

Epidemiological Bulletin



From 1 January to 31 March, 2012

Gaza Strip in Numbers:

The Palestinian territories consist of two geographically separated areas West Bank (WB) and Gaza Strip. Gaza strip is a narrow zone of land bounded of the south by Egypt, on the west by the Mediterranean Sea, and on the east and north by the occupied territories in 1948. Gaza strip is very crowded place with 46 kilometers long and 5 –12 kilometers wide and with a total area of 365 sq km. Gaza strip is administratively divided into five governorates: North, Gaza, Mid-zone, Khan-Younes and Rafah. It consists of four cities, fourteen villages and eight refugees' camps.

- * Gaza Strip has a population of 1.561.906 people (PCBS, 2010).
- * Male/Female ratio in general population is 103.100.
- * Population density is 4279 inhabitants per sq km. Gaza Strip has an extremely high population growth rate of over 3.3%, and as a result some 44.2% of the population is under the age of 15.
- * Infant Mortality Rate is 17.1 per 1000 live births.
- * Crude Birth Rate is 38.3/1000.
- * Crude Death Rate is 3.1/1000.
- * Average life expectancy is 70.2 years for males and 72.9 years for females.
- * Fertility rate is 5.7%.
- * Family size Average is 5.8.

Pneumococcal Disease and Pneumococcal Conjugate Vaccine

Pneumococcal infection caused by *Streptococcus pneumoniae* (*S. pneumonia* or more commonly referred as pneumococcus) is a major cause of illness and death among children and adults worldwide. It represents a wide range of diseases. While pneumococcus is a common cause of non-invasive pneumococcal diseases causing pneumonia, sinusitis and middle ear infections, it may also cause invasive pneumococcal diseases (IPD), when the bacterium invades body parts which are usually bacteria-free such as blood, cerebrospinal fluid and, less commonly, other body fluids like joint, pleural or pericardial fluid causing septicaemia, meningitis, endocarditis, peritonitis, septic arthritis etc. Some pneumococci are encapsulated, their surfaces composed of complex polysaccharides. Encapsulated organisms are pathogenic for humans and experimental animals, whereas organisms without capsular polysaccharides are not. Capsular polysaccharides are the primary basis for the pathogenicity of the organism. They are antigenic and form the basis for classifying pneumococci by serotypes. Ninety one serotypes have been identified, based on their reaction with type-specific antisera. Type-specific antibody to capsular polysaccharide is protective. Most *S. pneumoniae* serotypes have been shown to cause serious disease, but only a few serotypes produce the majority of pneumococcal infections.

Pneumococci are transmitted directly from person to person through close contact via respiratory droplets. Transmission and transient nasopharyngeal colonization are thought to be common, but clinical illness occurs infrequently. The overall burden of pneumococcal disease is difficult to measure directly, but methods are available to measure the burden of IPD which is less common with reasonable accuracy and hence the incidence of IPD is frequently used as an indicator of the overall burden of pneumococcal disease. In industrialized countries, the reported annual incidence of IPD ranges from 8 to 34 cases/100.000 population, with the highest rates

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Communicable diseases surveillance system:

In Gaza Strip, we apply a multi-disease approach of communicable disease surveillance, which depends essentially on passive surveillance system from health facilities of different health providers (Primary Health Care Centers, Hospitals and Laboratories), governmental and nongovernmental (MOH, UNRWA, NGOs and private sector). The collected data by this system are routinely analyzed and interpreted to help in making decision for prevention and control of communicable disease and to be part of the monthly, quarterly and annually reports on communicable diseases.

Communicable diseases and their related events in Palestine are divided into three groups according to their epidemiological importance:

Group A diseases: Diseases of this group are of high importance so they must be immediately notified with accuracy due the urgency of investigation and intervention. This group includes Acute Flaccid Paralysis, Acute Poliomyelitis, HIV/AIDS, Cholera, Diphtheria, Food poisoning, Measles, Rubella, Meningococcal diseases, Hemophilus Influenza B Meningitis, Rabies, Tetanus and Adverse Events Following Immunization.

Group B diseases: Diseases of this group are of the second highest importance and must be notified within one week. It includes other Bacterial and Viral Meningitis, Brucellosis, Hepatitis (A, B and C), Lishmaniasis, Influenza A H1N1, Malaria, Mumps, Sexual Transmitted Diseases (STD), Shigellosis, Tuberculosis, Salmonellosis, Typhoid and Paratyphoid fever, and Whooping Cough.

Group C diseases: Diseases of this group are of low importance and monthly notification is needed. This group includes Animal Bites, Chicken Pox, Diarrhea, Upper respiratory infection, Ascariasis, Amebiasis, Giardiasis, Strongyloidiasis, Enterobiasis, Trichuriasis, Hymenolepiasis, Toxoplasmosis and Leprosy.

Each issue of Epidemiological Bulletin will include information about the time of notification, number and distribution of cases of notifiable communicable diseases under surveillance system.

Some selected notifiable diseases by governorates, January, February and March 2012.

Disease	North	Gaza	Mid-Zone	Khan-Younes	Rafah	Total Q1, 2012	5 Years Average, Q1
AFP	0	0	0	0	0	0	0.8
AIDS/HIV	0	0	0	0	0	0	0
Meningococcal Disease	9	14	4	9	5	41	30
Non specific Meningitis	26	248	131	1	0	406	93
Food poisoning	6	0	0	0	0	6	50
Hepatitis A	44	51	12	83	34	224	190
Hepatitis B	28	27	7	17	23	102	89
Hepatitis C	12	4	0	3	3	22	9
Mumps	0	1	0	5	0	6	5.4
TB Pulmonary	0	0	0	7	1	8	2.8
TB Extrapulmonary	0	0	0	0	0	0	2.4
Diarrhea <3 years	2045	2182	1735	4084	1070	11116	9063
Diarrhea >3 years	1870	1094	1916	1523	1016	7419	4958
Bloody Diarrhea	435	150	544	361	85	1575	1326
Upper Respiratory Tract Infection	8680	4440	3312	4397	2067	22896	8644

Reports of notifiable communicable diseases:

During the first quarter 2012 a total of 55083 cases of notifiable diseases were notified to the epidemiology department which constitute more than 22% increase comparing with the same quarter 2011 (44842 cases). This increase was mainly related to the increase in number of cases of upper respiratory tract infection (URTI) and diarrhea. These diseases only were the top two diseases on the reporting form, constituting a total of 78% of all notifications. The five years average (during the first quarter) for URTI was very low because only influenza cases were reported. Recently, URTI was added to the notification list which explain the high number of notification. When compared with the average notifications in the preceding five years, non specific meningitis, hepatitis C and pulmonary TB showed more than 50% increase whereas meningococcal meningitis and diarrhea >3 years showed about 30% increase. Only food poisoning showed decrease comparing with the five years average. During this period, none of the following infection was recorded: acute poliomyelitis, AFP, AIDS/HIV, diphtheria, measles, tetanus, influenza H1N1, brucellosis and malaria.

Immediately and Weekly Reported Diseases during the third quarter, 2011

Acute Flaccid Paralysis/Acute Poliomyelitis:

During the first quarter 2012, no cases of AFP were reported which reflect the under diagnosis of these cases. Improvement of the reporting process is needed. The Regional Committee for the Eastern Mediterranean Region (EMR) of the World Health Organization (WHO) adopted a resolution to eradicate poliomyelitis from the region by 2015. In Palestine this target has been achieved early in 2006. The last reported case of polio among Palestinian children was in 1984.

Meningococcal Diseases:

The situation of meningococcal diseases during the first quarter 2012 was stationary. During this period, 41 case of meningococcal diseases was reported with an incidence of 2.5 per 100.000 population. During the same quarter 2011, 38 cases were reported with an incidence of 2.4 per 100.000 population which mean that the usual incidence was reported during this quarter. The usual distribution of cases by governorates was noticed.

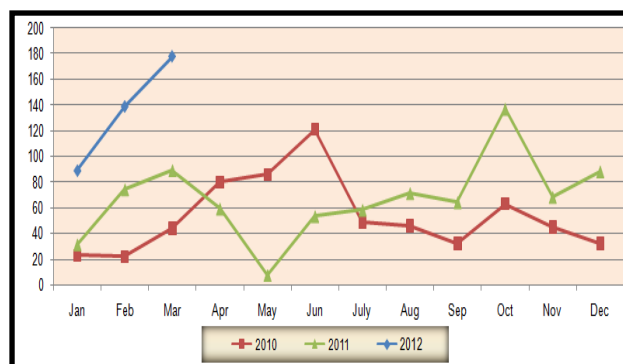
Other bacterial Meningitis cases

During the first quarter 2012, a total of 115 cases of other bacterial meningitis were reported with an incidence of 7/100.000 population. During the same quarter 2011, a total of 97 cases were reported with an incidence of 6.1/100.000 population. This increase was mainly in Gaza governorate and all cases were diagnosed clinically with high CSF cells (more than 1000 and mainly neutrophilia), high protein level and low glucose concentration but all cultures were negative. This problem need more investigation to be more understandable.

Non Specific Meningitis cases:

Recently, there has been an unusual increase in the number of cases of non specific meningitis (NSM) especially in Gaza and Mid-zone governorates during this quarter. Cases of NSM increased more than four folds comparing with the same months of the previous year (from 89 cases to 406 cases) and about 4 folds comparing with the five year average (from 93 to 406 cases).

Distribution of Non specific meningitis cases in Gaza strip, years 2010-2012



All reported cases were diagnosed based on clinical picture, CSF findings (measurement of cells, protein and sugar levels), negative CSF culture and for some cases gram stain was negative. As there is no confirmatory tests in Gaza strip for this disease, all cases were considered as probable non specific meningitis cases. During this quarter the incidence was 24.7 per 100.000 population. During the year of 2011, the incidence was 12.2 per 100.000 population.

In spite of that, the disease is rarely serious, recovery is usually complete, no specific treatment or control measures are needed, we will initiate a

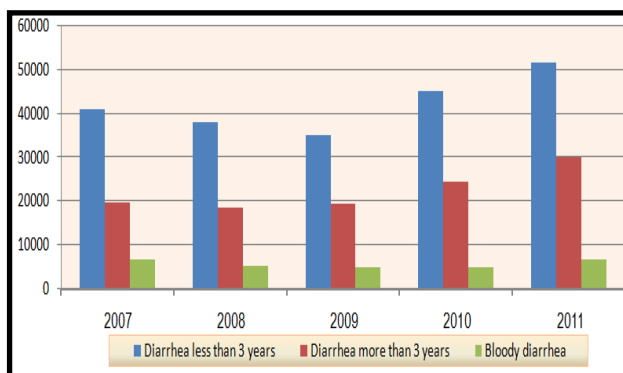
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Monthly Reported Diseases during the third quarter, 2011

Diarrheal diseases:

During the first quarter 2012, the diarrheal disease situation was improved comparing with the previous quarter. A total of 20.110 cases of diarrhea were notified during this period, representing almost the same reported number (20.333 cases) during the same quarter 2011. The usual seasonal variation was seen during this quarter and the numbers of notifications were more among age group less the three years.

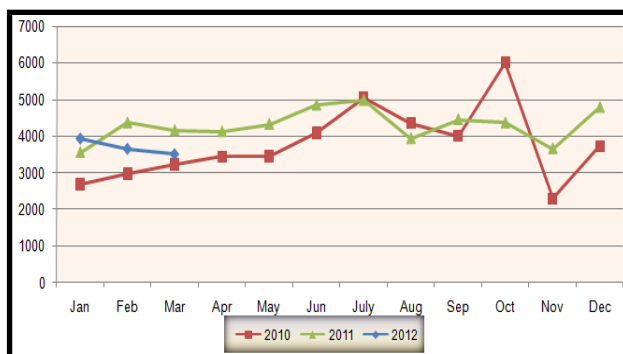
Distribution of diarrheal diseases in Gaza strip, years 2007-2011



Diarrhea < 3 years:

There is mild decrease in incidence during the first quarter 2012. During this quarter a total of 11.116 cases were reported which constitute an incidence of 0.67%. During the same quarter 2011, a total of 12.100 cases were reported with an incidence of 0.76%. The majority of cases were reported in Khan-Younes governorate, which follow the same distribution as during the year of 2011.

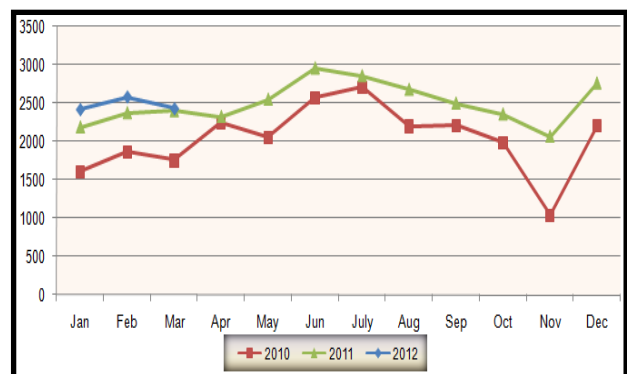
Distribution of diarrhea less than 3 years in Gaza strip, years 2010-2012



Diarrhea > 3 years:

During the first quarter 2012, a total of 7.419 cases were reported with an incidence of 0.45%. During the same quarter 2011, a total of 6.964 cases were reported with an incidence of 0.44%. This almost showed the same incidence. The majority of cases were reported in the North governorate. The number of reported cases in Mid-Zone governorate is decreasing since February.

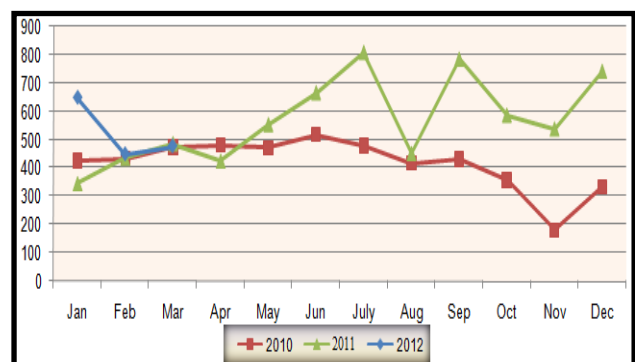
Distribution of diarrhea more than 3 years in Gaza strip, years 2010-2012



Bloody Diarrhea:

During the first quarter 2012, a total of 1.575 cases were reported with an incidence of 0.1%. During the same quarter 2011, a total of 1.269 cases were reported with an incidence of 0.08%. Since the beginning of this quarter, a decrease of reported

Distribution of Bloody diarrhea in Gaza strip, years 2009-2011



cases were noticed especially in January. The high incidence which was reported during the fourth quarter 2011, returned to the usual incidence. Since the forth quarter 2011, the highest reported

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Scabies is a contagious skin infection that spreads rapidly in crowded conditions and is found worldwide. Scabies mites are found worldwide, affecting all socioeconomic classes and in all climates. Scabies infestation is caused by the microscopic mite *Sarcoptes scabiei*. The mite is a tiny eight legged creature barely visible to the naked eye. Females are 0.3 to 0.4mm long and 0.25 to 0.35 mm wide. Males are less than half the size of the females.



A case of scabies was defined clinically as skin rash and itching particularly when warmth especially in bed in a person who's dermatologist diagnosis was scabies.

Contacts were defined as all household members, including domestic servants who lived with case patients.

For the purpose of a suspected outbreak of scabies, the following definitions can be applied:

- Two or more persons diagnosed with scabies by a clinician
 - Two or more persons with an unexplained rash, diagnosed by a clinician as probable scabies.
- Scabies can be controlled by early recognition and surveillance. Secondary infection of scabies lesions is common.

In developing countries, scabies is a significant public health problem because it is highly prevalent and complications are frequent. It is one of the main reasons for consultations in non-specialized primary healthcare centers. Epidemics have been linked to poverty, poor water-supply, sanitation and overcrowding. Personal hygiene is an important preventive measure and access to adequate water supply is important in control.

Scabies infestations are generally categorized as typical, atypical or crusted/keratotic (Norwegian). The life-cycle of the human Sarcoptic mite requires almost constant contact with human skin.

The fertilized female mite burrows into the skin, depositing eggs in the tunnel behind her. After the eggs are hatched, larvae migrate to the skin surface and eventually change into the adult form. An adult mite can live up to about a month on a person. Once away from the human body, mites only survive 48-72 hours. The mites are too small to be seen with the naked eye and are generally found on the hands of those affected although they have been found on other areas of the body, including the genitals. The whole lifecycle of a mite is approximately 1 month. As the mite is blind, cannot jump and moves very slowly this migration requires direct, skin-to-skin contact such as holding hands. Frequent contacts allow more opportunity for migration and therefore increase the risk of transmission.

The characteristic itchy rash of scabies is an allergic response to the mite. The most common symptoms of scabies are intense itching and a pimple-like skin rash. The most common sites for burrows are between the fingers and toes, anterior surfaces of the wrists and elbows, axilla, lower abdomen, beneath female breasts and genitalia. The face, head, palms and soles are seldom involved in adults but in infants any area of skin may be infected. Individuals who are infested with scabies for the first time typically experience symptoms after 4 to 6 weeks. With subsequent infestation, symptoms appear within days. Scabies spreads principally by direct skin-to-skin contact and to a lesser extent through contact with infested garments and bedclothes. Environments that are particularly vulnerable to the spread of scabies include hospitals, childcare facilities and any crowded living conditions. Infestation is easily passed between sexual partners.

Improved personal hygiene plays an important part in the prevention and control of scabies and depends on access to adequate water-supply.

During the first quarter 2012 there was an increase in the reported number of scabies cases in Gaza governorate. A team from epidemiology and dermatology departments visited the field in affected areas. Within the 15 families with an index case, about 70 persons were diagnosed as having scabies and more than 40 persons were contacts. The situation was considered as

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Case Definition for TB:

Suspected case: Any person with a productive cough of 2 weeks or more.

Confirmed case:

Smear-positive pulmonary TB:

a) a suspected patient with at least 2 sputum specimens positive for acid-fast bacilli (AFB), or b) one sputum specimen positive and radiographic abnormalities consistent with active pulmonary TB as determined by the treating medical officer, or c) one positive sputum smear by microscopy and one sputum specimen positive on culture for AFB.

Smear-negative pulmonary TB:

a) two sets taken at least 2 weeks apart of at least two sputum specimens negative for AFB on microscopy, radiographic abnormalities consistent with pulmonary TB and a lack of clinical response despite one week of broad spectrum antibiotic and decision by a physician to treat with a full course of anti-TB chemotherapy, or b) severely ill patients with at least two sputum specimens negative for AFB by microscopy, radiographic abnormalities consistent with extensive pulmonary TB (interstitial and miliary) and a decision by a physician to treat with a full course of anti-TB chemotherapy, or c) a patient whose initial sputum smears were negative, who had sputum sent for culture initially, and whose subsequent sputum culture result is positive.

Extra-pulmonary TB (EPTB):

a) A patient with clinical and/or radiological and histological evidence with active EPTB and a decision by a physician to treat, or b) a patient with culture specimen from EPTB site positive.

In 1991, World Health Assembly (WHA) resolution recognized TB as a major global public health problem. Two targets for TB control were established as part of this resolution – detection of 70% of new smear-positive cases, and cure of 85% of such cases, by the year 2000. In 1994, the internationally recommended control strategy, later named directly observed treatment, short-course (DOTS), was launched. The DOTS framework has subsequently been expanded, further clarified, and implemented in 182 countries. DOTS implementation has helped countries to improve national TB control programs (NTPs) and make major progress in TB control. By 2004, more than 20 million patients had been treated in DOTS programs worldwide and more than 16 million of them had been cured. Mortality due to TB has been declining and incidence diminishing or stabilizing in all world regions except sub-Saharan Africa and, to some extent, eastern Europe. However, global statistics indicated that DOTS alone would not be sufficient to achieve global TB control and elimination. In 2005, WHA recognized the need for a new strategy that would build upon and enhance the achievements of DOTS. The stop TB strategy, launched on

DOTS is The most effective strategy available for controlling the worldwide TB epidemic today

TB is a curable disease

World TB Day in 2006, is designed to meet the TB-related Millennium Development Goal (MDG) as well as the Stop TB Partnership targets set for 2015. The goal of Stop TB Strategy which builds on the successes of DOTS while also explicitly addressing the key challenges facing TB. Its goal is to dramatically reduce the global burden of tuberculosis by 2015 by ensuring all TB patients, including for example, those co-infected with HIV and those with drug-resistant TB, benefit from universal access to high-quality diagnosis and patient-centered treatment. The strategy also supports the development of new and effective tools to prevent, detect and treat TB. The Stop TB Strategy underpins the Stop TB Partnership's Global Plan to Stop TB 2006-2015. The Stop TB Strategy has six principal components:

1. Pursue high-quality DOTS expansion and enhancement

- Political commitment with increased and sustained financing.
- Case detection through quality-assured bacteriology
- Standardized treatment, with supervision and patient support.
- An effective drug supply and management system.
- Monitoring and evaluation

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Scabies

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outbreak. Epidemiological investigation has revealed a good social relation between all these families and then the index case was identified. These families suffered from scabies since long time and were treated for several times. For the majority of these families good personal hygiene was noticed and houses are well ventilated.

The mean age was 22.2 years. The minimum age was 2 months and the maximum age was 62 years. The average family size was 6.9 persons. Male:female sex ratio was 1.3:1. There was 6 persons (5.5%) infants, 21 persons (19%) less than 15 years and 5 persons (4.5%) aged more than 60 years. Both cases and contacts had a good knowledge about the disease.

Control measures including ensuring the availability of all needed creams and drugs, instruction on application, and health education for cases and contacts about the disease, mode of transmission (how close physical contact spreads the disease) and preventive measures are implemented.

All these families were included simultaneously in the treatment at the same day. In order to avoid continuous transmission, wide mass treatment for all cases and contacts was started and all were given the same treatment. The treatment was benzyl benzoate lotion, for some persons antihistaminic drugs and for whom, who had secondary bacterial infection, antibiotic treatment was added.

The given recommendations for

all the families were:

1. the affected persons and identified contacts should have a warm shower/bath with soap, and dry body prior to treatment;
2. change clothing, towels and bed linen immediately before and after treatment;
3. apply medication from the neck down ensuring all skin folds are treated, for example: external genitalia, umbilicus and axilla (avoid contact with eyes and mucous membranes), ensure complete coverage of all body areas including the palms of the hands, soles of the feet, under fingernails and toenails.
4. Laundry used by the affected person in the 4 days prior to treatment should be dealt with using a hot cycle wash or in a washing machine or hot hand-wash wearing household gloves.
5. vacuuming of carpets and furniture is recommended.
6. Clothing and other items that cannot be laundered should be stored in a closed plastic bag for one week.
7. Cases were advised that itching could persist for some time after successful treatment and an anti-pruritic (itching) cream or drugs may be used.

TB

Continued from page 6

system, and impact measurement.

2. **Address TB/HIV, MDR-TB and other challenges**
 - a. Implement collaborative TB/HIV activities.

- b. Prevent and control multidrug-resistant TB (MDR-TB).

- c. Address prisoners, refugees and other high-risk groups and situations.

3. **Contribute to health system strengthening**

- a. Actively participate in efforts to improve system-wide policy, human resources, financing, management, service delivery, and information systems.

- b. Share innovations that strengthen systems, including the Practical Approach to Lung Health (PAL).

- c. Adapt innovations from other fields.

4. **Engage all care providers**

- a. Public–Public and Public–Private mix (PPM) approaches.

- b. International Standards for Tuberculosis Care (ISTC).

5. **Empower people with TB, and communities**

- a. Advocacy, communication and social mobilization.

- b. Community participation in TB care.

- c. Patients' Charter for Tuberculosis Care.

6. **Enable and promote research**

- a. Program-based operational research.

- b. Research to develop new diagnostics, drugs and vaccines.

Bloody Diarrhea

Continued from page 4

incidence was in Mid-Zone governorate. During February, the incidence decreased but during march there was slightly increase in the incidence.

Pneumococcal Disease*Continued from page 1*

occurring in infants and children aged <2 years. In persons aged >65 years, the annual incidence ranges from 24 to 85 cases/100,000 population. The incidence of IPD in the general adult population in developing countries is largely unknown.

Pneumococcal resistance to commonly used antimicrobials is a serious and increasing problem worldwide, complicating specific treatment and underlining the need for effective immunization against pneumococcal disease.

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Currently, 2 vaccines are commercially available for preventing pneumococcal disease: pneumococcal polysaccharide vaccine (PPV) and polysaccharide-protein conjugate vaccine (PCV).

The PPV is primarily designed for use in older children and adults who are at high risk for pneumococcal disease. PPV is T-cell independent antigens and thus are fail to induce immune memory and poorly immunogenic in those aged <2 years who constitute the main target group for the vaccine recommendations. To overcome this problem the polysaccharides are coupled with an immunogenic protein derived from the diphtheria toxin which called CRM197.

PCV induces a T-cell dependent immune response characterized by immune memory as well as a

booster antibody response on subsequent challenge with the pneumococcal polysaccharides included in the vaccine. Furthermore, the vaccine protects against both systemic and mucosal infection and prevents nasopharyngeal colonization, thereby reducing transmission in the community.

Different PCV vaccines with wider serotype coverage, including a PCV7, PCV10 and PCV13 were licensed. World-wide, approximately 20 serotypes are responsible for >70% of IPD in all age groups.

In 2007, the WHO recommended that all countries incorporate pneumococcal conjugate vaccines in their national infant immunization programs. WHO considers that pneumococcal conjugate vaccine should be a priority for inclusion in national childhood immunization programs. Countries with mortality among children aged <5 years of >50 deaths/1000 births or with more than 50,000 children's deaths annually should make the introduction of PCV a high priority for their immunization programs. This recommendation is based on epidemiological data and data on vaccine impact from a number of different settings.

Accordingly, in Palestine,

PCV13 will be introduced into the Expanded Program on Immunization (EPI) for all infants borne from 1st January, 2012. PCV13 contains the seven serotypes included in PCV7 (serotypes 4, 6B, 9V, 14, 18C, 19F, and 23F) and six additional serotypes (1, 3, 5, 6A, 7F, and 19A). PCV should not be mixed in the same syringe with other vaccines. It does not tolerate freezing and should be stored at 2–8°C. The primary series of PCV13 consists of 3 intramuscular doses administered to infants at intervals of at least 4 weeks, starting at the age of 6 weeks or later. The vaccine may be administered concomitantly with other vaccines in the EPI provided that separate syringes and sites of injection are used. In Palestine vaccination schedule will be at the age of 2 months, 4 months and 6 months.

Non Specific Meningitis*Continued from page 3*

study to describe the geographic distribution of the outbreak of NSM and to identify risk factors for spread of the disease. More detailed data about the situation will be distributed through our next issues of the bulletin.

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