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Study on:

**Assessment of Expanded program on
Immunization (EPI) performance - Shendi
locality, River Nile state
(Nov. 2012 – Dec. 2014)**

A research Submitted for the master degree in public Health

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الآية

(اللَّهُ نُورُ السَّمَوَاتِ وَالْأَرْضِ مِثْلُ نُورِهِ كَمِشْكَاةٍ فِيهَا مَصْبَاحٌ

الْمَصْبَاحُ فِي زُجَاجَةٍ الزُّجَاجَةُ كَأَنَّهَا كَوْكَبٌ دُرِّيٌّ يُوقَدُ مِنْ شَجَرَةٍ

مُبَارَكَةٍ زَيْتُونَةٍ لَشَرْقِيَّةٍ وَآخَرِيَّةٍ يَكَادُ زَيْتُهَا يَضِيءُ وَلَوْ لَمْ تَمْسَسْهُ

نَارٌ نُوِّرَ عَلَى نُورٍ يَهْدِي اللَّهُ لِنُورِهِ مَنْ يَشَاءُ وَيَضْرِبُ اللَّهُ الْأَمْثَالَ

لِلنَّاسِ وَاللَّهُ بِكُلِّ شَيْءٍ عَلِيمٌ).

(صدق الله العظيم)

سورة النور الآية 34-35

DIDICATION

Much dedicate to my dear father gutting

I dedicate this research for:-

My mother may sister, may brother Spassiley my
brother

Dr. Mohamed Alshiek seed he gives me sometime help
in this research

I dedicate the person who learn me,

How to live

How to feel

How to love

How to patient

How to make the best

How to trust

And

HOW to believe



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❖ abbreviation

- DTP The diphtheria and tetanus toxin with pertussis vaccine
- UNICEF UNITED NATIONS CHILDREN'S FUND
- WHO WORLD HEALTH ORGANIZATION
- VPD VACCINE PREVENTABLE DISEASES
- GAVI GLOBAL ALLIANCE FOR VACCINE AND immunization
- EPI EXPANDED PROGRAM IMMUNIZATION
- NGOs NON-GOVERNMENTAL ORGANIZATION
- IMCI INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS
- BCG BACILLI CALMETTE GUÉRIN
- VVM VACCINE VIAL MONITOR
- HIV HUMAN IMMUNIZATION VIRUS
- OPV oral polio vaccine
- MMR MEASLES MUMPS AND RUBELLA
- MR MUMPS RUBELLA
- WIC WALKING COLD ROOM
- VAD VITAMIN A DEFICIENCY
- DTP DIPHTHERIA AND TETANUS TOXIN AND PERTUSSIS
- Hib Haemophilus influenzae type B
- AEFI Adverse Events following immunization

Abstract

Immunity is the resistance of the body against infection and its particular result from the response of the human immune system to induce specific antigen. Immunization is most cost effective health intervention, and it has been used worldwide to control many infectious diseases especially among children and young population.

This cross sectional descriptive study was carried out in Shendi Locality aimed to assess the performance of expanded program for Immunization in term of accessibility, utilization and vaccines management during the period of 2012-2014. The data on study variables were collected using pre-design questionnaire and check lists. 384 mothers/caregivers were selected using simple random sampling techniques and interviewed on EPI performance indicators, also 36 EPI staffs (vaccinators, Cold chain officers, EPI program manager) were interviewed using checklist on their respective roles and responsibilities.

Data analysis was conducted using computer software (SPSS) Statistical Package for Social Science program then results were presented in table and graphs.

The study results revealed that 96% of children were fully immunized, 2% were partially immunized, while 2% never received any immunization. The major reasons behind partially immunized children and those never received immunization were the lack of awareness among mothers, immigration population movement, and fathers failed of immunization which was observed in 12.5% of the respondents.

Also the study showed that the majority of EPI staffs were received formal training, whoever there was shortage in the technical staffs at the locality level as well as at the administrative units.

The study recommended that the authority should organize health education program to educate the families on the benefits and important of vaccination through use of mass media such as TV radio and news paper and the use of local community members such as teachers, Imam etc., health staffs should educate mothers on possible

side effects of immunization, and Shendi Locality should support the program in term of staffs training and provide necessary logistic and supply to cover mobile population and population in remote area where children could be missed during routine work

مستخلص

تعرف المناعة بأنها مقاومة الجسم ضد العدوى وهي نتيجة لإستجابة الجهاز المناعي لوجود اجسام غريبة في الجسم ينتج عنها أجسام مضادة تعمل على حماية الجسم من الإصابة بالأمراض. ويعتبر التحصين من أكثر التدخلات الصحية فعالية ويستخدم في جميع أنحاء العالم للسيطرة على كثير من الأمراض المعدية خاصة بين الأطفال.

وقد أجريت هذه الدراسة الوصفية المقطعية في محلية شندی هدفت إلى تقييم أداء البرنامج الموسع للتحصين من حيث الكفاءة ومدى توفر الخدمة والأقبال عليها من الامهات والاسر بصورة عامة كما غطت الدراسة عملية إدارة اللقاحات وحفظها خلال الفترة 2012-2014. تم جمع البيانات عن المتغيرات باستخدام إستبيان معد مسبقا كما تم إستخدام إستمارات لجمع المعلومات عن أداء البرنامج من العاملين الصحيين. وقد تم اختيار 384 من الأمهات ومقدمي رعاية الاطفال الآخرين، عملية الإختيار تمت عن طريق استخدام تقنيات العينة العشوائية البسيطة وملئت الإستمارات عن طريق المقابلات الشخصية مع الامهات والعاملين الصحيين حول مؤشرات أداء برنامج التحصين الموسع، كما تمت مفايلة 36 من العاملين في برنامج التحصين (الفنيين، وضباط سلسلة التبريد، مدير برنامج التحصين الموسع) تم جمع المعلومات منهم بإستخدام قائمة مرجعية حول أدوار ومسؤوليات كل منهم.

أجري تحليل البيانات باستخدام برامج الكمبيوتر (SPSS) الحزمة الإحصائية للعلوم الاجتماعية ثم عرضت النتائج في جداول ورسوم بيانية.

وكشفت نتائج الدراسة أن 96% من الأطفال قد تم تحصينهم بالكامل، 2% تم تحصين جزئيا، في حين أن 2% لم يتلقوا أي تحصين. كانت الأسباب الرئيسية وراء الأطفال المحصنين جزئيا والذين لم يتلقوا أي تطعيم قلة الوعي بين الأمهات وحركة السكان والهجرة وتخوف الآباء من الآثار الجانبية للتحصين والذي لوحظ في 12.5% من المستطلعين.

كما أظهرت الدراسة أن غالبية العاملين في برنامج التحصين الموسع بمحلية شندی تلقوا التدريب الأساسي في التحصين ولكن هناك حوجة لإجراء دورات تدريبية تنشيطية على مستوى المحليات وكذلك في الوحدات الإدارية.

وأوصت الدراسة بضرورة قيام المحلية بتنظيم برنامج للتثقيف الصحي لتوعية الأسر حول فوائد وأهمية التطعيم من خلال استخدام وسائل الإعلام المختلفة مثل الراديو والتلفزيون والصحف

واستخدام قادة المجتمع المحلي المدرسين والأئمة الخ للاستمرار في هذه التغطية ، كما ان العاملين في برنامج التحصين يقع عليهم واجب تثقيف الأمهات عن الآثار الجانبية المحتملة للتحصين وإعطاء الرسائل الصحية أثناء جلسات التطعيم، كما أوصت الدراسة بضرورة دعم المحلية للبرنامج من خلال تنظيم الدورات التدريبية التنشيطية وتوفير المعينات اللوجستية اللازمة لتغطية السكان الرحل والسكان في المناطق النائية والتي يصعب الوصول إليها من خلال العمل الروتيني الشهري.

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Chapter one

Introduction

Tracking, evaluating and sharing information provide a vital tool for understanding immunization coverage. Statistics on levels and trends are used to monitor the performance of services at local, national and international levels. They guide campaigns to eradicate polio; they identify areas of poor performance in the system and reveal areas where focused attention and extra resources may be required. And, when deciding whether to introduce a vaccine, immunization levels and trends are one important consideration. (2)

The numbers for a single vaccine can provide vital information for national and global action. Coverage levels for the diphtheria and tetanus toxin with pertussis vaccine (DTP), for example, are considered to be a good indicator of health system performance. In addition, some funding agencies, such as the Global Alliance for Vaccines and Immunization (GAVI Alliance), often consider immunization coverage levels when reviewing applications for financial and technical support, although coverage estimates alone are insufficient to constitute a sole criterion for determining whether a national immunization program has achieved certain performance levels. This reference book, jointly produced by the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO), presents detailed statistics on the performance of national and district-level immunization systems in 194 countries and territories. It provides an over view of key aspects, including. (3)

These aspect include basic indicators from WHO and UNICEF, the United Nations Population Division and the World Bank for each country or territory; trends in national and territorial coverage for eight major antigens; and District-level performanceinachievingcoverage. (4)

Rational

- Immunization activities became high priority in public health concern worldwide, most of childhood disease could be prevented by vaccination and this area need to be highlighted in Shendi locality to insure good quality of services and reduce immunization missed opportunity in addition
- High prevalence of measles in the locality (5).
- Shendi University it had message to conduct research in the area and community service of the locality

Objectives

General objective

Performance assessment of Expanded Program on Immunization (EPI) in Shendi locality – River Nile State, November 2012 to November 2014.

Specific objectives

- To assess the utilization of immunization services.
- To assess immunization coverage for routine immunization.
- To evaluate vaccine preventable diseases (VPD) surveillance system performance.
- To assess the process of vaccines management
- To identify the level the communities awareness and their contribution to services improvement

Chapter two

Literature review

Introduction

Vaccine is an immune –biological substance designed to produce specific protection against given disease. Stimulated the production of protective antibody and other immune mechanisms vaccine may be prepped from live modified organisms inactive or killed organisms extracted cellular fractions toxin or combination of these. More recent preparation is sub –unit vaccine and recombinant vaccine. (2)

Created in 1999, the Global Alliance for Vaccines and Immunization (GAVI) is a public-private partnership to strengthen immunization services and introduce new and underutilized vaccines. GAVI provides a forum for partners to agree upon goals, share strategies, and coordinate activities. As of 2003, the financial arm of GAVI, the Vaccine Fund, provides financing to over 70 countries to help them reach national and GAVI objectives the box below summarizes GAVI's organizational structure. (11)

Global of vaccines action plan 2011-2020

The global vaccine action (GAVP) endorsed by the 194 member states of the world health organization in May 2012 aimed to prevent million of deaths by 2020 through more equitable access to existing vaccine for people in all communities. GAVP aim to strengthen routine immunization to meet vaccine coverage struggles to accelerate control of vaccine preventable disease with polio eradication as the first milestone, introduce new and improved vaccine and support research and development of next generation of vaccine and technologies. The GAVP builds on the global immunization vision and strategy 2006-2015 the United Nations millennium declaration, and the United Nations secretary general's global strategy for woman and children's health developing the plan has brought together multiple stakeholders involved in immunization. (12)

Immunization programs have had image rare impact on the health status of the population as many diseases are preventable through immunization. For instance smallpox was globally eradicated in 1977 as one of the greatest achievement in the area of the public health and since then EPI program have been established all over the world on the foundation of small pox eradication. It's one the most cost effective public health interventions ever known. (13)

Sudan national immunization program

The expended program immunization (EPI) was launched in 1967 the program has introduced six traditional EPI antigens with the measles vaccine as the last antigen to be introduced in 1985 polio, measles and tetanus campaigns conducted by the program supplement the routine immunization activate (9)

Routine vaccination of children according to the national ammunition policy the objective of the EPI is to complete vaccination of children the current policy is to give all pregnant women tetanus toxin vaccination according to the national immunization schedule, in addition to the routine vaccination of pregnant woman conducted in the health facilities, maternal and neonatal tetanus elimination program was intonated them of this program is to eliminate by lowering the incidence to less than 1per 1000 live births. During 2002-2009 the program started a nationwide rehabilitation of cold chain at all level resulting in improved cold chain. (13)

EPI in Shendi locality

Analysis of the current status of the health system indicated that the system suffers from inadequate distribution of human resources between rural and urban areas. The following tables show some data on immunization coverage in Shendi Locality. Immunization services in Shendi locality provided through fixed, outreach and mobile team.

The international immunization schedule

In recent year Sudan has demonstrated one of the greatest priorities and successes of the global regional polio eradication initiative despite begin the largest country in Africa sharing. Border with other countries suffering a long standing internal conflict and having suboptimal routine immunization coverage. Polio eradication activities were stranded in 1994 and since then, the EPI has implemented over 13 national immunization days need of them targeted around 6million children. Measles is the hired cause of infant mortality in Sudan and the first cause of mortality among the vaccine Preventable diseases. The introduction of vaccine in 1985 the country experienced large nationwide out break on regular basis with 50 to 75, 000 cases and 15, 000-30, 000 death annually (13).

Immunity is the ability of the body tolerates material that is indigenou to it and eliminates material that is foreign. The immune system is comprised of organs and specialized cells that protect the body by identifying harmful substances, known as antigens, and by destroying them by using antibodies and other specialized substances and cells. There are two basic ways to acquire this protection – active immunity and passive immunity (9)

Active immunity is provided by a person’s own immune system. This type of immunity can come from exposure to a disease or from vaccination. Active immunity usually lasts for many years and often is permanent.

Passive immunity results when antibodies are transferred from one person or animal to another. The most common form of passive immunity occurs when. (2)

Fetus receives antibodies from his or her mother across the placenta during pregnancy. Other sources of passive immunity include blood and blood products, immune or hyper-immune globulin, and animal antitoxins. Passive immunity disappears over time, usually within weeks or months. (2)

Live microorganisms or antigens bring about the most effective immune responses, but an antigen does not need to be alive for the body to respond. (2)

Types of Vaccine

Live vaccines (e. g. BCG. measles oral polio) are prepared from live (generally attenuated) organism these organism have been passed repeatedly in the laboratory in tissue culture or chick embryos and have lost their capacity to induce full-blown disease but retain their immunogenicity in general, live vaccines are more potent immunizing agents begin. (2)

Live organism multiply in the host and the reasons begin live organism multiplying the host and the resulting antigenic dose is larger than what is injected.

Live vaccine has the entire major and minor antigenic. Live vaccine engages certain tissues of the body, as for example, intestinal mucosa by the oral polio vaccine. (2)

Live attenuated vaccines are derived from disease-causing viruses or bacteria that have been weakened under laboratory conditions. They will grow in a vaccinated individual, because they are weak, they will cause either no disease or only a mild form. Usually, only one dose of this type of vaccine provides life-long immunity, with the exception of oral polio vaccine, which requires multiple doses (2)

Inactivated vaccines are produced by growing viruses or bacteria and then inactivating them with heat or chemicals. Because they are not alive, they cannot grow in a vaccinated individual and therefore cannot cause the disease. They are not as effective as live vaccines, and multiple doses are required for full protection. Booster doses are needed to maintain immunity because protection by these vaccines diminishes over time. Inactivated vaccines may be whole-cell or fractional. Whole-cell vaccines are made of an entire bacterial or viral cell. Fractional vaccines, composed of only part of a cell, are either protein- or polysaccharide-based. Vaccines are composed of long chains of sugar molecules taken from the surface capsule of the bacteria. Unless coupled with a protein, pure

polysaccharide vaccines are generally not effective in children under the age of two years. This coupling process is known as “conjugation. (2)

Recombinant vaccines are produced by inserting genetic material from a disease-causing organism into a harmless cell, which replicates the proteins of the disease-causing organism. The proteins are then purified and used as vaccine Disease Transmission and the Impact of Immunization. (2)

The Global Effort to Immunize

In the 1970s, at the end stage of the global campaign to eradicate smallpox, the World Health Organization (WHO) launched the Expanded Program on Immunization (EPI). Coverage for basic vaccines was an estimated 5% in developing countries at that time. The EPI goals were to ensure that every child received protection against childhood tuberculosis, polio, diphtheria, pertussis tetanus, and measles by the time he or she was one year of age and to give tetanus toxin vaccinations to women to protect them and their newborns against tetanus. During the 1980 national immunization programs in developing countries made substantial progress in meeting the EPI goal, with the support of WHO, the United Nations Children’s Fund (UNICEF) and the USA Agency for International Development (USAID), the Italian government, and other partners. EPI and the program to control diarrheal diseases were the “twin engines” that powered child survival programs worldwide. As immunization coverage in developing countries soared, EPI was helping lay the foundation for other primary health care services. By 1990, average reported coverage for the six antigens was over 70%. As a result of the increase in coverage, the incidence of vaccine-preventable diseases began to fall dramatically (5).

In the 1990s, EPI coverage 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. 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 whoever the reasons, the result was a declining investment in training, equipment, logistics, and communications. The deteriorating situation in the 1990 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. 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. (5)

Immunization program management

Immunization program managers operate within the context of the overall health system. Consequently, whether they think in terms of “systems” or not, their decisions and activities can strengthen the system or weaken it. This happens because most functions in the health system are shared among programs and services personnel, budgets, facilities, equipment, supplies, transportation, logistics, supervision, and more. Changes in one activity ripple through the whole system. Priorities, organization, and resources differ among health systems. In recent years, many health systems have faced pressure to improve efficiency, raise quality, and increase access to services, while simultaneously reducing costs. The experience of health sector reform has underscored the extent to which the health system affects, and is affected by, the political, economic, and social environment, as shown below. Clients, health workers, and health officials interact in numerous ways among themselves and with the political structure. As voters or members of the community, clients can provide the critical link between the health system and the political environment. (7)

The Public and Private Health Sectors

The public health sector includes ministries of health, public hospitals, and government health facilities at the local, district, other sub-national, and national levels. Public health officials formulate policies, standards, and guidelines for national immunization programs. They monitor immunization coverage and disease incidence. They are responsible for ensuring that all immunization service providers, including those in the private sector, comply with the national immunization schedule, maintain the vaccine cold chain, practice injection safety, and follow other policies governing equity and quality. Health personnel from the public sector provide the majority of vaccination services in most developing countries. (10)

The private sector includes non-governmental and for-profit components. Non-governmental organizations (NGOs) are non profit groups that provide curative and preventive health services directly and/or support government-provided services. They range in size and scope from small religious or community-based organizations to large international groups with hundreds and even thousands of employees. A traditional strength of NGOs is their ability to reach people that lack access to public-sector services. Many NGOs have good relationships with people in the communities they serve and involve community members in planning and supporting activities. People often regard health services provided by NGOs as being of higher quality than those provided by the public sector. (10)

In some countries, involvement of health-focused NGOs in immunization programs is limited, largely because they do not have access to vaccines and immunization equipment. On the other hand, their extensive involvement in programs like Integrated Management of Childhood Illness (IMCI), in which they manage drugs and supplies and provide services, indicates that given adequate support, NGOs can contribute to immunization. National immunization programs can take advantage of NGOs' experience and appeal by encouraging their participation in. (10)

- Organizing and providing immunization services directly, although the government should always be responsible for ensuring that NGO services adhere to government policies, norms, and standards.
- Supporting public-sector services with in-kind assistance (e. g., transportation, lodging, and meals), financial support, or technical support (e. g., cold chain equipment, maintenance, and repair).
- Mobilizing the community to demand and preparing the community to receive immunization services.
- Reporting cases of vaccine-preventable diseases and tallies of vaccinations that NGOs provide. (10)

The Organization of Immunization Services

In recent years, ministries of health have been increasingly faced with the challenge of balancing the potential benefits of local decision-making with the efficiencies of centralized policymaking and procurement. Setting policies and standards at the central level help to ensure technical reliability and consistent practices throughout their countries. Central-level procurement of some commodities, particularly vaccines, makes it easier to negotiate lower prices and to control quality. Staff in local health facilities and district health offices needs to continue to plan and monitor the services that they are responsible for delivering. In 1998, Fielded and Nielsen studied the impact of health sector reform on immunization in two African countries. Based on this analysis, they developed a matrix to help decentralization planners distinguish the immunization service functions that should be retained at the national level from those that, although traditionally a national responsibility, could effectively be located at more peripheral levels. (11)

Immunization Service Personnel

Typical assignments of immunization functions of government personnel at various levels of the system are shown in the table below. It is important for government planners and partners to recognize that most of these people have responsibilities in addition to immunization services, so their workloads may be heavy. The table excludes personnel who are less directly involved in immunization services, such as health planners, human resource managers, and financial managers. The list also excludes members of the community who participate voluntarily. (11)

Community Participation

Community participation in immunization programs has been shown to result in higher coverage and, ultimately, reduce the numbers of cases of vaccine-preventable diseases. Managers at all levels should seek the participation of local politicians, religious leaders, community group leaders, and parents in scheduling the days and hours for immunization sessions, organizing outreach activities, promoting immunization, and monitoring performance. Community members also can help solve specific service delivery problems, as described below. (11)

The Impact of Health Sector Reform on Immunization Services

Immunization services everywhere are continually in transition, as governments try to meet political pressures, improve efficiency, reduce costs, and identify reliable funding sources, and increase access to and quality of services. These never-ending changes affect all aspects of government, including the health sector. It is imperative that immunization program managers participate in any national level discussions on the organization and financing of the overall health sector. (11)

Delivery of the health service

In order to reduce mortality, morbidity, and disability, immunization programs must safely administer potent vaccines to susceptible children and women before they are exposed to vaccine-preventable diseases. This chapter describes some of the barriers that prevent people from using immunization services and then outlines delivery strategies for overcoming some of these. The schedule recommended by WHO for delivering the primary series of vaccines to children below the age of one year reflects a balance between epidemiology and practicality. Although the approximate ages and intervals between doses in country schedules should not deviate from those that WHO recommends, there is no single schedule that is appropriate for all countries. An understanding of local epidemiology and national policy is needed to adapt the recommended schedule to a given country's needs. In so doing, local experts should keep in mind importance of limiting the number of contacts and reaching children as soon as their immune systems are able to respond to the vaccine. (11)

Provision of Routine Immunization Services

There are several strategies for the routine delivery of immunization services in or from health facilities.

Fixed facility

This refers to the regular delivery of vaccinations in a health facility on specified days of the week and hours of the day. Larger facilities may give vaccinations whenever eligible clients come. (11)

Outreach

Is the delivery of services to people who cannot get to health facilities or who can do so only with difficulty? Trips to outreach sites are usually completed within a day and are made by health facility staff on foot or using motorized vehicles, bicycles, or pack animals. Monthly visits provide the timeliest protection for

children, although less frequent visits may be necessary where distances are far, travel is difficult, or staff resources are limited. Rainy seasons or snowy winters may make it necessary to schedule a pre-season and a post-season outreach visit with a gap of several months in between. In some countries, such as India, outreach visits for primary vaccinations that are conducted once, twice, or three times a year are called “immunization pulse”. (11)

Mobile strategy

This usually describes trips of more than one day by district or regional health workers for the purpose of delivering services to people living in remote areas. Mobile teams may spend several days travelling to reach the people. In Nepal, it can take up to ten days of walking from the district centre to reach some villages. In general, the cost per vaccination is higher when services are provided through outreach and mobile strategies than through fixed services, because health workers spend more time to reach each child and because there are transportation and per diem costs involved. However, some people cannot be reached in any other way. (11)

Why People Use Routine Immunization Services

Studies in many developing countries show that the great majority of parents view immunization as a worthwhile and relatively easy health practice. Childhood immunization only requires parents to take action about five times in the first year of a child’s life and is generally accepted by families and communities. This contrasts with other practices, such as exclusive breastfeeding, which require repeated and frequent actions on the part of mothers and which are sometimes contrary to cultural norms and beliefs. Scheduling immunization sessions to be accessible is only half the battle – people must actually use the services. Research from many countries indicates that people will use immunization services at least once if they know what services are offered and where and when they are available. They will return if. (11)

- They know when to come back.

- They have been treated respectfully.
- They have confidence that they will receive the vaccinations that they come for.

We also know why families do not use immunization services. Focus group discussions, interviews, and knowledge-attitude-practice surveys in a wide range of countries have consistently found that a majority of parents wish to immunize their children but Health workers should be sure mothers that many encounter obstacles, such k. now when and where to return for the as those described below. (11)

Disease surveillance

During the 1970s and 1980s, the national and global focus of the Expanded Program on Immunization was primarily on reaching the Universal Childhood Immunization goal of 80% coverage by 1990. In the 1990s, national program managers and donors started to look more closely at the effect of immunization services on the incidence of disease, and disease surveillance became a more prominent activity. Disease surveillance is the collection, analysis, and interpretation of data to determine disease trends and patterns. Disease surveillance provides information such as. (11)

The overriding value of disease surveillance, however, is its use as a tool to identify the presence of infectious diseases and guide actions to prevent them from becoming threats to public health. (11)

Types of Disease Surveillance

Different methods are used to obtain different types of surveillance information, as described below. (11)

Facility-Based Routine Surveillance

In many countries, health workers are required to report on the number of individuals that come to their facility and are diagnosed with reportable diseases. These reportable diseases are usually diseases that have outbreak potential, such as

cholera, polio, and measles, or diseases that are targets of national control programs, such as malaria and tetanus. Data on individual patients, which are recorded in patient registers (Chapter 4), are used to calculate the number of cases of reportable diseases diagnosed by health facility staff over a certain period of time. These data are periodically reported to district authorities who compile and send them to higher administrative levels. This process of detecting and reporting information on diseases that bring patients to the health facility is known as passive surveillance. (11)

Passive surveillance

yields only limited data because many sick people do not visit a health facility and because those cases that do show up may not be correctly classified, recorded, or reported. If managers fail to fully understand and account for these limitations, they may incorrectly interpret trends and patterns of infectious diseases. (11)

Community-Based Surveillance

With training, members of the community can expand facility-based surveillance by detecting and reporting cases that may go undetected by the health facility. A good example of this is the use of community members to detect cases of guinea worm (dracunculiasis). In villages where the disease is endemic, volunteers are trained to detect and report cases using a standard diagnostic criterion, e. g., painful legs that have skin ulcers with worms protruding. They then may undertake treatment, referral, and containment measures such as bandaging the ulcer, instructing infected persons not to bathe in water from ponds and streams, and promoting the use of filtered drinking water. (10)

Travel Immunization

With international travel to more exotic locations becoming increasingly popular, clinicians are finding it necessary to become familiar with current recommendations for travel health safety. Immunizations are a “hot topic” of pre-travel preparation discussions, and they offer one of the best ways to reduce the

risks of infections in travelers. A wide spectrum of safe, efficacious vaccines is available, which can help international travelers prevent many of the serious diseases that are absent or uncommon in their home areas. Travel vaccines generally fall into three categories, routine immunizations, which are typically administered during childhood but which may need to be updated, required immunizations, which are necessary for entry into certain countries; and recommended immunizations, which may be useful, depending on the risks of exposure at the travel destination. Advising travelers on vaccine-preventable diseases is increasingly becoming the responsibility of the primary care physician, the approach to vaccine recommendations should be based on a thorough assessment of the risks for travel-related illnesses, the time available before trip departure, and current knowledge of the epidemiology of vaccine-preventable diseases. Practitioners should also take into account the adverse events and contraindications associated with each vaccine. This chapter reviews the overall approach to travel immunizations and provides an overview of the routine immunizations as well as those that are recommended or required for international travel. (14)

Risk factors

Immunizations should be recommended according to the risk of travel-related diseases and not solely on geographic destination. However, determining vaccine recommendations based on health risk factors can be a major challenge for the health care practitioner at the same time as long as different locations are used. The major exception is combining immunoglobulin with live virus vaccine. (14)

Epidemiology of vaccine preventable diseases

Practitioners who provide consultations to travelers should also base recommendations on the current epidemiology of vaccine – preventable disease at each destination. The Centers for Disease Control and Prevention publication, Health Information for International Travel, is one of the standard references for travel immunization recommendations and is updated regularly. Both the achievements and shortcomings of vaccines in preventing disease in tropical

countries are extraordinary. It is estimated that more than 2 million childhood deaths were averted by immunization in 2003. The number of polio cases fell by 99% between 1988 and 2005. The polysaccharide-protein conjugate vaccines offer the hope of a 'new wave' of vaccines with the potential for dramatic reduction in diseases such as meningococcal, pneumococcal and Hemophiles influenza type B (HIB) And yet 1.4 million children died from vaccine preventable diseases in 2002. In 2004, measles resulted in 454.000 deaths the majority of them in children. Many vaccines still require cumbersome mechanisms such as maintenance of a cold chain and injection, with the entire infrastructure these demand. It is because of the enormous potential of vaccines that these issues need to be addressed. Initiatives such as the Global Alliance for Vaccine and Immunization (GAVI) offer the hope that the populations most in need will benefit the potential that vaccinology officers. (15)

Expanded program on Immunization guidelines

Guidelines of the expanded program on Immunization (EPI) for childhood vaccination are given on however the epidemiology of the diseases which the EPI aims to combat will differ between different countries. To reflect this variation, policy needs to be made at national or regional level to decide which vaccines should be included in the country's infant and childhood immunization schedules. (15)

Immunization strategies and schedules

The timings of the vaccines recommended by the EPI are based on a compromise between The desire to immunize as early as possible, thereby protecting the child before he/she becomes exposed to the infectious agent and The requirement to wait both for the infant's immune system to mature and for maternally-derived antibodies that crossed the placenta prenatally to wane, so that the immunization will be effective. (15)

In general, vaccines are recommended for the youngest age group that is at risk for developing the disease and whose members are able to receive the vaccine safely

and develop an adequate response. Many vaccines require more than one dose and it is recommended that these doses be separated by at least 4 weeks. Increasing the intervals between doses, as is recommended in developed countries, enhances the immune response to the vaccines but results child being susceptible to the disease for a longer period of time. (15)

Optimization of vaccine uptake

The most common reason for children dying from a vaccine – preventable disease is that they have not received the vaccine. Optimization of vaccine uptake is crucial and can be facilitated by

- ❖ Offering immunization as often as possible.
- ❖ Administering all vaccines for which a child is eligible simultaneously at a single visit.
- ❖ Routine screening of immunization status of all women and children.
- ❖ Awareness of true and false contraindications for immunizations
- ❖ Maintenance of adequate vaccine delivery.
- ❖ Appropriate utilization of multi-dose vials. (15)

Administration of vaccines

Recent data from industrialized countries has highlighted the importance of using the appropriate needle length when administering intramuscular vaccines in order to reduce recto genicity and, potentially, increase immunogenicity. Data addressing this question in developing countries are not yet available. Intramuscular vaccines should be administered to infants in the lateral aspect of the thighs, while children above the age of 12 months should receive their vaccines in the deltoid muscles. Vaccines administered on the same limb should be separated by at least 2. 5cm. With the exception of OPV, if 2 live vaccines are to be administered, they should be administered wither at the same time or at least 1 month apart. Due to an increased risk of lymphoid empathy, no vaccine should be administered into an arm use for BCG administration for 3 months after receipt of BCG. In the case of

an interruption to an immunization schedule, the schedule should proceed as if no interruption had occurred. There is no need to ‘restart’ an immunization. (15)

Transport and storage of vaccine

The vulnerability to extremes of temperature of the majority of vaccine used in the EPI schedule means that maintenance of an adequate ‘cold chain’ (to ensure vaccine transport at optimum temperatures from manufacture to the point of use) is essential to an effective immunization program. To this end, the following innovations have been introduced:

- ❖ Cold chain monitor – detects excessive temperature during shipment.
- ❖ Vaccine vial monitor (VVM) – for the cumulative heat exposure of an individual vial.
- ❖ Freeze watch monitor – for exposure of vaccine shipments to temperatures below freezing point.
- ❖ Stop! Watch combining the indicators from the cold chain monitor and the freeze watch monitor. (15)

Detailed guidance on the use of these devices and the maintenance of cold chain is available at In order to reduce vaccine wastage, the use of already opened multi-dose vials at subsequent immunization sessions has been condoned by the WHO for the following vaccines: OPV, DTP, TT, Hip and liquid formulations of HIB Multi-dose vials of these vaccines can be used for a period of up to 4 weeks after the opening of the vial provided that. (15)

- ❖ The cold chain has been maintained, the vaccine vial Monitor (VVM) has not reached the ‘discard point’, and the vaccines are within their ‘use by’ date.
- ❖ The rubber vaccine vial septum has not been submerged in water (e. g. by melting ice).
- ❖ Aseptic technique has been used to withdraw all doses. (15)

Needle use and disposal

More than 1 billion immunizations are injected annually in developing countries. Without adequate safety mechanisms, each one of these episode creates the potential for transmission of blood-borne infections to both vaccine recipients (through re-use of disposable needles) and health care workers (through needle-stick injuries). To minimize these risks, the WHO advocates. (15) All immunizations requiring injection be administered via single-use auto-destruct needles, No vaccines are administered without access to safety boxes to dispose of used needles, Disposable syringes can be used to reconstitute lyophilized vaccines but must not be recapped and Safety boxes should be sealed when $\frac{3}{4}$ full. Disposal of the safety boxed remains problematic in many areas and is most commonly performed by incineration. (15)

Waste Disposal and Destruction Once nearly full, safety boxes should be incinerated. If an incinerator is not available, a much less desirable and effective alternative is to douse them with kerosene and burn them. (11)

Misconceptions about vaccines

There have always been concerns about the safety of immunization program this is only appropriate for an intervention in which a biologically active agent is given to large numbers of healthy children. Unfortunately, even after a vaccine's safety has been demonstrated, some misconceptions may persist. Recent examples include concerns that the oral polio vaccine caused infertility or was responsible for the spread of HIV infection. The resurgence of polio in regions rejecting the polio immunization as a result of these erroneous beliefs has demonstrated the ability of misinformation to undermine immunization programs. More information about common vaccine misconceptions and information that can be used to reassure parents and community leaders can be obtained from the WHO. (16)

Contraindications to immunization

- Illness severe enough for the child to be hospitalized, if the child is vaccinated but dies from the pre-existing illness, the vaccine may be thought to have contributed to the child's death. However, immunize as soon as the child's general condition improves.
- For live vaccines immunodeficiency diseases, or immunosuppressant due to malignant disease, therapy with immunosuppressive drugs or irradiation. HIV/AIDS is a special case.
- A severe adverse event (anaphylaxis, collapse of shock, encephalitis, encephalopathy, or non-febrile convulsions) to a vaccine contraindicates further doses of that vaccine. If the adverse reaction occurred following a dose of DTP vaccine, then either omit the pertussis component and continue with the DT vaccine or use a vaccine containing a cellular pertussis (if available).
- For vaccines prepared in egg (e. g. influenza, yellow fever), a history of anaphylaxis following egg ingestion. Vaccines prepared in chicken fibroblast cells (e. g. measles) are safe for such individuals.
- In general, live vaccines should not be given to pregnant women and pregnancy should be avoided for 1 month following immunization. Immunization in pregnancy may be considered where there is a high risk of exposure and the need for vaccination outweighs any possible risk to the fetus (e. g. yellow fever vaccine). (15)

The cold chain

The cold chain is system of strong and transport of vaccine at low temperature from the manufacture to the actual vaccination site, the cold chain system is necessary because vaccine failure to store and transport under strict temperature controls, this is of concern in view of the fairly frequent reports of vaccine preventable disease occurrence in population thought to have been well immunization, among the vaccine, polio is most sensitive to heat, Requiring storage at minus 20 degree c. vaccines which must be stored in the freezer compartment are:-polio and measles vaccine which must be stored in cold part but

never allowed to freezer are:- typhoid, tetanus toxin, DTAB, BCG and diluents in general all vaccines must be stored under the conditions recommended by the manufacture in the literature accompanying the vaccine they may become denatured and totally infective vaccine must be protected from sunlight and prevented from contact with antiseptics. at the health centre, most vaccine (excepted polio) can be stored up to 5 weeks if the refrigerator temperature is strictly kept between 4 and 8 degrees c. opened multi dose which have not been fully used should be discarded within one hour. The cold chain equipment consists of the following. (2)

- Walking cold room (WIC): they are located at regional level meant to store vaccine up to 3 months and serve 4-5 districts.
- Deep freezers (300ltr):-are used for making packs and measles vaccine
- Small deep freezer:-used in cold boxes, vaccine carrier for transport of vaccine and during the session. (2)

Reading the vaccine vial monitor

- IF the inner square is lighter than the outer ring and the expiry date has not been passed (ok to use).
- IF at a later time The inner square is still lighter than the outer ring and the expiry date has not been passed (ok to use)
- IF the inner square matches the color of the outer ring the vaccine has reached the discard point (do not use)
- IF the inner square is darker than the outer ring the vaccine has passed the discard point (do not use). (12)

Immunization in primary health care

All susceptible children should be immunized therefore the opportunity of a sick visit also should be utilized to promote immunization. minor illnesses such as upper respiratory infection or diarrhea are not a contraindication for administering any vaccine. Immunization service should be available every day the practice of setting apart one or two days each week for immunization often leads to

many missed opportunities to protect the needle children. The need for protection is of the child but the responsibility belongs to the parent and the physician. (18)

WHO recommended schedule

6 doses of vaccine - 3 in infancy, a booster at 4-7 years, another at 12-15 years, and a final dose in adult hood. In addition, the administration of tetanus toxin to a pregnant woman induces antibodies that can cross the placenta and prevent neonatal tetanus. The optimal schedule depends on the immunization history of the woman, Supplementary mass immunization campaigns are recommended in countries of high risk for neonatal tetanus and aim to immunize all women of child-bearing age. (16)

Vaccine Preventable Diseases

The Expanded Program on Immunization (EPI) began with six vaccine-preventable diseases: diphtheria, measles, pertussis, polio, tetanus, and tuberculosis. In 1989, WHO recommended that yellow fever vaccine be used in endemic countries? In the 1990s, hepatitis B and Hemophilic influenza type b vaccines were recommended where the disease burden was known or suspected to be high and control of the diseases was a public health priority. This section describes vaccine-preventable diseases and the vaccines in use to prevent them. (11)

Factors influence vaccine preventable diseases transmission

- Contagiousness of the infective agent
- Duration of infectivity
- Disease fatality and attack rate
- Route of transmission

(E. g. person-to-person, vector-borne, water or food-borne)

- Nature of the vector
- Population density and size
- Nutritional status
- Hygiene and sanitation
- Access to clean water
- Poverty

- Population immunity. (11)

A basic concept of public health is that every individual who is protected from a disease as a result of an immunization is one less individual capable of transmitting the disease to others. Individuals who have been immunized serve as a protective barrier for other individuals who have not been immunized, provided that the number immunized has reached a certain level. Reaching and maintaining that level which varies by communicable disease provides “herd immunity” to unimmunized individuals. (11)

Tuberculosis

Tubercular infection should be clearly differentiated A person may be having a tubercular infection without having, in such cases clinical manifestations of disease. The hyper sensitivity phenomenon (tuberculin test) may be evident. Other mycobacterium such as:-mycobacterium bovis, Africana, Canetti and micro also causes tuberculosis are less common. Based on these surveys the prevalence of infection is estimated to range from 5 to 60 percent in different age’s groups. Children have a lower prevalence rate (5-10 percent)as compared to adolescents (10-30 percent) infection rate are similar in urban and rural areas the overall proportion of freshly infected persons in the previously non- infected individuals is about 1 percent, the incubation period range between 3 weeks to 3 months. Recent studies have documented the presence of certain atypical mycobacterium in the environment theses are also known as non tuberculosis my co-bacterium. These bacilli have been divided into four run yon group. (11)

Immunity is not inherited Resistance to tuberculosis may develop as a result of natural infection BCG vaccination or both. (11)

Tuberculosis is diagnosed definitively by identifying the causative organism (mycobacterium tuberculosis) in clinical sample (for example sputum or pus) when this is not possible a probable diagnosis may be made using imaging (x rays or scans) and or tuberculin skin test. (11)

Tuberculin test is considered to be the best tool for assign the prevalence of infection in the community even though is substantially less sensitive and less specific for infection with tubercle bacilli. A positive tuberculin skin test is the hallmark of infection with *M tuberculosis*. Tuberculin reactivity continues lifelong. Robert Koch discovered the tubercle bacilli's in 1882. The vaccine was first used in humans in 1921. The dose is 0.1 ml at all ages. (11)

Transmission (infection) Recent studies have documented the presences of certain atypical mycobacterium in the environment malnourished individuals are more prone to develop tuberculosis because of poor immunological system on the other hand tuberculosis may precipitate malnutrition in a patient with border line nutrition. (17)

BCG vaccine always consults the manufacturer's data sheet before using a vaccine. BCG:-A freeze-dried preparation of a live attenuated strain of *Mycobacterium bovis* given as a single ID injection. Early administration recommended as it is most effective in preventing TB meningitis and military TB, diseases that are more common in infancy. The duration of protection beyond 10-15 years is uncertain; booster doses are not recommended by the WHO. Hypersensitivity should be excluded by a negative tuberculin skin test if BCG is administered after the neonatal period. BCG also protects against leprosy. Contraindications: confirmed HIV or other forms of immune compromise. (16)

Side-effect a small swelling forms 2-6 weeks post vaccination that may progress to a benign ulcer. Local abscesses may occur, particularly after incorrect administration. BCG lymphadenitis and osteomyelitis may occur. (16)

MEASLES

Measles is highly contagious disease caused by a virus belonging to the paramyxovirus family. It is characterized by fever, upper respiratory symptoms and maculopapular rash starting on the 5 days of illness. The rash heals leaving a brownish pigmentation. Serious and fatal complications include pneumonia, diarrhea and encephalitis. (18)

Measles infection spreads from the infected person to normal individual by the respiratory route. Transmission mainly occurs through small drop let nuclei – sometime large droplets or direct person –to – person contact may also spreader the disease incubation period is 8- 12 days. (18)

Measles makes the individual immune for whole life against subsequent infection. Serum antibodies to viral heamgluttin in hemolysin and complement are observed following an infection. (18)

Measles is a self liming disease unless it is complication convalescence is prolonged, with respiratory complications. Death may occur one- third of the patient it's with measles encephalopathy die while another one-third is left with severe neurological system. (18)

Measles vaccine is a live attenuated virus given by injection. Measles may be given as a monovalent vaccine or in combination with rubella mumps (MR, MMR). It is normally given at 9 months of age but can be given at 6 and 9 months to those at high risk and should be offered to susceptible children within 3 days of exposure to infection. All children should receive 2 doses of measles vaccine. (16)

Side-effect of measles vaccination includes a mild measles-like illness may occur in 5-15% of children 6-12 days after immunization. Convulsions and encephalitis are rare complications. (16)

Vaccine does not seem to aggravate primary tuberculosis. Screening is not necessary before immunization. Any infant vaccinated below 9 months deserves another dose at or after 12 months. The protection give by a single dose of measles vaccine is considered to be lifelong the dose 0. 5 ml. (18)

Treatment who and UNICEF recommended given vitamin A can help prevent eye damage and blindness fever is controlled by paracetamol. Cough help in clearing of mucus from the lungs. (18)

Polio

Poliomyelitis is an infectious disease epidemic and endemic throughout the world. The diseases in the 1990 mainly affect children less than five years developing countries type of polio 1-2 and 3 most our break of paralytic polio are due to type virus. (16)

Infection Poliomyelitis is an acute viral infection caused by an RNA virus. but the virus may infect the control nervous system incubation period usually 7 to 14 days. (16)

Epidemiology of the disease has been recorded in detail by John Paul who made major contribution to the understanding of epidemiology of disease. WHO resolved to eradicate poliomyelitis globally since then implementation eradication strategies has reduced the number of polio endemic countries from more than 125 in 1988 to 4 in Nov 2006 poliomyelitis is seasonal occurring more commonly in summer and early autumn in temperate climates. (16)

Transmission with respiratory system man is the only know reserve of infection faecal-oral route this is the main route of spread in developing countries, the infection. May spread directly through contaminated fingers where hygiene is poor or indirectly through contamination water milk and food. Immunization is the sole effective means of preventing poliomyelitis both killed and live attenuated vaccine are available and both are safe and effective when used correctly. (16)

Disease diagnosis includes laboratory analyses of patient stool. Any of these virus have influenza like symptoms such a fever, loose stool sore throat, headache or upset stomach some may have pain or stiffness in the neck, back and legs and 1% become paralyzed. (16)

Vaccine of Poliomyelitis is available in 2 forms – a live attenuated oral vaccine (OPV, Sabin vaccine and an injection able killed virus vaccine (IPV, Salk vaccine) both vaccines contain poliovirus types 1, 2 and 3. The EPI recommends OPV

because of its low cost, ease of administration, superiority in conferring intestinal protection, and potential for infecting household and community contacts thereby boosting secondary immunity. Unfounded reports that OPV causes infertility have, with a resulted in reduced immunization coverage in countries such as Nigeria, with a resultant increase in poliomyelitis. (16)

IPV rather than OPV should be administered to immune-compromised individuals and their household contacts it's essential to immunization all infant by 6 months of age to protect them against polio OPV developed by Sabin is used worldwide for the presentation or paralytic poliomyelitis. First dose is usually given when the infant is 6 week old 3 doses. Additional dose are recommended prior to school entry and then every five associated poliomyelitis is extremely rare: 2-4 cases per million doses. (16, 2)

The side effects of OPV- Cautions include Patients with diarrhea and vomiting requires a further dose after recovery. (2)

Routine immunization it is an important method of controlling poliomyelitis. But it cannot be utilized as a method of eradication if used done because of ill's inherent limiting factors. The limiting factors are suboptimal efficacy of the vaccine because of improper maintenance of cold chain. Giving polio vaccination two dose of OPV four week apart are recommended to all children up to the age of less than five years regard of previous vaccination status. A minimum of 2000 to 3000 children in urban areas and a radius of 5 kilometers in low density rural areas should be covered. (2)

Treatment; as yet there is no cure for polio no drug or Other medical treatment can halt the destruction of poliovirus in the body hoverer several medical treatments can Lessing the suavity of the disease. Keeping the patient s still and quiet can is some cases, immunize the severity of paralysis for these patients initial treatment consists of immediate hospitalization and strict bed rest. Patient may also undergo rehabilitative therapy to learn how to use braces crutches and other devices which provide additional support and mobility. In the early 1920 American physician

Philip drinker invented a mechanical device called and artificial respiration to treat patients at risk from this complication. (2)

Rota RIX

Rota virus is the most common cause of severe diarrhea among infant and children throughout the world, there are different strains of rotavirus and multiple infections by different strains may occur rotavirus causes fever –vomiting and watery diarrhea. Rota virus illness typical resolves on its own after three to nine days. (19)

The primary mode of Transmission of Rota virus is the passage of the virus in stool to the mouth in another child known as focal–oral route of Transmission. the virus can live for hours on hands and even longer on hard surface the virus is very difficult or even impossible to prevent your child from acquiring Rota virus infection. (19)

Rota virus responsible for an estimated 500, 000 visit to doctor offices and 160, 000 emergency –Rota visit among children each year in USA, the infection usually spread in the south west and spread to the northeast by spring season infection are most common during the winter months from November to May. However infection with rota virus can occur any time of the year and Immunization is the sole effective and children acquiring immunity to rota virus. (19)

Diagnosis May be made by rapid antigen detection of rota virus in stool specimens strains may be further characterized by enzyme immunoassay forever's. (19)

In 2006 vaccination has been available for rotavirus infection almost all children became infected with rotavirus by the their third birth day with different viral strains are possible and most children had several episodes of rotavirus baby and older between the age of 6 and 24 months are at greatest risk for developing severe disease from Rota virus infected. Two live oral vaccines have recently been licensed against this virus, responsible for up to a half of diarrhea-related hospital admissions in Africa. A live attenuated vaccine has been licensed for use in Latin

America and Europe. This vaccine is administered at 6-14 weeks of age, with a second dose at least 4 weeks later. A re-assortant vaccine based on a bovine rotavirus strain and incorporating capsid proteins for 5 common human serotypes has been licensed in the USA. This vaccine is administered as 2 doses commencing at 6-10 weeks of age and given at 4-10 week intervals. Large-scale studies of both vaccines have shown both to be safe and highly effective against severe rotavirus disease. Importantly, neither vaccine has been shown to be associated with intussusceptions, a side-effect that was responsible for the withdrawal of an earlier rotavirus vaccine (RotaShield). (17-19)

Pentavalent

It is indicated for active immunization against diphtheria tetanus Hib– pertussis (whooping cough)-Haemophilus. 0.5-ml dose of Infaanrix is approved for administration in infants and children 6 weeks to 7 years of age. The series consists of a primary immunization course of 3 doses administered at 2, 4 and 6 months of age (at intervals of 4 to 8 weeks) Use of Infaanrix with other DTPa vaccines Infaanrix and diphtheria and tetanus toxin and pertussis (DTPa) vaccine from different manufacturers for successive doses of the DTPa vaccination series because the pertussis antigen components hepatitis B (recombinant) Infaanrix may be used to complete DTPa vaccination. (6)

Children at risk for children at higher risk for seizures than the general population, an appropriate antipyretic may be administered at the time of vaccination with pertussis –containing vaccine including Infaanrix, and for the ensuing 24 hours to reduce the possibility of the individual infant's medical status. (6)

Vaccination has been observed in some infants born prematurely. Decisions about when to administer an intramuscular vaccine including Infaanrix to infants born prenatally should be based on consideration of the individual infant's medical status and potential benefits and possible risks of vaccination. Don't mix Infaanrix with any other vaccination in the same syringe or vial. (6)

Diphtheria

Diphtheria is an acute toxin mediated infectious disease caused by toxemic strains of diphtheria. Protection against disease is due to the development of neutralizing antibodies to the diphtheria toxin serum diphtheria antitoxin level of 0.1u/ml. (6)

Tetanus

Tetanus is an acute toxin. Mediated infectious disease caused by a potent exotoxin released infection disease caused by a potent exotoxin released by tetanus protection against diseases in due to the development of neutralizing antibodies to the tetanus toxin serum tetanus antitoxin level of 0.1u/ml. Tetanus toxin vaccine is a formaldehyde-inactivated preparation of tetanus toxin adsorbed onto aluminum salts that can be given by IM or deep SC injection. It is normally administered to infants as part of DTP (but can be administered as DT if pertussis is contraindicated). (6, 16)

Pertussis (whooping cough)

Pertussis is a disease of the respiratory tract caused by pertussis the role of the different components produced by pertussis in either the pathogenesis of, or the immunity to pertussis is no well established serological correlate of protection for pertussis. Pertussis vaccines available in 2 forms: whole-cell vaccine (containing killed pertussis bacteria, commonly used in developing countries) or a cellular vaccine (containing inactivated pertussis toxin in combination with 1-4 other immunogenic components). Both are given by IM injection, normally as part of DTP or DTAP vaccine. Primary immunization in infancy is essential as pertussis mortality occurs predominantly in this age group. A booster dose is recommended between the ages of 1 to 6 years; duration of protection following this is estimated at 6-12years. Adolescents and adults can, therefore, are infected and transmit pertussis to susceptible infants. (6, 16)

Side-effects 10-50% infants experience mild reactions such as local swelling fever and irritability after whole cell vaccine. Prolonged crying occurs in seizures and

hypotonic episodes occur much less commonly these reactions are less common after a cellular pertussis. Following a severe reaction to DTP, it is appropriate for whole cell pertussis to be omitted from subsequent immunizations, by using either DT or a cellular pertussis containing combination vaccine. No association between whole cell pertussis and chronic encephalopathy has been found. (16)

Hip Diseases

Homophiles influenza type b or Hip is. the most common cause of bacterial meningitis in children under five year of age in most countries where it has been studied and the second most common cause after streptococcus pneumonia level of 0. 1u/ml. (6)

Hepatitis B vaccine

Suspension of inactivated hepatitis B surface antigen adsorbed onto aluminum salts. It is given by intramuscular injection (as per guideline). Booster doses are not recommended. It is available both as a recombinant and plasma-derived product – both are equally safe and effective and can be used interchangeably. The vaccine is available either as monovalent Hip or in combination with DTP or HIB only the monovalent vaccine should be used for immunization at birth. Neonatal vaccination provides immune prophylaxis against prenatal infection. The use of hepatitis B immunoglobulin at birth for prevention of prenatal transmission is not recommended by WHO. (16)

Hepatitis A vaccines

Exist in 5 variations: 4 inactivated and 1 live attenuated (produced and used only in China). Antibodies persist for at least 2 years after a single dose of inactivated vaccine. However, current recommendations suggest these vaccines are administered as 2 doses 6-18 months apart. No vaccine is licensed for use in infants <1-year-old. Hepatitis A vaccine is also available combined with Hepatitis B vaccine in a formulation to be administered as 3 doses a 0, 1, and 6 month schedule. The high prevalence of hepatitis A in developing countries results in

predominance of asymptomatic childhood infections. Therefore, these vaccines are not recommended for use in these setting. Travelers from industrialized countries to these regions should be immunized. The vaccine is well tolerated and no serious adverse effects have been attributed to the vaccine. Antigens used in the vaccines are determined by the WHO each year according to the anticipated prevalent strains. In addition, vaccines are currently. (15)

Mumps vaccine

Consist of live attenuated strain of the virus grown in chick embryo cells in culture. It is normally given by IM injection with measles and rubella vaccines in the MMR triple vaccine at 12-15 months and again at 3-5 years. (15)

Streptococcus pneumonia

In 1881 the organisms know the pneumococcal for its role as etiologic agents of pneumonia. Was first by us army physician George Stemberg and French chimist Louis Pasteur. (21)

Transmission: when both bacteria are placed together into the nasal cavity of mouse within 2 weeks. (21)

Epidemiology: *S. pneum* is one of the most common causes of bacterial meningitis in adults. along with *neisseria meningitidis* in adults in the u s a also one of the top two isolates found in ear infection pneumonia is more common in the very young and the very old pneumonia can impact any one specially during fusion. (21)

Diagnosis: Is generally based on clinical suspicion along with apposite culture from sample and also titer of >200 units is significant. (21)

Vaccine the pneumococcal conjugate vaccine is recommended for all children younger than 5 years of age and adult 19 years older with certain medical condition and all adults 65 or older who smoke or HIV infection. (21)

Side effect as with vaccine there can be minor reaction including pain and redness, headache, fatigue or a general feeling of discomfort. (21)

Immunity gives safety immunogenicity of 23 valent pneumococcal conjugate vaccine. (21)

Vaccination cards and other home-based records enable parents and health workers to monitor an individual child's progress toward full immunization. Families keep these records of childhood and tetanus toxin vaccinations to remind them which vaccinations and doses have been given, which have not, and when vaccinations are due. These cards may be the only records health workers have of vaccination history and status if patient registers are not well maintained or for clients who have moved from another health facility. (11)

The future of vaccine in tropical countries

As a result of increasing recognition of the cost effectiveness of vaccine programs new funding initiatives have been developed to realize the goal of immunization in tropical and developing countries, most prominent among these is GAVI (the global alliance for vaccination and immunization) this alliance between key immunization stakeholders such as developing and donor governments, the World Bank, the WHO, UNICEF, has brought focus and unprecedented resources to the goal of optimizing immunization uptake and the development of new vaccines. While 1.4 million of the global childhood deaths in 2002 were vaccine preventable, many more were due to infectious diseases that are not yet vaccine preventable, but may one day become so. More vaccines including those against the diseases such as Dengue, Enterotoxigenic E. coli, Hepatitis C, HIV, Malaria, Shigella, and Schistosomiasis are required and are currently in development. (16)

Chapter three

Material and methods

The study area

Shendi locality is one of the localities of the river Nile states, it's located north Khartoum the capital of Sudan the total area of the locality is about 14596kms. (22)

The total population of Shendi locality is estimated at about 245000. Shendi locality is divided into five administrative units HjarAlasal, Kaposheia, rural south Shendi, rural north Shendi and city. Children under five year in Shendi are about 50230. Most people depend on agriculture, where there are number of agricultural project and there are 3 hospitals. Is located 170km north Khartoum the capital of the Sudan. (22-23)

The EPI staffs in Shendi Locality include EPI manager, cold chain officer surveillance officer and 36 vaccinators

Strategies used delivered vaccination services in Shendi locality include Fixed site strategy (it has 15 fixed site give services available about 5km of area), Outreach site strategy (it has 29 outreach site give services available about 5-10km of area fixed site faster) and Mobile team strategy (it has very expensive and no ire genial because give to the combs just in Shendi locality). (23)

Study population:

- The study populations included were the households with at least one child at the age of 12-23 month.
- The immunization program manager in the Shendi locality
- 36 vaccinators
- Surveillance officer

- Cold chain officer in Shendi locality

Study design

This is descriptive across – sectional study conducted among the population of Shendi.

Sample size:

The sample size was determined by the following formula:

$$N = \frac{z^2 \cdot p \cdot q}{d^2}$$

N= sample size

z = the value in normal curve corresponding to level of confidence 95% = 1.96

p = expected prevalence

q = (1-p) not expected prevalence

d = margin of error = .05

$$n = \frac{[1.96^2 \times (0.5 \times 0.5)]}{(0.05)^2} = 384$$

Sampling technique

- Simple random sample was applied to select individual in Shendi locality.
- Immunization staff and operation officers were interviewed. and
- EPI Documents were reviewed

Data collection and analysis and presentation

The data was collected systematically using pre design questionnaire and checklist from the households and caregivers. Data was analyzed by entering it into

computer using the statistical package for social science program (SPSS) and then results were presented in table and figures.

Sampling technique:

In shendi locality this sample includes the following:

30 clusters Immunization Coverage Survey are defined as survey of small number of Individuals to determine their immunization status. (11) The survey technique essentially visiting homes and examining records (cards) as well as obtaining vaccination history. It is usually done in a systemic way that only a significant number of homes (210) are required to be surveyed in order to obtain valid results within a given precision level. (11)

210 sample in 30 cluster of shendi city.

In HjarAlasal unit, kaposheia unit, north shendi unit, south's shendi unit, this sample includes the following:

30 house immunization coverage survey to determine the coverage the area in combs result within given precision level. (11)

- 30sample in kaposheia unit
- 30 sample in south shendi unit
- 30 sample in north shendi unit
- 30 sample in north HjarAlasal
- 30 sample in south HjarAlasal
- 24 sample in fixed site shendi locality

Chapter Four

(1)

Table (1) shows the age distribution of mother's (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384))

Age	Frequency	Percentage%
25-35	126	32.8%
36-46	134	34.8%
Above46	134	32.8%
Total	384	100%

Table (2) shows the educational level of Mothers (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384))

education level	Frequency	Percentage%
Illiterate	54	14.6%
Primary	118	30.7%
Secondary	116	30%
Undergraduate	91	23.4%
Post graduate	5	1.3%
Total	384	100%

Table (3) illustrates type of mother's employment (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384))

Repetition rate	Frequency	Percentage%
Housewife	269	58%
Employee	173	26%
Student	56	16%
Other	-	-
Total	384	100%

Table (4) shows the monthly income of the mothers (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384))

Monthly income	Frequency	Percentage%
600-700	87	26.6%
800-900	88	22.9%
Above 900	209	45.5%
Total	364	100%

Table (5) shows the number and distribution of families size (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384))

Number of family	Frequency	Percentage%
3-2	144	37.5%
6-4	159	41.4%
9-7	72	81.7%
Above	9	2.4%
Total	384	100%

Table (6) shows the immunization status of children in Shendi (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384))

Immunization	Frequency	Percentage%
Children fully immunized	376	96%
Children partially immunized	4	2%
Children not immunized	4	2%
Total	384	100%

Figure (1) shows the immunization status of children in Shendi

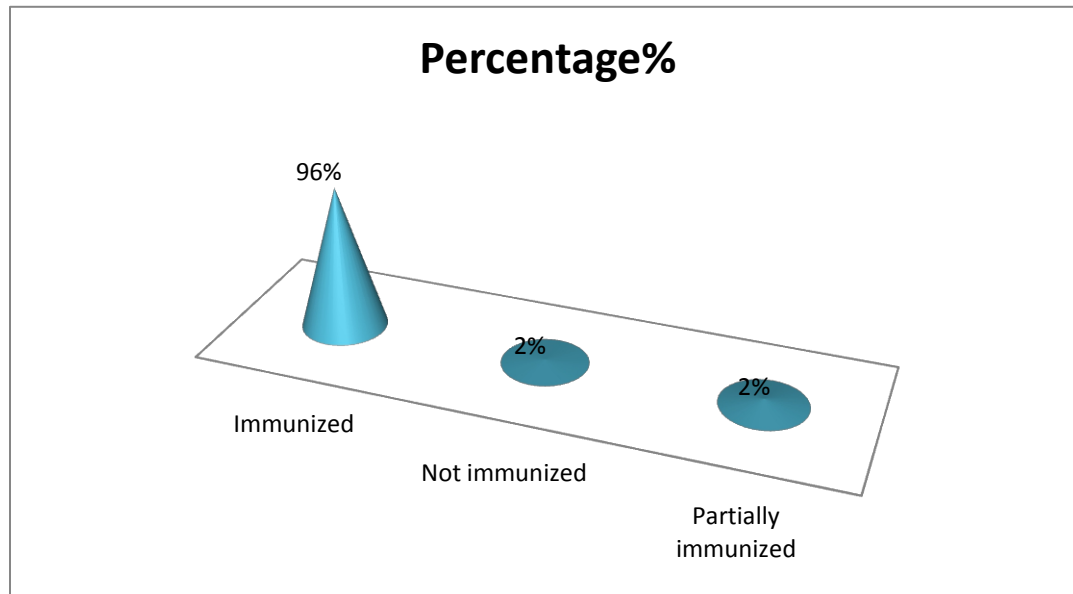


Table (7) Shows the reason why children were partially or never received vaccination (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384))

Children not immunized	Frequency	Percentage%
father refusals	1	13.0%
Fear of side effects	7	87.0%
Total	8	100%

Table (8) shows mothers taking doses of tetanus during pregnancy (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384))

taking doses of tetanus	Frequency	Percentage%
Immunized	364	94%
Not immunized	4	2%
Partially immunized	16	4%
Total	384	100%

Figure (2) shows mothers taking doses of tetanus during pregnancy

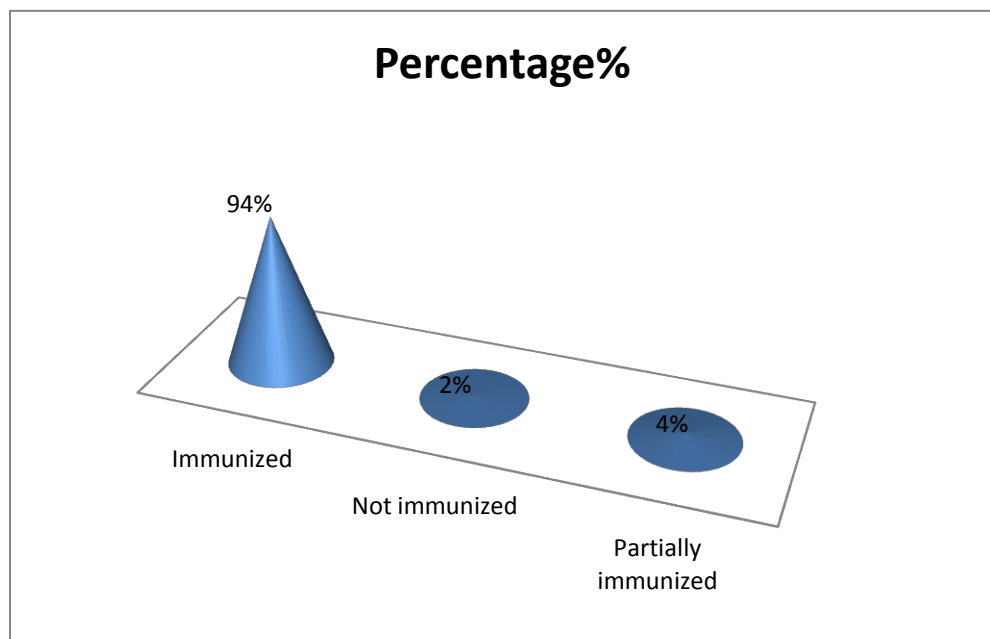


Table (9) shows the number of tetanus doses taken during pregnancy. (Assessment of Routine Immunization Services – Shendi 2013-2014 (n=384))

Tetanus douse	Frequency	Percentage%
A single dose in pregnancy	107	27%
Two doses during pregnancy	134	42%
Over	123	31%
Total	364	100%

Table (10) shows the knowledge of mothers about immunization schedules (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384))

The beginning of douse	Frequency	Percentage%
Since birth	133	30.6%
After forty	195	40.9%
After 2 months	42	0.9%
After 3 month	14	0.6%
Total	384	100%

Table (11) shows the type of health facilities providing routine immunization to the beneficiary (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384))

Place services	Frequency	Percentage%
Hospital	128	34%
Health center	146	38%
Health unit	110	28%
Total	384	100%

Table (12) Mothers complete TT vaccination doses (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384))

repetition rate Completed	Frequency	Percentage%
Complete dosing	364	94%
Have not complete	10	3%
Partially vaccinated	10	3%
Total	384	100%

Table (13) showing why child hood keeness to complete the dosing (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384)

dosing complete	Frequency	Percentage%
Important to protect against diseases	350	91%
Customs and traditions	11	8%
I do not know	3	1%
Total	364	100 %

Table (14) show the not keen on taking doses of the mother (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384)

not keen on taking doses	Frequency	Percentage%
Unimportant	3	23%
Center faster	7	77%
I do not know	-	-
Total	10	100%

Table (15) shows the knowledge of the mother on vaccine preventable diseases (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384)

Knowledge targeted diseases	Frequency	Percentage%
I know	363	95%
I do not know	21	5%
Total	384	100%

Figure (3) shows the knowledge of the mother on vaccine preventable disease

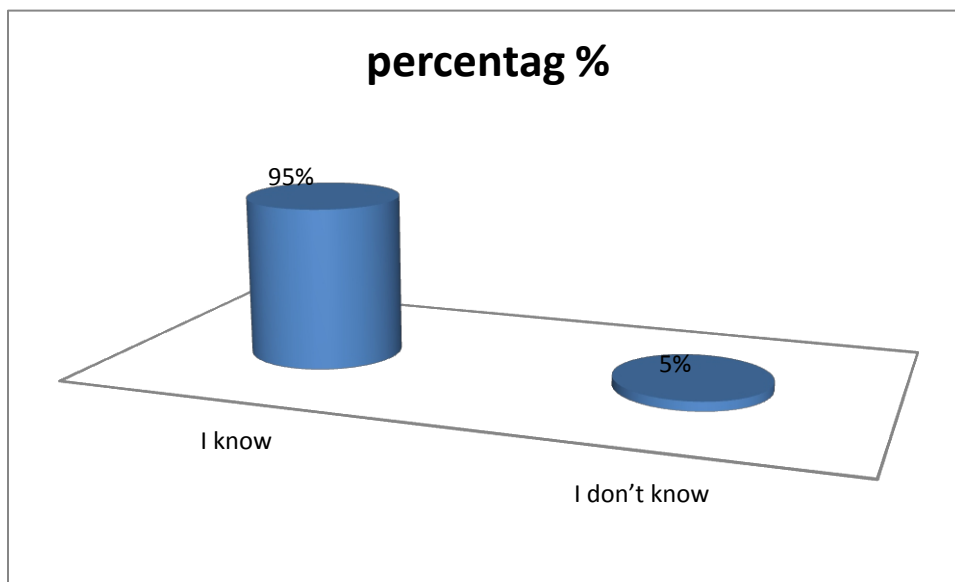


Table (16) shows knowledge of mother about specific VPD (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384)

Targeted diseases	Frequency	Percentage%
Measles	58	12%
Penta ,tuberculosis	75	29%
Measles, polio, penta, tuberculosis, Titans, Rona, pulmonary	251	59%
Total	363	100%

Table (17) show mothers following the correct immunization schedules (assessment of Routine Immunization Services – Shendi 2013-2014 (n=384)

Took the dose on time	Frequency	Percentage%
They took the dose on time	360	94%
They did not take at all	-	-
They took the dose in time partially	24	6%
Total	384	100%

(2)

EPI vaccinator questionnaire result analyses and presentation

Table (1) show the vaccinator age (assessment of Routine Immunization Services – Shendi 2013-2014 (n=36))

technician's age	Frequency	Percentage%
35-25	5	%13.8
45-36	25	%72.4
55-46	5	%13.8
Total	36	%100

Table (2) showing the result of education level of head of vaccinator (assessment of Routine Immunization Services – Shendi 2013-2014 (n=36))

education level	Frequency	Percentage%
Secondary	12	%33.4
Health of diploma	24	%66.6
Undergrad	-	-
post grade	-	-
Total	36	%100

Table (3) show the work place of vaccinator (assessment of Routine Immunization Services – Shendi 2013-2014 (n=36)

Work place	Frequency	Percentage%
Fixed site	8	%22.3
Outreach site	28	%77.7
Mobile team	-	-
Total	36	%100

Figure (4) show the work place of vaccinator

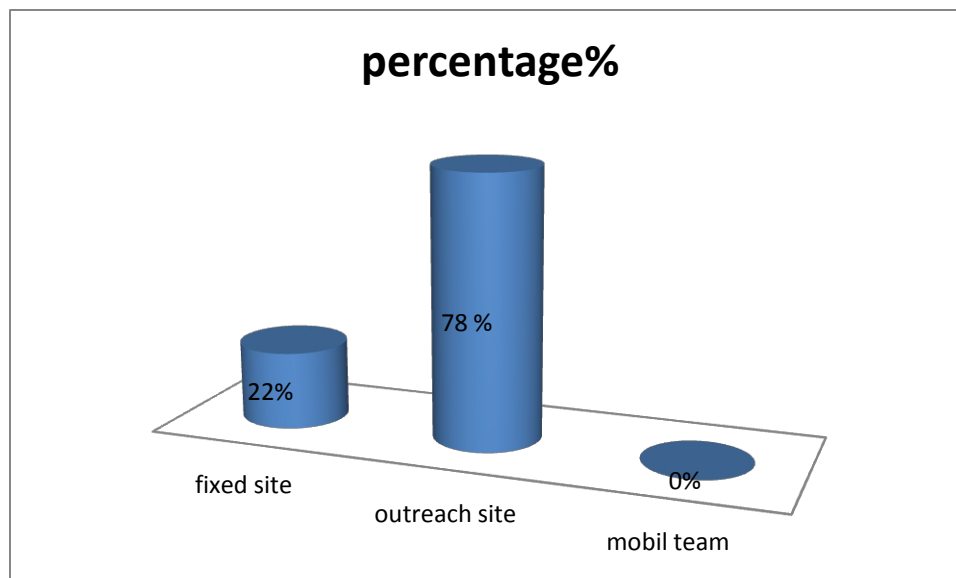


Table (4) the last period of training to vaccinator (assessment of Routine Immunization Services – Shendi 2013-2014 (n=36)

training The last period	Frequency	Percentage%
year ago	21	33.5%
Two years before	5	13.8%
More than 2 years	19	52.7%
Total	36	%100

Table (5) shows the last training for vaccinator (assessment of Routine Immunization Services – Shendi 2013-2014 (n=36)

training last	Frequency	Percentage%
2005	5	13.8%
2009	9	25.0%
2013	19	52.8%
Above 25 year	3	8.4%
Total	36	%100

Table (6) shows the keenness of the vaccinator preview injection place before appeal (assessment of Routine Immunization Services – Shendi 2013-2014 (n=36)

preview injection place	Frequency	Percentage%
Preview	36	%100
Are not assigned	0	0
Are sometimes	-	0
Total	36	100%

Figure (5) shows the keenness of the vaccinator preview injection place before appeal

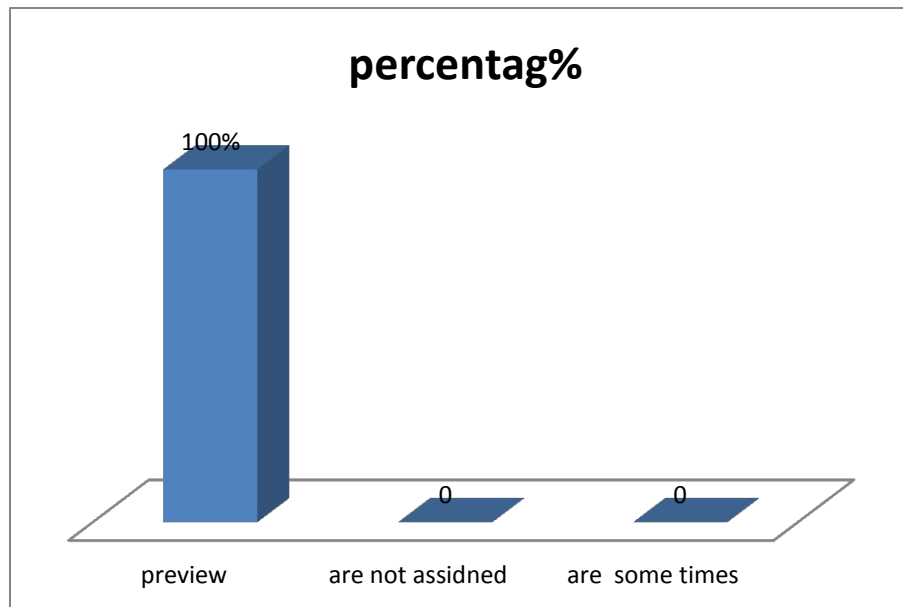


Table (7) show the vaccinators observe the site of injection (assessment of Routine Immunization Services – Shendi 2013-2014 (n=36))

injection place to preview	Frequency	Percentage%
Avoid any trace of side effect	23	23%
To clean the place injection	1	1%
appeal to avoid any side effects	1	1%
All of the true	11	11%
Total	36	100%

Table (8) shows how to the illustrated facilities (assessment of Routine Immunization Services – Shendi 2013-2014 (n=36))

calm the facilities	Frequency	Percentage%
Talking to parents	12	33.3%
Knowledge the side effect	4	11.2%
Knowledge type potions and effects	5	13.8%
Advice and explanation	15	41.7%
Total	36	100%

Table (9) shows the crowdad the house holed of case the combs (assessment of Routine Immunization Services – Shendi 2013-2014 (n=36))

crowdad the house holed	Frequency	Percentage%
Yes	35	97.2%
No	1	2.8%
Total	36	100%

Table (10) shows come up after it's too late in time to take the dose (assessment of Routine Immunization Services – Shendi 2013-2014 (n=36))

come up after it's too	Frequency	Percentage%
Sometimes on time	35	97.2%
Yes come in on time	1	2.8%
not on time	-	-
Total	36	100%

Table (11) shows bring the vaccination card for each visit (assessment of Routine Immunization Services – Shendi 2013-2014 (n=36)

bring the vaccination card	Frequency	Percentage%
Somewhat is to bring	1	0.26%
Yes bring	35	74%
NO bring	-	-
Total	36	100%

Figure (6) shows bring the vaccination card for each visit

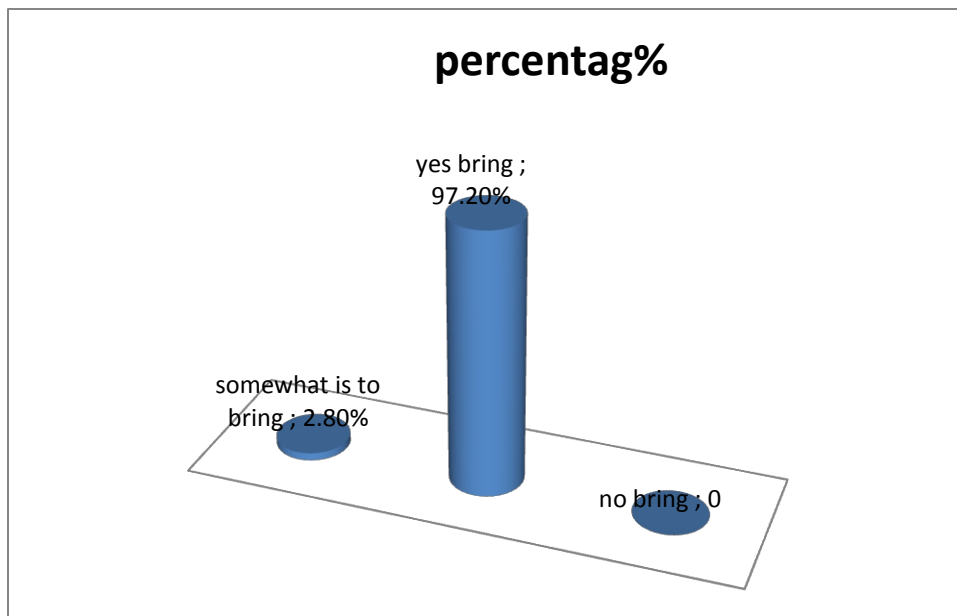


Table (12) Show the diseases is there do not vaccinated of the child (assessment of Routine Immunization Services – Shendi 2013-2014 (n=36)

Diseases do not vaccinated	Frequency	Percentage%
Fever	18	50%
HIV	2	5.6%
Malnutrition	5	1.8%
Inflamationrespirotarey	8	22.3%
Hedge	3	8.3%
Total	36	100%

Figure (7) Show the diseases is there do not vaccinated of the child

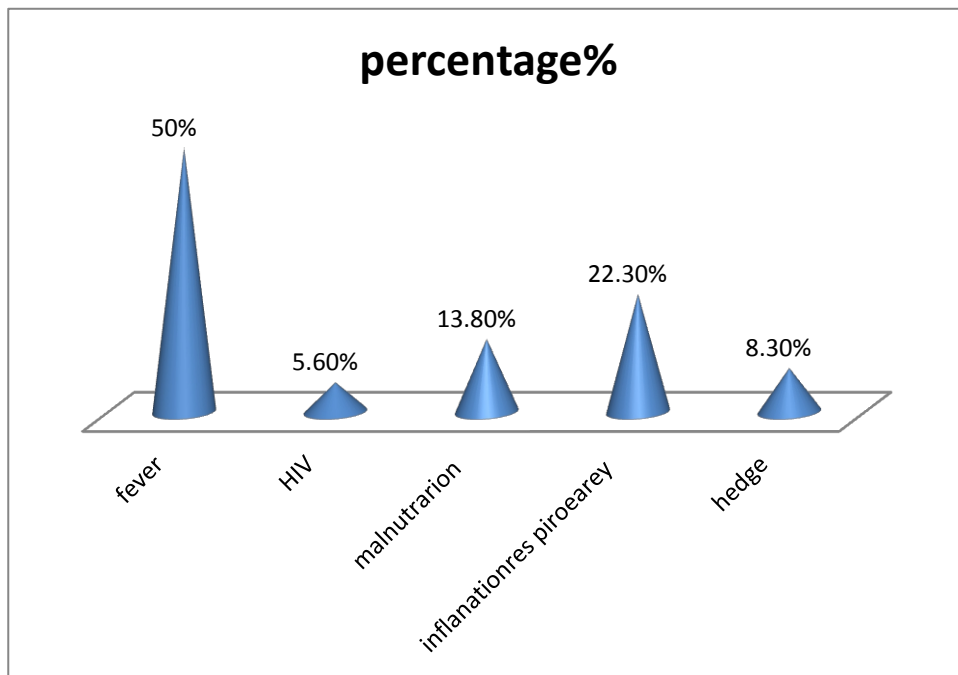


Table (1) show of a comparison between the number of the vaccinator and mobile teams Workplace (assessment of Routine Immunization Services – Shendi 2013-2014

Work place	Vaccinator number
Mobile teams	Mobile teams are ineffective because they are expensive material
Fixed site	12vaccinatoer
Outreach site	24 vaccinator
Total	36vaccinatoer

We find that the small number of vaccinator with a concentration in Fixed site either mobile teams are irregular use of the material they are expensive

Table (2) show of a comparison between the preview injection place and illisustrated facilities (assessment of Routine Immunization Services – Shendi 2013-2014

preview injection place	No		Total		
	-				
illisustrated facilities	Talking to parents	Knowledge the side effect	Knowledge option and effect	Advices and explanation ample	
	12	4	5	15	36

Show that's preview injection place to all of vaccinator

Table (3) show of a comparison between the bring vaccination card and come too late in time to take the dose (assessment of Routine Immunization Services – Shendi 2013-2014

bring vaccination card	No	Yes	Some what	Total
	-	35	1	36
come late in time to take the dose	Some time	Yes	No	
	1	35	-	36

Its frequent same of come too late in time take the dose and bring the vaccination card

Table (4) show of a comparison between the complete the douse and educational level (assessment of Routine Immunization Services – Shendi 2013-2014

Would bring vaccination card	No			Yes		Total
		8			376	
educational level	Illiterate	Primary	Secondary	Undergrad	post grade	
	54	118	116	91	5	384

Show the education level involved of understand for immunization to hose hold and post graded waken education level

Table (5) show of a comparison between place to receive services and keenness to complete vaccination (assessment of Routine Immunization Services – Shendi 2013-2014

place to receive services	Health unit	Health center	Hospital	Total
	110	146	128	384
Would keenness to complete vaccination	Yes	No	Sometime	
	364	10	10	384

Show the most of mother keenness to complete vaccination douse in health center

Table (6) show of a comparison between knows the targeted diseases and took the douse in time (assessment of Routine Immunization Services – Shendi 2013-2014

Knowledge targeted diseases	No	Yes		Total
	21	363		384
took the douse in time	Yes	No	Sometime	
	360	-	24	384

Show the (21) person don't knowledge the targeted diseases there are need health education for these diseases

Chapter Five

Discussion

This study was conducted in Shendi locality to assess Expanded program on immunization performance, it was observed that 43,8% of mother among age group of 36-45 years aged visited Vaccination Health centers, as a result of their better understanding of the immunization benefit while only 32,8% among the age group of 25-36 years old visited the health centers for vaccination services, it was clearly observed in many previous studies conducted by WHO, (2010 international travel and health), that the better understanding and extensive health education programs could result in immunization coverage improvement.

That was indicated by the level of education among mothers and it was found that 30,7% of mothers have primary school, secondary school about 30%, undergraduate education about 23,4 and post graduate 1.3% which was reflected positively in their children immunization status and their understanding of the seriousness of the problems. On the other hands 14.6% of mothers were illiterate and they need extensive health education and promotion programs.

The study showed that 26% of mothers are housewife 17% are government employee, while 56% are involved in other business activities. 54,5% of the mothers had a monthly income in the range of above 600 SDG, the economical status of the families showed significant impact on their health expenditure as well as their educational level which has apposite consequences on the health status of the individuals including their children immunization status.

The study also revealed that 96% of children were fully immunized; this was a result of good awareness observed among mothers and their

understanding of importance of immunization due health education and mobilization carried out in the community by health workers during routine work and during supplementary immunization activities. Few parents, about 2% carried partially immunization for their children and 2% never vaccinate their children because of the ignorance and this lead the child and community at a great risk of catching diseases in addition of that fear from immunization is also noted by some caregiver as one of the reasons that prevent the children from getting their necessary immunization. In previous study done in a flasher locality the children were fully immunized that 95%.Family size in Shendi locality.

Concerning TT vaccination of mothers and women at child bearing age, this study revealed that most of the mother took the tetanus toxoid during pregnancy to protect them self and their children against tetanus. 94% of mother participated in this study were immunized at least by one dose of TT vaccine while 2% never received any TT vaccines and they are exposing them self and their children to dangerous disease and compromise the progress to achieve the objective of MNT elimination.

BCG vaccines which is supposed to be given at birth according to EPI schedules, in this study it was observed that 36% of the mothers carried out vaccination of their infants against Tuberculosis at the right time, while 49% of mothers started vaccination after 40 days, and 9% started after two month, and

6% give their BCG vaccine after three month, this need to be addressed by the locality through health education and during antenatal care.

The study showed that 38% of mother received their immunization for their children in the health center, 28% in health units while 28% received their immunization service in hospitals, this information indicate that the services is well accessible to families and there was no major problem observed during this study. The results showed that the fear from immunization was 7.7%. While 2.3% were not aware about immunization importance, and these are the major reasons behind children not immunized or partially immunized, on the other hand 91.5% of mothers were able to fully immunize their children.

Vaccine preventable diseases are well known by 95% of mothers which indicate the excellence dissemination of health message and promote mothers and child health in the communities.

Mobile vaccination teams were not regularly implemented their plan due the high cost for transport, and were actively involved during campaign. The vaccinators in the locality were received training in the last years (2013) 52. 8% of them were participated in the training. Covered vaccination injection safety, management of adverse effects following immunization and waste management was conducted in 2013 attended by 52. 8% of EPI staffs.

Further the recipients of vaccines were counseled to overcome the problem of anxiety by using advices and extended explanation and this covered 41.7%. The study also showed that 2.8% of the children didn't received their dosage due to carelessness, 74% of respondents carried their vaccination cards during vaccination sessions. Also it was observed that the vaccinators delivered health

messages to mothers on the next vaccination visits and on type of vaccines that they received.

The knowledge and skill of vaccinators were assessed during this study and clearly indicated that the vaccinators are well aware on their duties, targeted diseases, AEFI, waste management and injection safety.

Vaccine management in the locality is organized by trained cold chain officer and there was no major problem with vaccine management and supply, also the stock record were available and update by the amount required, and distribution plan.

Conclusion

The study concluded that the EPI program in Shendi locality is well established and functioning and playing an important role in preventing infant and young children against the most killers diseases through provision of potent vaccines, and also providing TT vaccination for pregnant women and women at child bearing age and contributing to the national, regional and international goal to eliminate maternal and neonatal tetanus among women and newborn. However there are some areas need to be improved such as intensifying health education and community participation and to address the fears from immunization among some parents, and to activate mobile team vaccination to reach nomadic, remote and scatter population.

Recommendations

The study recommended the following;

1. Shendi locality and in collaboration with the community should organize extensive health education program on the important of immunization using local radio, community leaders such as teachers, imam etc.
2. The nomadic population in remote areas and other especial population group in remote area, hard to reach areas should be indentified and updated regularly to avoid missing children during routine immunization activities.
3. The opportunity of supplementary immunization activities should be used indentify missed children in the house hold during house to house visits.
4. Complete health message during immunization session should be given to the parent including, the date of next visit, the type of vaccine that their children relieved, and adverse health event following immunization particularly the injections.
5. Immunization data should be analyzed regularly and used to direct the activities and resources allocation.
6. Refresher training should be conducted to all EPI staff at the locality as well as the administrative units.

Chapter six

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Annexes (1)

**Questionnaire for evaluation of vaccination services in Shendi locality in
2012 to 2014**

This questionnaire is vaccination management

1. Name.....

2. Age:-

a)25_35 b) 36_45 c) 46_55

3. Level of education:-

a)Undergraduate b) postgraduate

4. Did you receive any training?

a)Yes b) No

5. What type of training you participated?

a)Basic training b) medium training c) active training

6. When you met last training?

a) Before 1 year b) before 2 years c) more than
year

7. Did you contribute a special training for childhood diseases surveillance?

a)Yes

b) No

8. If the question answer is (yes) when was that surveillance involved?

.....
.....

9. Do all shendi locality children vaccinated?

a)Yes

b) No

c) I don't know

10.In case of the question answer is (No) why the children not vaccinated?

Lack of awareness the importance of the vaccination.

a) Custom and traditional obstacles
community other

B) Lack of health education in

11.How to deal with the vaccine side-effects?

.....
.....

12.Did you get services from the specialized branched centers?

a)Yes

b) No

c) sometimes

13.In case the answer is No why you didn't get?

a)Did you involve lack confidence in there?

B) other mentioned

**14.Conditions of the specific epidemics and need to implement a Campaign
did you provide health education to the community?**

20. Do annual plans and reports set-up according to the previous year?

a) Yes b) No c) sometimes

21. Is there measles cases appear recent years?

a) Yes b) No

22. Are there new cases in measles after the 3th dose?

a) Yes b) No

23. If the question answer is (yes) mention how many?

.....
.....

24. According to your experience and skill which question is frequently asked in immunization?

.....
.....

25. Where is located the fixed sit form the outreached sit?

.....
.....

26. How many of outreached sits in the locality?

.....
.....

27. Mention number of the children under five years in shendi locality?

Questionnaire for evaluation of vaccination services in Shendi locality in **2012**
to **2014**

Cold chain monitor

1. Name.....

2. Age:-

a)25_35 b) 36_45 c) 46_55

3. Level of education:-

a)Undergraduate b) postgraduate

4. Did you meet any training?

a)Yes b) No

5. What type of training you participated?

a)Basic training b) medium training c) active training

6. When you met last training?

a) Before 1 year b) before 2 years c) more than year

7. Did you contribute a special training for vaccination?

a)Yes b) No

8. If the answer is (yes) when was that training?

.....
.....

9. Is there any problems that faced store of vaccine?

a) Yes b) No c) some kind

10.If the answer is yes what are those problems?

a) Loss of electricity b) environmental factors c) other

11.Is the amount of vaccine required is equal to the number of recipient?

a) Yes b) No

12.How empty bottles disposal?

a) Yes b) No

13.In case of campaigns did you demand extra vaccines to implement the campaigns?

a) Yes b) No

14.Is there special training of cold chain in vaccine providers?

a) Yes b) No

15.Is there a damage that resulted in cold chain?

a) Yes b) No c) sometimes

16. What is the maximum period that vaccine stored?

- a) 1 month b) 3 months c) 6 months

17. What is the distance between vaccine bottles to pass the air?

- a) 1-2 cm b) 1-3 cm c) 1-4 cm

18. Do you use cold boxes to carry the vaccine at the branched sits?

- a) Yes b) No c) sometimes

19. Do you use thermometers to check the vaccine temperature?

- a) Yes b) No

20. If the question answer is (yes) what are they?

- a) Circular thermal balance b) striping thermal balance
c) Freezing alarm d) vaccine vial monitor
e) other.

21. What are the vaccines that are retractable to freeze?

.....
.....

22. What are vaccines that are sensitive to freezing?

.....
.....

23. Is the locality store room is full enough?

a) Yes b) No

24. How many times do you read the temperature balance during a day?

a) 1 time b) 2 times c) more than 2 times

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Questionnaire for evolution vaccination services in Shendi locality in 2012 to 2014 this questionnaire for vaccination childhood

1- Age:

a. 25-35 b. 36-45 c. 46-55

2- Level education:

a. Illiterate b. Primary c. Secondary

d. Under graduate e. Post graduate

3- Repetition:

a. House wife b. Employee c. Act of free

4- Monthly income:

a. 600-700

b. 800-9000

c. above 900

5- More number of family:

a. 2-3

b. 4-6

c. 7-9

d. above

6- Do the children immunization in family?

a. Yes

b. No

7- In cause of question is (No):

a. Vaccination not important

b. Fathers spurned

c. Fear of side effect

d. Faster the centre

e. Select anther

8- In cause of question is (Yes):

a. Important for the prevention of disease

b. Family father understand father

c. To maintain the health of child

d. Select anther

9- Do the taking vaccination douse during pregnancy

a. Yes

b. No

10- How many of the resistant in cause of question answer (yes) :

a. A single dose in pregnancy

b. Tow dose during pregnancy

c. Over

11- How long beginning the vaccination:

a. since birth

b. After forty

c. After tow month

d. After three months

12- Place to receive service:

a. Hospital

b. Health centre

c. Unit centre

13- Do the keenness to complete vaccination doses

a. Yes

b. NO

c. Some time

14- In cause of question is (Yes) why:

a. Important to protect agent disease

b. Customs and traditional

c. I don't know

15- In cause of question is (No) why?

a. Unimportant

b. Centre faster

c. I don't know

16- Do the knowledge of targeted diseases vaccination?

a. Yes

b. No

17- In cause of question are (Yes) what these's:

a. Measles

b. Tuberculosis, penta

c. Measles, polio, penta, tuberculosis, ten tins , Rota, streptococcus

18- Do you taken the dose in time?

a. Yes

b. No

19- in cause of question is (sometime)why ?

a. Recreation rate distance

b. Negligence

c. Lack of douse

d. Fear of side effect

e. Select another

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Questionnaire for vaccination vaccinator

Name:.....
.....

1-Age:

a. 25-35

b. 36- 45

c. 46-55

2- Level education:

a. secondary

b. under graduate

c. post graduate

3- Monthly income:

a. 200

b. 250

c. 300

d. above 600

4- Work place:

Fixed site

b. outreach site

c. mobile team

5- Do you receive training?

a. Yes

b. No

6- In cause of question is (Yes) what the type of training?

A. a basic b. simple c. Refresher

7- When the last period of training?

a. Year before b. Two years before c. More than two years

8- Do you receive special training vaccination?

a. Yes b. No

9- In cause of question is (Yes) when the time of training?

.....
.....

10- Do the provide education message for the house hold?

a. Yes b. No

11- Do you keenness of preview injection place before appeal?

a. Yes b. No

12- In cause of question is (Yes):

a. Avoid any trace

b. To clean the place injection

c. Appeal to avoid any side effect

d. All of true

13- If the conation emotion in stability do you ill lustrated facilities:

a. Yes

b. No

c. Sometime

14- In cause of question is (Yes) select this:

15- Do the all of mother keenness to titian vaccine?

a. Yes

b. No

16- Do the house hold come up after it`s too late in time to take the douse?

a. yes

b. No

c. Sometime

17- In cause of question is (Yes):

a. Result to lack of attention

b. Result to lack of knowledge

c. Select anther

18- Do the bring vaccination card of each visit?

a. Yes

b. No

c. Somewhat

19- Do the service provide is non indifference in the cases of crowdad to household

a. Yes

b. No

c. Sometime

20- Do the children don't vaccinated to anther disease?

a. Yes

b. No

In cases of question answer (Yes) do there:

a. Fever

b. HIV

بسم الله الرحمن الرحيم

كلية الدراسات العليا

جامعة شندی

استبيان تقييم الخدمات المناعية EPT بمحلية شندی في الفترة من 2012م – وحتى 2014م استبيان خاص { بضابط التحصين اشارة للموضوع اعلاه ارجو التكرم بالمساعدة بتكملة مشروعنا في البحث بالتطبيق على محلية شندی وذلك لتوضيح اراكم في هذه الاستبانة وسوف تستخدم لاغراض البحث العلمى فقط . وتجد ونا شاكرين لكم

1. الاسم:.....

.....
2. العمر:

35-25 (أ) 45-36(ب) 55-46 (ج)

3. المستوى التعليمي:

(أ) جامعي (ب) فوق الجامعي

4. هل تلقيت تدريب؟

(أ) نعم (ب) لا

5. ما هو نوع التدريب؟

(أ) اساسي (ب) وسيط (ج) تنشيطي

6. متي تلقيت اخر تدريب؟

(أ) قبل عام (ب) قبل عامين (ج) اكثر من عامين

7. هلي تلقيت تدريب خاص عن التقصي عن امراض الطفوله؟

(أ) نعم (ب) لا

8. اذا كنت الاجابة بنعم فمتي كان ذلك؟

.....
.....

9. هل يتم تطعيم جميع الأطفال بمدينة شندی:

(أ) نعم (ب) لا (ج) نوعاً ما

10. في حالة الإجابة بلا:

(أ) عدم المعرفة بأهمية التطعيم (ب) العادات والتقاليد {TRADITIONAL}

ج) لا يوجد تثقيف صحي للمواطنين (د) أخرى حدد:

11. كيف يتم التعامل مع الآثار الجانبية (side effect) ؟

12. هل يتم تلقي الخدمة في المراكز الفرعية المخصصة لها؟
أ) نعم ب) لا ج) أحياناً د)

13. في حالة الإجابة بلا؟:

أ) عدم الثقة في تلقي الخدمات بتلك الأماكن
ب) أخرى حدد:

14. في حالات وباء محدد يتطلب قيام حملة COMBS هل يتم تقديم رسائل تثقيفية للمجتمع أثناء الحملة؟:

أ) نعم ب) لا ج) أحياناً

15. ماهي اهم المشاكل التي تواجهكم اثناء قيام الحملات ؟

أ) عدم تجاوب المجتمع ب) وجود خلل في فريق الحملة ج) اخري حدد:

16. هل المجتمع متجاوب ومتفاهم أثناء الحملات؟:

أ) نعم ب) لا ج) نوعاً ما

17. في حالة الإجابة بلا

أ) خوف من الأمهات من الآثار الجانبية Side effect للتطعيم:

ب) عدم المعرفة بأهمية الحملات ج) اخر حدد:

18. هل يتم تدريب الفريق {Training & practical of team work} تدريب كافي بحيث يؤدي لنجاح تلك الحملة:

أ) نعم ب) لا ج) أحياناً

19. هل فريق الإشراف المحايد يتم تدريبه :

أ) نعم ب) لا

20. عند وضع الخطط والتقارير {Plan & report} السنوية هل يتم الأخذ باعتبار السنة الماضية:

أ) نعم ب) لا ج) أحياناً

21. هل ظهرت حالات حصبة في السنوات القريبة:

22. هل هنالك حالات إصابة بالحصبة بعد نزول الجرعة الثانية:
أ) نعم ب) لا

23. إذا كانت الإجابة بنعم فكم عدد الحالات المصابة؟
أ) نعم ب) لا ج) أحياناً

24. بحكم خبرتكم المميزة في المناعة Immunization ما هي أهم أسئلة يسأل عنها دائماً في التحصين
{Frequently ask question}

أ)

25. أين موقع المراكز الفرعية من المراكز الثابتة:

26. كم عدد المراكز الفرعية.

27. عدد الاطفال الاقل من خمسة سنوات في محلية شندى :-

كلية الدراسات العليا

جامعة شندی

استبيان تقييم الخدمات المناعية EPT بمحلية شندی في الفترة من 2012م – وحتى 2014م استبيان خاص {بضابط التبريد}

اشارة للموضوع اعلاه ارجو التكرم بالمساعدة بتكملة مشروعنا في البحث بالتطبيق على محلية شندی وذلك لتوضيح اراكم في هذه الاستبانة وسوف تستخدم لاغراض البحث العلمى فقط. وتجد ونا شاكرين لكم

-
1. الاسم:
 2. العمر:
 3. المستوى التعليمي: (أ) 25-35 (ب) 36-45 (ج) 46-55
 4. هل تلقيت تدريب؟ (أ) ثانوي (ب) جامعي (ج) فوق الجامعي
 5. اذا كانت الاجابة بنعم ما هو نوع التدريب؟ (أ) نعم (ب) لا
 6. متي تلقيت اخر تدريب؟ (أ) اساسي (ب) وسيط (ج) تنشيطي
 7. هل تلقيت تدريب خاص باللقاحات؟ (أ) قل عام (ب) قبل عامين (ج) اكثر من عامين
 8. اذا كانت الاجابة بنعم متي كان ذلك؟ (أ) نعم (ب) لا

-
9. هل هناك أي مشاكل تواجهك في طريقة حفظ اللقاحات:- (أ) نعم (ب) نوعاً ما (ج) لا
 10. إذا كانت الإجابة بنعم هل هي:

11. هل كمية اللقاحات المطلوبة توافق الكمية المستهلكة: (أ) انقطاع التيار الكهربائي (ب) عوامل بيئية (ج) أخرى حدد:
12. إذا كانت الإجابة بلا فكيف يتم التخلص من الفائض؟ (أ) نعم (ب) لا
13. في حالة الحملات يتم طلب كمية جديدة من اللقاحات لتنفيذ الحملة: (أ) نعم (ب) لا
14. هل يتم تدريب منفذي الحملات على مراحل سلسلة التبريد: (أ) نعم (ب) لا
15. هل هنالك تلف في اللقاح ناتج عن سلسلة التبريد: (أ) نعم (ب) لا (ج) أحياناً
16. ما هي أقصى فترة لتخزين اللقاحات: (أ) شهر (ب) 3 اشهر (ج) 6 اشهر
17. ما هي المسافة التي توضع بين اللقاحات لسماح مرور الهواء: (أ) 3-1 سم (ب) 2-1 سم (ج) 4-1
18. هل تستخدم صناديق التبريد بصورة أساسية لإمداد المراكز الطرفية: (أ) نعم (ب) لا (ج) أحياناً
19. هل تستخدم محارير لعرض قياس درجة حرارة أوعية اللقاح: (أ) نعم (ب) لا (ج) أحياناً
20. إذا كانت الإجابة بنعم هل هي: (أ) ميزان حرارة دائري (ب) ميزان حرارة شريطي (ج) منبه التجميد
- (د) مراقب قارورة اللقاح (هـ) أخرى حدد:

21. ما هي اللقاحات القابلة للتجمد؟

22. ما هي اللقاحات الحساسة للتجمد؟

23. هل السعة التخزينية للمحلية كافية؟

24. كم مره يتم قراءة ميزان الحرارة خلال اليوم؟

(ج) اكثر من مرتين

(ب) مرتين

(أ) مره

بسم الله الرحمن الرحيم

كلية الدراسات العليا

جامعة شندى

استبيان تقييم الخدمات المناعية EPT بمحلية شندى في الفترة من 2012م – وحتى 2014م {استبيان خاص بالأمهات}

اشارة للموضوع اعلاه ارجو التكرم بالمساعدة بتكملة مشروعنا فى البحث بالتطبيق على محلية شندى وذلك لتوضيح ارائكم فى هذه الاستبانة وسوف تستخدم لاغراض البحث العلمى فقط. وتجدونا شاكرين لكم

1. العمر:

أ) 35-25 ب) 45-36 ج) 55-46 د)

2. المستوى التعليمي:

أ) أمي ب) أساس ج) ثانوي د) جامعي

ب) فوق الجامعي

3. المهنة:

أ) ربة منزل ب) موظفة ج) اعمال حره د) أخرى:.....

4. الدخل الشهري:

أ) 450 ب) 500 ج) 600 فاكثر د)

5. عدد أفراد الأسرة:

أ) 3-2 ب) 6-4 ج) 9-7 د) أكثر:.....

6. هل يتم تطعيم الأطفال بالأسرة:

أ) نعم ب) لا

7. في حالة الإجابة بلا:

أ) التطعيم غير مهم ب) رفض رب الأسرة ج) الخوف من الآثار الجانبية

د) بعد المركز هـ) أخرى حدد:.....

8. في حالة الإجابة بنعم:

(أ) مهم للوقاية من الأمراض (ب) تفهم رب الأسرة (ج) للحفاظ على صحة الأطفال

(د) أخرى حدد:

.....

9. هل أخذت جرعات التطعيم خلال فترة الحمل:

(أ) نعم (ب) لا

10. إذا كانت الإجابة بنعم كم عدد الجرعات:

(أ) جرعة واحدة في الحمل (ب) جرعتين أثناء الحمل

11. متى ابتدئتي تطعيم الأطفال:

(أ) منذ الولادة (ب) بعد الأربعين (ج) بعد شهرين (د) بعد ثلاثة أشهر
فاكثر

12. مكان تلقي الخدمة:

(أ) مستشفى (ب) مركز صحي (ج) وحدة صحية

13. هل تحرصي على إكمال طفلك جرعات التحصين:

(أ) نعم (ب) لا (ج) أحياناً

14. إذا كانت الإجابة بنعم لماذا:

(أ) مهم للحماية من الأمراض (ب) عادات وتقاليد (ج) لا أعلم

15. إذا كانت الإجابة بلا لماذا:

(أ) غير مهم (ب) بعد المركز (ج) لا أعلم

16. هل تعرفين ما هي الأمراض المستهدفة بالتحصين:

(أ) نعم (ب) لا

17. إذا كانت الإجابة بنعم فما هي:

(أ) حصبة (ب) سل، خماسي (ج) حصبة، شلل، خماسي، سل،

تيتنس، روتا، مكورات رئوية

18. هل تقومين بأخذ الجرعة في الوقت المحدد:

(أ) نعم (ب) لا

19. إذا كانت الإجابة أحياناً، لماذا:

(أ) بعد المسافة (ب) إهمال (ج) عدم توفر الجرعة

(د) الخوف من الآثار الجانبية (هـ) أخرى حدد:

.....

بسم الله الرحمن الرحيم

كلية الدراسات العليا

جامعة شندى

استبيان تقييم الخدمات المناعية EPT بمحلية شندى في الفترة من 2012م – وحتى 2014م استبيان
خاص {بفنيي التطعيم}

اشارة للموضوع اعلاه ارجو التكرم بالمساعدة بتكملة مشروعنا فى البحث بالتطبيق على محلية شندى
وذلك لتوضيح ارائكم فى هذه الاستبانة وسوف تستخدم لاغراض البحث العلمى فقط. وتجد ونا شاكرين لكم

1. الاسم:
2. العمر:
أ) 25-35 ب) 36-45 ج) 46-55
3. المستوى التعليمي:
أ) ثانوي ب) دبلوم صحة ج) جامعي د) فوق الجامعي
4. الدخل الشهري :
أ) 200 ب) 250 ج) 300 اكثر من 300
5. مكان العمل :
أ) مركز ثابت ب) مركز فرعي ج) فرقة جواله
6. هل تلقيت تدريب ؟
ب) نعم لا
7. اذا كانت الاجابة بنعم ما هو نوع التدريب ؟
ب) اساسي ب) وسيط ج) تنشيطي
8. متي تلقيت اخر تدريب ؟
ب) قل عام ب) قبل عامين ج) اكثر من عامين
9. هل تلقيت تدريب خاص بالتطعيمات ؟
ب) نعم لا

10. إذا كانت الإجابة بنعم متي كان ذلك ؟

11. هل يتم تقديم رسائل تثقيفية اثناء اداء العمل اليومي عن الاثار الناتجة من التنظيم side effect لمتلقي الخدمة ؟

(أ) نعم (ب) لا

12. هل تحرص (تحرص) علي معاينة مكان الطعنة قبل الطعن ؟

(أ) نعم (ب) لا (ج) أحياناً

13. إذا كانت الإجابة بنعم :

(أ) لتفادي اي اثار جانبية

(ب) لتطهير مكان الطعنة

(ج) وجود اثر جانبي سابق

(د) اخري.

14. إذا كان المرافق co-patient للطفل غير مستقر نفسياً هل يتم تهدئته

(أ) نعم (ب) لا (ج) أحياناً

15. إذا كانت الإجابة بنعم حدد :

16. في حالة الحملات هل يتم توافد المواطنين للمركز لتلقي الجرعات ؟

(أ) نعم (ب) لا

17. هل بعض المستفيدين يأتوا بعد فوات أوان الوقت المحدد للجرعه ؟

(أ) أحياناً (ب) نعم (ج) لا

18. إذا كانت الإجابة بنعم :

(أ) نتيجة لعدم الإهتمام (ب) نتيجة لعدم المعرفة (ج) أخر حدد.

19. هل يتم احضار كرت التطعيم في كل زيارة ؟

(أ) نوعاً ما (ب) نعم (ج) لا

20. في حالة الازدحام من المستفيدين هل ذلك يؤدي لتوترك وبالتالي لتقديم الخدمة من غير مبالاة:-

(أ) نعم (ب) لا (ج) أحياناً

21. هل هنالك بعض الأمراض Disease التي تمنعك من تطعيم بعض الأطفال:

(أ) نعم (ب) لا

22. إذا كانت الإجابة بنعم هل هي:-

(أ) حمى (ب) ايدز HIV (ج) سوء تغذية Malnutrition

..... (د) اخري حدد.....
.....

Annexes (2)

1-The percentage of access and the possibility of reporting monthly incoming centers. (22)

strategies	Number	Place number sending the report	Report number Completeness	ratio
Fixed site	15	15	180	100
Outreach site	29	29	348	100
Mobile time	2	2	24	100
total	46	46	552	100

2-National campagins.(22)

Unit mange mint	November	%	May	%	March	%
Shendi town	11808	99.8	11839	100.2	11880	99.6
Shendi south	12417	99,3	12332	99.9	12415	100
Shendi north	6877	99.1	6874	99.7	6917	99.1
kaposheia	9171	99.9	9165	99.7	9144	99.9
HjarAlasal	9951	100.3	9957	99.4	9872	100.2
Total	50224	99.7	50167	99.8	50228	Total

3-Vaccinator work place:

Fixed site number	Vaccinator number of fixed site	Vaccinator number of out reach site	Center number have not vaccinator
15	26	10	0

4- Activities of routine immunization

Coverage ratio dose. (22)

	Penta			Polio				
coareg	1	2	3	0	1	2	3	4
Ratio	10101	9485	9454	985	10101	9485	9454	10582
persient	10407	98.4 %	98 %	9.7 %	104.7 %	98.8 %	98 %	10609%

5-

maseales			TT				
Immunization receive place	1	2	1	2	5	5	5
covareg	9540	8476	3994	3050	3050	14 34	926
ratio	98.9%	87.2%	40.4	30.5	20.7	14.5	9.4

6-

Rota			Streptococcass		
locality	1	2	1	2	3
covareg	9567	7997	5131	2965	8977
ratio	99.2	93.1	82.9	53.2	30.7

7- Coverage strategies. (22)

Stratragies	Center of number	House hold	Coverage	%
Fixed site	15	6756	7053	10404
Out reach	29	2396	1924	80.3%
Mobile time	2	492	477	477
Total	46	9644	9454	Total

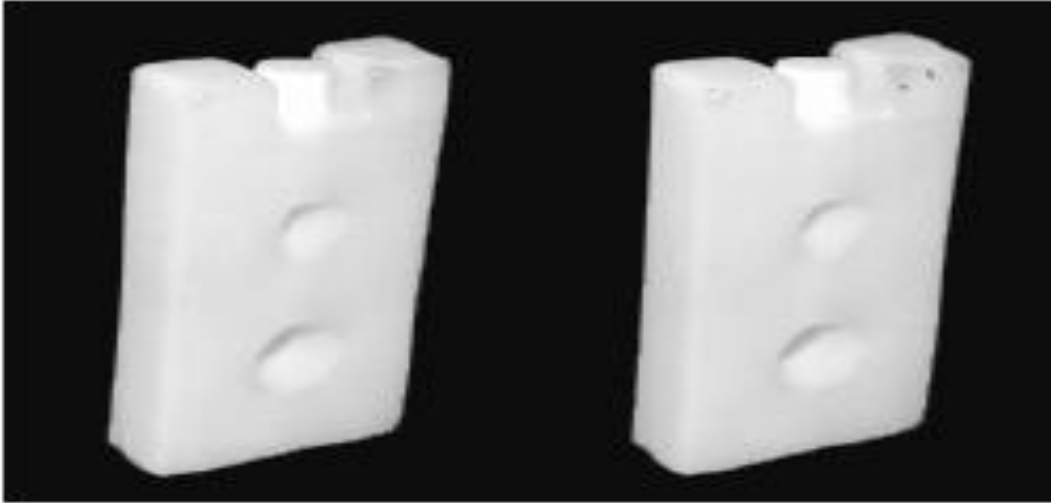
]

8- Drop out locality program. (22)

Place number save to dropout report	Place number	%	Strategies	House hold number save in dropout report	Recuperative house hold	%
15	15	0	Fixed site	1426	1354	100 %
29	29	95%	Outreach site	596	567	100 %
2	2	98%	Mobile time	126	123	100 %
46	46	95.2%	total	2148	2044	100 %



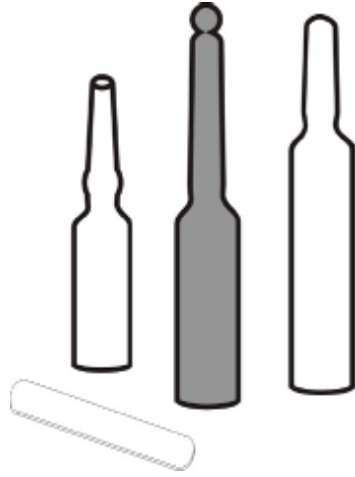
صندوق الامان



عبوات الثلج



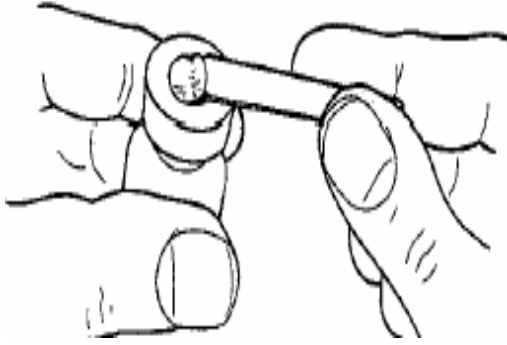
حامل القاح



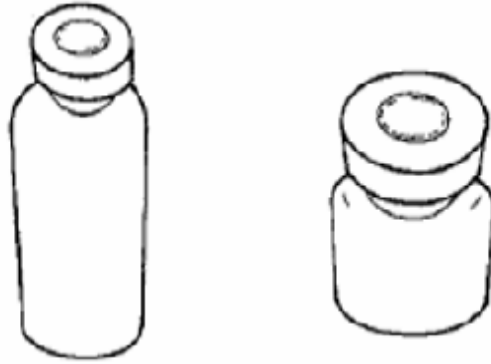
شكل (1) قوارير زجاجية ومبرد حديدي



شكل (2) خدش او برد عنق الزجاجية



شكل (3) طرق زجاجية القاح الذي فشكلى بكرة



شكل (4) قوارير لقاح ذات غطاء



شكل (5) كسر عنق الزجاجية



Vaccine vail montring (vvm)

مراقب قاروره القاح(مقل)



طفل مصاب بشلل الاطفال

	<p>الدرجة الاولى(لون المربع أفتح من الدائرة بشكل ساطع) هذه العلامة تعني <u>استخدم اللقاح</u> إذا لم ينتهي تاريخ صلاحيته</p>
	<p>الدرجة الثانية (لون المربع غير ناصع أفتح من لون الدائرة) هذه العلامة تعني <u>استخدام اللقاح</u>، إذا لم ينتهي تاريخ صلاحيته</p>
	<p>الدرجة الثالثة(لون المربع نفس لون الدائرة) هذه العلامة تعني، <u>لا تستخدم اللقاح</u></p>
	<p>الدرجة الرابعة (لون المربع اغمق من لون الدائرة) هذه العلامة تعني، <u>لا تستخدم اللقاح</u></p>

قراءه مراقب قاروره القاح (وزاره الصحه الاتحاديه، 2005، دليل تدريب المدربين)

مواعيد اخذ جرعات التتس (وزاره الصحه الاتحاديه، 2005، دليل تدريب المدرسين)

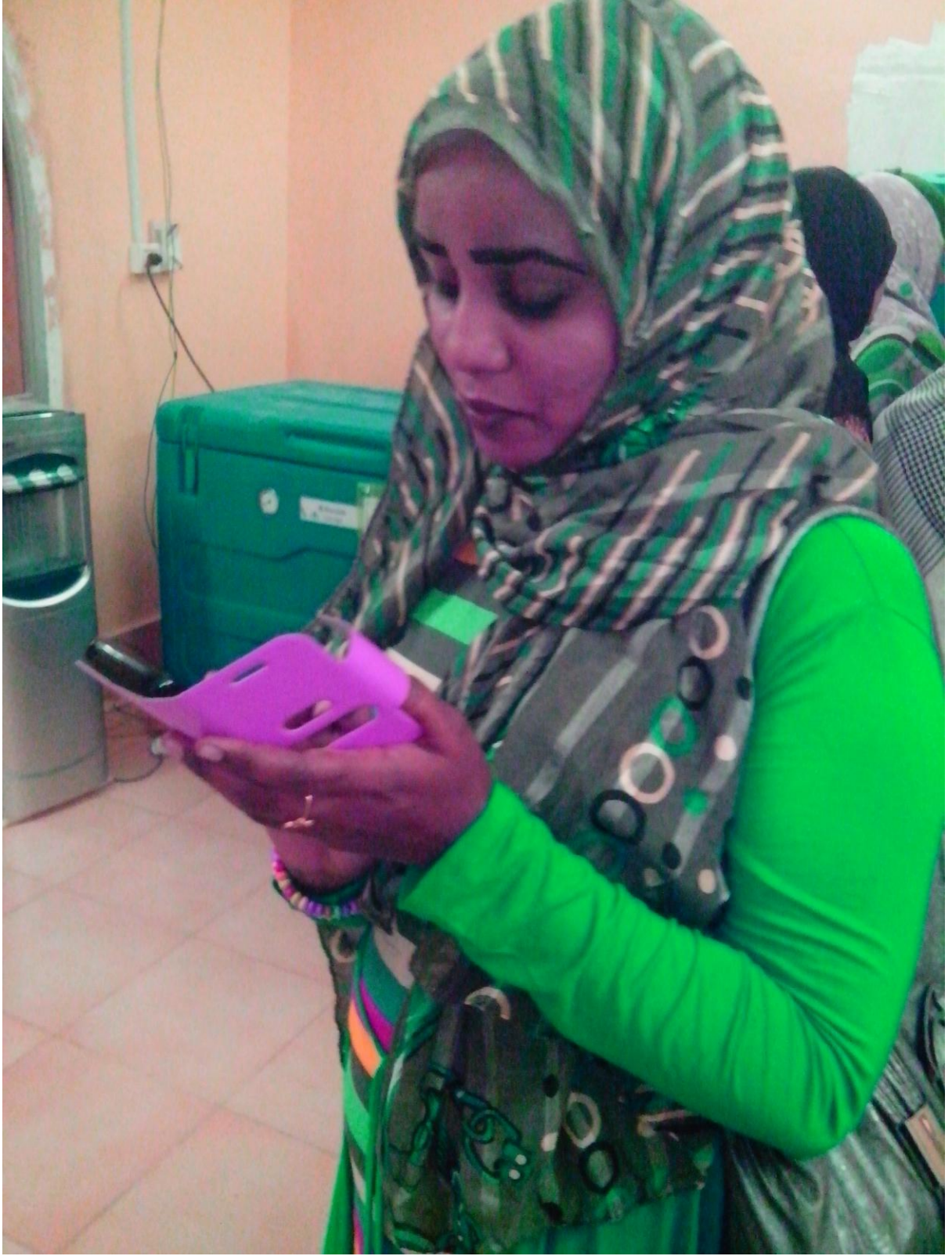
الجرعه الاولى اساسيه	بمفردها لاتعطي حمايه
الجرعه الثانيه اساسيه	بعد شهر من الاولى تعطي مناعه ثلاثه سنوات
الجرعه الثالثه منشطه	بعد 6 اشهر تعطي مناعه لمده خمس سنوات
الجرعه الرابعه منشطه	بعد سنه تعطي مناعه عشره سنوات
الجرعه الخامسه منشطه	تعطي حمايه مدى الحياه



المشاركة في افتتاح الحملة



بعض فريق جمع المعلومات (كلية الصحة العامة جامعه شندی)



داخل غرفه سلسله التبريد



المشاركة في حملات الشلل





Thank supervision to make dissociation the search