Knowledge, Attitude and Practice of Child Mothers towards Immunization Services in Khartoum State, Sudan (2012)

BY
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Co-Supervisor : Dr. Nassir Ahmed Ali Mohammed

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«افرأ بإسم ربك الالذي خلق خلق الإنسان من علقٍ اختر ورزى الأعمال البسيطة خلق الإنسان والقَلَبُ وعلّم الإنسان ما لم يعلمه»

سورة العلق
With all my love I dedicate this research

MY Professors from University of Gezira for
their care, concern and Guidance to conduct
this work;

My Family for their love, Patience and for
being considerate;

My sister (Gamariah Omer) for her
Great support and Concern;

My friend (Islam Abdul Rahman)
for his appreciated help and
assistance;

To

Alwaleed
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Knowledge, Attitude and Practice of Child Mothers towards Immunization Services in Khartoum State, Sudan (2012)
Alwaleed Omer Mohammed Hussien
For M.Sc. in Public and Environmental Health (May, 2012)
Department of Public Health
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ABSTRACT

Immunization is one of the most successful and cost-effective health interventions (WHO and UNCIF, 2005). Immunization also is defined as the process by which a person is protected against the adverse effects of infection by a disease-causing microorganism (Heininer, 2006). Overall worldwide immunization coverage in the developed world has improved considerably during the past decade. Despite these advances, however, diseases those are preventable through immunization still remains major public health problem in many developing countries. With the current 80% immunization coverage rate reported in the last decade. There are about 20% of children miss vaccinations. There are some obstacles that still prevent caregivers from completing immunization of their children. One obstacle which has been identified in most countries is the rumors and misinformation about immunization which are the most serious threats to the success of immunization programmes (WHO, 2010). A cross sectional descriptive study carried out to assess the knowledge attitudes and practices of child Mothers of children less than 2 years age in regard to routine immunization.. in Khartoum State - Sudan during 2012 and a sample of 800 caregivers were selected. The study showed that there was good percent of knowledge among the Mothers (95%), the main sources of this knowledge was the health workers (57.5%), then TV (14%) and radio(2%). The majority of Mothers had favorable attitude towards immunization (95.5%) of them agree with importance of immunization, (95%) agreed that Immunization is not harmful while (22.5%) agreed to Immunization for a sick child, husband encouragement for immunization (98%) most of children in the study group had fully completed their immunization against the Vaccine Preventable Diseases (87.5%), Main reason of missing vaccination is mother is busy(27%) and mother is sick (8%), (90.5%) of Immunized children with immunization cards, This study suggested that health education interventions may be more effective if these interventions focus on raising the community awareness and train health workers to deliver proper messages consternate on importance of vaccination, knowledge of immunization schedule and side effects after immunization.
تحديد المعرفة والسلوك والمواقف نحو خدمات التحصين الروتيني لأمهات الأطفال في ولاية الخرطوم، السودان (2012م)
الوليد عمر محمد حسين
ماجستير العلوم في الصحة العامة وصحة البيئة (مايو، 2012م)
cسم الصحة العامة
كلية العلوم الصحية والبيئية
جامعة الجزيرة
خلاصة البحث
التطعيم يعتبر أحد أهم وسائل التدخل الناجحة وغير المكلفة للوقاية من الأمراض كما يمكن تعريف التطعيم أيضاً على أنه عملية يمكنها من تأثير الإصابة بسباب الأمراض (Heininer, 2006). تم إجراء هذه الدراسة في ولاية الخرطوم في جمهورية السودان خلال العام 2012م. وتلك بغرض تحديد المعرفة والسلوك والمواقف نحو خدمات التحصين الروتيني لأمهات الأطفال أقل من علامين. جمعت البيانات عن طريق مقابلة 800 أم (الشخص المسئول عن الطفل) وحللت باستخدام برنامج القيم الإحصائية للتحليل، وللدراسة نوافذ تقييم 7 مجازف تضمن كل مقالة على مناطق ريفية وحضرية تتم تغطيتها بمختلف الخدمات الصحية تترارض بين المستشفيات ووحدات الرعاية الصحية الأولية. استدمنت في هذه الدراسة تقنية العينة العقلية بحيث توزعت القياسات على كل مقالات ولاية الخرطوم وقدمت في هذه الدراسة مراجعة بروتوكول منظمة الصحة العالمية في اختيار عينات الناخبين. نتائج هذه الدراسة أن هناك نسبة جيدة لمعرفة الأمهات للأمراض المستهدفة بالتطعيم (57.5%) حيث يشكل الامام الصحي أو مصدر لهذه المعرفة (95%) بليه التلفزيون (14%) والإذاعة كانت (2%). غالبية الأمهات يؤمن بأهمية التحصين للأطفال (95.5%) كما أن هناك نسبة (95%) منهن يعتقدن أن التطعيم غير مؤذ بينما يوافق (22.5%) فقط على تطعيم الأطفال أثناء فترة مرضهم. هناك تشجيع كبير لخدمات التحصين من قبل المجتمع حيث أجريت معظم الأمهات بنسبة (98%) بأن الأزواج والآباء يشعرونهم على تطعيم الأطفال. بلغت نسبة الأطفال مكمل التطعيم في الدراسة (87.5%)، من أهم أسباب عدم التطعيم انشغال الأم (27%) وربط الأطفال (8%) بلغت نسبة الأطفال المطعمين الذين يحتفظون بها في البرنامج (90.5%) من نتائج هذه الدراسة أيضاً أن هناك علاقة قوية بين المعرفة والسلوك والمواقف للأميات نحو خدمات التحصين واستمرار التعليمي. خلصت هذه الدراسة إلى ضرورة تركيز التقييم الصحي على رفع الوعي للمجتمع نحو خدمات التحصين من خلال التخطيط لبرامج تطعيم
خاصّة لذلك والاهتمام أيضاً بتدريب العاملين الصحيين لتوصيل الرسائل للأمهات مع التركيز على أهمية التطعيم، معرفة المواعيد المحددة للجرعات الروتينية والأثار الجانبية التي قد تنجم من التطعيم.
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<td>Bacille Calamette Guerin</td>
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<td>DPT</td>
<td>Diphtheria – Tetanus –Pertussis.</td>
</tr>
<tr>
<td>DT</td>
<td>Diphtheria – Tetanus toxoid vaccine</td>
</tr>
<tr>
<td>EPI</td>
<td>Expanded Programme on Immunization</td>
</tr>
<tr>
<td>FMOH</td>
<td>Federal Ministry of Health</td>
</tr>
<tr>
<td>Hep B</td>
<td>Hepatitis B vaccine</td>
</tr>
<tr>
<td>IEC</td>
<td>Information, Education and Communication</td>
</tr>
<tr>
<td>KAP</td>
<td>Knowledge, Attitude and Practice</td>
</tr>
<tr>
<td>MDGs</td>
<td>Millennium Developments Goals</td>
</tr>
<tr>
<td>OPV</td>
<td>Oral Polio Vaccine</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
</tr>
<tr>
<td>TT</td>
<td>Tetanus Toxoid vaccine</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children Fund</td>
</tr>
<tr>
<td>VPD</td>
<td>Vaccine Preventable Diseases.</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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GLOSSARY

Knowledge: Facts, information, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject.

Attitude: is a hypothetical construct that represents an individual's like or dislike for an item. Attitudes are positive, negative or neutral views of an "attitude object": i.e. a person, behavior or event.

Practices: To do or perform habitually or customarily; make a habit or habitual or customary action or way of doing something.

Barriers: are defined as factors outside of the control of the immunization Program that negatively affect the provision of services and reduce program performance.

Perceived social norms: people must feel that the desired behavior is acceptable approved of by their peers there is positive social pressure from peers.
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CHAPTER ONE
INTRODUCTION

Overall world wide immunization coverage in the developed world has improved considerably during the past decade. From the early 1980s to the early 1990s, the reported coverage increased from under 20% to approximately 80% and millions of deaths were estimated to have been avoided as a result during this period (Donald, 2002).

Despite these advances, however, diseases those are preventable through immunization still remains major public health problem in many developing countries. In 1995, measles claimed the lives of an estimated 1.2 million children and infected more than 45 millions. By the end of the twentieth century, researchers discovered that, in the developing world, more than 3 million children still die annually from measles, neonatal tetanus, and peruses (Donald, 2002).

With the current 80% immunization coverage rate reported in the last decade. There are about 20% of children miss vaccinations (Donald, 2002).

There are some obstacles that still prevent caretakers from completing immunization of their children. One obstacle which has been identified in most countries is the rumors and misinformation about immunization which are the most serious threats to the success of immunization programme. The other one is the need for better communication between the health worker and the clients they serve, and ensure that caretakers receive and understand the information they need to have their children and themselves fully immunized. While caretakers may be easily mobilized to bring their children once or twice to health facilities, if services are not minimally satisfactory or if caretakers feel
unwelcome or are uninformed, they will not return for the full series of routine immunization. There is therefore a need to improve communication activities at immunization sites (WHO, 1997).

Although social mobilization has been very successful in mobilizing the majority of the Population to attend the routine immunization more effort should be geared towards providing basic health education to caretakers. Such education could be an investment in the improvement of their knowledge and attitudes towards immunization (WHO, 1997).

1.1 Problem statement

Coverage has greatly increased since WHO's Expanded Programme on Immunization began in 1974. In 2003, global DTP3 (three doses of the diphtheria-tetanus-pertussis combination vaccine) coverage was 78%—up from 20% in 1980. However, 27 million children worldwide were not reached by DTP3 in 2003, including 9.6 million in sub-Saharan Africa. Those who miss routine vaccination programmes tend to be people living in remote locations, urban slums and border areas. They also include indigenous groups, displaced populations, those lacking access to vaccination because of various social barriers, those lacking awareness or motivation to be vaccinated and those who refuse (WHO, 2005).

In Sudan the coverage increased from 65% in 2000 to 85% in 2006 this result varies from state to another. By the end of 2006 there are about 15% of children who are not reached by DPT 3 (WHO, 2005).

It is essential that each mother knows where to take her child to be immunized and when it is time for the next dose (WHO, 2005).
1.2 Justification

- Child Care Givers who choose not to immunize their children increase the potential for harm to other persons, unimmunized child contract disease and poses a potential threat to spread it to others.

- This study will identify the relationship between beliefs, practice and knowledge level of the child care givers with their background characteristics such as age, level of education and exposure to communication messages.

- The results of this study will help in setting the appropriate communication strategies and designing messages to raise the care givers and community awareness towards the utilization of the available immunization services.

1.3 Objectives

1.3.1 General objective

To Study Knowledge, Attitude and practice of child Care Givers towards Routine immunization Khartoum State

1.3.2 Specific objectives

1. To determine knowledge of children Mothers towards routine immunization in regard to Vaccine Preventable Diseases, Immunization schedule and Immunization side effects.

2. To determine the attitude of children Mothers towards routine immunization in regard to Perceived threats of non immunization, perceived benefits and Perceived barriers.

3. To identify the practice of children Mothers towards routine immunization in regard to:
   - Immunization status.
- Reasons of non immunization.

4. To determine the source of knowledge among mothers and child Care Givers.
CHAPTER TWO
LITERATURE REVIEW

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body’s own immune system to protect the person against subsequent infection or disease (The republic of Uganda un EPI Ministry of health, 2003).

Immunization also is defined as the process by which a person is protected against the adverse effects of infection by a disease-causing microorganism. Active immunization (vaccination) involves inoculating a person with an antigen and relying on their body to mount an immune response (Heininer, 2006).

Why Immunization?

Immunization is one of the most successful and cost-effective health interventions it has eradicated small-pox, lowered the global incidence of polio so far by 99% and achieved dramatic reductions in illness, disability and death from diphtheria, tetanus whooping cough and measles. Immunization saves 3 million lives each year. In 1974, only five percent of the world’s children were immunized against the six key vaccine-preventable diseases of childhood (polio, diphtheria, pertussis, measles, tetanus, and tuberculosis).

In 1998, nearly 74 percent of children around the world were immunized against these diseases. This improvement in immunization coverage has been the single greatest public health achievement of all time. In 2003 alone, it is estimated that immunization averted more than 2 million deaths, but the disparity between immunization rates in
developing versus developed countries is vast. About 3 million people still die each year from vaccine-preventable diseases. At least 30 million children still do not have access to basic immunization services in sub-Saharan Africa, Asia, and Latin America. This means that every ten seconds, someone dies from a vaccine-preventable disease (WHO and UNICEF, 2005).

Immunization will help to achieve the Millennium Development Goals on reducing child mortality, improving maternal health and combating diseases (WHO and UNICEF, 2005).

2.1 Background

2.1.1 Global background

Immunization stands out as one of the greatest public health achievements of the twentieth century. Through national immunization programmes around the World, millions of deaths have been prevented since the launch of the Expanded Programme on Immunization (EPI) in 1974. Smallpox was eradicated in 1979, Polio is about to be eradicated and about two-thirds of developing countries have succeeded in eliminating neonatal tetanus. But global commitment to immunization has not been sustained in all developing countries. In some low-income countries, less than one in three children are immunized during their first year of life. By 2000, about 33 million children worldwide missed out on routine immunization during their first year of life. Today, the divide in access to vaccines and immunization continues to undermine the principle of equity on which national immunization programmes should be based.

Despite the overall success of immunization programmes, almost 11 million children under five years of age die each year (WHO, 2003).
Immunization with existing vaccines could prevent many of those childhood deaths as well as reducing the toll of disability, illness and missed schooling among the children who survive. While global immunization coverage of over 70% was sustained throughout the 1990s, this global average masked wide variations both between and within regions (WHO, 2003). In sub-Saharan Africa, for example, immunization rates peaked at 55% in 1990 and remained at about the same level throughout the 1990s. By 2000, only 53% of children in this region were immunized with DTP, the vaccine that protects against diphtheria, tetanus and pertussis (whooping cough) (WHO, 2003).

Meanwhile, regional averages can also conceal wide variations in immunization coverage in individual countries. In some developing countries—notably Bangladesh and Latin American countries including Bolivia, Brazil, El Salvador and Nicaragua—immunization rates increased substantially. But in other low-income countries, especially in sub-Saharan Africa, childhood immunization rates plummeted, leaving millions of children vulnerable to life-threatening vaccine-preventable childhood diseases. In Somalia, this has one of the lowest immunization rates in the world, only 18% of children were fully immunized with DTP. In Nigeria, the most populous country in Africa, less than one in four were vaccinated. Yet only a decade earlier, more than twice as many children had been immunized. Similar declines were reported in the Central African Republic (from 82% in 1990 to 29% in 2000) (WHO, 2003).

And in the Congo, (from 79% to 33% over the same period). Elsewhere, in Europe, the break-up of the Soviet Union, and the political, economic and social changes that ensued triggered a dramatic decline in immunization rates. In many countries in east and central Europe and the
newly independent states, immunization rates plummeted leading to the re-emergence (WHO, 2003).

Since the launch of the Expanded Program on Immunization in 1974, vaccination programs have been one of the world’s most cost-effective public health strategies. These programs reduce the burden of infectious diseases globally and serve as a key building block for health systems in the developing world.

Initially, immunization programs included vaccines against six diseases: polio, measles, neonatal tetanus, diphtheria, pertussis, and tuberculosis (Silvio et al., 2005). Recently, many countries have introduced other vaccines (hepatitis B, yellow fever, Haemophilus influenza type B) based on several considerations such as the prevalence of specific diseases, the availability of new vaccines, and additional financial resources (Silvio et al., 2005).

Immunization is a story of both successes and failures. With the push to universal immunization in the 1980s, the world accelerated immunization coverage in an unprecedented fashion, reaching reportedly over 70 percent of children globally with the basic six vaccines by the end of 1990. Yet coverage has stagnated since then, leading to 2 million unnecessary deaths annually from vaccine preventable diseases. Global and regional averages also mask lower local coverage, particularly in sub-Saharan Africa, where some 17 countries have immunization coverage levels under 50 percent. In fact, 30 million infants worldwide are still not immunized with even basic vaccines. In many countries, immunization services disproportionately miss the poorest and most excluded populations. Even when services are available, a substantial number of caregivers still fail to complete the immunization schedule. The stagnation in vaccination coverage is not without cause. Problems range from infrastructural problems of health delivery systems to funding
pressures that divert resources away from routine immunization. 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 (Silvio et al., 2005).

In the 1990s, coverage leveled off and even declined in some countries. There were a number of reasons why it proved difficult to maintain the momentum of the early EPI years. When coverage peaked in 1990, many believed that the job was finished and turned their attention to other immunization activities such as vertical disease eradication programs. Some donors became fatigued with immunization altogether and, noting the declining incidence of vaccine-preventable diseases, shifted their resources to other health priorities. Another factor was that the remaining unimmunized children were primarily the hard-to-reach children with whom routine health services generally had little or no contact (Silvio et al., 2005).

Furthermore, health sector reform and structural adjustments diverted attention away from maintaining effective preventive services in many countries and, in some cases, created confusion regarding where the responsibility for immunization resided within the health sector. Whatever the reasons, the result was a declining investment in training, equipment, logistics, and communications.

The deteriorating situation in the 1990s sounded alarms in the public health community, and at the turn of the century, governments and their partners began to renew their commitment to routine immunization services. New coordination and funding mechanisms were set up. Most
noteworthy was the formation of the Global Alliance for Vaccines and Immunization (GAVI), which supports immunization efforts worldwide. (Silvio et al., 2005).

GAVI is a coalition of governments and international, bilateral, and private-sector partners with the purpose of helping countries strengthen immunization services and introduce new and underutilized vaccines.

The lessons of the 1980s and 1990s and the new opportunities put forth at the turn of the century have set the stage for great strides in national immunization programs. Realizing the potential of immunization requires a commitment from a broad coalition of partners. That coalition involves everyone from the village health worker to the research scientist, from the national EPI manager to the global policy maker, from the donor agency health officer to the Minister of Health. If these partners can work together in coordinated strategies that give appropriate attention to all the essentials of immunization, then the world’s children will face a much safer and brighter future (Silvio et al., 2005).
Table (2.1): Khartoum State annual penta3 coverage, Jan-Dec. 2009.

<table>
<thead>
<tr>
<th>State</th>
<th>Khartoum</th>
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<th>BCG</th>
<th>Measles</th>
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<td>1</td>
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Fig. (2.1): Immunization coverage, 1980-2001, 3 doses DTP-global and by region.
Table (2.2): Khartoum State annual penta3 coverage, Jan-Dec. 2010.

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<td>20207</td>
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<tr>
<td>%</td>
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<td>100</td>
<td>96</td>
<td>97</td>
<td>100</td>
<td>96</td>
<td>97</td>
<td>98</td>
<td>90</td>
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</tbody>
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Fig. (2.2): Sudan annual penta3 coverage, Jan-Dec. 2011.
Table (2.3): Khartoum State annual penta3 coverage, Jan-Dec. 2011.

State: Khartoum
Population: 6,417,958
Births: 216,285
Surviving Infants: 196,495

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<th>Month</th>
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<th>Penta</th>
<th>Rota</th>
<th>BCG</th>
<th>Measles</th>
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<td>August</td>
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<td>October</td>
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<td>185671</td>
<td>189323</td>
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<tr>
<td>%</td>
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<td>96</td>
<td>94</td>
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<td>96</td>
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</table>

Source: (EPI –Sudan, 2012).
2.2 Sudan background

The Expanded Program on Immunization (EPI) was launched in Sudan in 1976. The programme had introduced the six classical EPI antigens (BCG, polio, DPT, measles). In 1990, vaccination coverage of children under one year of age reached 62% for DTP3 as a national figure. During the period 1990-1994, EPI coverage dropped to 51% due to lack of financial and material support from the government of Sudan and from donors. During the period 1995 to 2001 coverage was not sustained and ranged between 50 and 79%. Sudan has since strengthened its routine EPI activities with some success: increased coverage rates, successful NIDs, strengthened disease surveillance with emphasis on AFP surveillance and improvement of the cold chain capacity and quality. In early 2005, with funding from GAVI, the EPI introduced Hep B vaccine in 3 states with extension to 6 states by the end of 2005 and with a national roll out planned for 2006. Polio, measles and MNT campaigns supplement the routine programmes the Sudan DPT3 coverage ranged from 200-2006 between (64-86%) (Republic of Sudan Federal Ministry of health, 2007).

2.2.1 Sudan immunization schedule of children

The EPI strives to complete vaccination of children before their first birth day according to the following schedule (Republic of Sudan Federal Ministry of health, 2007).

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>EPI immunization schedule</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Birth</td>
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<tr>
<td>BCG</td>
<td>☒</td>
</tr>
<tr>
<td>OPV</td>
<td>☒</td>
</tr>
<tr>
<td>Penta</td>
<td>☒</td>
</tr>
<tr>
<td>Rota</td>
<td>☒</td>
</tr>
<tr>
<td>Measles</td>
<td></td>
</tr>
</tbody>
</table>
According to UNICEF and WHO guidelines a child should receive BCG vaccination to protect against tuberculosis, four doses of DPT to protect against diphtheria, pertussis and tetanus, three doses of polio vaccine, three doses of hepatitis (B) vaccine to protect child against hepatitis B virus and measles vaccination by the age of 9 month.

2.2.2 Fully immunized children

Defined as "Fully immunized when they had received at least one doses of BCG and measles and three doses of polio and DPT vaccine at recommended age (according to the schedule) or before the end of the first year (WHO, 2004).

2.3 EPI vaccine preventable disease

In this section vaccines that are in common use in Sudan and most developing countries to prevent the EPI targeted diseases are described. There are many other vaccines available in the world but they are not widely used in developing countries. For each vaccine the description includes information on: what it is, how safe it is and what side-effects may occur; how it should be stored and transported (WHO, 2004).

What is pentavalent vaccine?

Pentavalent vaccine will protect children from Diphtheria, Pertussis, Hepatitis B and Haemophilus influenzae Hib disease, which is a new addition to the routine immunisation programme in the country. It is administered to children at 6, 10 and 14 weeks of age and will replace the existing DPT and Hepatitis B vaccine primary dose of which is given at the same age. At present, there are 170 countries using the pentavalent vaccine of the 193 World Health Organisation member states.
Introduction of Hib vaccination as a combination vaccine carries the added advantage of reducing the number of injections given to a child from 9 (3 each for DPT, Hepatitis B and Hib) to three.

Homophiles influenza B is difficult to culture from pneumonia and meningitis cases as facility for taking the sample for culture is usually available only in tertiary care hospitals, due to prior use of antibiotics before reaching such facility and stringent culture conditions.

Diphtheria-tetanus-peruses, Hepatitis B and hemophilus inflonza type b (Hb). It is a liquid vaccine. If a vial of penta vaccine stands for a long time, fine particles may separate from the liquid. They look like fine sand at the bottom of the vial. Penta vaccine Storage Store between 2° C – 8° C. Penta vaccine should never be frozen. The “shake test” will determine if the vaccine has been damaged by freezing. If the vaccine fails the shake test you must discard it (WHO, 2004).

2.4 Rotavirus

Is the most common cause of severe diarrhea in young children worldwide, it can result in acute dehydration, vomiting, and Fever Rotavirus causes nearly 2 million hospitalizations. Each year round the world rotavirus.

2.5 Measles vaccine

2.5.1 What is measles vaccine?

Measles vaccine is provided as a powder, with diluents in a separate vial. Before it can be used, it must be reconstituted. It is essential that only the diluents supplied with the vaccine be used. After reconstitution measles vaccine should be kept at 2°C-8°C. Any remaining reconstituted
vaccine must be discarded after six hours or at the end of the immunization session, whichever comes first.

In countries where vitamin A deficiency is common, vitamin A supplements are often given at the same time as the vaccine. In addition, some countries include vaccine for rubella with measles vaccine (MR), or use combination measles-mumps rubella (MMR) vaccine.

2.5.2 How safe is measles vaccine and what are its potential side-effects?

Mild reactions to the vaccine are not uncommon. These include:

Soreness: Some children may experience pain and tenderness at the injection site within 24 hours of immunization. In most cases, these reactions will resolve within two or three days without any medical attention.

Fever: About 5% of children develop a moderate fever five to 12 days after receiving the vaccine. It usually lasts a day or two.

Rash: About one in 20 children develop a mild rash five to 12 days after receiving the vaccine. The rash usually lasts about two days.

Severe reactions: to measles vaccine are rare; anaphylaxis has been estimated to occur about once for every million doses administered, while a severe allergic reaction can occur once for every 100,000 doses and one case of thrombocytopenia for every 30,000 doses. Encephalitis has been reported to occur in no more than one per million doses administered and, even in such cases, there is no definite proof that the vaccine was the cause (WHO, 2004).
2.5.3 What is the “second opportunity” for measles immunization?

All children should have a second opportunity to receive measles vaccine. This increases the proportion of children who receive at least one dose and helps to assure measles Immunity in previously vaccinated children who failed to develop such immunity. This opportunity may be delivered either through routine immunization services or through periodic mass campaigns (WHO, 2004).

2.6 Oral polio vaccine (OPV)

2.6.1 What is OPV?

Oral polio vaccine (OPV) protects against the virus that causes polio. It is a liquid vaccine that is provided in two types of containers:

1. Small plastic dropper bottles
2. Glass vials with droppers in a separate plastic bag. Store between 2°C and 8°C (maybe frozen for long-term storage).

WHO does not, as of July 2003, recommend the adoption of IPV, either alone or in a sequential schedule, in developing countries for the following reasons: unresolved issues related to the immunogenicity of IPV when administered at birth, six, ten and 14 weeks of age in the EPI vaccination schedule, the continued focal circulation of wild poliovirus on two continents, the relatively high cost of IPV and the operational complexities of introducing a vaccine which requires syringes and needles, while OPV is given orally.

2.6.2 How safe is OPV and what are its potential side-effects?

OPV causes almost no side-effects. Less than 1% of the people who receive the vaccine develop a headache, diarrhoea, or muscle pain.
There is a very small risk of vaccine-associated paralytic polio (VAPP), with approximately two to four cases having been reported for every one million children immunized.

2.6.3 What is supplementary immunization with OPV?

A key strategy for polio eradication is supplementary immunization with OPV. This is usually conducted in large scale campaigns (National Immunization Days) where two doses of OPV, one month apart, are given to all children under five years of age regardless of how many doses they have received in the past.

Many rounds of National immunization days maybe conducted in a country however there is no risk associated with receiving multiple doses of OPV (WHO, 2004).

2.7 Tuberculosis vaccine (BCG)

2.7.1 What is BCG vaccine?

BCG vaccine protects infants against tuberculosis. The letters B, C, G stand for Bacille Calmette-Guérin. Bacille describes the shape of a bacterium; Calmette and Guérin are the names of the people who developed the vaccine.

BCG vaccine comes in powder form. It must be reconstituted with a diluent before use it's essential that only the diluent supplied with the vaccine be used. BCG vaccine should be kept at 2°C-8°C after reconstitution. Any remaining reconstituted vaccine must be discarded after six hours or at the end of the immunization session, whichever comes first.
2.7.2 How safe is BCG vaccine and what are its potential side-effects?

Most children do have a reaction at the site of injection. Normally, when BCG vaccine is injected a small raised lump appears at the injection site. This usually disappears within 30 minutes. After about two weeks, a red sore forms that is about the size of the end of an unsharpened pencil. The sore remains for another two weeks and then heals. A small scar, about 5 mm across, remains. This is a sign that the child has been effectively immunized (WHO, 2004).

2.7.3 Hepatitis B (HepB) vaccine

2.7.3.1 What is HepB vaccine?

Hepatitis B (HepB) vaccine is a cloudy liquid that is provided in single-or multi-dose vials or in prefilled auto-disable (AD) injection devices.

Because the HepB vaccine contains only one antigen, it is called a monovalent vaccine.

HepB vaccine is also available in combination DTP-HepB and DTP-HepB+Hib vaccines only monovalent HepB vaccine should be used as a birth dose, the dose given within the first week of life. Combination vaccines should not be used at birth, but may be used in subsequent doses. If HepB vaccine stands for a long time, the vaccine may separate from the liquid. When separated, the vaccine looks like fine sand at the bottom of the vial. Shake the vial to mix the vaccine and liquid before using the vaccine. HepB vaccine should never be frozen. The “shake test” will determine if the vaccine has been damaged by freezing. If the vaccine fails the shake test you must discard it (WHO, 2004).
2.7.3.2 How safe is HepB vaccine and what are its potential side-effects?

HepB vaccine is one of the safest vaccines. Mild reactions include:

- **Soreness.** About 15% of adults and 5% of children have tenderness, redness, or mild swelling at the injection site.

- **Fever.** About 1% to 6% of those who receive the vaccine develop a mild fever that lasts one or two days after injection of the vaccine.

Reactions and complications due to the vaccine are rare. Allergic reactions, such as rash, difficulty in breathing, and choking, occur about once every 600 000 doses. No fatal allergic reaction has been reported (WHO, 2004).

2.7.4 Tetanus toxoid (TT) vaccine

2.7.4.1 What is TT vaccine?

Tetanus toxoid (TT) vaccine protects against tetanus. It is provided as a liquid in vials and also in prefilled auto-disable injection devices (see Module 4). It is available in a number of different formulations:

- **TT** vaccine protects only against tetanus and neonatal tetanus.

- **DTP,** or diphtheria-tetanus-pertussis vaccine, protects against diphtheria, tetanus, and pertussis

- **DT,** or diphtheria-tetanus toxoids vaccine, protects against diphtheria and tetanus.

  Because it contains high levels of diphtheria toxoid, it should not be given to children older than six years old or adults.

  **Td,** or tetanus-diphtheria toxoids adult dose vaccine, is the same vaccine as DT, but with a lower diphtheria toxoid dose. It is suitable for children older than six years old and adults, including pregnant women. **Td** has the added advantage of protecting against diphtheria and tetanus. When given to women of childbearing age, vaccines that contain tetanus
toxoid (TT or Td) not only protect women against tetanus, but also prevent neonatal tetanus in their newborn infants. When TT or Td vaccine is given to a woman who is or who becomes pregnant, the antibodies that form in her body are passed to her fetus. These antibodies protect the baby against tetanus during birth and for a few months afterwards. They also protect the woman against tetanus. A three-dose course of TT or Td provides protection against maternal and neonatal tetanus for at least five years. A maximum of five doses will protect women throughout their childbearing years. When vaccines containing tetanus toxoid stand for a long time, the vaccine separates from the liquid and looks like fine sand at the bottom of the vial. Shake the vial to mix the vaccine and liquid again before giving the vaccine. TT/DT/Td/DTP vaccines should never be frozen. The “shake test” (see Module 3) will determine if the vaccine has been damaged by freezing. If the vaccine fails the shake test you must discard it (WHO, 2004).

2.7.4.2 How safe are TT, Td, and DT vaccines and what are their potential side-effects?

Vaccines containing tetanus toxoid cause very few serious reactions but quite frequent mild reactions.

2.7.4.3 Mild reactions to TT, Td, and DT vaccines include

• Soreness. About one in ten people who receive the vaccines have mild pain, redness, warmth, and swelling at the injection site for about one to three days after the injection. This mild reaction is likely to be more common after later doses than earlier ones, and may affect between 50% and 85% of people who receive booster doses.

• Fever. About one in ten people may develop a mild fever after receiving the vaccines (WHO, 2004).
2.8 Contraindications to immunization

There are not many contraindications to immunization. All infants should be immunized except in these rare situations:

1. Anaphylaxis or a severe hypersensitivity reaction is an absolute contraindication to subsequent doses of a vaccine. Persons with a known allergy to a vaccine component should not be vaccinated.

2. Do not give BCG or yellow fever vaccine to an infant that exhibits the signs and symptoms of AIDS (WHO, 2004).

2.9 Communication and immunization

Communication means delivering messages that can be understood. Health worker not only give messages to parents but also receive messages from them in both cases communication takes place only when the messages are understood.

Without well-planned, adequately funded strategic communication, immunization programs fall short of meeting and sustaining coverage goals. Communication is particularly needed to achieve vaccination coverage in hard-to reach populations and to build trust in vaccines among those who question them. Stakeholders also to need advocate for immunization programs to persuade governments, donors, and other actors to support vaccine programs and other health programs and priorities (Lora, 2004).

2.10 The role of communication in immunization programs

In most situations, communication efforts alone cannot raise coverage; in concert with other immunization components, however, they play an important role in achieving the goals of improving coverage and reducing drop-outs. If service delivery is good quality and outreach to the population is active, effective communication will assist in raising
awareness, creating and sustaining demand, and encouraging acceptance of vaccination services.

Immunization communication program generally includes advocacy, social mobilization, and program communication (including behavior change activities), all of which function to increase and sustain demand, acceptance, and utilization of immunization services. Examples of communication activities include advocating making immunization a priority of decision-makers, mobilizing communities to participate in immunization services, and educating caregivers about the importance of immunization (thereby influencing them to have themselves and their children completely vaccinated according to schedule) (Lora, 2004).

2.11 Challenges and the role of communication

1. Children do not get vaccinated if caregivers do not know the value of vaccines, when children need to be immunized, and where vaccines are administered. Caregivers are less likely to complete immunization schedules if they are poorly informed about the need for immunization, logistics (time, date, and place of vaccination), and the appropriate series of vaccines to be followed. Although knowledge per se is insufficient to create demand, poor knowledge about the need for vaccination and when the next vaccination is due is a good predictor of poor compliance (Silvio et al., 2005).

2. Children do not get vaccinated when communities are excluded or beyond the reach of immunization services. A substantial number of children worldwide do not complete immunization schedules because neither health services nor conventional communication mechanisms regularly reach their communities. In some communities, low immunization rates are associated with families living a long distance from health services, having little access or exposure to large-scale or
local media, and low doctor- and nurse-patient ratios (e.g., slum-dwellers in the Philippines and South Africa, nomadic populations in Sub-Saharan Africa, and internal migrants in Brazil, Cameroon, and Mozambique). Underserved communities consistently show low immunization coverage. Innovative outreach strategies are needed that are particularly targeted to reach children who are excluded or beyond the reach of immunization services (Silvio et al., 2005).

3. Children do not get vaccinated if caregivers do not trust the safety of vaccines neither anti-vaccination information nor refusal to get children immunized is new. Historically, populations have rejected immunization due to concerns about vaccine safety, as well as political, cultural, and religious reasons. Today, trust and acceptance of immunization faces two new, formidable challenges. Firstly, a global, fast-paced communication environment makes it possible for negative publicity and anti-immunization positions to be disseminated quickly worldwide. Localized opposition (e.g., polio campaigns in India and Nigeria), negative publicity surrounding vaccine safety (e.g., MMR vaccination in the UK), and suspected or real adverse events following immunization are more likely to attract wide media coverage, and spread through the Internet. Second, increased democratization promotes debates about individual and community rights and choice. Today, democratization offers an environment more conducive to the emergence of challenges to government-mandated programs such as immunization. In a growing “rights” environment in both the developed and developing world, national programs like immunization are more vulnerable to being questioned (Silvio et al., 2005).

4. Children do not get immunized when vaccines are not available. The gap in access to vaccines between developed and developing countries
has widened in the past decades. More vaccines have become available, but most developing countries cannot afford the newer vaccines, lack Well-functioning systems to deliver them, and have inadequate surveillance systems or study data to determine the burden of disease to motivate decision-makers to adequately fund them (Silvio et al., 2005).

2.11.1 What can communication do?

Research shows that the quality of the interaction between health workers and caregivers are decisive to ensure completion of the vaccination schedule. High dropout rates and caregivers’ negative attitudes about immunization services are often due to poor or inadequate information-sharing by health providers. The failure of health providers to communicate correct information about vaccine effects and schedules, to check whether caregivers know and understand information, and to give them opportunities to ask questions partially (Silvio et al., 2005).

2.12 Barriers and misinformation

Rumors and misinformation about immunization are amongst the most serious threats to the success of immunization programme. Once rumors start they can be very hard to stop.

Some examples of rumors:

• “Vaccines are a contraceptive to control population or to limit the size of a certain `ethnic group.”
• “Vaccines are contaminated by the AIDS virus or mad cow disease.”
• “Children are dying after receiving vaccines.”

The consequences of rumors can be serious and, if unchecked, they can travel quickly beyond local area. There are various barriers and challenges (e.g., lack of community involvement in program planning and
service utilization, lack of information provided to target audiences explaining the benefits of immunization) can impede the effective implementation of the communication component within immunization programs. For example, some policymakers and community leaders may not be aware of immunization services or may not view immunization as a priority compared to other health, societal, or political issues. Caregivers may not know when or even understand that they need to bring their children back for additional vaccinations, particularly if health workers have not carefully explained the vaccination schedule to them. Potential barriers to communication include:

- Poor communication skills or practices of health care workers, community leaders, or policymakers
- Lack of a well-defined communication strategy for determining appropriate messages, channels and materials.
- Messages that focus on the desirability of immunizing one’s children (which the majority of caregivers already accept) rather than on information relevant to the local context
- Failure to address or sufficiently address communication in EPI meetings, or ailure to properly integrate communication into EPI plans, budgets, or activities;
- Few agencies, communication specialists or institutions, or community partners involved in communication for and support of EPI
- Lack of community involvement and interaction in planning and communication related to service delivery and outreach, resulting in problems with compliance or perceived resistance to immunization
- Lack of human, financial, and material resources
- Insufficient communications infrastructure (e.g., few radio stations, few radios, insufficient transport and equipment for mobilizers and communication teams, inadequate publishing capabilities)
- Competing health priorities and over-committed staff.

Barriers to communication may therefore relate to service delivery, interaction with communities, channels of communication, or content or clarity of the messages themselves. They can occur at national, provincial, and district levels and can also be institutional, given organizational differences. If not addressed within the immunization program, these barriers weaken the effectiveness of the communication component. Although some of the barriers noted above should be dealt with as part of the overall immunization program, many can be addressed through implementation of strategies and approaches those are more specific to communication (Lora, 2004).

2.13 The previous studies
2.13.1 Study in Dominican Republic and Mozambique

In similar studies in Dominican Republic and Mozambique they found that Mothers in both countries had very poor knowledge about the diseases prevented by vaccines, (14). However, an equally significant finding is that this low knowledge appeared to have no significant effect on their general enthusiasm to have their children vaccinated. In Mozambique, only 13% of mothers could correctly name three vaccine-preventable diseases and 57% could not name even one. Only one in five knew that a child is due for measles vaccination at 9 months. Only 64% of over 800 mothers interviewed said that the main Purpose of vaccination was to protect people from diseases (others said that immunization Cures illness, helps growth, etc.).
They found that poorest mothers sometimes had difficulty giving their child’s precise age; this could make it more difficult to know when to return for the next immunization. These problems are more serious in Mozambique. Exit interviews after vaccinations showed that 43% of mothers were not told or could not remember the diseases the vaccine was for; only about a third were told about side effects; and quarter were not told when to return for the next vaccination. A review showed that on only 27% of child health cards had a health worker written the date for the next vaccination. The child immunization card is supposed to serve as a key channel for information on where, when and which vaccines were done and which are due. An important finding of the Dominican Republic study was that without outside assistance many mothers, even literate ones, cannot understand basic information on the card. Eighty percent of the mothers surveyed could read, yet only half of these literate mothers could look at a completed vaccination card and say: which vaccines the child had received how many immunizations the child had received or the date of the next immunization. In Mozambique, 87% of children had a child health card, but only about a quarter of mothers can read. Most mothers who said they knew the return date used methods other than the card to remember (the change project, 2003).
3.1 Study area

Khartoum State is the capital of Sudan lies in the middle of the country. The state lies between longitudes 31.5 -34 east and latitude 15-16 north in an area About 28.165 square kilometers. It is bordered to the north and the east side on the River Nile State, to North Western on the Northern State, and to the east and south-eastern on states of Kassala, Gedaref and Gezira. It is the largest in term of population, it is about 28,000 Km2. According to 2008 population census, the population of Khartoum state is estimated to be about five million people who are a mixture of tribes of the Sudan with growth rate 3.67 per 1,000 which is divided into 86% urban and 14% rural population, it consist from 7 localities, each locality has urban and rural areas that covered by different level of health services ranging from hospitals to PHC units, with total number 712 health facilities with different types hospitals, health centres, dispensaries, private sectors, dressing station and primary health units) all of these facilities provide EPI services as package in PHC services. (krt.gov.sd 2012)
3.2 Study population

The Mothers of children less than 2 year in the study area.

3.3 Study design

A cross sectional descriptive study was chosen to assess the knowledge attitudes and practices of child Care Givers regarding vaccination.

3.4 Sampling

3.4.1 Sample size

The sample size calculated according to the following equation:

\[ n = \frac{z^2pq}{d^2} \]

\( n \) = sample size
\( p \) = Proportion of dependent variables set as 50%
\( q \) = (100- P) = 50
\( de \) = 2
\( n = 4 \times 0.5 \times 5 \times 0.0025 \)
\( n = 800 \)

3.4.2 Sampling unit

Mother with Children less than 2 years.

3.4.3 Sampling frame

Town, sectors and villages in localities.
3.4.4 Sampling technique
- The Study used Stratifying sample techniques for sample selection.
- The samples have been taken from all localities in Khartoum state.
- Lists of areas in 7 localities in Khartoum state were prepared.
- The total cumulative list of population was done and the number of samples interval was calculated.
- 40 rows were chosen and in each 20 mothers were selected.
- First row was selected randomly, interval added to the first row to identify the second and this was followed until the 40 rows were completed.
- The 40 rows of samples were randomly distributed as follows; 31 rows in Khartoum locality, 5 rows in Um dorman locality, 4 rows in Sharg El Nile.
- In the field WHO protocol was followed in selection of house hold in each row of samples.

3.5 Inclusions criteria
All Mothers of children less than 2 year in study area.

3.6 Exclusions criteria
- Mothers of children more than 2 years.
- Visitors mothers of children less than 2 years.
- Mothers who do not agree to respond.

3.7 Methods of data collection
- Quantitative method was used.
- Questionnaire used to collect data (annex).
- Permission and clearance will be obtained from concerned parties.
- Consent of care givers was taken.
- Pretesting of methods and tools to revise and develop visible work plan.

NO data collectors were 22 and they were trained on the following:
- How to select child care takers randomly from clusters.
- How to ask child care takers and to fill the Questionnaire.

3.8 Study variables

- Background variables
  1. Age
  2. education status
  3. number of children in the family
  4. tribe of family
  5. religion of family

- Knowledge
  6. Immunization schedule.
  7. EPI immunizable disease.
  8. Immunization side effects.

- Attitude
  1. Perceived risk and severity.
  2. Perceived benefits (effective ness of immunization).
  3. Perceived barriers (social norms, cost ...ect.).
- Practice

1. Immunization status of children.
2. Reasons of non immunization.

3.9 Data analysis

Data was entered and analysis by SPSS.

3.10 Ethical consideration

The following ethical concerns were taken:

- The study proposal was presented to the members of Gezira, University, Sudan.
- Only those participants who are willing to participate in the survey were approached and only those who provide with informed verbal consent were interviewed.
- All participants were assured about the anonymous and confidentiality of the study. The participation is voluntary and the data collected will not include personal information like name, contact number or address.
- The data was used for research’s purpose only.
CHAPTER FOUR

RESULTS

The study results as declared in the following figures and tables:

4.1 General characteristics

Fig. (4.1): Distribution of the Children Mothers by age group, Khartoum State, 2012.

Majority of children mothers were between 15-45 years old.

Fig. (4.2): Education status of Children Mothers, Khartoum State, 2012.

N= 800
44% of mothers were at University level while 19% were at Primary.

N= 800

Fig. (4.3): Education status of fathers, Khartoum State, 2012.

18% of fathers were at primary level while 30% were at secondary.

N= 800

Fig. (4.4): Proportion of families' with children less than 2 years Khartoum State, 2012.
93% of the families have only one child less than 2 years while 7% of them have more than one child.

N = 800

Fig. (4.5): Proportion of families’ total income- Khartoum State, 2012.

69% of the families have total annual income of 1 to 10 thousand pound while 2.5% of them have total annual income of 50 thousands pound or more.
Fig. (4.6): Geographical distribution of the samples, Khartoum State, 2012.

54% of the families were urbanely distributed, while 46% of them were distributed in the reeve.

4.2 The results of Mothers knowledge about immunization

N=800

Fig. (4.7): Level of knowledge of Mothers in regard to vaccine preventable diseases Khartoum State, 2012.

95% of children Mothers have good knowledge about VPD while 5% have poor knowledge.
Fig. (4.8): Percentage of knowledge about VPD Khartoum State, 2012.

Majority of children mothers know Measles 94% while only 42 % of them know Hepatitis B.

Table (4.1): The knowledge of children mothers about immunization schedule, Khartoum State, 2012.

<table>
<thead>
<tr>
<th>The disease</th>
<th>Good knowledge</th>
<th>Don’t know</th>
<th>Sub knowledge</th>
<th>Bad knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>fre</td>
<td>Perc%</td>
<td>fre</td>
<td>Perc%</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>352</td>
<td>44</td>
<td>420</td>
<td>52.5</td>
</tr>
<tr>
<td>polio</td>
<td>36</td>
<td>4.5</td>
<td>584</td>
<td>73</td>
</tr>
<tr>
<td>whooping cough</td>
<td>148</td>
<td>18.5</td>
<td>628</td>
<td>78.5</td>
</tr>
<tr>
<td>diphtheria</td>
<td>156</td>
<td>19.5</td>
<td>644</td>
<td>80.5</td>
</tr>
<tr>
<td>measles</td>
<td>156</td>
<td>19.5</td>
<td>644</td>
<td>80.5</td>
</tr>
<tr>
<td>Tetanus</td>
<td>148</td>
<td>18.5</td>
<td>652</td>
<td>81.5</td>
</tr>
<tr>
<td>hepatitis</td>
<td>272</td>
<td>34</td>
<td>528</td>
<td>66</td>
</tr>
<tr>
<td>total</td>
<td>1268</td>
<td>22.60%</td>
<td>4100</td>
<td>73.20%</td>
</tr>
</tbody>
</table>

44% of children mothers have good Knowledge about time for giving TB vaccine while 4.5% only know the time for Polio.
Fig. (4.9): The source of knowledge about VPD Khartoum State, 2012.

57% of children mothers know about VPD from the Health worker, 14% from TV, 11% from three different sources and only 2 % from newspaper.

N= 800

Fig. (4.10): Proportion of knowledge about adverse events following immunization, Khartoum Sate, 2012.

There is 61 % of children mothers knows about side effects of immunization while 33 % deny presence of side effects.

N= 800

Fig. (4.11): The knowledge about immunization side effects Khartoum Sate, 2012.
The most common side effects were defined by children mothers was mild fever.
4.3 Summary result for knowledge about immunization

As shown from the figures above from 800 mothers interviewed for the knowledge about immunization the results were as follows:-

- 95 % of mothers have good knowledge about VPD while 5 % have poor knowledge.
- Majority of mothers knows Measles 94% while only 42 % of them know Hepatitis B.
- 57% of mothers know about VPD from the Health worker, 14% from TV, 11% from three different sources and only 2 % from newspaper.
- There is 61 % of mothers knows about side effects of immunization while 33 % deny presence of side effects.
- The most common side effects were defined by mothers was mild fever (82%).

4.4 The results of attitudes towards immunization services

![Bar chart showing attitudes towards immunization services]

N = 800

Fig. (4.12): Attitude towards importance of immunization, Khartoum State, 2012.

46 % of children mothers strongly agree on importance of the immunization, while only 1% strongly disagrees.
N= 800

Fig. (4.13): Attitude of children mothers towards vaccination of sick child Khartoum State, 2012.

22.5% of mothers agree to vaccinate their children during sickness while 65.5% were disagreeing.

N= 800

Fig. (4.14): Attitude of children mothers in regard to the statement: immunization is harmful, Khartoum State, 2012.

90% of mothers disagree with immunization is harmful for their children.
N= 800

Fig. (4.15): Attitude of children mothers towards compensate of the doses, Khartoum State, 2012.

87% of mothers agreed to compensate the doses if the child was missing the dose.

N= 800

Fig. (4.16): Attitude of husbands regards encouraging vaccination, Khartoum State, 2012.

72% of mothers agree on the role of their husbands in regarded to encouragement of children to vaccination.
Fig. (4.17): Attitude of families regards encouraging vaccination of children, Khartoum State, 2012.

98% of mothers agreed that their families encourage them to take their children to vaccination.

Fig. (4.18): Attitude of children mothers in regards to religion encouragement of vaccination of children, Khartoum State, 2012.

72% of mothers agreed that religion encourage them to take their children to vaccination.
4.4 Summary result for mother's attitude towards R. immunization

4.5 Summary result for mother's attitude towards R. immunization

As shown from the Figures (12-18) from 800 care givers interviewed for the attitude towards immunization the results were as follows:

- 46% of mothers strongly agree on importance of the immunization, while 1% strongly disagrees.
- 22.5% of mothers agree to vaccinate their children during sickness while 65.5% were disagreeing.
- 90% of mothers disagree with immunization is harmful for their children.
- 87% of mothers agreed to compensate the doses if the child was missing the dose.
- 72% of mothers agree on the role of their husbands in regarded to encouragement of children to vaccination.
- 98% of mothers agreed that their families encourage them to take their children to vaccination.
- 72% of mothers agreed that religion encourage them to take their children to vaccination.
4.6 The results of children Mothers practices towards R. immunization services

N= 800

Fig. (4.19): Percentage of children vaccinated, Khartoum State, 2012.

87.5% of children were fully immunized while 9% of them partially vaccinated and 3.5% were not vaccinated.

N= 800

Fig. (4.20): Percentage of children with immunization card Khartoum State, 2012.

90.5. % of the vaccinated children had immunization card.
Fig. (4.21): Reasons of partial or not immunized children Khartoum State, 2012.

27% of mothers didn't vaccinated their children because their were busy and 8% because their were sick while 12% for others reasons.

4.7 Summary result for care givers practice towards R. immunization

As shown from the Figures (19-21) from 800 care givers interviewed for their practices towards immunization the results were as follows:-

- 87.5% of children were fully immunized while 9% of them partially vaccinated and 3.5% were not vaccinated.
- 90.5. % of the vaccinated children had immunization card.
- There are many reasons for non immunization e.g. mother busy, child sick and others.
4.8 The relation between Knowledge and other variables

Table (4.2): Relation between Mother’s knowledge about childhood Vaccine preventable Diseases and mother age, Khartoum State, 2012.

<table>
<thead>
<tr>
<th></th>
<th>Less than 15 years</th>
<th>From 15 to 45 years</th>
<th>More than 45 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Present</td>
<td>N</td>
<td>Present</td>
</tr>
<tr>
<td>Yes</td>
<td>0</td>
<td>0%</td>
<td>764</td>
<td>95.50%</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0%</td>
<td>24</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>0%</td>
<td>788</td>
<td>98.50%</td>
</tr>
</tbody>
</table>

P-value = 0.9

No statistically significant differences in mother’s Mother’s knowledge about childhood Vaccine Preventable diseases due to the age (P-value = 0.9).

Table (4.3): Relation between mother’s knowledge about childhood vaccine preventable diseases and mother educational level, Khartoum State, 2012.

<table>
<thead>
<tr>
<th></th>
<th>Literacy</th>
<th>Primary school</th>
<th>Secondary school</th>
<th>University</th>
<th>High graduate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>(%)</td>
<td>N</td>
<td>(%)</td>
<td>N</td>
<td>(%)</td>
</tr>
<tr>
<td>Yes</td>
<td>12</td>
<td>1.50</td>
<td>144</td>
<td>31</td>
<td>248</td>
<td>31</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>0.50</td>
<td>8</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>2</td>
<td>152</td>
<td>19</td>
<td>248</td>
<td>31</td>
</tr>
</tbody>
</table>

P-value = 0.049.

There is a statistically significant difference in Mother`s knowledge about childhood Vaccine Preventable diseases due to the mother educational level (P-value = 0.049).
Table (4.4): Relation between mother`s knowledge about childhood vaccine preventable diseases and family income per years

<table>
<thead>
<tr>
<th></th>
<th>50.000 or more</th>
<th>10.000-50.000</th>
<th>1.000-10.000</th>
<th>Less than 10.000</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>(%)</td>
<td>N</td>
<td>(%)</td>
<td>N</td>
</tr>
<tr>
<td>Yes</td>
<td>16</td>
<td>2</td>
<td>204</td>
<td>25.50</td>
<td>544</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>0.50</td>
<td>12</td>
<td>1.50</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>2.50</td>
<td>216</td>
<td>27</td>
<td>552</td>
</tr>
</tbody>
</table>

P-value = 0.06

There is No statistically significant difference in Mother `s knowledge about childhood Vaccine Preventable diseases due to Families annual income (P-value = 0.06).

Table (4.5): Relation between mother`s knowledge about childhood vaccine preventable diseases and Geographical area, Khartoum State, 2012.

<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>(%)</td>
<td>N</td>
</tr>
<tr>
<td>Yes</td>
<td>428</td>
<td>53.50</td>
<td>348</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>0.50</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>432</td>
<td>54</td>
<td>368</td>
</tr>
</tbody>
</table>

P = 0.62

There is No statistically significant difference between Mother `s knowledge about childhood Vaccine Preventable diseases, and Geographical area (P = 0.62).
Table (4.6): Relation between importance of vaccination and mother’s age, Khartoum State, 2012.

<table>
<thead>
<tr>
<th></th>
<th>Less than 15 years</th>
<th>From 15 to 45 years</th>
<th>More than 45 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N  (%)</td>
<td>N  (%)</td>
<td>N  (%)</td>
<td>N  (%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>0  0</td>
<td>368  46</td>
<td>0  0</td>
<td>368  46</td>
</tr>
<tr>
<td>Agree</td>
<td>0  0</td>
<td>412  51.50</td>
<td>12  1.50</td>
<td>424  53</td>
</tr>
<tr>
<td>Don't know</td>
<td>0  0</td>
<td>4  0.50</td>
<td>0  0</td>
<td>4  0.50</td>
</tr>
<tr>
<td>Disagree</td>
<td>0  0</td>
<td>0  0</td>
<td>0  0</td>
<td>0  0</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0  0</td>
<td>4  0.50</td>
<td>0  0</td>
<td>4  0.50</td>
</tr>
<tr>
<td>Total</td>
<td>0  0</td>
<td>788  98.50</td>
<td>12  1.50</td>
<td>800  100</td>
</tr>
</tbody>
</table>

P = 0.013.

There is a high statistically significant Crosstabs between importance of vaccination and mother age, (P = 0.013).

Table (4.7): Relation between children’s vaccination and mother educational level, Khartoum State, 2012.

<table>
<thead>
<tr>
<th></th>
<th>Literacy</th>
<th>Primary school</th>
<th>Secondary school</th>
<th>University</th>
<th>High graduate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N  (%)</td>
<td>N  (%)</td>
<td>N  (%)</td>
<td>N  (%)</td>
<td>N  (%)</td>
<td>N  (%)</td>
</tr>
<tr>
<td>Yes</td>
<td>4  0.50</td>
<td>132  16.50</td>
<td>215  26.90</td>
<td>324  40.50</td>
<td>25  3.10</td>
<td>700  87.50</td>
</tr>
<tr>
<td>Part of them</td>
<td>12  1.50</td>
<td>12  1.50</td>
<td>28  3.50</td>
<td>16  2</td>
<td>4  0.50</td>
<td>72  9</td>
</tr>
<tr>
<td>No</td>
<td>0  0</td>
<td>8  1</td>
<td>5  0.60</td>
<td>12  1.50</td>
<td>3  0.40</td>
<td>28  3.50</td>
</tr>
<tr>
<td>Total</td>
<td>16  2</td>
<td>152  19</td>
<td>248  31</td>
<td>352  44</td>
<td>32  4</td>
<td>800  100</td>
</tr>
</tbody>
</table>

P = 0.005

There is a high statistically significant Crosstabs between children’s vaccination and mother educational level (P = 0.005).
4.9 Summary result for relations

As shown from the Tables (2-7) the results were as follows:

- No statistically significant differences in mother’s knowledge of childhood illnesses that vaccination protects them due to the age.
- There is a high statistically significant difference in mother’s knowledge of childhood illnesses that vaccination protects them due to the mother educational level.
- There is No statistically significant difference in mother’s knowledge of childhood illnesses that vaccination protects them due to Families annual income.
- There is No statistically significant difference between (Mother knowledge about childhood diseases, that vaccination prevent them) and (geographical area).
- There is a high statistically significant Crosstabs between (vaccination is important for your child) and (mother age).
- There is a high statistically significant Crosstabs between (Are children had been vaccinated) and (mother educational level).
CHAPTER FIVE
DISCUSSION

This descriptive cross sectional community based study was conducted in Sudan, Khartoum State, 2012 including 800 care givers of children less than 2 years to study knowledge, attitude and practice of them towards Routine immunization.

In this study the proportion of knowledge about Vaccine Preventable diseases was good and this differ from the results found in the same study in Dominican Republic and Mozambique where they found that mothers in both countries had very poor knowledge about the diseases prevented by vaccines. However, an equally significant finding is that this low knowledge appeared to have no significant effect on their general enthusiasm to have their children vaccinated (The change project, 2003).

In this study (95%) of care givers were able to name correctly 6-7 of vaccine Preventable diseases while in a same study conducted in Mozambique only 13 % of mothers could correctly name three vaccine preventable disease and 57 % could not name even one (The change project, 2003).

Also, in another study conducted in pediatric clinic of university medical center in Tehran (47.5%- 55.2%) of mothers knew the name of the disease against which their children being vaccinated (Shahla, 2007).

The results showed that (73%) of care givers had a Knowledge about immunization schedule and knew when a child would be due for measles vaccine while in Mozambique study (The change project, 2003) only one in five knew that a child was due for measles vaccination at 9 months.
The main sources of this knowledge were the health worker (57.5%) radio 2% and television (14%) while only (2%) knew from newspapers.

As far as attitude of caregivers was concerned, in this study (97%) of care givers agreed on the importance of immunization and only (3%) of them disagree. This result is similar to study which was conducted in Iranian in 2005 which showed a favorable attitude towards children immunization in (95.5%) of respondents (Shahla, 2007).

In this study there was high statistically significant difference in mother’s knowledge about vaccine preventable disease and the mother’s educational level.

As far as education level and Knowledge, most of the fathers had completed their secondary school 30% and 40% of them had university degree or higher education While 31 % of mothers had completed their secondary school and 44% of them had university degree or higher education, there is a high statistically significant difference in mother’s knowledge of childhood vaccine preventable diseases due to the mother educational level.

In this study there is No statistically significant difference in mother’s knowledge of childhood illnesses that vaccination protects them due to Families annual income.

From this study 87.5% of children were fully immunized, 9 % of them were partially immunized and 3.5% were non immunized. There were different reasons given by mothers for non immunization which were varied from the mothers being busy, pregnant, sick, immunization post was far and others. These results were different from a survey of knowledge, attitude and practice of mothers conducted in Egypt which revealed that the most common reasons for the non-vaccination of child were mothers don’t have time, didn't know about the immunization and
forget the child's vaccination schedule and vaccines were not available at clinics (WHO, 2007).

The most common side effect for immunization mentioned by respondent was mild fever (82%) and swelling at the site of injection (3.3%) this results were different from the a study conducted in Sudan in sheik Abu Zeid Hara (Central Bureau of statistics, 2004) in which this was found as fever (86%) and swelling the site of injection (62%). (Central Bureau of statistics, 2004).

Regarding children immunization card it was found that only (90.5%) of vaccinated children had immunization cards while in Mozambique study (87%) of children had a child health cards (Kamal and Hadi, 2003).

In this study There is no significant relation between (Mother knowledge about childhood vaccine preventable diseases and Geographical area.
CHAPTER SIX
CONCLUSION AND RECOMMANDATIONS

6.1 Conclusion

From this study it can be conclude that the knowledge of care givers of children less than 2 years regarding Vaccine Preventable Diseases in Khartoum State, there was (95%) of care givers were able to mention all Vaccine Preventable Disease, the care givers education status affected this knowledge. The health workers were the greatest source of knowledge about immunization. Care givers attitude towards immunization was favorable (95.5%) of them perceived the benefit of immunization. 22.5% of care givers agreed with immunization of an ill child. the practice of child vaccination was high and it tends to be significantly associated with the knowledge and the education level of the care givers. There was good proportion of fully immunized children (87.5%) The most common causes of missed does were busy mothers, pregnancy, sickness and immunization post is far. Fever and swelling of injection site were found to be the common side effects given by care givers. No significant result was found between age and knowledge of caregivers and there is also no significant relation between Mother Knowledge about childhood vaccine preventable diseases and Geographical area (urban and rural).

6.2 Recommendations

It's recommended to:
- Health Authorities to conduct more training for health workers to enforce them with full knowledge about Vaccine Preventable Diseases so as to be able to deliver proper messages to care givers.
- Health Authorities to Increase the awareness of Mothers towards the importance of vaccinations, contradictions, adverse events, immunization schedule and the importance of sticking to it and importance of keeping vaccination cards.

- EPI should plan and execute effective communication programme to empower the community so as to play an active role in improvement of the immunization services.

- Ministry of Health should plan for better Geographical distribution for the P.H.C facilities to be available for the child care givers where they live.

- EPI to perform immunization at any time the mother brings her eligible child and plan session in suitable time for communities.
REFERENCES


The change project. (2003). Barriers to Immunization in Dominican Republic and Mozambique.


(Khrt.gov.sd 2012). The official website of Khartoum State, SUDAN

(Google Earth, 2012). www.google.com
استبيان رقم (1): عن معرفة وصوارف وممارسات الأمهات تجاه خدمات التحصين.
( أنا طالب الدراسات العليا اوليد عمر محمد حسن أقوم بعمل بحث عن معرفة وصوارف وممارسات الأمهات تجاه خدمات التحصين سأأخذ هذا الاستبيان 30 دقيقة من وقتكم).

1) القسم الأول المعلومات الأساسية

ا) منطقة الدراسة

المحلية / اسم الحي أو القرية

ب) جامع البيانات:

تاريخ إجراء السح： / 2012

اسم جامع البيانات:

ج) الأسرة:

1. القبيلة

2. الديانة

3. عمر الأم

أقل من 15 سنة

من 15 الي 45 سنة

أكبر من 45 عام

4. المستوى التعليمي للأم

أ. أمي ب. خلاوي

د. ثانوي ه. جامعي

و. فوق جامعي

5. المستوى التعليمي للأب

أ. أمي ب. خلاوي

ج. أساس

79
6. عدد الأطفال أقل من عامين في المنزل
☐ طفل واحد
☐ أكثر من طفل

7. مستوى دخل الأسرة في السنة
☐ واحد ألف جنيه فأكثر
☐ 10 آلاف جنيه و أقل
☐ 10 آلاف جنيه و أكثر من 10 آلاف جنيه

8. أقل من ألف جنيه في السنة

9. المنطقة
☐ حضر
☐ ريف

(2) القسم الثاني معلومات عن معرفة الأم عن التطعيم

10. هل تعرف أمراض الطفولة التي يحمي منها التطعيم؟
☐ نعم
☐ لا

11. إذا كانت الإجابة بنعم ما هي?
☐ الدفترا
☐ السعال الديكي
☐ السل
☐ الشلل
☐ التهاب الكبد الفيروسي
☐ الحصبة
☐ التننس

12. ما هي المواعيد المحددة التي تعطي فيها جرعات التطعيم؟ (في حالة ذكر الأم للأعمار بالشهور الراجعة مقارنتها بالأسابيع)

<table>
<thead>
<tr>
<th>اللقاح</th>
<th>الفترة الزمنية</th>
</tr>
</thead>
<tbody>
<tr>
<td>الدفترا</td>
<td>عند الولادة , بعد الأربعين</td>
</tr>
<tr>
<td></td>
<td>عند الولادة , في عمر 6 أسابيع, 10 أسابيع, 14 أسبوع</td>
</tr>
<tr>
<td>السل</td>
<td>في عمر 6 أسابيع, 10 أسابيع, 14 أسبوع</td>
</tr>
<tr>
<td>الشلل</td>
<td>في عمر 6 أسابيع, 10 أسابيع, 14 أسبوع</td>
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<tr>
<td>السعال الديكي</td>
<td>في عمر 6 أسابيع, 10 أسابيع, 14 أسبوع</td>
</tr>
<tr>
<td>التسعون</td>
<td>التسعون التفتيسي</td>
</tr>
<tr>
<td>----------</td>
<td>------------------</td>
</tr>
<tr>
<td>في عمر 6 أسابيع، 10 أسابيع، 14 أسبوع</td>
<td>في عمر 6 أسابيع، 10 أسابيع، 14 أسبوع</td>
</tr>
</tbody>
</table>

13. ما هو مصدر معلوماتك
- التلفزيون
- الإذاعة
- الصحف
- في المركز
- أخرى

14. هل يمكن أن تحدث آثار جانبية من التطعيم؟
- نعم
- لا

(إذا كانت الإجابة بلا أو لا أعرف انتقل إلى القسم الثالث)

15. إذا كانت الإجابة بنعم ما هي؟
- تورم خفيف
- مكان الحفرة
- حساسة
- قلق

16. التطعيم مهم بالنسبة لطفلك؟
- آمٌّ
- لا

17. يجب تطعيم الطفل إذا كان مريضاً؟
- آمٌّ
- لا

18. التطعيم يسبب ضرر لطفلك؟
- آمٌّ
- لا

19. يمكن تعويض الجرعة إذا تأخر الطفل عن مواعيدها؟
- آمٌّ
- لا

20. الزوج يشجع أخذ طفلك للتطعيم
لا أتآ شوا أتآ لا أتآ لا أتآ لأافق على الإطلاق

21. الأقارب يشجعون أخذ الطفل للتطعيم

لا أتآ شوا لأافق على الإطلاق

22. الدين الإسلامي يشجع على تطعيم الأطفال

لا أتآ شوا لأافق على الإطلاق

4. القسم الرابع معلومات عن ممارسات الأم عن التطعيم

23. هل أطفالك مطعمن

نعم كلهم لا

24. هل لديهم كروت تطعيم؟

لا

25. املأ هذه البيانات من الكرت: (تاريخ الجرعة) لأخير اصغر ثلاث اطفال أن وجدت

<table>
<thead>
<tr>
<th>الجرعات</th>
<th>الطفل الأول</th>
<th>الطفل الثاني</th>
<th>الطفل الثالث</th>
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<tbody>
<tr>
<td>العمر</td>
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<td></td>
<td></td>
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</tr>
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<td></td>
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<tr>
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</tr>
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<td></td>
<td></td>
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<tr>
<td>التهاب الكبد الثانية</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
26. إذا كان الطفل غير مطعم أو (مطعم جزئياً) ما هي أسباب عدم التطعيم:

- مريضة
- حامل
- مشغولة
- مكان التطعيم بعيد عن المنزل

عدد: ........................................ ........................................