
These are the most important answers about the profile of the principals of Alia madrasah.

4.1.2.TABLE NO-1: SUMMERY OF ANSWERS OF THE LEADER OF ALIA MADRASAHS

Particulars	Percentages of Madrasah
Percentages of Madrasah have arranged vaccination program	69%
Percentages of Madrasah have not arranged vaccination program	31%
Percentages of Madrasah have arranged vaccination program from Government those were accepted vaccine	79%
Percentages of Madrasah have arranged vaccination program from Non-Government organization those were accepted vaccine	21%
Percentages of Madrasah have arranged vaccination program from Government without cost among those were accepted vaccine	79%
Percentages of Madrasah have arranged vaccination program from Non-Government without cost among those were accepted vaccine	60%
Percentages of Madrasah want to arrange vaccination program from Government among those were not taken vaccine	18%
Percentages of Madrasah want to arrange vaccination program from any vaccination team among those were not taken vaccine	82%
Percentages of Madrasah have not arranged vaccination program for money problem among those were not received vaccine	18%
Percentages of Madrasah have not arranged vaccination program for absent of vaccination team among those were not received vaccine	73%
Percentages of Madrasah have not arranged vaccination program thought that vaccination is not important among those were not received vaccine	9%
Percentages of Madrasah have kept vaccination records of their studentsamong those were received vaccine	4%
Percentages of Madrasah have not kept any vaccination records of their studentsamong those were received vaccine	96%

Percentages of Madrasah have kept vaccination records of their students among those who were vaccinated or not vaccinated	3%
Percentages of Madrasah have not kept any vaccination records of their students among those who were vaccinated or not vaccinated	97%
Percentages of Madrasah leaders who want to take a vaccination program without cost	100%

From the summary of the answers of leaders, it is clear that a one-third number of madrasahs are not vaccinated yet. In addition, some madrasahs are not aware about vaccination & aren't able to organize a vaccination for their students. The important finding of this survey, most of the leaders want vaccine for their students but they prefer a vaccination program without cost.



4.1.3. Figure No-1: Percentage Of Alia Madrasah Those who arranged Vaccination program And Don't

From the pie chart it has been found that among 24 (69%) madrasahs have taken vaccine & 11 (31%) madrasahs have not taken vaccine. It is possible to vaccinate all the madrasahs if Government & other Non-Govt. organizations have taken necessary action. The leaders of Alia madrasahs have certain knowledge on vaccination and want to give vaccine to their students.

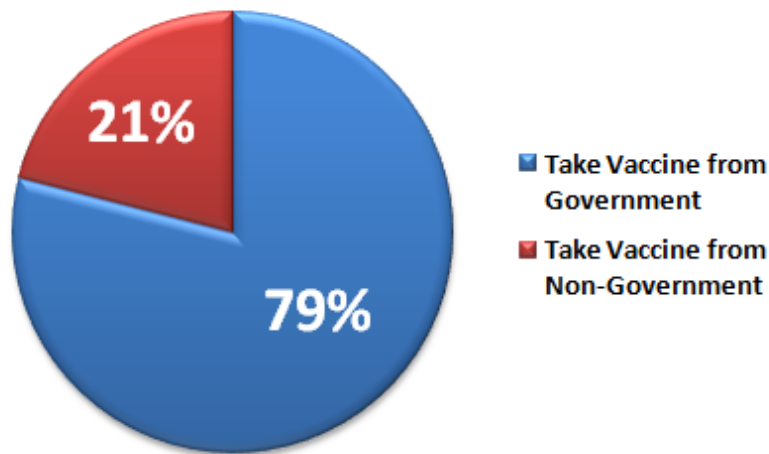
4.1.4.TABLE NO-2:FINANTIAL APPEARANCEFROM SMALLER TO LARGER BUDGET OF PER STUDENTOF ALIA MADRASAHS WITH VACCINE ACCEPTABILITY STATUS

SL. No.	Name of Madrasah	No. of Student	Monthly Budget	Per Head (TK.)	Vaccination Program
1	SarifbagIslamiaKamil Madrasah	1000	50000	50	Yes
2	SavarIslamiaFazil Madrasah	700	40000	57	Yes
3	DeonaiDakhil Madrasah	600	40000	67	Yes
4	ChistiaNuriaDakhil Madrasah	350	25000	71	No
5	HazratpurAmmaniaDakhil Madrasah	400	30000	75	Yes
6	DasherKandiDarusunnahAlim Madrasah	300	22500	75	Yes
7	KalatiaHazratpurDakhil Madrasah	440	40000	91	Yes
8	UjampurDakhil Madrasah	400	40000	100	Yes
9	MahmudaKhatunMohilaKamil Madrasah	400	40000	100	No
10	Satarkul Din Mohhammad Girls Dakhil Madrasah	387	40000	103	No
11	BeraidMohammadiaDakhil Madrasah	300	35000	117	Yes
12	Darul Islam Alim Madrasah	420	50000	119	Yes
13	DogairDarussunnatFazil Madrasah	1000	120000	120	Yes
14	NazmulHaqModinatulUl. Fazil Madrasah	500	60000	120	No
15	AshuliaHazeraKhatunDakhil Madrasah	600	75000	125	Yes
16	FulmatiIslamiaDakhil Madrasah	400	50000	125	No
17	KalimullahIslamiaDakhil Madrasah	360	45000	125	No
18	FoidabadAzgarulUlumAlim Madrasah	350	45000	129	Yes
19	NayanagarNesariaIslamiaDakhil Madrasah	350	45000	129	No
20	MuhammadbadIslamiaAlim Madrasah	350	45000	129	Yes
21	M. I Dakhil Madrasah	325	42500	131	No
SL. No.	Name of Madrasah	No. of Student	Monthly Budget	Per Head (TK)	Vaccination Program
22	Nayatola A.U.N Kamil Madrasah	325	42500	131	Yes

23	KawlarIslamiaDakhil Madrasah	225	30000	133	Yes
24	MadinatulUlumSonakandaIslamiaDakhil Madrasah	370	50000	135	No
25	BaonibadIslamiaAlim Madrasah	420	60000	143	Yes
26	MatuahIslamiaAlim Madrasah	400	60000	150	Yes
27	MuradpurIslamia Madrasah	350	55000	157	Yes
28	Abed Halim IslamiaDakhil Madrasah	300	50000	167	Yes
29	Dhaka MohammadiaDakhil Madrasah	300	50000	167	Yes
30	Kazipara SL Fazil Madrasah	350	60000	171	Yes
31	Railway Hafezia Sunna Dakhil Madrasah	320	55000	172	Yes
32	Al-Amin IslamiaAlim Madrasah	663	125000	189	Yes
33	NababgonjDakhil Madrasah	375	75000	200	No
34	SonahajraMofijiaFazil Madrasah	800	300000	375	No
35	NodiabadIslamiaDakhil Madrasah	355	200000	563	Yes

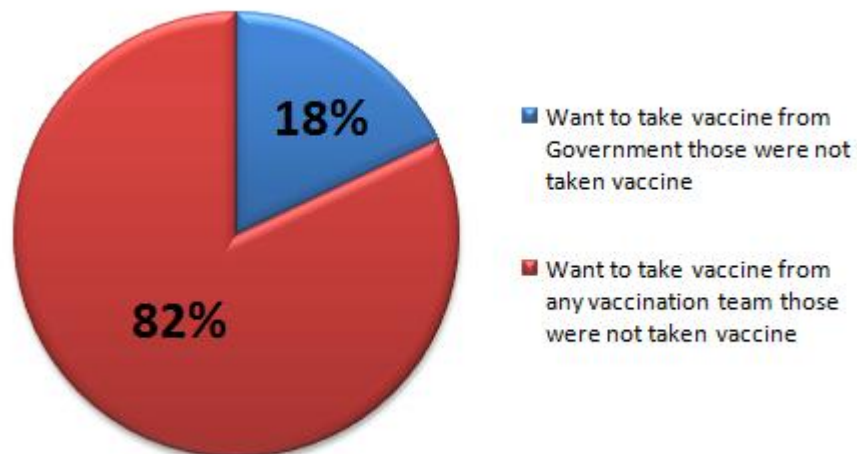
In the above table the Alia madrasah are written in order from smaller budget to larger budget. Here, I have to mention that MPO listed Alia madrasahs have got salary and other facilities from the Government. Monthly budget of Alia madrasahs would not included salary of institution personnel in most of the cases.

From the above table it can be said that financial conditions of Alia madrasahs have no effect on vaccine acceptability. But, most of the Alia madrasahs leader asked to arrange vaccination program without cost. It depends on the awareness of vaccination program.



4.1.5. Figure No-2: Vaccination Acceptation From Government And Non-Government Organization Those Were Taken Vaccine

The above pie chart it has been shown 19 (79%) madrasahs have taken vaccine from Government and only 5 (21%) Alia madrasahs have taken vaccine from Non-Government organization like BRAC and Marie Stopes. Most of them are agreed that vaccine is important to prevent many diseases and they will take vaccine from any countries. They also mentioned that it will easy to accept vaccine when Non-Govt. Organization worked with University students or certain Islamic organization in Bangladesh.



4.1.6. Figure No-3: Vaccination Acceptation From Government And Non-Government Organization Those Were Not Taken Vaccine

4.1.7. TABLE NO- 3: COMPARATIVE STUDY OF SELECTED QUESTIONS BETWEEN DIFFERENT ALIA MADRASAHs

Name of Madrasah	Vaccine Status	Vaccination Related Questions (Part-2)									
		2	4	5	6	7	8	9	11	12	13
FoidabadAzgarulUlumAlim Madrasah	Yes	Combined	Yes	Govt.	No	Govt.	No		Yes	No	
NayanagarNesarIslamiaDakhil Madrasah	No	Combined	No	Any Team	No		No	Money Problem	Yes	No	
NababgonjDakhil Madrasah	No	Combined	No	Any Team	No		No	No one Come	Yes	Yes	Anjuman Mufidul Islam
UjampurDakhil Madrasah	Yes	Combined	Yes	BRAC	Yes	BRAC	No		Yes	No	
DogairDarussunnatFazil Madrasah	Yes	Combined	Yes	BRAC	No	BRAC	No		Yes	No	
AshuliaHazerakhatunDakhil Madrasah	Yes	Combined	Yes	Govt.	Yes	Govt.	No		Yes	No	
SonahajraMofijiaFazil Madrasah	No	Combined	No	Any Team	No		No	Have not thought it is important	Yes	No	
Abed Halim IslamiaDakhil Madrasah	Yes	Combined	Yes	BRAC	Yes	BRAC	No		Yes	No	
FulmatiIslamiDakhil Madrasah	No	Combined	No	Any Team	No		No	Money Problem	Yes	No	
Dhaka Mohammadia Dakhil Madrasah	Yes	Combined	Yes	BRAC	No	BRAC	No		Yes	No	
KawlarIslami	Yes	Combined	Yes	Govt.	No	Govt.	No		Yes	No	

aDakhil Madrasah											
NodiabadIslamiaDakhil Madrasah	Yes	Combined	Yes	Govt.	Yes	Govt.	No		Yes	No	
SavarIslamiazil Madrasah	Yes	Combined	Yes	Govt.	Yes	Govt.	No		Yes	No	
SarifbagIslamiaKamil Madrasah	Yes	Combined	Yes	Govt.	Yes	Govt.	No		Yes	No	
DeonaiDakhil Madrasah	Yes	Combined	Yes	Govt.	Yes	Govt.	No		Yes	No	
Satarkul Din Mohhammad Girls Dakhil Madrasah	No	Girls	No	Any Team	No		No	No one Come	Yes	No	
HazratpurAmmaniaDakhil Madrasah	Yes	Combined	Yes	Govt.	Yes	Govt.	No		Yes	No	
ChistiaNuriaDakhil Madrasah	No	Combined	No	Any Team	No		No	No one Come	Yes	No	
Al-Amin IslamiaAlim Madrasah	Yes	Combined	Yes	Merie Stopes	Yes	Merie Stopes	Yes		Yes	No	
Muhammadba dIslamiaAlim Madrasah	Yes	Combined	Yes	Govt.	Yes	Govt.	No		Yes	No	
KalatiaHazrat purDakhil Madrasah	Yes	Combined	Yes	Govt.	Yes	Govt.	No		Yes	No	
MadinatulUlu mSonakandal slamiaDakhil Madrasah	No	Combined	No	Any Team	No		No	No one Come	Yes	No	
KalimullahIsl amiaDakhil Madrasah	No	Combined	No	Govt.	No		No	No one Come	Yes	No	
Darul Islam Alim Madrasah	Yes	Combined	Yes	Govt.	No	Govt.	No		Yes	No	
DasherKandiD arusunnahAli m Madrasah	Yes	Combined	Yes	Govt.	No	Govt.	No		Yes	No	
MatuahIslami aAlim	Yes	Male	Yes	Govt.	Yes	Govt.	No		Yes	No	

Madrasah											
M. I Dakhil Madrasah	No	Combined	No	Govt.	No		No	No one Come	Yes	No	
Railway Hafezia Sunna Dakhil Madrasah	Yes	Male	Yes	Govt.	Yes	Govt.	No		Yes	No	
NazmulHaqM odinatulUl. Fazil Madrasah	No	Combined	No	Any Team	No		No	No one Come	Yes	No	
MahmudaKhatunMohilaKamil Madrasah	No	Female	No	Any Team	No		No	No one Come	Yes	No	
Nayatola A.U.N Kamil Madrasah	Yes	Male	Yes	Govt.	Yes	Govt.	No		Yes	No	
BaonibadIslamiaAlim Madrasah	Yes	Combined	Yes	Govt.	Yes	Govt.	No		Yes	No	
Kazipara SL Fazil Madrasah	Yes	Combined	Yes	Govt.	Yes	Govt.	No		Yes	No	
BeraidMohammadiaDakhil Madrasah	Yes	Combined	Yes	Govt.	Yes	Govt.	No		Yes	No	
MuradpurIslamia Madrasah	Yes	Combined	Yes	Govt.	Yes	Govt.	No		Yes	No	

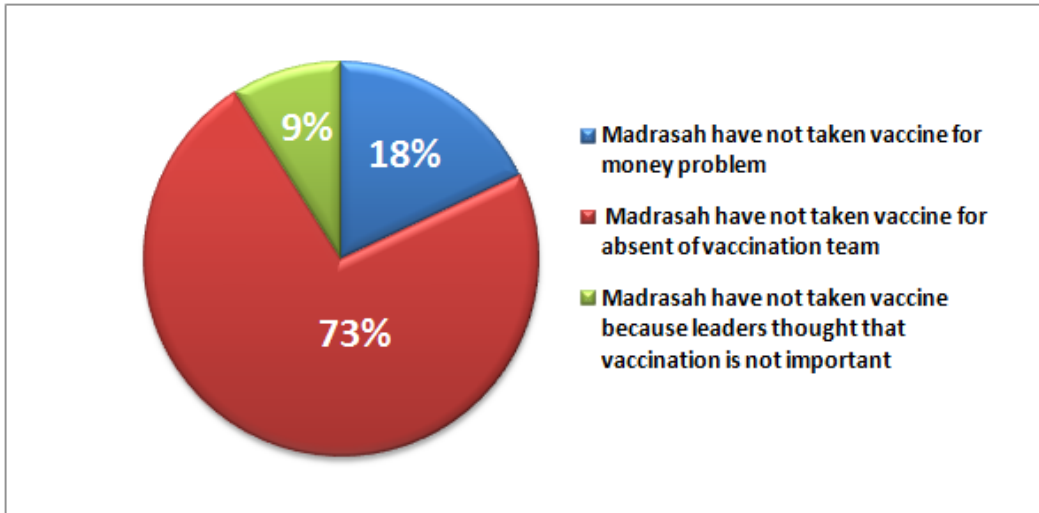
4.1.8. TABLE NO- 4: OVERALL DATA ON ATTITUDE & KNOWLEDGE OF ALIA MADRASAH LEADER TOWARD VACCINATION

Overview of Issue	No. of Madrasah
Percentages of Madrasah have taken vaccine.	24
Percentages of Madrasah have not taken vaccine.	11
Percentages of Madrasah have taken vaccine from Government those were accepted vaccine	19
Percentages of Madrasah have taken vaccine from Non-Government organization those were accepted vaccine	5

Percentages of Madrasah have taken vaccine from Government without cost among those were accepted vaccine	15
Percentages of Madrasah have taken vaccine from Non-Government without cost among those were accepted vaccine	3
Percentages of Madrasah want to take vaccine from Government among those were not taken vaccine	2
Percentages of Madrasah want to take vaccine from any vaccination team among those were not taken vaccine	7
Percentages of Madrasah have not taken vaccine for money problem among those were not received vaccine	2
Percentages of Madrasah have not taken vaccine for absent of vaccination team among those were not received vaccine	8
Percentages of Madrasah have not taken vaccine thought that vaccination is not important among those were not received vaccine	1
Percentages of Madrasah have kept vaccination records of their students among those were received vaccine	1
Percentages of Madrasah have not kept any vaccination records of their students among those were received vaccine	23
Percentages of Madrasah have kept vaccination records of their students among those were received or not received vaccine	1
Percentages of Madrasah have not kept any vaccination records of their students among those were received or not received vaccine	34
Percentages of Madrasah leader want to take vaccination program without cost	35

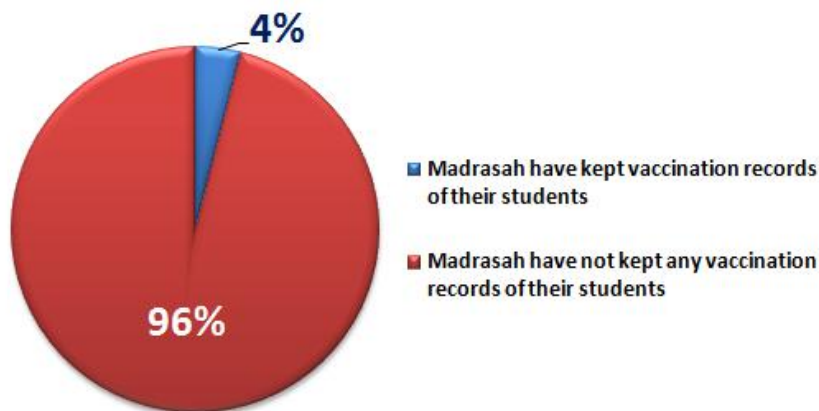
It is clear from the above data, majority portion of Alia Madrasah's students were already accepted vaccine and leaders are positive toward vaccination program. From 35 Alia madrasahs, 24 Alia madrasahs have vaccinated which count 69% and rest madrasah leaders have positive

thinking about vaccine & they want vaccination program for their students preferably without cost.



4.1.9. Figure No-4: Vaccination Acceptation Status Of Alia Madrasah Students Those Were Not Accepted Vaccine

From this pie chart it is clear that madrasah leader did not arrange vaccination program for their student due to unavailability of vaccination team (73%) and few cases money problem have been raised.



4.1.10. Figure No-5: Vaccination Acceptation Records Of Alia Madrasah Students Those Were Accepted Vaccine

The scenario of vaccination records is very pathetic. Out of 24 Alia madrasahs only 1 madrasah have kept vaccination records which means they are not conscious about it. It clearly indicates that if any vaccination team comes to give vaccine leader cannot give the appropriate data who are being vaccinated and who are not being vaccinated. In my concern, madrasah leaders have to kept vaccination records for their children.

4.1.11.FIGURE NO-7: VACCINATION STATUS OF ALIA MADRASAH WITHOUT COST



From above pie, it has been found that every Alia Madrasah's leader has positive thinking about vaccine & they want vaccination program for their students preferably without cost.

4.2.DISCUSSION

This study was designed to identify the knowledge & practice of vaccination program in Alia madrasah and know the Govt. & Non-Govt. organizational programs on vaccination and its implementation status.

Information was collected for the survey from the principal/leaders of 35 Alia madrasah. Data were collected through structured questionnaires and present them in a percentage. I have found that among 35 madrasah, 24 (69%) madrasahs have taken vaccine & 11(31%) madrasahs have not taken vaccine. Government has given vaccine in 19 (79%) madrasah and Non-Govt. organizations have given vaccine in 5 (21%) madrasahs among 24 vaccinated madrasahs. It is possible to vaccinate all the madrasah if Government & other Non-Govt. organization have taken necessary action. I have summarized the finding of my questionnaires and found that vaccination programme has implemented in madrasahs but the number must be increased with the help of Govt. or Non-Govt. organization.

From the summary of the answer of leaders, it is clear that a one third number of madrasah are not vaccinated yet. Madrasah leader did not arrange vaccination program for their student due to unavailability of vaccination team (73%) and few cases money problem have been raised among those are not take vaccine. It can be said that financial conditions of Alia madrasahs have no effect on vaccine acceptability. But, most of the Alia madrasahs leader asked to arrange vaccination program without cost. It depends on the awareness of vaccination program.

Another important finding of this study is the scenario of vaccination records. It is very pathetic. Out of 24 Alia madrasahs only 01 (One) madrasah has kept vaccination records which means they are not conscious about it. It clearly indicates that if any vaccination team comes to give vaccine, leader cannot give the appropriate data who are being vaccinated and who are not being vaccinated.

Findings from this study indicate that attitude & knowledge of the leaders of Alia madrasah are positive. In my concern Mass media exposure also has positive effect on vaccination coverage.

In recent years, a number of governmental and non-governmental organizations have enriched their vaccination related programs on television, radio and newspapers which are likely to have increased the knowledge of general people on vaccination.

In conclusion, findings from this study indicate that attitude & knowledge of the leaders of Alia madrasah are positive toward vaccination. It can be said that if any organization create awareness program regarding vaccination & other health facilities and also generate demand for use of vaccine it is very much possible to vaccinate a society specially Alia madrasah and they can lead a healthy life. It can also be said that by improving the monitoring and supervision of vaccination activities especially in the madrasah of the rural area it is possible to vaccinate all. Enable people to exercise their rights and their right to make decision concerning freedom of movement, own health care and access to economic resources through special information, education and communication campaign. I strongly believe that this study will provide valuable information for govt. and non govt. organization to expand their programme in near future.

Chapter Five
CONCLUSION

CONCLUSION

Vaccination has greatly reduced the burden of infectious disease globally. Vaccines protect the vaccinated individual by direct immunization and can protect unvaccinated individuals through community protection or herd immunity. (Andre, F. E., et al. (Feb. 2008). Many life-threatening illnesses that once were responsible for killing thousands of children are now preventable by vaccination (Vaccine & Immunization, 2012). Vaccinating our children not only ensures their safety but also their future to come (Vaccine & Immunization, 2012). Without vaccinations, infectious diseases would have taken over the world. Bangladesh has achieved immense success in vaccination. Although 80.2% vaccination rate was achieved in 2011 still we have long run to go.

In my study it is obvious that appropriate awareness can play a very important role in vaccination. Parents and principals have to aware of vaccination and it's important but the awareness on vaccination is not satisfactory. Awareness on vaccination can increases the vaccination rate in children and also educates the parent and leaders as well. This study may be considered as representative of the other regions of Bangladesh. Government and other Non-Govt. organization must take initiative to educate people about vaccination and its importance. Active participation of the community members or university students can gear up the vaccination process which will result in better vaccination awareness and health empowerment.

Chapter Six
REFERENCES

6. REFERENCES

Afzal, N., & Zainab, B., (2012) Determinants and Status of Vaccination in Bangladesh. *Dhaka Univ. [Online] J. Sci.* 60(1): 47-51. Available from: http://contacts.ucalgary.ca/info/math/files/info/unitis/publications/14214015/Determinants_and_status_of_Vaccination-DUJS.pdf [Accessed 04 August 2015]

Akramuzzaman, S.M., Cutts, F.T., Hossain M.J., Wahedi, O.K., Nahar N., Islam, D., Shaha, N. C., & Mahalanabis D., (2002) Measles vaccine effectiveness and risk factors for measles in Dhaka, Bangladesh. *Bulletin of the World Health Organization [Online]* 80:776-782. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/12471397> [Accessed 11 October 2002]

Andre, F.E., Booy, R., Bock, H.L., Clemens, J., Datta, S.K., John, T.J., Lee, B.W., Lolekha, S., Peltola, H., Ruff, T.A., Santosham, M. & Schmitt, H.J. (2008) Vaccination Greatly Reduces Disease, Disability, Death and Inequity Worldwide. *Bulletin of the World Health Organization. [Online]* 86(2), 81-160. Available from <http://www.who.int/bulletin/volumes/86/2/07-040089/en/> [Accessed 04 June 2015]

Andrews, J.C., Biswas, A., Gifford, M., Eriksson, C., & Dalal K., (2012) Identifying households with low immunisation completion in Bangladesh. *Health [Online]*. Vol.4, No.11, 1088-1097. Available from: <http://dx.doi.org/10.4236/health.2012.411166> [Accessed 22 September 2015]

Ansary I.K., Saha, A., Chowdhury, F., Islam A.K., Jasim, M.U., Begum, Y.A., Khorshid B.R., Islam, S., Ali, M., Luby, S.P., Clemens, J.D., Cravioto, A., & Qadri F., (2013) Coverage and cost of a large oral cholera vaccination program in a high-risk cholera endemic urban population in Dhaka, Bangladesh. *Vaccine [Online]* 31: 6058– 6064. Available from: <http://dx.doi.org/10.1016/j.vaccine.2013.10.021> [Accessed 12 October 2013]

Breiman, R.F., Kim, P.S., Phelan, M., Shifa, N., Rashid, M., & Yunus M., (2004) Effect of infant immunisation on childhood mortality in rural Bangladesh: analysis of health and

demographic surveillance data. *Lancet* [Online] 364: 2204–11. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/15610807> [Accessed 20 October 2015]

Canning, D., Razzaque, A., Driessen, J., Walker, D.G., Kim, P.S., & Yunus M., (2010) The Effect of Maternal Tetanus Immunization on Children's Schooling Attainment in Matlab, Bangladesh: Follow-up of a Randomized Trial *The Program on the Global Demography of Aging receives funding from the National Institute on Aging, Grant No. 1 P30 AG024409-06* [Accessed 19 September 2015]

Centers for Disease Control and Prevention (2015) *Five Important Reasons to Vaccinate Your Child* [Online] Available from http://www.cdc.gov/media/matte/2011/04_childvaccination.pdf [Accessed 18 August 2015]

Centers for Disease Control and Prevention (2013) *Understanding How Vaccines Work*. [Online] Available from <http://www.cdc.gov/vaccines/hcp/patient-ed/conversations/downloads/vacsafe-understand-color-office.pdf> [Accessed 18 August 2015]

Darul, M., I., Sahid, H., Alam, K., Rafiqul M.I., (2010) EPI programme: An excellent success for prevention of communicable diseases in Bangladesh. *DS (Child) H J 2010; 26 (2) : 113-118* [Accessed 11 October 2015]

Dimitrov D.T., Troeger C., Halloran M.E., Longini I.M., Chao, D.L., (2014) Comparative Effectiveness of Different Strategies of Oral Cholera Vaccination in Bangladesh: A Modeling Study. *PLoS Negl Trop Dis* [Online] 8(12): e3343. Available from: [doi:10.1371/journal.pntd.0003343](https://doi.org/10.1371/journal.pntd.0003343) [Accessed 07 October 2015]

Driessen, J., Razzaque, A.D., Walker & Canning, D., (2015) The effect of childhood measles vaccination on school enrolment in Matlab, Bangladesh. *Taylor & Francis* [Online]. Available from: DOI: 10.1080/00036846.2015.1061647 [Accessed 21 July 2015]

Haider, M.D.T., Ahmed, J., Chandra P.D., Rahman M.M.M., & Hasan M., (2013) Child Vaccination and its Impacts on Health and Health Related Matters in Noakhali Region of Bangladesh. *Bangladesh Pharmaceutical Journal* [Online] 16(2): 125-129. Available from: <http://dx.doi.org/10.3329/bpj.v16i2.22292> [Accessed 17 October 2015]

Howson, C.P., Howe, C.J. & Fineberg, H.V., (1991) *Adverse Effects of Pertussis and Rubella Vaccine*. National Academy Press [Accessed 16 June 2015]

Immunisation Advisory Centre (2011) *Types of Vaccines*. [Online] Available from <http://www.immune.org.nz/types-vaccines> [Accessed 16 September 2015]

Independent University (2012) *Factors Affecting Sales Of Non Epi Vaccines*. [Online] Available from: <http://www.sb.iub.edu.bd/internship/Summer2012/0831103.pdf> [Accessed 06 September 2015]

Koenig, M.A., Bishai, D. and Khan, M.A. 2001. *Health interventions and health equity: the example of measles vaccination in Bangladesh*. *Popul. Dev. Rev.* 27, 283-302. [Accessed 21 August 2015]

Levin A, Levin C, Kristensen D, Matthias D (2007) An Economic Evaluation of Thermostable Vaccines in Cambodia, Ghana, and Bangladesh *Vaccine* [Online] Available from: <http://www.path.org/vaccineresources/details.php?i=1152> [Accessed 18 August 2015]

Muhammad, A.B., (2013) *Madrasah Education in Bangladesh* [Online]. Available from: http://ndc.gov.bd/lib_mgmt/webroot/earticle/2377/Madrasah_Edn_in_Bangladesh.pdf [Accessed 19 October 2015]

Mushtaque, A.R.C., Bhuiya, A., Mahmud, S., Salam, A.K.M.A., 4 , & Karim, F., (2003). Immunization Divide: Who Do Get Vaccinated in Bangladesh? *J HEALTH POPUL NUTR* [Online] 21(3):193-204. Available from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.486.4101&rep=rep1&type=pdf> [Accessed 20 August 2015]

Nelson C.B., Mogasale V., Bari T.I., & Clemens J.D. (2014) Considerations around the introduction of a cholera vaccine in Bangladesh. *Vaccine* [Online] Available from: [Accessed 23 September 2015]

Nieburg P., & Nancy M.M., (2011) *Role(s) of Vaccines and Immunization Programs in Global Disease Control*. Center for Strategic & International Studies [Accessed 08 July 2015]

Panhuis, W.G.V., Grefenstette, J, Jung, S.Y., Chok, N.S., Cross, A., Eng, H., Lee, B.Y., Zadorozhny, V., Brown, S., Cummings, D., & Burke, D.S., (2013). Contagious Disease in the United States from 1888 to the Present. *New England Journal of Medicine*. [Online] 369(22). Available from <http://www.febrilnotropeni.net/newsfiles/3777NEJMms1215400.pdf> [Accessed 28 July 2015]

Rahman, M, & Obaida, S.N., (2009) Factors affecting acceptance of complete immunization coverage of children under five years in rural Bangladesh. *Salud Publica Mex* [Online] 52:134-140. Available from: <http://www.scielosp.org/pdf/spm/v52n2/v52n2a05.pdf> [Accessed 22 July 2015]

Raysul, S.M.H., Bari, W., (2013) Positive Role of Maternal Education on Measles Vaccination Coverage in Bangladesh. *International Journal of Psychology and Behavioral Sciences* [Online] 3(1): 11-17. Available from: doi:10.5923/j.ijpbs.20130301.02 [Accessed 09 September 2015]

Salmon, D.A., Pan, W.K.Y., Omer S.O., Marie, A.N., Orenstein,W., vMarcuse, E.K., Taylor, J., Patricia, M.D., Stokley, S., Carter, T., & Halsey, N. A. (2008) Vaccine knowledge and practices of primary care providers of exempt vs. vaccinated children , *Human Vaccines*, 4:4, 286-291, DOI: 10.4161/hv.4.4.5752 [Accessed 27 October 2015]

Shoma, F.N., Ahmed N.S., Naznin M.S., Shahin M.M.U.I., Saad, T., & Hossain A.M., (2012) EPI Coverage among Under 5 Children Attending Pediatric Department of Dhaka Medical College Hospital *Faridpur Med. Coll. J.*[Online] 7(2): 59-62. Available from: <http://dx.doi.org/10.3329/fmcj.v7i2.13499> [Accessed 02 September 2015]

Soofi, S.B., Haq, I.U., Khan, M.I., Siddiqui, M.B., Mirani, M, Tahir, R, Hussain, I, Puri, M.K., Suhag, Z.H, Khowaja, A.R., Lasi, A.R., Clemens, J.D., Favorov, M, Ochiai, R.L., & Bhutta, Z.A., (2012) Schools as potential vaccination venue for vaccines outside regular EPI schedule: results from a school census in Pakistan. *BMC Res Notes*. [Online] 6;5:6. Available from: doi: 10.1186/1756-0500-5-6. [Accessed 08 September 2015]

Subhani, S., Anwar, S., Ahmad, M.K., & Jeelani, G., (2015) Impact of Mother's Employment on Child Vaccination (A Case Study of Bangladesh). *Journal of Finance and Economics* [Online] Vol. 3, No. 4, 64-66 Available from: DOI:10.12691/jfe-3-4-1 [Accessed 26 August 2015]

Sufi, H.A., (2005) *Evaluation Of Programme Factors Affecting Childhood Immunization In Bangladesh*. Mahidol University [Accessed 26 September 2015]

Waisbord, S. & Larson, H. (June 2005). *Why Invest in Communication for Immunization*. A joint publication of the Health Communication Partnership based at Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs (Baltimore) and the United Nations Children's Fund (New York). [Accessed 25 July 2015]

World Health Organization (2015) *Health Topics Immunization* [Online] Available from: <http://www.who.int/topics/immunization/en/> [Accessed 07 August 2015]

World Health Organization (2015) *Health Topics Vaccines* [Online] Available from: <http://www.who.int/topics/vaccines/en/> [Accessed 10 August 2015]

World Health Organization (2015) *Global Vaccine Action Plan 2011-2020*[Online] Available from:http://www.who.int/immunization/global_vaccine_action_plan/GVAP_Introduction_and_Immunization_Landscape_Today.pdf?ua=1 [Accessed 28 July 2015]

WHO et al.,(2009) *State of the world's vaccines and immunization*. Geneva, World Health Organization Third Edition [Accessed 02 July 2015]

Zaman, K., Roy, E., Arifeen, S.E., Rahman, M., Raqib, R., Wilson, E., Saad B. Omer, S.B., Shahid, N.S., Breiman, R.F., & Steinhoff, M.C., (2008) Effectiveness of Maternal Influenza Immunization in Mothers and Infants *N Engl J Med* [Online] 359:1555-64. Available from: doi: 10.1056/NEJMoa0708630 [Accessed 08 September 2015]