

# Epidemiological Bulletin



From 1 April to 30 June, 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 103.1.
- \* 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.

## **Communicable diseases surveillance system in Palestine**

Surveillance is an ongoing systematic collection, analysis and interpretation of health-related data essential for planning, implementation and evaluation of public health practice, closely integrated with the timely dissemination of these data to those responsible for prevention and control. The goals of surveillance are to reduce morbidity and mortality of communicable diseases and to improve health. Communicable diseases surveillance programs in Palestine started in 1994 in Alrimal martyrs clinic in order to protect our people from major endemic health problems. In 1996 a second unit was opened in Khan-Younes governorate to serve southern governorates. Later on, three other units were opened in North, Mid-Zone and Rafah governorates.

The objectives of the communicable diseases surveillance system are:

- \* Improve the health and well-being for the communities by strengthening the skills and resources of the integrated communicable disease surveillance.
- \* Improving the ability of districts to early detect and respond to diseases and conditions that cause high levels of death, illness and disability in the district's catchments area.
- \* Effective utilization of the available resources and information for preventing and controlling communicable diseases.
- \* Providing a rational basis for decision- making to implement public health interventions that are efficacious in responding to priorities.

Notified communicable diseases by all health providers at any health facility must be reported to the epidemiology units at the governorate level. Epidemiology units staff has the responsibility to investigate all reported data, collect more detailed data for specifying diseases using special investigation forms, taking preventive measures in order to stop further spreading of the disease and reporting the information to the central epidemiology department. At the central level, collected data are analyzed, interpreted and all needed preventive measures are implemented. Epidemiology department writes immediate and periodic reports to the high level decision-makers and feedback to the

*Continued on page 8*

## **Highlights of this issue:**

Gaza strip in numbers .....	1
Communicable diseases surveillance system in Palestine .....	2
Reports of notifiable communicable diseases .....	3
Leptospirosis (Case study) .....	5
Diarrheal diseases .....	6

## 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 (MOH) and nongovernmental (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: April, May and June 2012

Disease	North	Gaza	Mid-Zone	Khan-Younes	Rafah	Total Q2, 2012	5 Years Average, Q2
AFP	0	2	0	0	0	2	1.4
AIDS/HIV	0	0	0	0	0	0	0
Meningococcal Disease	1	4	0	2	9	16	30
Food poisoning	14	0	0	0	0	14	17.8
Hepatitis A	55	30	12	52	5	154	126
Hepatitis B	17	24	3	11	14	69	114
Hepatitis C	2	1	1	1	7	12	16
Mumps	1	4	0	9	4	18	11
TB Pulmonary	0	0	0	0	0	0	2.2
TB Extrapulmonary	1	0	0	0	0	1	3.4
Diarrhea <3 years	5192	2839	3347	4636	1867	17881	11541
Diarrhea >3 years	4223	1343	2361	1718	1005	10650	6136
Bloody Diarrhea	774	288	1024	445	151	2682	1591
Upper Respiratory Tract Infection	12334	3223	4919	3566	2134	26176	8737

## Reports of notifiable communicable diseases

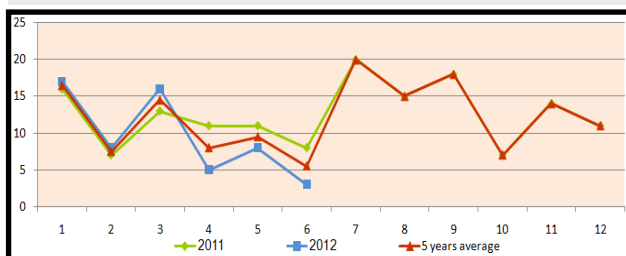
During the second quarter 2012 a total of 69,214 cases of notifiable communicable diseases were reported to the epidemiology department which constitute more than 33% increase comparing with the same quarter 2011 (46,289 cases). This increase was mainly related to the increase in the number of cases of upper respiratory tract infection (URTI) and diarrhea. These diseases only were the top two diseases on the reporting form, constituting a total of about 83% of all notifications. The five years average (during the second quarter) for URTI was very low because only influenza cases were reported. Recently, URTI was added to the communicable diseases notification list which explain the high number of notifications. When compared with the average notifications in the preceding five years, meningococcal diseases, food poisoning, hepatitis B and TB (pulmonary and extra-pulmonary) showed more than 50% decrease. AFP, hepatitis A and mumps showed slightly increase comparing with the five years average. During this period, none of the following infection was recorded: acute poliomyelitis, AIDS/HIV, diphtheria, measles, tetanus, influenza H1N1, brucellosis and malaria.

### Immediately Reported Diseases during the second quarter, 2012

#### Meningococcal Diseases:

The situation of meningococcal diseases during the second quarter 2012 was improved comparing with the first quarter 2012 and the same quarter 2011. The number of meningococcal disease cases decreased and comparing with the five years average, there are a decrease by nearly 60%. During this quarter, only 16 cases of

**Distribution of Meningococcal diseases in Gaza strip, years 2011-2012**

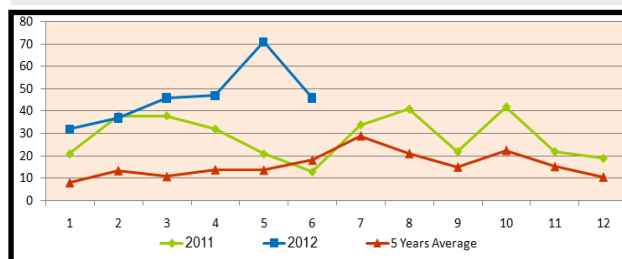


meningococcal diseases was reported compared to 30 reported cases during the same quarter 2011 which means that the usual incidence was decreases during this quarter. According to collected data during previous years, the number of cases of meningococcal meningitis decreased in the spring months.

#### Other bacterial Meningitis cases

During the beginning of the second quarter 2012, there was an increase of reported cases mainly during May followed by a decrease during June. A total of 164 cases of other bacterial meningitis were reported during this quarter 2012 comparing

**Distribution of Meningococcal diseases in Gaza strip, years 2011-2012**



with a total of 115 cases during the first quarter 2012 (about 30% increase) and a total of 66 cases were reported during the same quarter 2011 (more than double increase). 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. The decrease during June could be reflect a trend of the disease to regress to the endemic levels reported during previous months. Preliminary approval was made for using Latex test to identify the causative agent of the disease in order to understand the current situation.

#### Non Specific Meningitis cases:

The unusual increase in the number of cases of non specific meningitis (NSM) reported during the first quarter 2012 began to decrease by the end of the second quarter (136 cases in April, 165 in May and 115 in June. During this quarter, a total of 416 cases of NSM were reported while a total of 406 cases were reported during the first quarter 2012. Cases of NSM increased more than three folds

*Continued on page 8*

## Weekly Reported Diseases during the second quarter, 2012

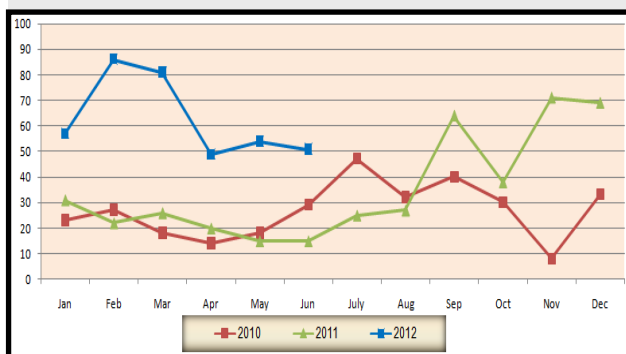
### Viral Hepatitis

Viral Hepatitis is caused by several viruses (A, B, C, D, E etc.) that differ in clinical presentation, risk of chronicity, transmission, and means of prevention. Three most common different types are registered in GS (Hepatitis A, Hepatitis B and Hepatitis C).

### Hepatitis A

Hepatitis A virus is an endemic disease in GS with feco-oral mode of transmission and represent the majority of acute hepatitis notified cases during childhood period. During the second quarter of the year 2012 a total of 154 cases of acute hepatitis A were reported, showing a clear decrease comparing with the first quarter where a total of 224 cases were reported. During the second quarter of the year 2011 a total of 50 cases were reported. The seasonal pattern showed that the number of hepatitis A cases decreased in the spring months. The majority of reported cases were registered in North and Khan-Younis governorates (55 and 52 cases respectively) which could be due to high population density and bad infrastructure, while only 12 and 5 cases were registered in Med-Zone and Rafah governorates.

**Distribution of Hepatitis A cases in Gaza strip, years 2010-2012**

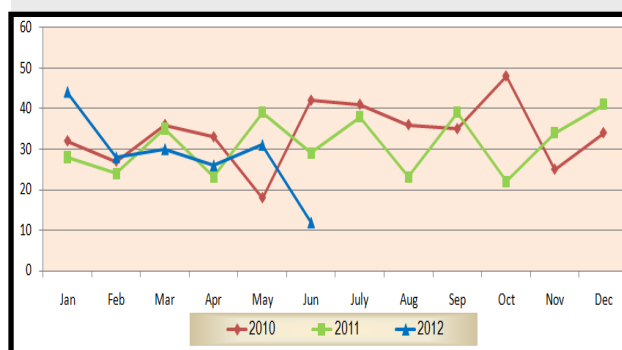


### Hepatitis B

Hepatitis B is an endemic disease in GS with low trend compared with neighboring countries. Hepatitis B infection is one of the main causes of liver cirrhosis and hepatocellular carcinoma. During April and May 2012, the situation of hepatitis B was stationary but during June, the reported number of cases is decreasing in all

governorates except Khan-Younes. Generally, the majority of cases are reported in Gaza, Mid-Zone and Rafah governorates. During this quarter these governorates reported low cases than usual and there is an increase in reporting cases in Khan-Younes governorate. During this quarter, a total of 69 cases of hepatitis B were reported to the epidemiology department while 102 cases were reported during the first quarter. During the same quarter (second) 2011, a total of 91 cases were reported. No obvious seasonal pattern was observed for hepatitis B.

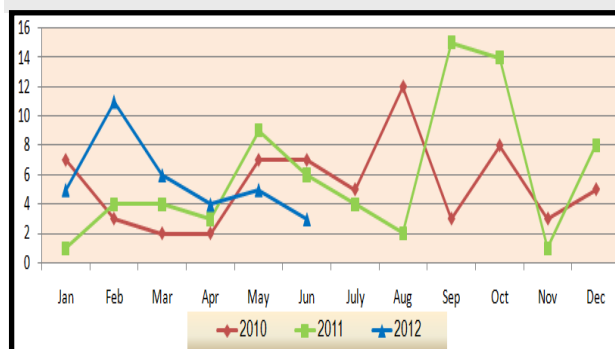
**Distribution of Hepatitis B cases in Gaza strip, years 2010-2012**



### Hepatitis C

Hepatitis C is an endemic disease in GS with low trend compared with neighboring countries. Hepatitis C infection is one of the main causes of liver cirrhosis and hepatocellular carcinoma. During the second quarter 2012, the situation of hepatitis C was stationary. During this quarter, a total of 12 cases of hepatitis C were reported to the epidemiology department while 22 cases were reported during the first quarter. During the same quarter (second) 2011, a total of 18 cases were reported. All reported cases were diagnosed mainly based on serological tests which is not enough to determine the accurate status of the patients.

**Distribution of Hepatitis C cases in Gaza strip, years 2010-2012**





## Leptospirosis (Case study)

**Leptospirosis** is a bacterial zoonotic disease caused by a gram-negative, aerobic spirochaetes of the genus *Leptospira* that affects humans and a wide range of animals, including mammals, birds, amphibians, and reptiles. It is considered the most common zoonosis in the world. Leptospirosis is transmitted via direct contact with the body fluid of an acutely infected animal or by exposure to soil or fresh water contaminated with the urine of an animal that is a chronic carrier (especially rats). The incubation period of leptospirosis is about 5 to 14 days. Leptospirosis is typically a biphasic illness. The first phase is a septicemic phase characterized by leptospires in the blood and cerebrospinal fluid (CSF). The second phase is an immune period in which IgM antibodies develop and leptospires are present in the urine. The wide spectrum of clinical symptoms that characterize leptospirosis make its diagnosis to be easily confused with other febrile diseases. Leptospirosis in humans occurs in two phases: anicteric or benign (between 85 and 90% of cases); and icteric or serious, also known as Weil's disease (between 10 and 15% of cases).

Common clinical features during an anicteric phase include fever (which may be biphasic), headache, chills, rash, myalgia, nausea, vomiting inflamed conjunctivae and an occasional rash. During an icteric phase, the patient has varying degrees of hepatic, renal, hematologic and other systemic dysfunction. In endemic areas, many infections are either asymptomatic or too mild to be diagnosed.

Leptospirosis has recently been recognized as a re-emerging infectious disease among animals and humans and has the potential to become even more prevalent with anticipated global warming. Although leptospirosis is uncommon in Palestine, some sporadic cases are reported. On 26 April, 2012 a case of leptospirosis was reported in Rafah governorate. A 15 years old male patient working in the tunnels under the boarder with Egypt was admitted to Al-Najjar hospital after six days of having symptoms. Since 20 April, the patient suffered from fever, fatigue, myalgia, anorexia and sweaty. The patient was diagnosed as having Common Cold and treated symptomatically by antipyretics without any improvement. On 26 April, the condition rapidly deteriorated with high

### Full Blood Count (CBC):

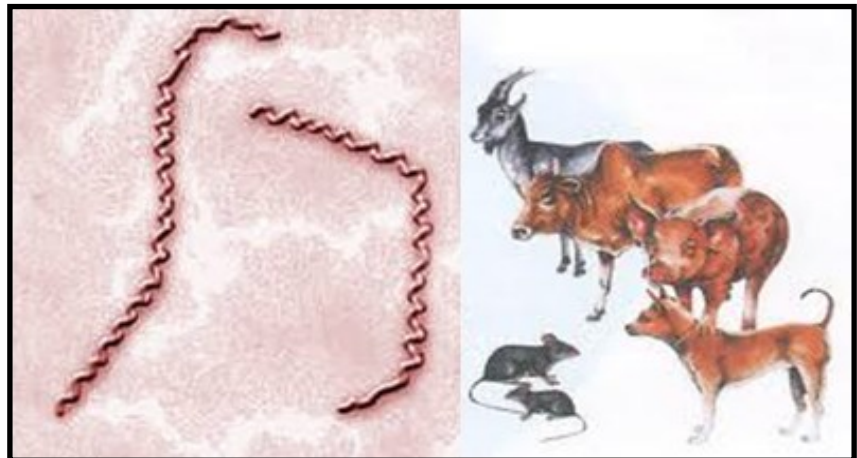
Hemoglobin-11.4g/dL; Leukocytes count- $14.5 \times 10^3/\text{mm}^3$ ; Erythrocyte count- $3.8 \times 10^6/\text{mm}^3$ ; Platelet count- $60 \times 10^3/\text{mm}^3$ ; Prothrombin time-12.2 s; Partial thromboplastin time-20 sec; International normalization ratio-0.91.

**Chemistry:** Fasting blood glucose-103 mg/dL; Urea-88 mg/dL; Creatinine-1.2 ng/mL; Alkaline phosphatase-187 U/L; Total bilirubin-12.1 mg/dL; Direct bilirubin-5.4 mg/dL; Alanine transaminase-100 U/L; Aspartate transaminase-82 U/L; Total calcium-7.4 mg/dL; Potassium-2.8 mg/L;

**Urine Analysis:** Protein-+2; Ketones-+1; Bilirubin-+3; Red blood cells-(8-10); White blood cells-(10-12);

**Serology:** Anti HAV-Nega-

### The pathogen that cause Leptosporiasis and mode of transmission



fever, severe muscle pain, right hypochondrial pain and jaundice appeared all-over the body and the patient was admitted to Al-Najjar hospital.

On admission he was febrile (toC of 38.8) with a blood pressure of 110/70. His analysis results were as the following:

tive; HBsAg-Negative; Anti-HCV-Negative; HIV-Negative.

**Abdominal Ultrasound:** Liver-hepatomegaly; Gall-bladder-Thick wall cholecystitis; Both kidneys-Enlarged in size.

Leptospirosis was suspected due to the combination of type of

*Continued on page 8*

### Diarrheal diseases:

Diarrhea is defined as a clinical syndrome represents signs and symptoms of infection caused by different pathogens and agents (viruses, bacteria, parasites and chemicals).

### Case Definition:

The World Health Organization defines diarrhea as the passing of liquid or watery stools at least 3 times in a 24-hour period. However, it is the consistency rather than the number of stools that is important. Frequent passing of formed stools is not diarrhea.

If stool contains blood or mucus, it is called **bloody diarrhea** or **dysentery**. When diarrhea lasts for 14 days or longer it can be considered as persistent.

### Laboratory criteria for diagnosis:

Microscopic stool analysis and microbiological stool culture remain the standard methods and are recommended for isolation of causative agents mainly for bacterial and parasitic causes of diarrhea. Viral isolation is not available in GS.

### Clinical case classification:

Simple diarrhea: self limited, mainly caused by viral infection and treated by rehydration solutions.

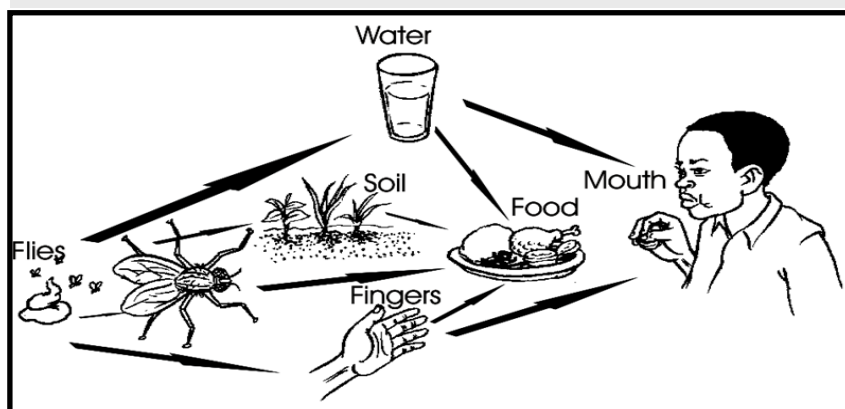
Severe diarrhea: high number of loose stool and vomiting. Bloody diarrhea: mainly caused by bacteria or parasitic infestation associated with dehydration which caused by any of above causative agents.

Diarrheal diseases are a syndromic diagnosis and one of the leading causes of childhood morbidity and mortality in developing countries. Most of the diarrheal agents are transmitted by the fecal-oral route. A large number of microorganisms can cause diarrhoea including mainly viruses, amoebiasis, salmonellosis, worms, protozoa and fungi. Given the limited availability of laboratory resources for identifying etiologic agents, it may be difficult to prove that any particular micro-

disappear when the amount of water available is increased. It is the quantity rather than its quality which appears to be more important in relation to diarrhoeal disease transmission and control.

Person-to-person transmission occurs by hand-to-mouth transfer of the agent from feces or contaminated objects of an infected individual. Diarrheal disease affects rich and poor, old and young, and those in developed and developing countries alike, yet a strong relationship

### The faecal-oral route of transmission of diarrheal diseases



organism is responsible. Accordingly, Palestinian communicable diseases guideline classified diarrhea into bloody diarrhea, diarrhea among children less than three years old and among those more than three years old. As shown in the Figure, food plays a central role in transmitting communicable diseases because it can be directly or indirectly contaminated via polluted water, dirty hands, contaminated soil, flies, animals and animal products.

Diarrhoeal diseases are often associated with an inadequate supply of water than contamination of water and will usually

exists between poverty, an unhygienic environment, and the number and severity of diarrheal episodes.

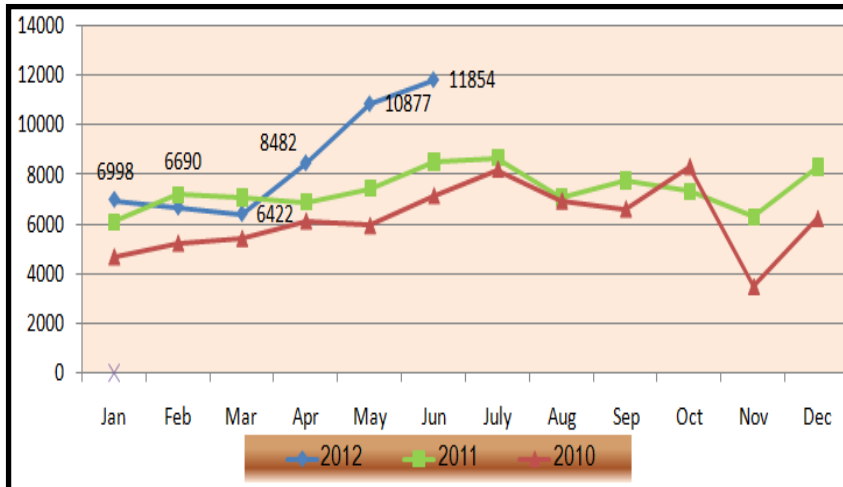
Although diarrhea occurs in any time of the year, outbreaks of diarrhea usually follows a seasonal (summer) pattern in most developing countries and most cases are self limited.

During the second quarter 2012, data from governmental and UNRWA centers reveal an unusual significant increase of reported cases of acute diarrheal in Gaza strip. A total of 31.213 cases were reported

*Continued on page 7*

## Diarrheal diseases (cont.)

**Distribution of all diarrheal diseases in Gaza strip, years 2010-2012**



during this period, where a total of 22,822 cases were reported during the same quarter 2011 with an increase of 26%. This increase in number were noticed mainly in North and Mid-Zone governorates.

### **Bloody Diarrhea:**

A total of 2,682 cases were reported during the second quarter 2012. The increased number was reported mainly in Mid-Zone and North governorates where 1798 cases were reported (this constitutes about 67% off all bloody diarrhea cases). During the first quarter 2012, a total of 1575 cases were reported while during the second quarter 2011, a total of 1646 cases were reported.

### **Diarrhea less than three years:**

A total of 17,881 cases were reported during the second quarter 2012. More than 47% was reported in North and Mid-Zone governorates. During the first quarter 2012, a total of 1116 cases were reported while during the second quarter 2011, a total of 1334 cases were reported.

### **Diarrhea more than three years:**

A total of 10,650 cases were reported during the second quarter 2012. During the first quarter 2012, a total of 7419 cases were reported while during the second quarter 2011, a total of 7842 cases were reported.

This increase of reported number during the second quarter 2012 was reported mainly in North governorates where about 40% of the cases were reported. Epidemiological analysis was carrying out to determine the real causes of this increase. The analysis reveal that the most probable cause of this increase is ingestion of unsafe food due to frequent electricity interruption which cause a number of physical and biochemical reactions. This lead to rapid growth of pathogenic micro-organisms that cause food deterioration.

There is sufficient evidence that several interventions are effective in the prevention and treatment of diarrheal diseases.

These interventions are: treatment through oral rehydration

solution, improve maternal and child nutrition (exclusive breast-feeding), improvement of water supply, safe water, food safety facilities, good sanitation and hygiene, zinc and vitamin A supplementation, and antibiotics for dysentery, intensefication of health education efforts with emphasis on personal hygiene. Continuous monitoring and evaluation is on going to assure the effectiveness of control program.

Although the progress toward better water and sanitation observed in other regions had not yield a reduction of diarrhea morbidity, a biological monitoring is strongly recommended for drinking water.

**Keep your food safe by diminishing use of frozen and cold products**

Health education is always a helpful preventive measure. Even when sophisticated techniques are used, in many cases, no organism can be found. In most cases of acute diarrhoea it is not important to identify the cause as the treatment is the same, that is rapid and adequate rehydration.

Food safety control (especially cold and frozen) must be subject to regular inspection and sampling. Food that do not comply with acceptable standards must be rejected.

In addition, research projects must be started to determine the optimum strategies for diarrheal disease control program and identify various determinants of performance in this field.



## Surveillance system in Palestine

*Continued from page 1*

district level. Then, all notifiable disease information are disseminated through epidemiological bulletin on the MOH and PHC websites on quarterly bases. In addition, epidemiology department will publish an annual report summary which will be available on the same websites. The whole process of monitoring and evaluation is under the responsibility of preventive medicine department which is a part of national communicable diseases prevention and control committee (which was established on March 2010).

During the year 2011, a national guideline for communicable disease surveillance has been prepared and contains a set of definitions and thresholds that trigger some action for responding to specific communicable diseases. Thresholds are values of indicators above which the disease pattern is considered abnormal or unusual and may require a public health intervention. The notifiable communicable diseases are divided into three groups according to their epidemiological importance.

1. Group A diseases: must be reported immediately. For some notifiable diseases under this group, the threshold is as the occurrence of a single case from these diseases is considered as having outbreak and requires immediate public health intervention (e.g. acute poliomyelitis, cholera, diphtheria, measles, rubella, rabies and tetanus). For other diseases under this group (Acute flaccid paralysis, HIV/AIDS, food poisoning, meningococcal diseases, hemophillus Influenza B Meningitis, and Adverse events following Immunization) a disease specific threshold

is used based on the observed or estimated rate in our country.

2. Group B diseases: must be reported weekly and the thresholds for these diseases are either disease specific and based on the observed or estimated rate in our country.

3. Group C diseases not requiring an immediate response and must be reported on a weekly or monthly notification base and the thresholds are calculated using statistical methods mainly two or three standard deviations above the mean of the previous five years to differentiate truly abnormal events from the expected normal variations observed with these diseases.

To date, there are a total of 33 infectious diseases on this list. Finally, training in epidemiological surveillance will be expanded. The units will work in cooperation with primary health care departments in the regions and the preventive medicine department in the MOH to provide efficient, effective and on moment services.

## Non-specific Meningitis

*Continued from page 3*

comparing with the same months of the previous year (from 119 cases to 416 cases) and about 3 folds comparing

with the five year average (from 165 to 406 cases). The high proportion of NSM may be a consequence of the inability to perform a laboratory test to determine the causative species for all meningitis cases.

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.

## Leptospirosis (case study)

*Continued from page 5*

work, hepatic dysfunction, thrombocytopenia and generalized septic symptoms.

During the next 48 hours marked jaundice with high bilirubin levels continued with marked fall in platelets. The patient's febrile episodes continued. Four antibiotics (Rocefine, Ceftriaxone, Crystalline Penicilline and Doxacycline) and fluids were ordered.

The patient was discharged home after 10 days under continuous treatment. The patient recovered fully from this episode and has returned to normal activities without any lasting effects.

If you want to receive our issues by E-mail, please go to our web sites: <http://www.moh.gov.ps/>; or <http://www.moh.gov.ps/care/>, or forward your E-mail address to our E-mail listed below. Please send any comments and feedback to the Epidemiology Department-Gaza; Email: [epidept-phc@moh.gov.ps](mailto:epidept-phc@moh.gov.ps).

### Editorial Board

Dr. Majdi Dheir  
[ibmajdi@hotmail.com](mailto:ibmajdi@hotmail.com)  
Dr. Nedal Ghuneim  
[ghuneimnedal@yahoo.com](mailto:ghuneimnedal@yahoo.com)

### Published by:

Epidemiology Department  
Al-rimal Martyrs Clinic  
Alwehda st.  
Palestine-Gaza