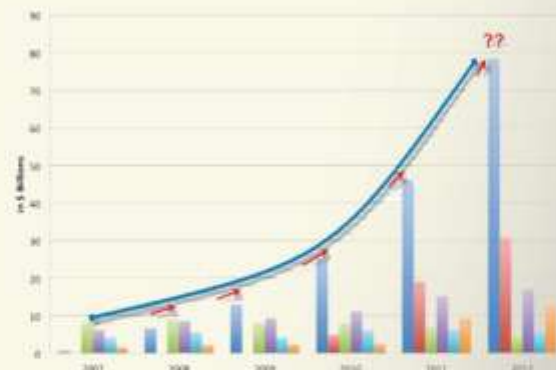
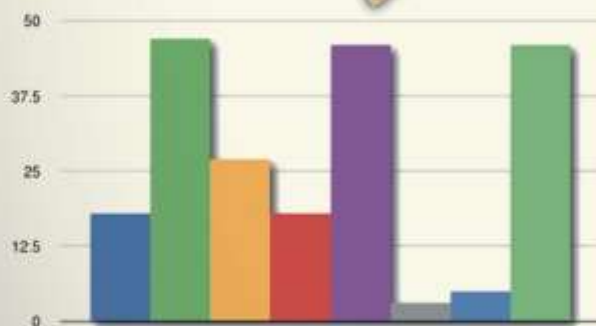




# Annual Report 2013



Communicable Diseases in Gaza Strip

General Directorate of Primary Health Care  
Preventive Medicine - Epidemiology Department

# **Annual Epidemiological Report**

## **Gaza Strip, 2013**

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Palestine Map



## PREFACE

With our pleasure, the third edition of the Annual Epidemiological Report about the communicable diseases in Gaza Strip became available. This report provides a comprehensive summary of surveillance data during the year 2013. It is intended to be a key reference document for organizations, individuals and researchers interested in the occurrence of these infectious diseases in Gaza.

Different challenges during that period were faced in Gaza Strip (one of the most crowded places in the world). The unjust siege, high unemployment rate, high poverty rate, difficult economy situation, frequent cut of electricity and frequent Israeli military attacks strongly influence the quality of life and health status and make Gaza Strip and all its inhabitants live in a dark tunnel. In the midst of this situation, the health system is suffering and offers emergency services to avoid a total collapse. Despite these challenges, the health system is still effective, efficient, viable and provides reasonable access to high-quality preventive and curative services for all Gazan's.

This report is the result of the effort of many governmental and non-governmental institutions from all governorates, who work seriously to ensure the continuous strong surveillance of communicable diseases. Without their efforts, this report could not have been prepared. We all acknowledge and greatly appreciate the hard work of medical, health and administrative teams.

We look forward to continue progress to achieve the main goal of MOH "Provide a comprehensive health services to Palestinian people to prevent morbidity and reduce mortality". This is not simply a slogan, it is something we believe in and we work every day trying to achieve.

Deputy Assistant

Dr. Fouad El-Eisawi





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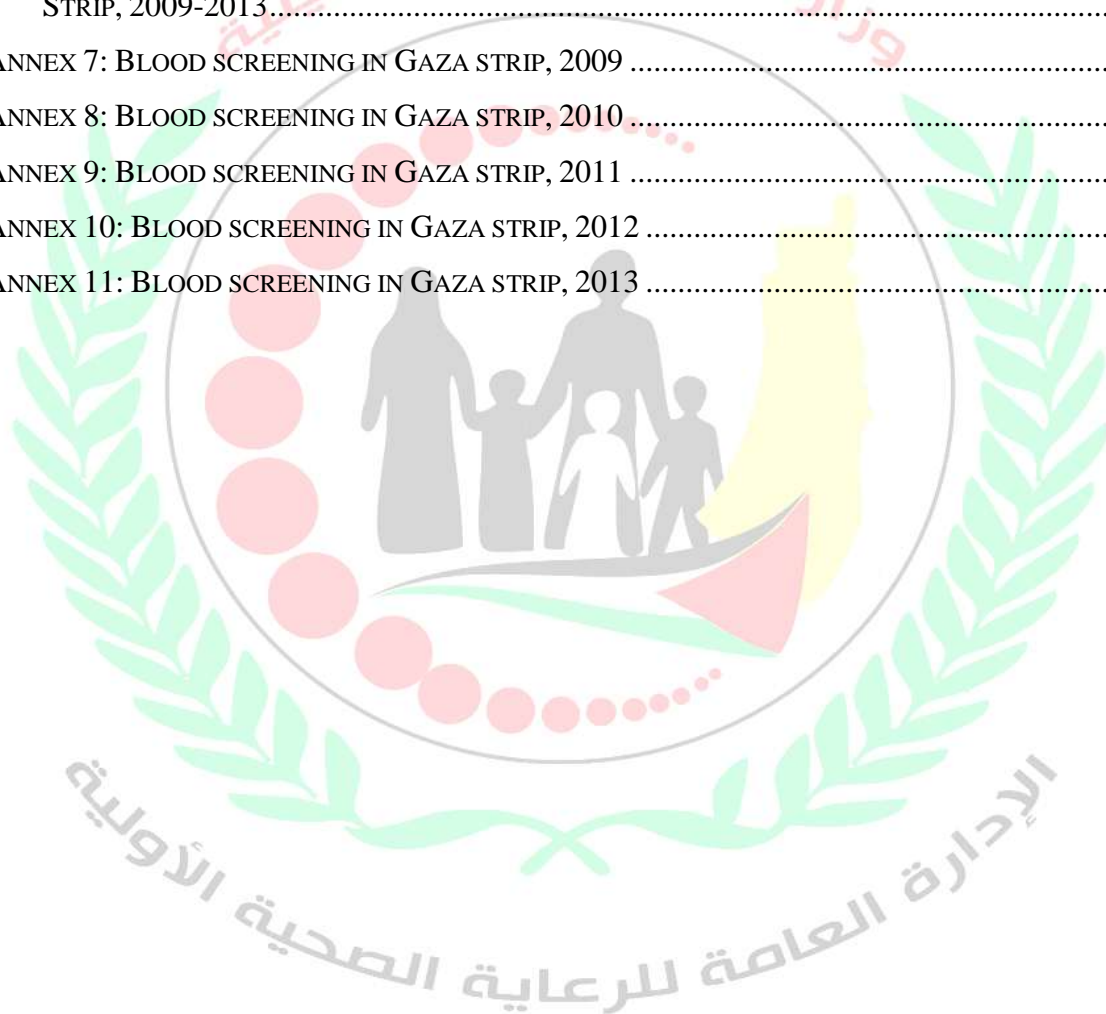
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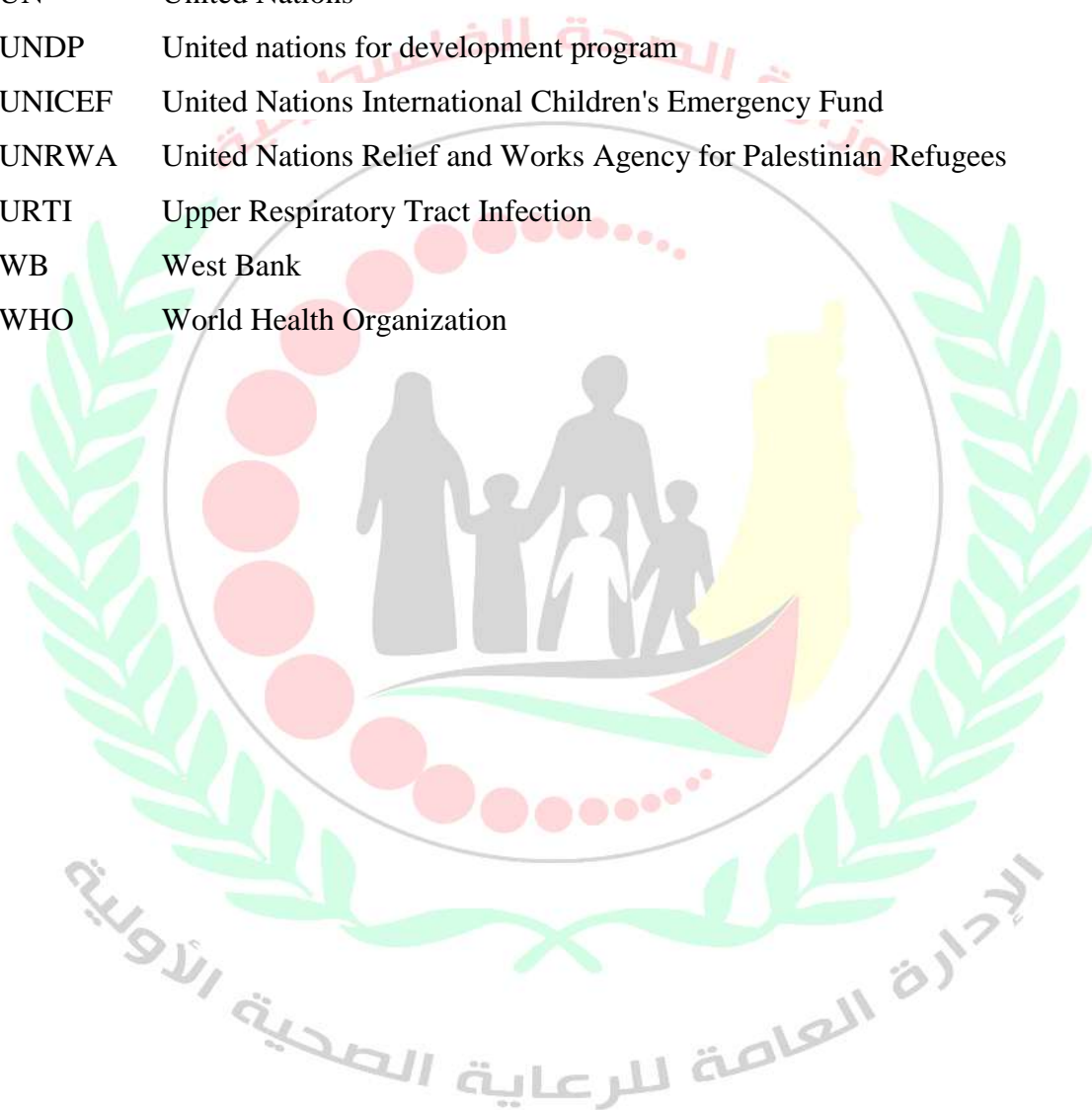


## Acronyms and Abbreviations



AEFI	Adverse Events Following Immunization
AFP	Acute Flaccid Paralysis
AIDS	Acquired immunodeficiency syndrome
BCG	Bacille Calmette and Guérin
BCP	Brucellosis Control Program
CFR	Case Fatality Rate
CRS	Congenital Rubella Syndrome
DT	Diphtheria-Tetanus
DTP	Diphtheria-Tetanus- Pertussis
ELISA	Enzyme-Linked Immunosorbent Assay
EMR	Eastern Mediterranean Region
EPI	Expanded Program of Immunization
GIVS	Global Immunization Vision and Strategy
GS	Gaza Strip
HAV	Hepatitis A Virus
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
Hib	Haemophilus influenza type b
HIV	Human Immunodeficiency Virus
IPV	Injectable polio vaccine
MCV	Measles Containing Vaccine
MMR	Measles-Mumps-Rubella
MNT	Maternal and Neonatal Tetanus
MOH	Ministry Of Health
MOI	Ministry Of Interior
NGOs	Non-Governmental Organizations
PCV	Pneumococcal Conjugate Vaccine
PHC	Primary Health Care
PNA	Palestinian National Authority
PPD	Protein Precipitate Derived

SIAs	Supplementary Immunization Activities
STD	Sexual Transmitted Diseases
TB	Tuberculosis
Td	Tetanus-adult diphtheria
TOPV	Trivalent oral polio vaccine
TT	Tetanus Toxoid
UN	United Nations
UNDP	United nations for development program
UNICEF	United Nations International Children's Emergency Fund
UNRWA	United Nations Relief and Works Agency for Palestinian Refugees
URTI	Upper Respiratory Tract Infection
WB	West Bank
WHO	World Health Organization





## Foreword

We are pleased to present this annual epidemiological report as another accomplishment of the epidemiology department. During the year 2013, online epidemiological bulletin ([www.moh.gov.ps](http://www.moh.gov.ps); [www.moh.gov.ps/care](http://www.moh.gov.ps/care)) continued publishing and already has covered topics with epidemiological importance. This report is a comprehensive report about the epidemiological situation of communicable diseases in Gaza strip and summarizes our prevention and control activities from January 1, 2013, through December 31, 2013. One of the epidemiology department goals is to provide a yearly summary of communicable diseases incidence and outbreaks report in order to understand, monitor and prevent diseases and other health related events in Gaza Strip.

We hope that this report will be an informative accurate reference and will positively contribute in helping national decision makers in health planning and international organizations in identifying health needs and for additional support.

This publication can be obtained from the above-mentioned web sites. Please send any comments and feedback to the Epidemiology Department-Gaza;

Email: [epidept-phc@moh.gov.ps](mailto:epidept-phc@moh.gov.ps).

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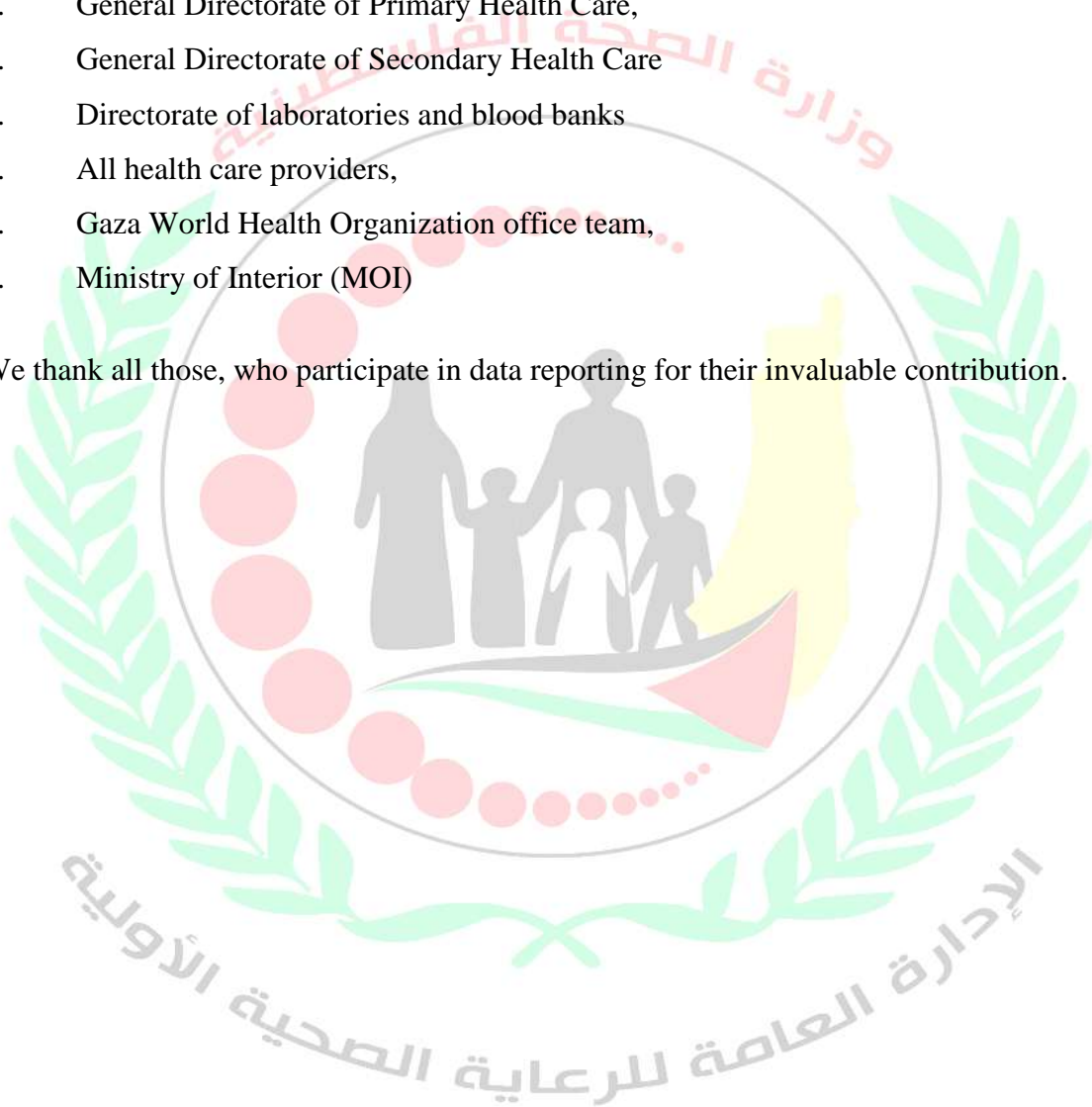
**Contributors' team**

## Acknowledgements

We wish to thank all the following people for their contributions to the success of this report:

1. All epidemiology departments staff,
2. Vaccination department staff,
3. General Directorate of Primary Health Care,
4. General Directorate of Secondary Health Care
5. Directorate of laboratories and blood banks
6. All health care providers,
7. Gaza World Health Organization office team,
8. Ministry of Interior (MOI)

We thank all those, who participate in data reporting for their invaluable contribution.



## Introduction

The Palestinian National Authority (PNA) territories consist of two geographically separated areas West Bank (WB) and Gaza Strip (GS). GS 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. GS has a total area of 365 sq km with 46 kilometers long and 5–12 kilometers wide and constitute 6.1% of a total area of Palestinian territory land. The mid-year population of the year 2013 was 1.701.436 that represents about 38 percent of the total population in the Palestinian territories. GS is consider as one of the most overcrowded areas in the world with a population density of 4.742 inhabitants/sq.km.

Gaza strip consists of four cities, fourteen villages and eight refugees' camps and administratively divided into the following main five governorates:

**North-Gaza governorate** with an area of 61 sq. km, constitutes 16.7% of the total area of GS and 1.0% of the total Palestinian territory. The total number of population lived in North-Gaza governorate during 2013 was 335.253 individuals with 5495 inhabitants/sq.km.

**Gaza governorate** with an area of 74 sq. km, constitutes 20.3% of the total areas of GS and 1.2% of the total Palestinian territory. The total number of population lived in Gaza governorate during 2013 was 588032 individuals with 7946 inhabitants/sq. km.

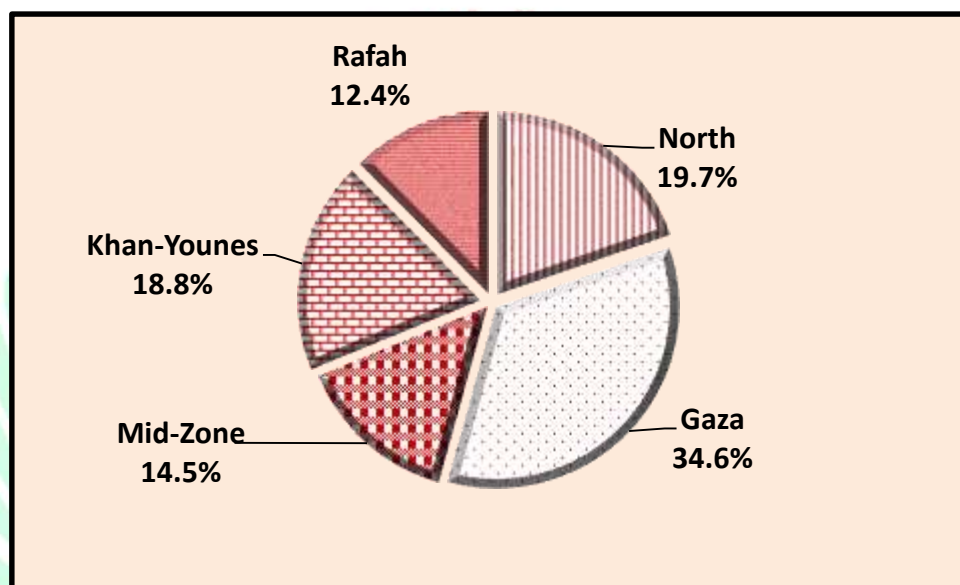
**Mid-Zone governorate** with an area of 58 sq. km, constitutes 15.9% of the total area of GS and 1.0% of the total Palestinian territory. The total number of population lived in Mid-Zone governorate during 2013 was 247150 individuals with 4261 inhabitants/sq. km.

**Khan-Younes governorate** with an area of 108 sq. km, constitutes 29.6% of the total area of GS and 1.8% of the total Palestinian territory. The total number of population lived in Khan-Younes governorate during 2013 was 320835 individuals with 2970 inhabitants/sq. km.

**Rafah governorate** with an area of 64 sq. km, constitutes 17.5% of the total area of GS and 1.1% of the total Palestinian territory. The total number of population lived in Rafah governorate during 2013 was 210166 individuals with 3283 inhabitants/sq. km.

According to the distribution of the population by governorates during the year 2013 (graph 1), the most populated governorate was Gaza governorate with 34.6% of the total GS population followed by North-Gaza governorate with 19.7%. On the other hand, Rafah governorate had the lowest rate of population of 12.4%. The percentage of population under 15 years old was 43.3% of the total population in GS.

**Graph 1: Distribution of population by governorates in GS, 2013**



Gaza strip is a vital part of the Palestinian entity and identity and its place in the middle of the Palestinian territory makes it a prominent focus of global politics. In August 2005, the Israel evacuated the occupied GS, including all existing Israeli settlements and all military installations, which redeployed outside the GS. In reality, the Israeli unilateral disengagement imposed huge prison for the Palestinian people introduced by Israeli government. All these Israeli activities violate the United Nations (UN) human rights conventions and UN decisions. Since 2006, a strict siege was began on Gaza resulted in severe restriction of population movement, increased health risks and impede the delivery of health and social services. On December 2008 and November 2012, Israeli army launched a devastating "War on Gaza" and large areas of GS had been razed to the ground, leaving many thousands homeless and the already dire economy in ruins. Economically, the Gaza Strip continues to be totally dependent on the Israeli Occupation State, which is consider as its primary trading partner. As a result, unemployment increased and people were induced to migrate for work and create conditions conducive to illegal drug use that have expanded rapidly in GS in recent years. Israeli policy of limiting the daily amount of fuel and electricity



to Gaza has not only made healthcare unreliable and inadequate but also leaves entire health care facilities without electricity for 8 to 12 hours per day. Drinking water and sewage systems are strongly affected, leaving an estimated 25-30% of Gazans without running water, while 40-50 million liters of untreated sewage floods into the sea each day.

At the same time, there are important areas of concern including poor coordination and implementation of policies and programs across geographic areas and between the governmental and nongovernmental (NGOs) sectors of the health system; many under-qualified health care providers; and weak systems for continuing education.

The above-mentioned factors make GS susceptible for frequent outbreaks of communicable diseases from time to time. Therefore, the Ministry of Health (MOH) realizes this fact and provides continuous support to preventive medical activities in order to conduct more efforts to prevent and control communicable diseases. On other hand, this situation has led to adopt a changeable strategy according to the situation on the ground in order to guarantee the continuity of services.

### **Sources of data**

After the establishment of PNA (1994), epidemiology department has been developed in Al-Rimal martyr's clinic and communicable diseases surveillance programs have been designed in order to monitor, to prevent and to control communicable diseases in GS. In 1996, a second center was opened in Khan-Younes governorate to serve southern governorates. Now five epidemiology centers are functioning in all governorates.

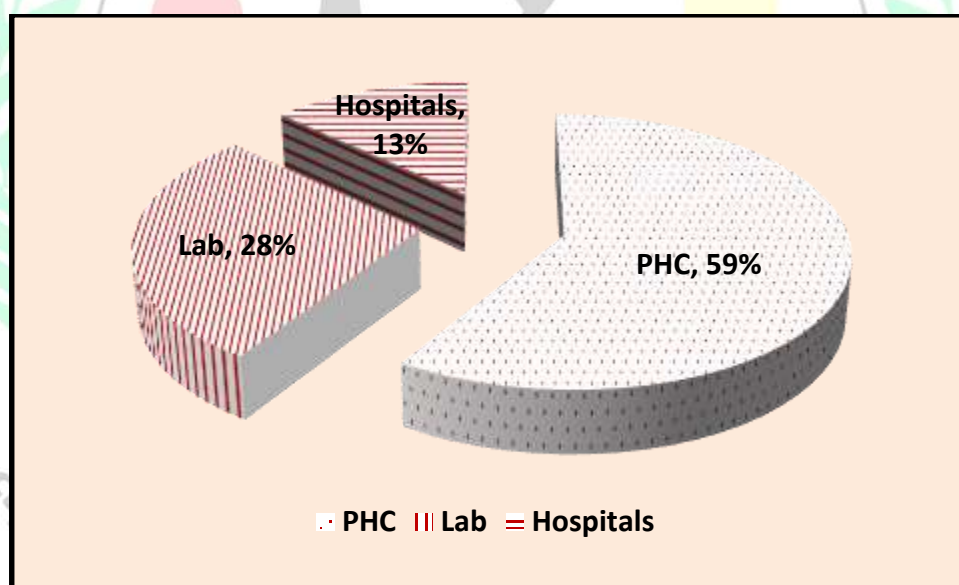
Data about communicable diseases are collected from all health providers and facilities participated in communicable diseases surveillance system. In GS, we apply disease specific approach of communicable disease surveillance, which depends essentially on passive surveillance system. Reporting is very important for detecting any unusual increase of the disease to take needed preventive measures. Despite the significant gap between real and reported data from all providers, all received data are routinely analyzed and interpreted to be part of the (monthly, quarterly and annually) reports on communicable diseases to control and prevent them and to help decision-making.

## Health facilities participated in the notification

There are four health care providers (Governmental, United Nations Relief and Works Agency (UNRWA), NGO's and Private sector) in GS. The Governmental and UNRWA offer health services to the most population of GS. The NGO's and Private sector serve small part of the population so why we will include these providers under one item "NGO's".

During 2013, 121 (75%) health facilities out of 161 registered health facilities participated in reporting of registered communicable diseases. The main source of data are received from primary health care (PHC) centers that constitute more than 59% from all participation (graph 2).

**Graph 2: Distribution of health facilities participation in notification of communicable diseases in GS, 2013**



Among these facilities, there were 17 out of 20 hospitals (12 governmental and 8 NGOs), 70 out of 94 PHC centers (54 governmental, 20 UNRWA and 20 NGOs) and 34 out of 47 laboratories (31 governmental and 16 NGOs) participated in the notification (table 1).

As shown on table 1, the notification from UNRWA facilities was very significant (100%). The notification from NGOs (Laboratories and PHC) facilities was very poor (31.2% and 15.4% respectively). In fact, NGOs facilities serve a few quantity of people and more effort should be paid at this level for better notification. An average of 91.6% of governmental hospitals participated in the notification process, while NGOs hospitals participation were

75%. The participation of governmental PHC centers was 78.7%, while NGOs Health care centers was 15.4%. This reflects that more efforts are needed to improve the participation of NGOs in notification and reporting of communicable diseases.

**Table 1: Percentage of notification by type of health providers in GS, 2013**

Type of Provider		No. of Participated facilities	Total no. of facilities	Percentage of notification
Hospitals	Gov	11	12	91.6%
	NGOs	6	8	75%
PHC	Gov	48	61	78.7%
	UNRWA	20	20	100%
	NGOs	2	13	15.4%
Laboratories	Gov	29	31	93.5%
	NGOs	5	16	31.2%

By the end of the year 2013, a total of 275.585 cases of notifiable diseases were reported to the epidemiology department in the five governorates with about 2% increase comparing with 2012 (269.783 cases). The majority of reported cases were from North governorate (40.5% of notifications), followed by Khan-Younes governorate (21.6%). The lowest notification was reported from Rafah governorate (6.7%). Approximately the same distribution was registered in the year 2012.

We are looking to improve the participation from health facilities in notification and reporting of communicable diseases through:

1. Increasing the awareness of the notification by all health providers,
2. Active collaboration between Epidemiology Department and health facilities,
3. Establishing the Feedback information from Epidemiology department to all health providers, who participated in notification of communicable diseases.

Communicable diseases and their related events in GS are divided into three groups according to their epidemiological importance (annexes 1-5):

**Group A diseases:** Diseases of this group are of high importance so they must be immediately notified with accuracy due to the urgency of investigation and intervention.

This group includes Acute Flaccid Paralysis (AFP), Acute Poliomyelitis, Human immunodeficiency virus / Acquired immunodeficiency syndrome (HIV/AIDS), Cholera, Diphtheria, Food poisoning, Measles, Rubella, Meningococcal diseases, Hemophilus Influenza type b (Hib) Meningitis, Rabies, Tetanus and Adverse Events Following Immunization (AEFI).

**Group B diseases:** Diseases of this group are of the second highest of 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 Tract infection (URTI), Ascariasis, Amebiasis, Giardiasis, Strongyloidiasis, Enterobiasis, Trichuriasis, Hymenolepiasis, Toxoplasmosis and Leprosy.

### **Morbidity of communicable diseases**

Communicable diseases are one of the main causes of morbidity, mortality and disability in the world. While these diseases present a large threat for the well-being of humans, there are well-known interventions that are available for controlling and preventing them. Good implementation of a national surveillance system of communicable diseases is a key part of detection, prevention and control of these diseases. Through comprehensive implementation of the national surveillance system of communicable diseases, Palestinian health authority had succeeded in prevention and complete control of many communicable diseases. There were no registered cases of poliomyelitis, rabies, diphtheria, plague, leprosy, schistosomiasis or malaria in the last years. Other communicable diseases, such as meningococcal meningitis, non-specific meningitis, HIV/AIDS, hepatitis, mumps, tuberculosis, diarrhea, pneumonia and parasitic infestation remain challenges. Continues improvement of regular notification, reporting, evaluation and intervention is needed for more success in prevention and control of these diseases. Despite the amelioration of reporting system, we still have under reporting from some health providers. Therefore, the data presented in this report do not reflect the real situation of these diseases.



## Vaccine Preventable Diseases

Vaccination is one of the most important public health interventions for prevention and control of vaccine preventable diseases. Globally, their use had led to eradication of smallpox, partial eradication of poliomyelitis, elimination of tetanus, partial elimination of measles and Rubella and substantial reductions in the morbidity and mortality attributed to diphtheria, pertussis, and Haemophilus Influenza type B Meningitis. The targets of the Global Immunization Vision and Strategy (GIVS) set by World health organization (WHO) and United Nations International Children's Emergency Fund (UNICEF) call for all countries to be immunizing by 2010 at least 90% of their total child population under five years old, and at least 80% of children under five in every district throughout the country. Each country has its own policies as to which vaccines to use. Immunization program performance is now increasingly measured not only by immunization coverage rates, but also, and more important, by measuring the reduction in the incidence of expanded program of immunization (EPI) target diseases. Surveillance data are crucial in assessing whether disease eradication, elimination and reduction targets are being met and where resources should be targeted for maximum cost-effectiveness.

Palestinian MOH adopted a comprehensive EPI to prevent 11 vaccine-preventable diseases that occur mainly in infants and children. The strength of the Palestinian immunization program plays an important role in improving child health through reduction of morbidity and mortality caused by targeted vaccine preventable diseases. The targeted vaccine preventable diseases through EPI are Tuberculosis (TB), Poliomyelitis (polio), Diphtheria-Tetanus- Pertussis (DTP), Measles-Mumps-Rubella and congenital rubella syndrome (MMR), Hepatitis B, Haemophilus influenza type b (Hib) and Pneumococcal Conjugate Vaccine (PCV).

Our target is that every child will receive a safe and effective vaccine for the targeted 11 vaccine-preventable diseases. So according to MOH policy, any infant from any governorate can receive his vaccine at any PHC center in any governorate. Table 2 shows the national immunization schedule for these diseases.

**Table 2: National immunization schedule in GS, 2013**

Age at vaccination	Type of vaccine
At birth	BCG, HB1
1 month	IPV1
2 months	DTP1, Hib1, HB2, IPV2, TOPV1, PCV1
4 months	DTP2, Hib2, HB3, TOPV2, PCV2
6 months	DTP3, Hib3, HB4, TOPV3
12 months	MMR1, PCV3
18 months	MMR2, TOPV4, DTP4
6 years	DT, TOPV5
15 years	Td

Based on the reports received from immunization department, the average coverage rates exceeded 99% for all vaccines (table 3), which had clear impact on eradication, elimination or reduction in morbidity, mortality and disability caused by vaccine preventable diseases.

**Table 3: Annual immunization coverage for all vaccines in GS, years 2003-2013**

Vaccine	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>BCG</b>	100%	100%	100%	100%	100%	99.6%	100%	99%	98.9%	100%
<b>HB3</b>	97.9%	98.7%	97.9%	97.9%	98.9%	94.1%	98.9%	99%	99.3%	99.7%
<b>TOPV3</b>	98.3%	98.8%	98.5%	98.5%	98.7%	96.5%	100%	101.3%	99.3%	100%
<b>DTP3</b>	97.6%	97.8%	98.7%	98.7%	98.9%	99.1%	100%	101%	99.5%	100%
<b>Hib3</b>	-	-	-	-	-	-	-	101%	99.5%	100%
<b>PCV2</b>	-	-	-	-	-	-	-	-	99.5%	99.7%
<b>MMR1</b>	95.4%	95.1%	98.5%	98.5%	94.4%	98%	100%	98.2%	99%	98.1%

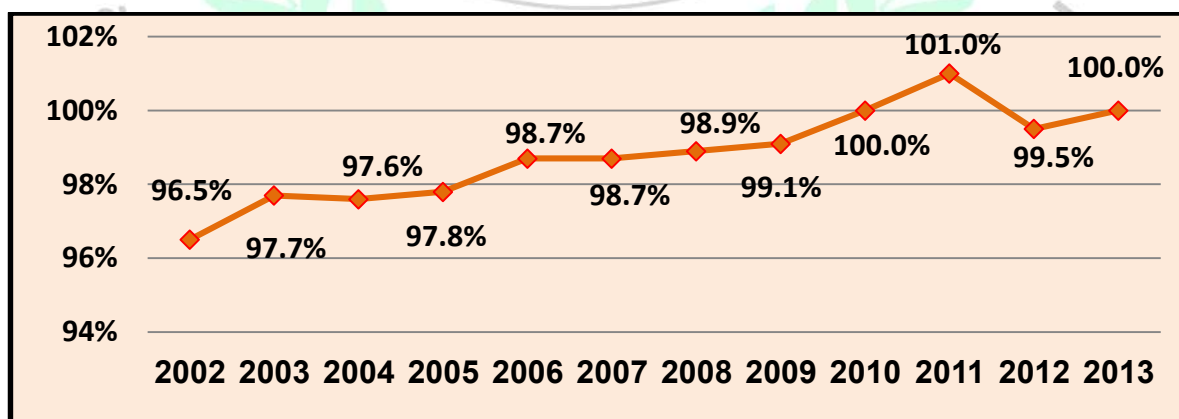
Immunization coverage is used in order to monitor progress in achieving and maintaining high levels of immunization. During 2013, according to table 3, the overall coverage for BCG, TOPV3, DTP3 and Hib3 was 100%, for PCV2 was 99.7%, for HB3 was 99.7% and for MMR1 was 98.1%.

The continuous supply and distribution of vaccines is one of the pillars that allow this program to be one of the best-implemented health programs in PNA. This extraordinary achievement were accomplished because of a combination of different reasons like the availability of the vaccines throughout the year, efficient cold chain (including refrigerators powered by solar energy which located in each governorate), good appointment system, increase the awareness of Palestinians mothers regarding the importance of vaccines and continuous follow up of defaulters by the health center staff.

During 2013, 56681 infants received their vaccines, which constitute more than 99% from the total targeted population (56958). By convention, the success of routine immunization programs has been measured by the coverage achieved with the third dose of DTP3 among children aged 6 months. DTP3 coverage serves as the primary indicator of an immunization program's performance and in Gaza strip during 2013 it was 100%.

According to graph 3, since the year of 2003 until 2013 there was a continuous maintenance of the immunization coverage more than 95%. In spite of the sever isolation policy of the Gaza strip in the last seven years; restriction of the movement of people and goods; the increasing poverty rate, high unemployment rate and socio-economic hardship; Wars on Gaza on 2009 and 2012 etc., the immunization coverage was not affected but still growing and was closed to about 100%.

**Graph 3: Annual DTP3 immunization coverage in GS, 2002-2013**



## Group A disease

By analyzing the reported data of diseases of this group, we realize that no cases of acute poliomyelitis, cholera, diphtheria, measles, rabies, rubella or tetanus were reported during year 2013 (Annex 5).

### Poliomyelitis and Acute Flaccid Paralysis

The WHO adopted a resolution to eradicate poliomyelitis from the world by year 2015. The pillars of polio eradication are routine immunization, supplementary immunization through national immunization days and “mopping-up” campaigns, surveillance for AFP cases and environmental surveillance of wild poliovirus. PNA adopted these pillars. In Gaza Strip, since years there was a high coverage of poliomyelitis vaccination closed to 100% (2 doses of IPV at ages 1 and 2 months in addition to 5 doses of TOPV at ages 2, 4, 6, 18 months and 6 years); national immunization days were conducted targeting children under five years of age for three consecutive years (regardless of previous immunization status); mopping up campaigns were carried out as needed; active surveillance of AFP cases was implemented; no cases of polio were reported since 1984 and regular environmental surveillance of sewage for the presence of wild poliovirus were conducted. So, in the year 2006, the regional committee for the Eastern Mediterranean Region (EMR) of the WHO certify that Palestine is free from poliomyelitis.

**Table 4: Polio immunization coverage in GS, 2013**

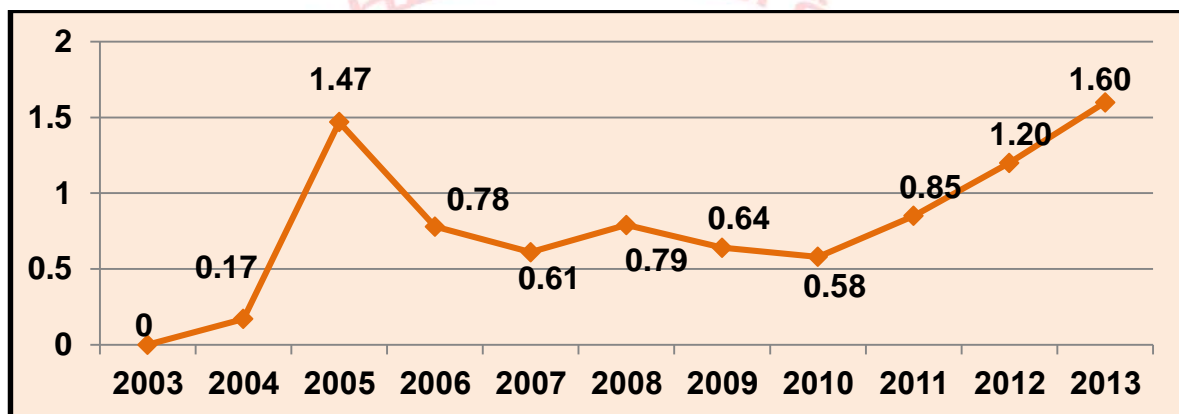
Type of vaccine	Vaccinated and registered	Total
IPV2	Total vaccinated	56211
	Total registered population	56730
	Coverage	99.1%
TOPV3	Total vaccinated	56782
	Total registered population	56745
	Coverage	100%

As seen on table 4, the total number of children received IPV2 vaccine was 56211 children constituting a coverage of about 98.1% from the total number of children, while the total number of children received TOPV3 vaccine was 56782 children constituting a coverage of about 100% from the total number of children.



According to WHO estimation, the incidence rate for detected AFP cases must be at least one case for every 100.000 children aged under 15 years. During the year of 2013, an improvement of reported cases (12 cases) were reported in GS (graph 4). The incidence rate was 1.6 per 100,000 children under 15 years comparing to 1.2 per 100.000 population in the year 2012 (9 cases) and to 0.85 in the year 2011 (6 cases).

**Graph 4: Annual incidence rate per 100.000 of AFP in GS, years 2003-2013**



The registered cases in the year 2013 were reported from all governorates as the following: Gaza governorate (5 cases), Khan-Younes, Mid-Zone and North governorates (2 cases in each) and one case in Rafah governorate. All these cases were free of Poliomyelitis.

These results reflect the great effort of the epidemiology department team and all other involved health care providers in maintenance of PNA as free country from Poliomyelitis.

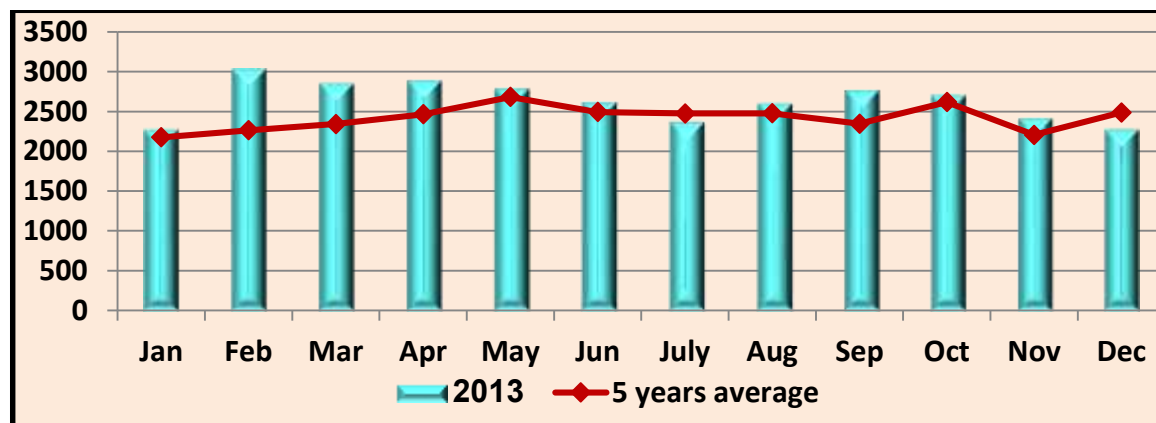
## **AIDS/HIV**

The global HIV pandemic continues to remain a serious public health problem in spite of the advances in fighting this disease. According to recent reports, the number of HIV/AIDS patients has risen to surprising levels in Arab and Islamic countries over the last few years.

In Palestine, HIV screening was started in 1987 for blood donors. In 1996 screening was extended to include pre-employment investigation, external migrants, drug addicts, prostitutes, TB patients and close HIV contacts. Since 1997 blood donors' samples were screened using Abbott micro particles immunoassay (MEIA). Provisional testing of samples for HIV/AIDS for other purposes was carried out using Enzyme-Linked Immunosorbent

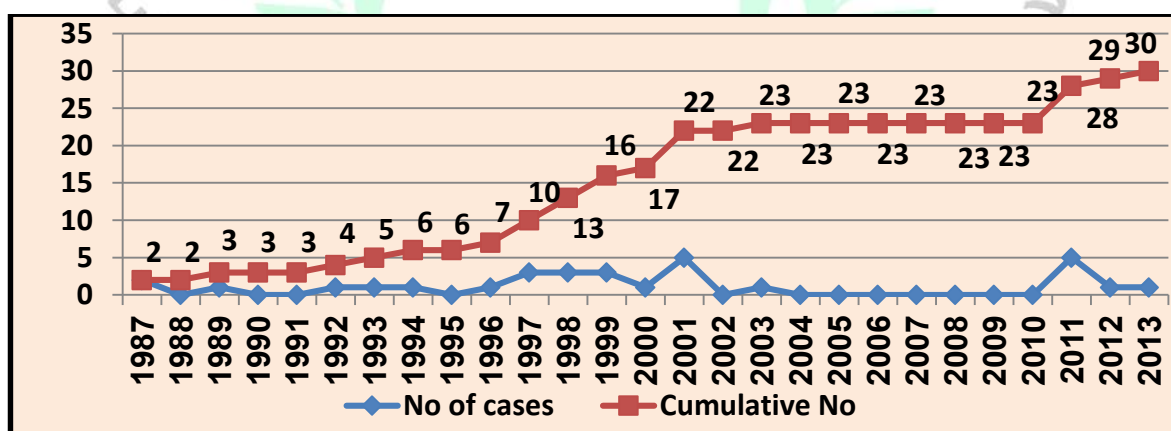
Assay (ELISA) test. Positive screened samples are confirmed using Western Blot (Annexes 7-11).

**Graph 5: Monthly tested blood samples for HIV from blood donors in GS, 2013**



In 2013, a total of 40790 blood samples were tested for HIV (Annex 11). Among these samples, 31585(77.4%) were tested from blood donors (graph 5) and no positive samples were registered among them. Among the rest samples tested from different patient (9205 samples, only one case was positive with an overall incidence of 0.01%. In 2012, a total of 44.335 blood samples were tested for HIV. Among these samples, about 71.5% (31709) were tested from blood donors. The rest (12626) were tested for different patients and only one positive sample was registered with an incidence of 0.01%. Although HIV infection is reported in most countries in the world, Gaza as other Arabic regions reports low incidence rate of HIV/AIDS.

**Graph 6: Annual new and cumulative HIV/AIDS reported cases in GS, 1987-2013**



Graph 6 shows that the cumulative reported cases in Gaza Strip from 1987 until 2013 was 30 cases. From these cases, 22 cases (73.3%) were male and 14 cases (46.6%) were married.

The majority of cases 18 (60%) were from Gaza governorate. The main route of transmission 17 cases (56.6%) was heterosexual. At the date of diagnosis, 18 (60%) cases were diagnosed as having first stage (asymptomatic) according to WHO classification and 10 (33.3%) cases as having AIDS stage (severe). The majority of cases 23 (76.6%) were in their productive age. The majority of cases 20 (66.6%) were died due to lack of treatment.

During the years of 2013, only one case was reported with an incidence rate of 0.06/100.000 population. The same incidence was reported in the year 2012, while five cases were reported in the year 2011 with an incidence of 0.31/100.000 population. By the end of the year 2013 in Gaza Strip, there are a total of 10 cases living with HIV/AIDS with a prevalence of 0.58/100.000 population. According to national adopted treatment protocol, seven of them are under treatment and three are un-eligible for treatment. Of these 10 cases 5 (50%) are male, 6 (60%) cases are married and 5 (50%) cases from Gaza governorate. The majority of infections 8 (80%) were transmitted through heterosexual route. Only 2 infections were attributed to maternal to child transmission. Half of these cases (50%) were diagnosed during the year of 2011. In GS since the introduction of treatment in the year 2010, the case fatality rate is zero%.

It is important to note that, given the strong “taboos surrounding the discourse on HIV”, the real mode of transmission is not likely to be documented in many instances. There are strong limitations about what patients living with HIV can tell us, so these data do not reflect the real transmission route.

### **Measles**

The PNA adopted the WHO recommendations regarding elimination of measles based on following strategy:

1. Strengthening routine infant immunization and achieving >90% coverage of first dose of a measles containing vaccine (MCV1) in all governorates.
2. Achieving high coverage (>90%) with a second dose of measles vaccine
3. Conducting catch-up supplementary immunization activities for all susceptible age groups.
4. Strengthening surveillance for measles
5. Optimal case management for children with measles

Before the introduction of measles vaccine at age of 9 months in 1980, the disease was endemic in Palestine. In 1986, a second-dose incorporated with mumps, rubella vaccine as a combined vaccine (MMR) was added at 12 months, and once again, a second dose of MMR was added to the immunization schedule since 2009 at 18 months instead of the nine months dose.

In GS the current implemented strategy for elimination of Measles has led to a dramatic decline in measles cases in the last 30 years and no cases were reported in the last ten years. So GS is considered by WHO to be in the phase of eliminating of this disease as the WHO criteria are fulfilled. High immunization coverage (more than 98%) is sustained with two-vaccine doses (since 1985), added to the different supplementary national campaigns conducted at different times.

**Table 5: Measles immunization coverage in GS, 2013**

Type of vaccine	Vaccinated and registered	Total
<b>MMR1</b>	Total vaccinated	57435
	Total registered population	58548
	<b>Coverage</b>	<b>98.1%</b>
<b>MMR2</b>	Total vaccinated	58333
	Total registered population	58189
	<b>Coverage</b>	<b>100.2%</b>

As seen on table 5, the total number of children received MMR1 vaccine were 57435 children constituting a coverage of about 98% from the total number of children, while the total number of children received MMR2 vaccine were 58333 (with a coverage of 100.2%).

## **Tetanus**

Tetanus is an acute, often fatal disease caused by the spore-forming bacterium *Clostridium tetani*. Tetanus is almost entirely preventable through immunization. The WHO recommended strategies for achieving Maternal and Neonatal Tetanus (MNT) elimination include:

1. Strengthening routine immunization of pregnant women with tetanus toxoid vaccine (TT)



2. TT Supplementary Immunization Activities (SIAs) in selected high risk areas, targeting women of child bearing age with 3 properly-spaced doses of TT
3. Promotion of clean deliveries
4. Reliable NT surveillance

In Palestine, TT was introduced in the immunization schedule since 1957. It is incorporated with diphtheria and pertussis as a combined vaccine (DTP). Since June 2012, it was incorporated in Penta vaccine as DTP plus Haemophilus Influenza type B and Hepatitis B. Primary vaccination with the tetanus vaccine series consists of a four-doses, administered at ages 2, 4, 6 and 18months. A fifth dose incorporating with diphtheria (DT) is given for children aged 6 years to confer continued protection against disease during the first year of schooling. In addition, a sixth dose incorporating with adult diphtheria (Td) vaccine is given for children aged 15years, which prolonged the protection for at least 10 years. TT Supplementary Immunization Activities (SIAs) in selected high-risk areas, targeting pregnant women by two doses in the first pregnancy and third dose in the next pregnancy.

In GS, all WHO recommended strategies have been implemented: almost all deliveries were at public health institutions in hygienic circumstances; a high immunization coverage (more than 99%) against tetanus among infants is reached; six-dose vaccination policy is implemented according to EPI protocol and MNT elimination has been achieved. Since the last several years, neither cases of NT nor MT were reported in GS.

**Table 6: DTP immunization coverage in GS, 2013**

Type of vaccine	Vaccinated and registered	Total
<b>Penta3</b>	Total vaccinated	56782
	Total registered population	56754
	<b>Coverage</b>	<b>100%</b>

Table 6 shows that the total number of children received Penta3 vaccine in the year 2013 was 56782 children constituting a coverage of 100% from the total number of targeted children.

## Meningitis

Meningitis is an infection that involves the membranes overlying the brain and spinal cord (meninges) and the causative agents vary greatly among the different age groups. Meningitis has a high prevalence in developing countries, with associated mortality and risk of severe residual neurological problems. There are several different causes of meningitis like bacteria, virus or fungus infection.

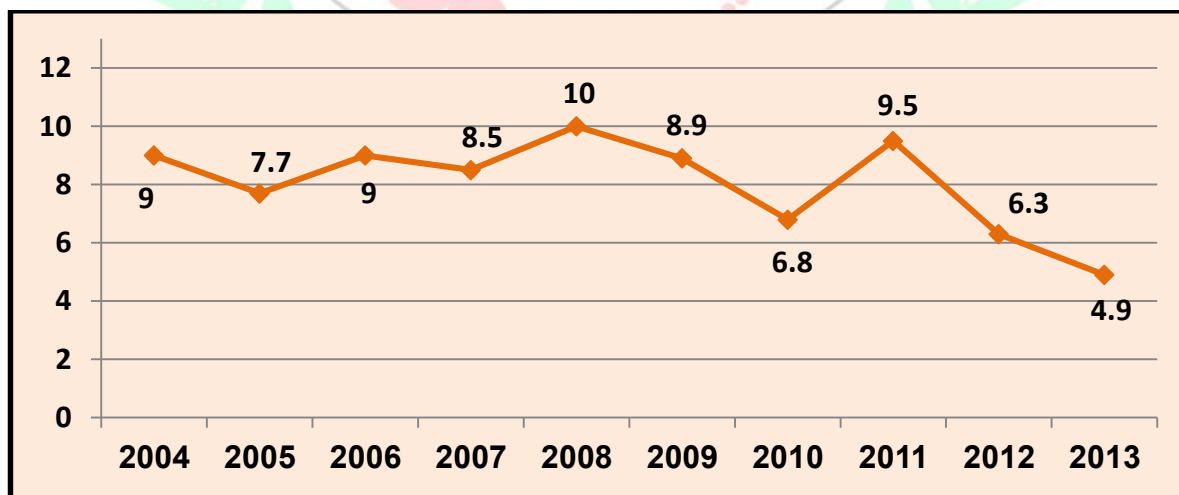
### Bacterial Meningitis

Bacterial meningitis is an important serious illness worldwide; a range of different bacteria can cause it: *Neisseria Meningitidis*, *Haemophilus influenza* type b, *Streptococcus pneumoniae* and others.

#### *Neisseria Meningitidis* Diseases:

Diseases caused by *Neisseria Meningitidis* are considered as life threatening illnesses and involve many organs causing meningitis and septicemia. These types should always be viewed as a medical emergency. These diseases remain a priority concern types because of the fatality they cause.

**Graph 7: Annual incidence rate per 100.000 of *Neisseria Meningitidis* diseases in GS, years 2004-2013**

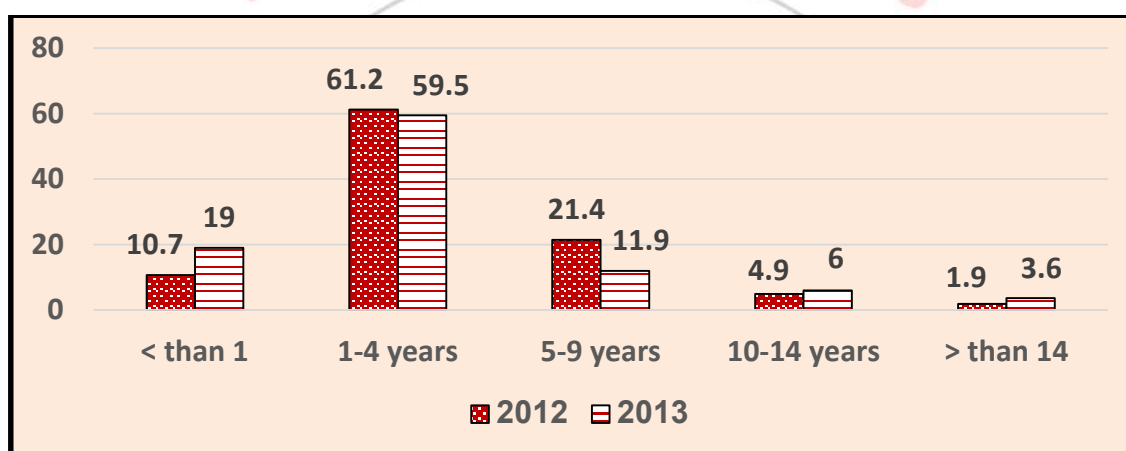


In GS these diseases are endemic with seasonal and governorate variations. As seen on graph 7, the yearly incidence of *Neisseria Meningitidis* diseases in years 2004-2011 fluctuated between "6.8 to 10" per 100.000 population. In the years 2012-2013, the incidence rate

registered a continuous decrease compared to the previous years. In the year 2013, a total of 84 cases were reported of Neisseria Meningitides diseases with an incidence of 4.9 per 100.000 population while in the year 2012, a total of 103 cases were reported with an incidence of 6.3 per 100.000 population.

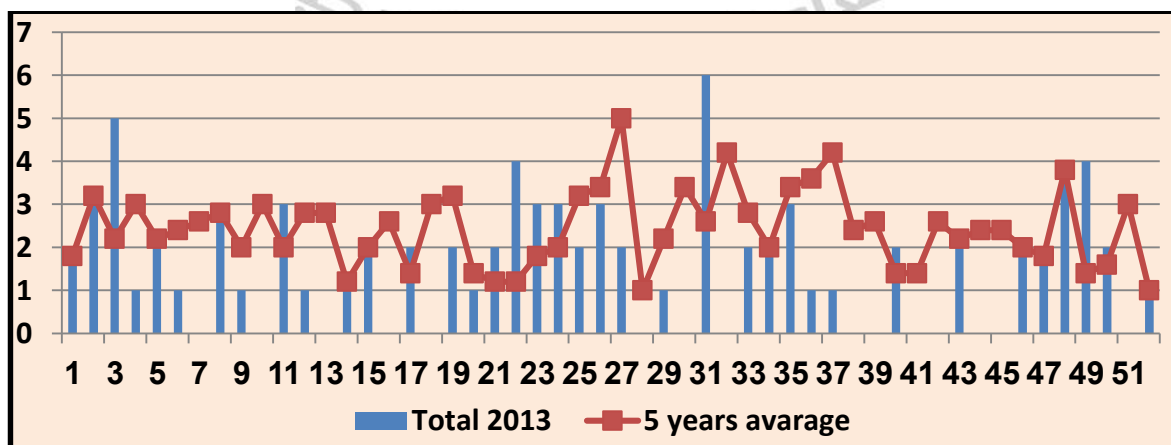
There was a male predominance (45 cases representing 53.5%) than female. Age distribution as seen on graph 8 showed that the majority of cases were registered between infants and children aged less than 5 years (about 80%).

**Graph 8: Distribution of Neisseria Meningitides Diseases by age group in GS, 2013**



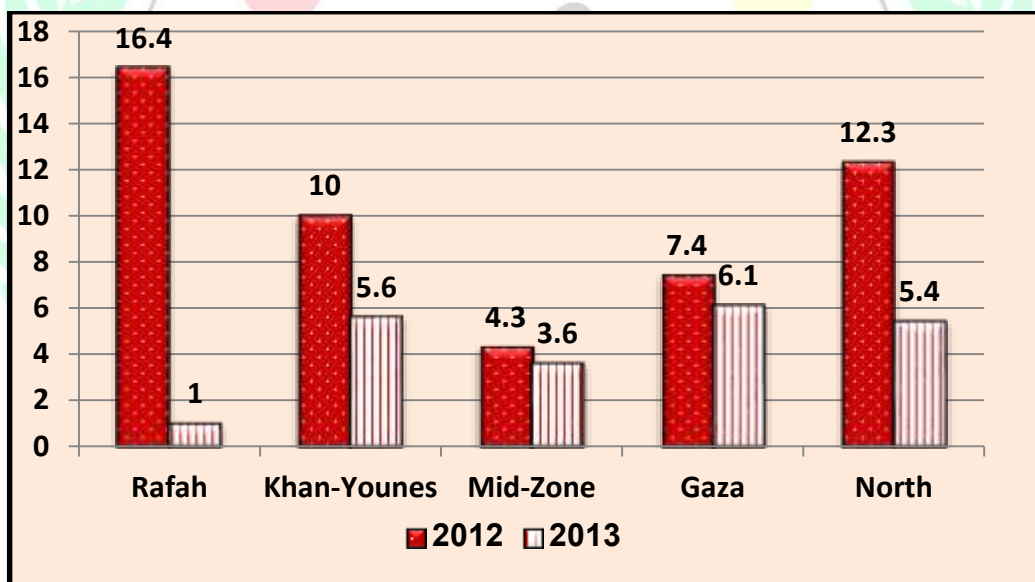
As shown on graph 9, according to weekly reported cases an increase of reported cases was observed in winter and summer weeks while a decrease was observed in spring weeks. The highest number of reported cases was in the weeks 3 and 31 (5 and 6 cases were reported in each week). Also it is reflected that there is a clear decrease of weekly reported cases in the year 2013 compared to the 5 years average (annex 6).

**Graph 9: Weekly reported cases of Neisseria Meningitides diseases in GS, 2013**



According to the geographical distribution as shown in graph 10, it is observed that during the year 2013 the incidence rate per 100.000 population was similar in Gaza, North and Khan-Younes governorates (ranging between 5.4 - 6.1 per 100.000 population), while in the Mid-zone it was 3.6 and in Rafah it was 1 per 100.000 population. In the year 2012, the geographical distribution was totally different, where Rafah Governorate registered a high incidence rate (16.4 per 100.000 population) followed by Gaza governorate (12.3 per 100.000) while the lowest incidence rate was in Mid-zone (4.3 per 100.000 population). It is observed that significant changes were observed in the geographical distribution in the year 2013 compared to the year 2012 especially in Rafah governorate, where the incidence rate dramatically declined from 16.4 to 1 per 100.000 population after reported outbreak.

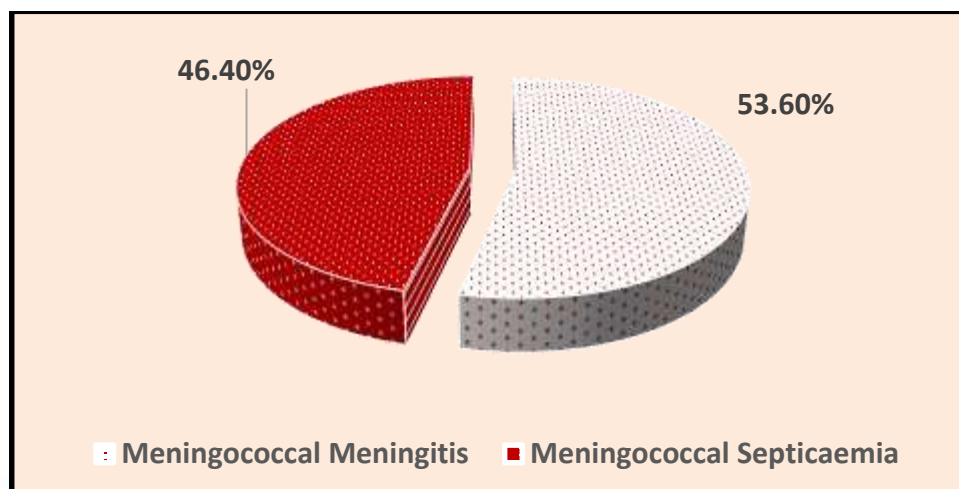
**Graph 10: Geographical distribution of Neisseria Meningitides diseases per 100.000 population, years 2012-2013**



According to the type of clinical manifestation (graph 11), 45/84 cases (53.6%) were diagnosed as Meningococcal Septicemia (MC) and 39 cases (46.4%) as Meningococcal Meningitis (MM).

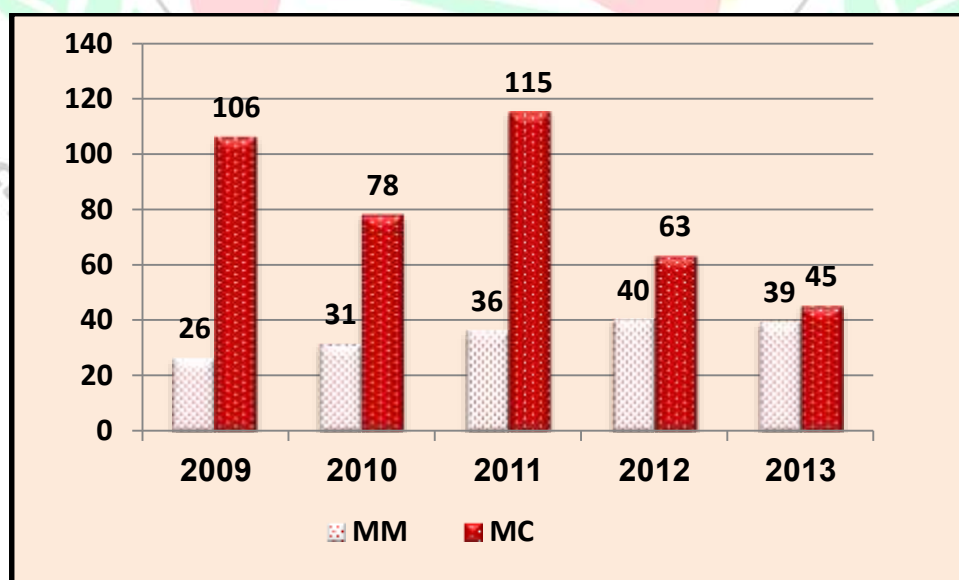


**Graph 11: Distribution of Neisseria Meningitides diseases by type of disease in GS, 2013**



It is observed that there is a continuous increase of MM cases in the last years compared to MC cases (Graph 12). In the years 2009-2012, the incidence of MC cases was higher than the incidence of MM cases reported during these years while in the year 2013, the incidence of MM cases was higher which reflects more or less the international distribution of these types.

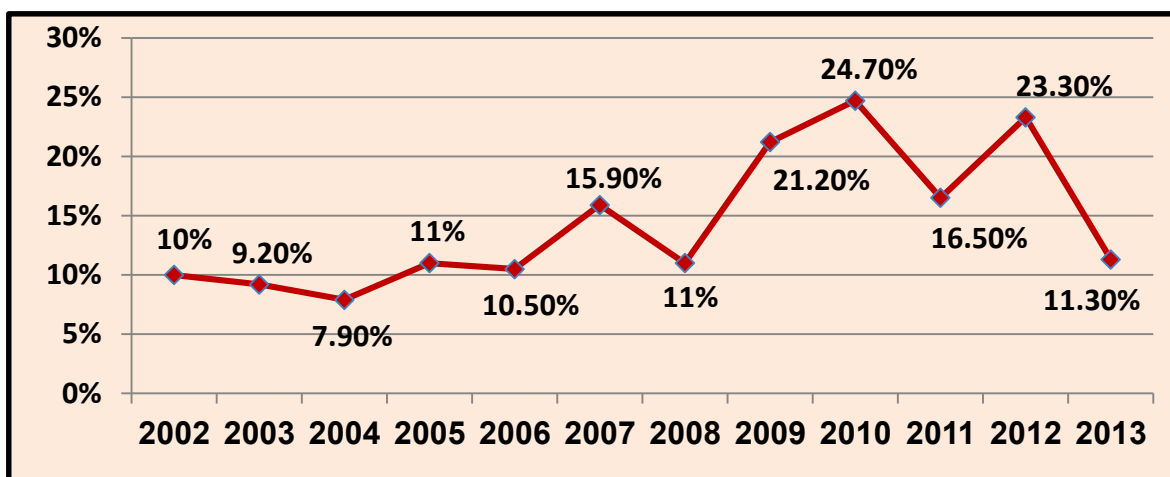
**Graph 12: Distribution of Neisseria Meningitides diseases by type of disease in GS, years 2009-2013**



During the year 2013, 10 cases were died with a case fatality rate (CFR) of 11.9% reflecting a good decrease comparing to the year 2012 where it was 23.3% (graph 13). The highest case fatality rate reported among children aged less than 5 years. During the year 2011, the

CFR was 16.5%. All deaths were registered among MC cases (CFR: 30.3%) and no deaths were registered among MM cases

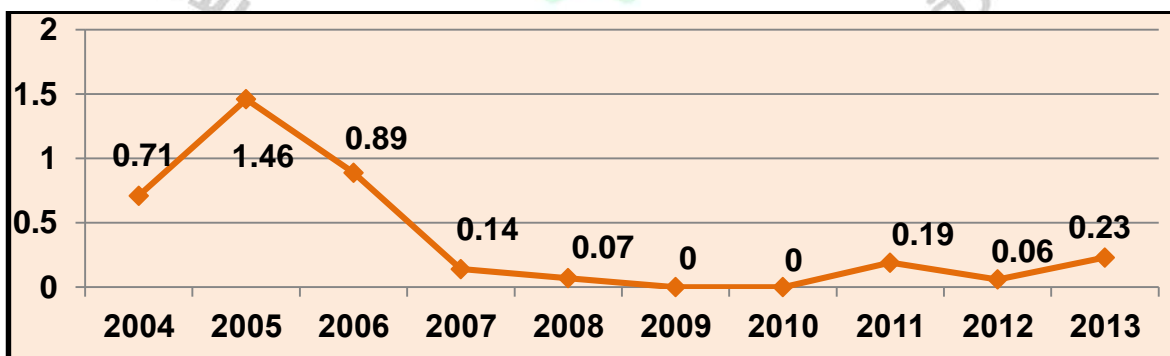
**Graph 13: Annual Case Fatality Rate of Neisseria Meningitides diseases in GS, 2002-2013**



#### **Haemophilus influenza Type b meningitis (Hib)**

Haemophilus influenza type b bacteria is a cause of bacterial infections that are often severe, particularly among infants. These bacteria can cause several diseases such as meningitis, pneumonia and others. Since the introduction of conjugate Hib vaccine in the routine immunization schedule in 2007 (three doses at 2, 4 and 6 months), Hib meningitis cases registered dramatically decrease and had nearly been eliminated. Since June 2012, vaccine against Hib was included in Penta vaccine.

**Graph 14: Annual incidence rate per 100.000 of Hib meningitis in GS, years 2004-2013**



As seen on graph 14, 4 cases was reported in GS in 2013 with an incidence of 0.23 per 100.000 population while in the years 2007-2012 the incidence ranged between 0 and 0.19

per 100.000 population. In the year 2005, the incidence was 1.46 per 100.000 population. This reflects the right decision of introducing the Hib vaccine in the EPI for children in Palestine.

**Table 7: Hib3 immunization coverage in GS, 2013**

Type of vaccine	Vaccinated and registered	Total
<b>Hib3</b>	Total vaccinated	56782
	Total registered population	56754
	<b>Coverage</b>	<b>100%</b>

Table 7 shows that in 2013 a total of 56782 infants were vaccinated with a total coverage with Hib3 vaccine of about 100%.

### **Rabies**

Rabies is an acute infection of the nervous system caused by rabies virus that is usually transmitted by bites from infected animals. After recognition of a rabies exposure, rabies can be prevent with initiation of appropriate steps including active and passive immunization. After a known animal bites a human, the animal should be captured, confined, and observed for a period of at least 10 days. If an animal escapes after an exposure, it should be consider as infected animals unless proved otherwise and rabies prophylaxis should be initiated using a regimen of four doses of rabies given on days 0, 3, 7, and 14. Since many years, no cases of rabies were reported in GS.

### **Diphtheria**

Diphtheria was one of the most common causes of illness and death among children. Since the introduction and widespread use of vaccines containing diphtheria toxoid beginning in the 1957 through the infant EPI program, diphtheria has been well control. In Palestine, the available diphtheria vaccine is combined with tetanus toxoids and pertussis (DTP). Primary vaccination with the DTP series consists of four-doses, administered at ages 2, 4, 6 and 18 months. A fifth dose incorporating with tetanus toxoid (DT) is given for children aged 6 years and a sixth dose having adult diphtheria incorporating with tetanus toxoid (dT) vaccine is given for children aged 15 years. Since June 2012, vaccine against Diphtheria was included in Penta vaccine.

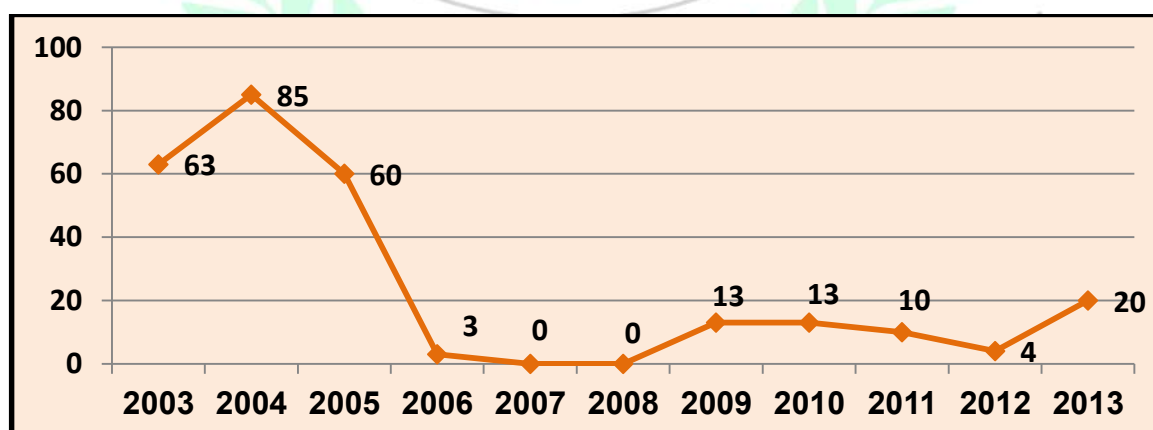
Table 6 shows that a total of 56782 children received DTP3 vaccine with a total coverage of 100%.

### Adverse events following immunization

Adverse events following immunization (AEFI) defined as medical incidence that take place after an immunization and believed to be caused by the immunization within four weeks of a vaccine administration. The main AEFI are divided into local adverse events (injection site hot and cold abscess, lymphadenitis and sever local reaction) and general adverse events (fever, vaccine associated paralytic poliomyelitis, encephalitis, meningitis, allergic reaction, anaphylactic shock). It is observed that there is no reporting of AEFI cases from health facilities in the last few years except for post Bacille Calmette and Guerin (BCG) axillary lymphadenitis cases. This means, there was a serious under reporting of AEFI that needs more efforts in the future to convince the health providers to report other types of vaccine adverse events.

In the year 2013, a total of 20 cases of post-BCG lymphadenitis were reported, while in the year 2012 only 4 cases were reported (graph 15) and in the year 2011 a total of 10 cases were reported. The significant decrease of reported post-BCG lymphadenitis since 2006 could be explained by using high quality of BCG vaccine and highly qualified health care providers. The slightly increase in the year 2013 could be attributed to technical errors.

**Graph 15: Annual reported cases of post-BCG lymphadenitis in GS, years 2003-2013**





## Group B diseases

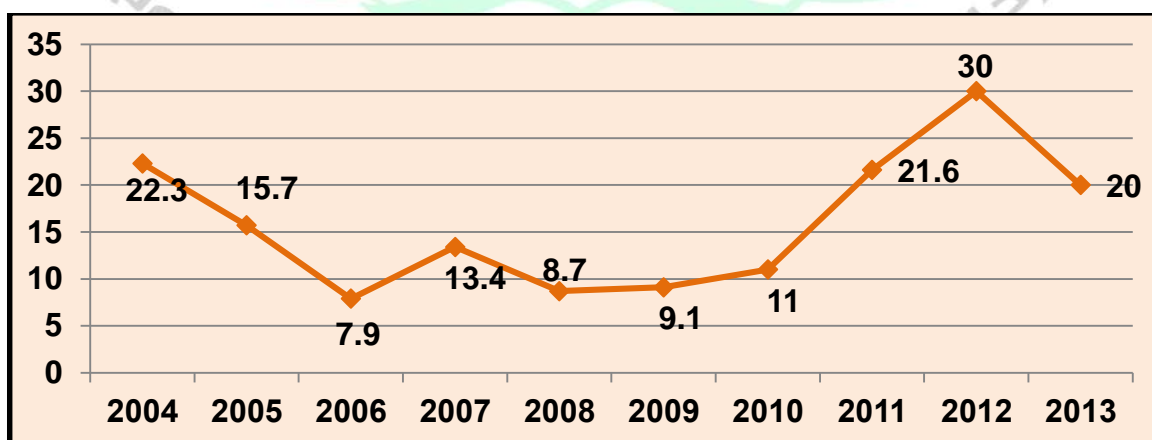
An obvious decrease of reported cases of the majority of group B diseases was registered in the last years, while a serious increase of other diseases like Mumps and Non-specific Meningitis was registered. The registered decrease was due to adoption of special programs for controlling of some diseases (brucellosis and Tuberculosis) and adoption of other preventive (vaccination) activities for other diseases (pertussis, rubella and hepatitis B vaccines).

## Other Bacterial Meningitis

Other bacterial meningitis are caused by variety of bacterial infection including mainly gram-negative rods (especially *Escherichia coli*) and gram-positive rods. According to adopted case definition of bacterial Meningitis, all meningitis cases caused by bacterial infection are included except *Neisseria Meningitidis* and Hib.

As shown on the graph 16, during 2013, a total of 342 cases were reported with an incidence rate of 20 per 100.000 population representing a clear decrease compared to year 2012 were a total of 493 cases were reported with an incidence rate of 30 per 100.000 population. During the period 2006-2010 the incidence rate ranged between 7.9 and 13.4. The notification and reporting of Bacterial Meningitis cases was based on clinical manifestations and lab investigations other than isolation of causative agents that is strongly recommended.

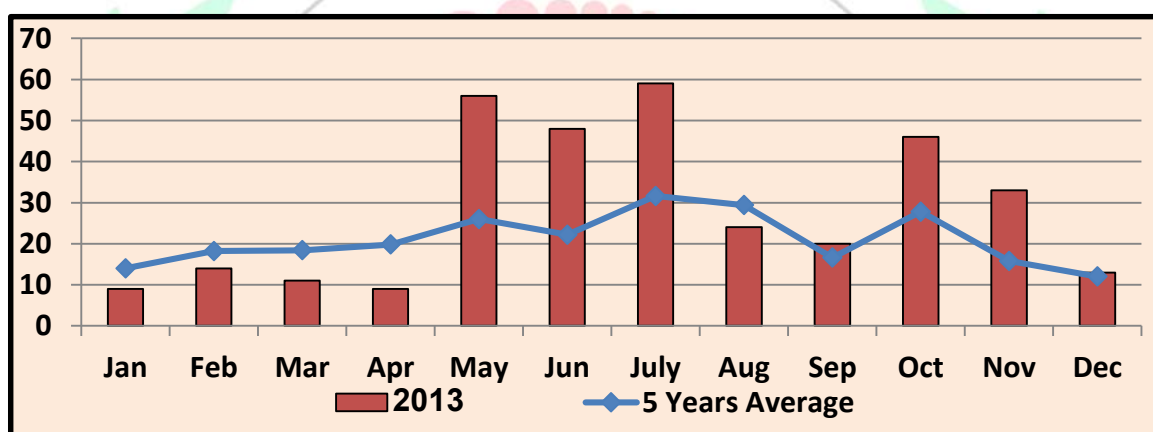
**Graph 16: Annual incidence rate per 100.000 of Other Bacterial Meningitis in GS, years 2004-2013**



As the notification and reporting of bacterial meningitis cases is not depending on isolation of causative agents, the presented figure of incidence rates does not reflect the real situation of the disease. The increased and decreases numbers of reported cases in the year 2012 and 2013 respectively could be attributed to the real incidence of this disease or to the accuracy of notification of the disease.

Comparing to the five years average, it is observed that there is an increase of reported cases of bacterial meningitis in the year 2013 in the summer months, while in the winter months a mild decrease of reported cases was observed (graph 17).

**Graph 17: Monthly distribution of Other Bacterial Meningitis cases in GS, 2013**



### **Pneumococcal Disease**

Pneumococcal disease is a disease caused by *Streptococcus pneumonia* bacteria, constituting a public health problem. This bacterium is commonly found in the nose and throat of healthy people without causing disease but sometimes it can cause a variety of diseases mainly meningitis and pneumonia. By the beginning of the year 2012, a Pneumococcal vaccine that protects against different forms of pneumococcal diseases was introduced in the EPI schedule. All infants born on 1<sup>st</sup> January 2012 received a series of three doses of PCV at ages of 2, 4 and 12 months.

There is no available accurate data about the incidence of Pneumococcal diseases in Gaza Strip. Based on lab reports during the year 2013, a total of 12 samples (Blood and CSF) revealed culture positive for Pneumococcal bacteria. Starting by the year 2014 a strong recommendation was distributed to health facilities for notification and reporting of Pneumococcal Meningitis to the epidemiology department.

**Table 8: PCV immunization coverage in GS, 2013**

Type of vaccine	Vaccinated and registered	Total
<b>PCV1</b>	Total vaccinated	56211
	Total registered population	56730
	<b>Coverage</b>	<b>99.1%</b>
<b>PCV2</b>	Total vaccinated	56601
	Total registered population	56743
	<b>Coverage</b>	<b>99.7%</b>

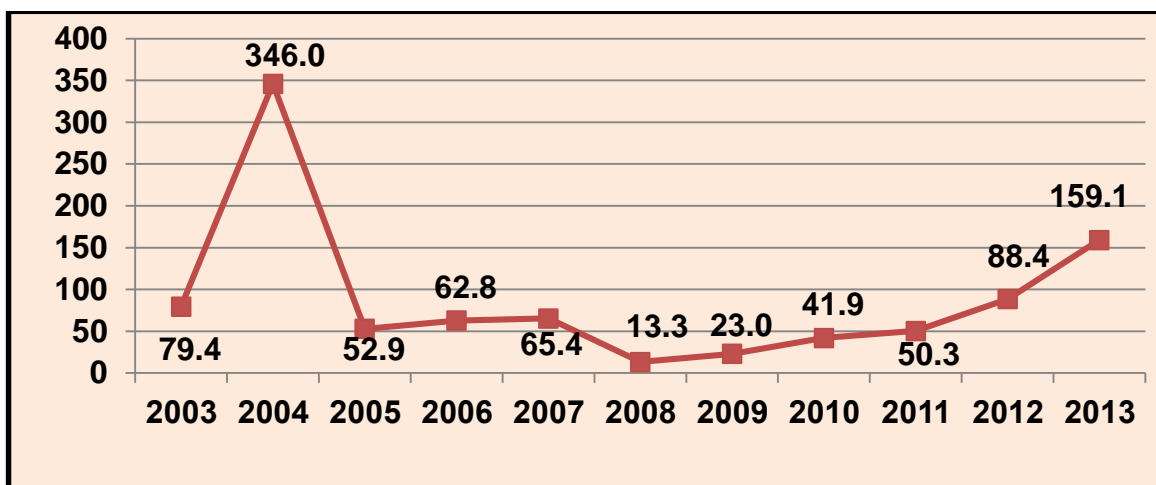
As seen on table 8, the total number of children received PCV1 vaccine were 56211 children constituting a coverage of about 99.1% from the total number of children, while the total number of children received PCV2 vaccine were 56601 constituting a coverage of 99.7%.

#### **Non Specific Meningitis**

One of the most important causes of non-specific meningitis is viral meningitis, which is serious but rarely fatal disease. In Palestine, non-specific meningitis is considered as one of the endemic diseases with some seasonal variation.

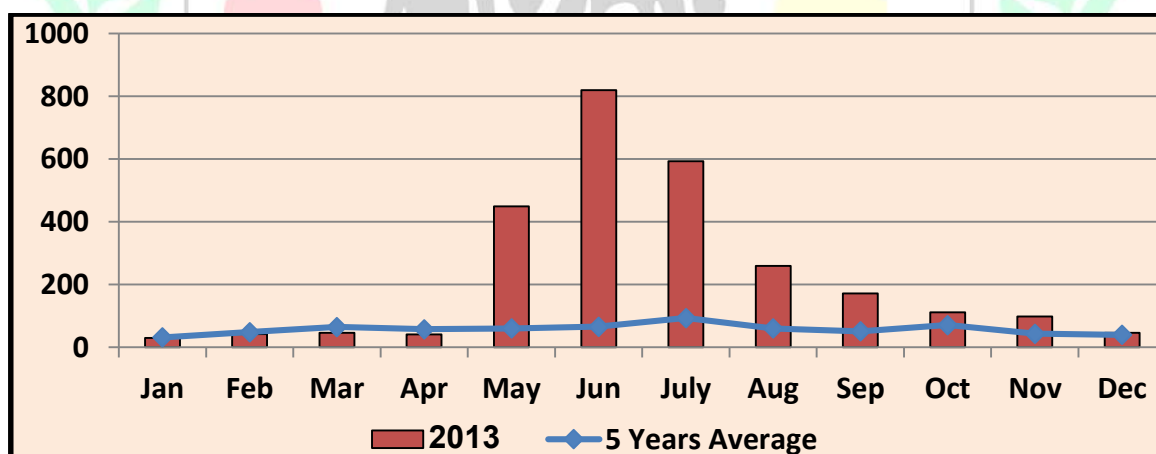
During 2013, there was a continuous notable increase reaching an epidemic situation in reported cases of viral meningitis where 2707 cases were reported with an incidence rate of 159.1 per 100.000 population. While during the year 2012, a total of 1453 cases were reported with an incidence rate of 88.4 per 100,000 population (Graph 18). Between the years 2005 and 2011 the incidence rate ranged between 13.3 and 65.4 per 100.000 population. The two previous outbreaks in GS were reported in years 1997 (with an incidence rate of 276/100.000 population) and 2004 (with an incidence rate of 346 /100.000 population), Enterovirus was isolated from small amount of CSF samples analyzed outside GS in all these outbreaks.

**Graph 18: Annual incidence rate per 100.000 of Non-Specific Meningitis in GS, years 2003-2013**



It is observed that the registered epidemic started by May until August reaching more than 8 folds increase than the five years average registered cases (graph 19).

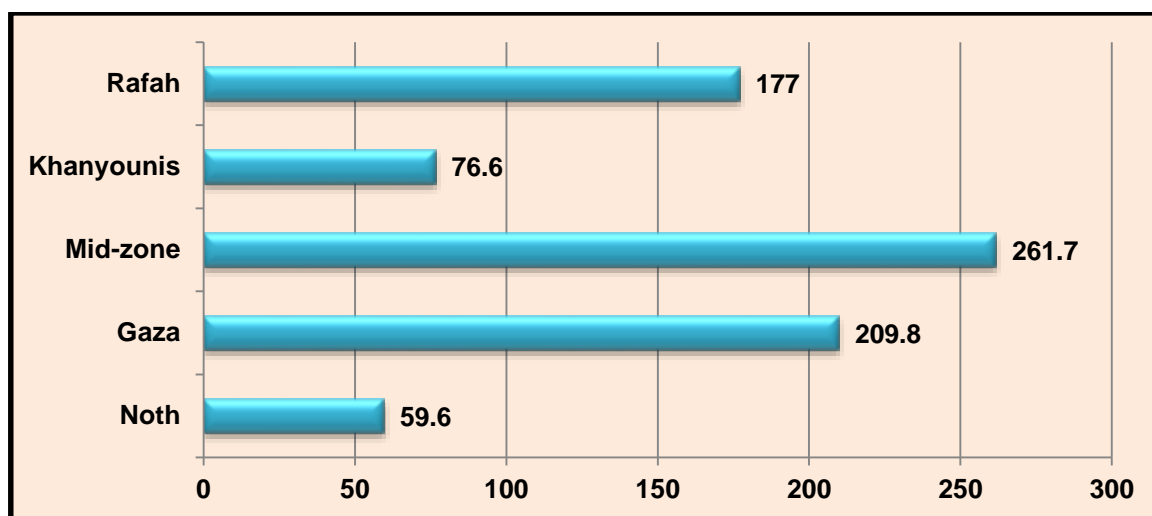
**Graph 19: Monthly distribution of Non-Specific Meningitis cases in GS, 2013**



As seen on Graph 20, the highest incidence rate of reported cases was in Mid-Zone governorate (261.7/100.000) followed by Gaza governorate (209.8/100.000) and Rafah governorate (177/100.000). While Khan-Younes and North governorates registered low incidence rate (76.6 and 59.6/100.000 respectively).



**Graph 20: Geographical distribution of Non-specific Meningitis per 100.000 population during the year 2013**

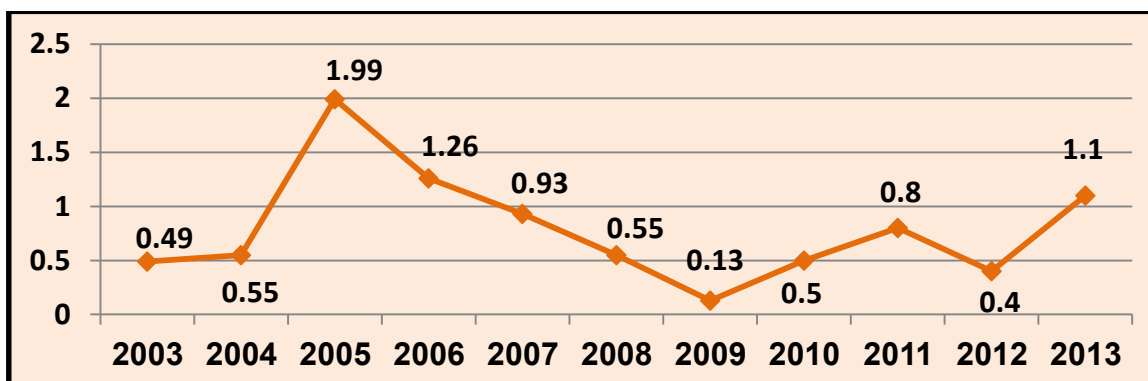


### Brucellosis

Brucellosis is an endemic disease worldwide, especially in developing countries. As zoonotic diseases, it cannot be adequately controlled only by monitoring the disease in human populations. In Palestine, the disease is contagious of domestic animals. In 1998, PNA adopted the Brucellosis Control Program (BCP) in cooperation with WHO and UNDP. The BCP focused on animal health through comprehensive animal testing, vaccination and depopulation of affected animals and human health by focusing on good management of cases and health education for at risk population. Because of this strategy, control and near-elimination of the disease in animals was achieved until now.

During 2013, a total of 19 cases were registered in GS with an incidence rate of 1.1 per 100.000 population while in the year 2012, a total of 7 cases of brucellosis were reported in GS with an incidence of 0.4/100.000 population. The majority of cases were reported in Rafah governorate (9 cases representing 47%) and North governorate (6 cases representing 32%). It is important to mention that the mode of diagnoses of these cases depended on clinical picture and Rose-bengal test with low specificity.

**Graph 21: Annual incidence rate per 100,000 of Brucellosis cases in GS, years 2003-2013**



In Gaza strip since 2005, a continuous decrease of reported cases was noticed (graph 21). The incidence rate in the year 2005 was 1.99/100,000 population decreased to 0.13/100,000 population in 2009. From 2010 to 2013, a slightly continuous increase of cases was observed. The increase of incidence could be explained by the poor control on the tunnels with Egypt as many un-tested animals could be entered to Gaza strip. In addition, this increase indicates the need for revision of the implemented strategy of brucellosis prevention and control especially between animals.

## Mumps

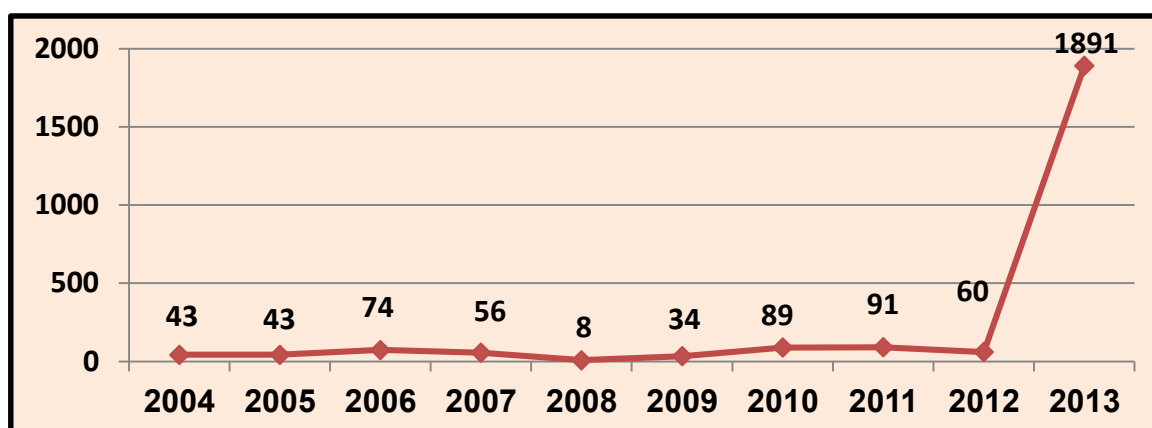
Mumps is a viral illness caused by a Paramyxovirus of the genus Rubulavirus. As a part of prevention and control activities of this illness, mumps vaccine was introduced in Palestine in 1985 using the combined MMR at age of 12 months. In 2009, children effectively began receiving two doses of mumps vaccine because of the implementation of a two-dose Mumps vaccination policy using the combined MMR vaccine at age of 18 months.

Table 5 shows that a total of 57435 children received MMR1 vaccine with a total coverage of 98.1% while the total number of children received MMR2 vaccine were 58333 with a total coverage of 100.2%.

As shown in graph 22 during the year of 2013, a total of 1891 cases were reported compared to 60 cases reported in the year 2012, representing an epidemic of the disease in all Gaza governorates. The disease affected mainly children aged more than 6 years (those received only one dose of MMR vaccine through EPI program which gives 60 to 85% protection),

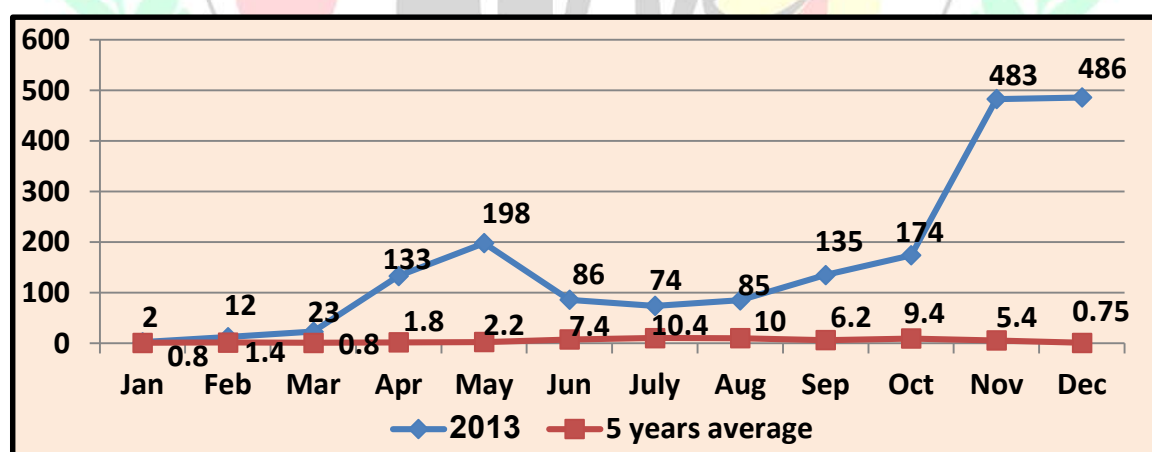
while few cases were reported younger than this age. It could be attributed to waning immunity among children higher than 6 years.

**Graph 22: Number of reported Mumps cases in GS, years 2004-2013**



The epidemic started to be registered by April 2013 in Khan-Younis governorate (Ma'en area) and by the end of the year 2013, it was distributed to all Gaza governorates (Graph 23). The epidemic was confirmed by isolation of IgM antibodies from some clinical cases.

**Graph 23: Monthly distribution of Mumps cases in GS, 2013**



## Pertussis

Pertussis, a cough illness commonly known as whooping cough, is caused by the bacterium *Bordetella pertussis*. Severe disease is infrequent in healthy, vaccinated persons. In Palestine, the available pertussis vaccines combined with DTP. Primary vaccination with the DTP series consists of four-doses, administered at ages 2, 4, 6 and 18 months. Since June 2012, vaccine against Pertussis was included in Penta vaccine.

In Gaza strip, there are no confirmed reported cases of pertussis since more than 10 years, which reflect the good effect of high immunization coverage on controlling this disease. During 2013, the immunization coverage for the 4 doses of Pertussis ranged between 99.1% and 100% (table 6).

## **Rubella**

Rubella is a viral illness caused by a Togavirus of the genus Rubivirus. In 1985, live attenuated rubella vaccines were used in Palestine. The goal of the rubella vaccination program was to prevent congenital infections, including congenital rubella syndrome (CRS). Live attenuated rubella virus vaccine is combined with MMR, recommended for infants 12 months of age. In 2009, a second dose of combined MMR vaccine was recommended at 18 months. Sixth grade girls in the Gaza Strip are receiving Rubella vaccine also. So, since many years no confirmed cases of Rubella or CRS were reported. During 2013, the total MMR1 coverage was 98.1% and MMR2 was 100.2% (table 5).

## **Viral Hepatitis infection**

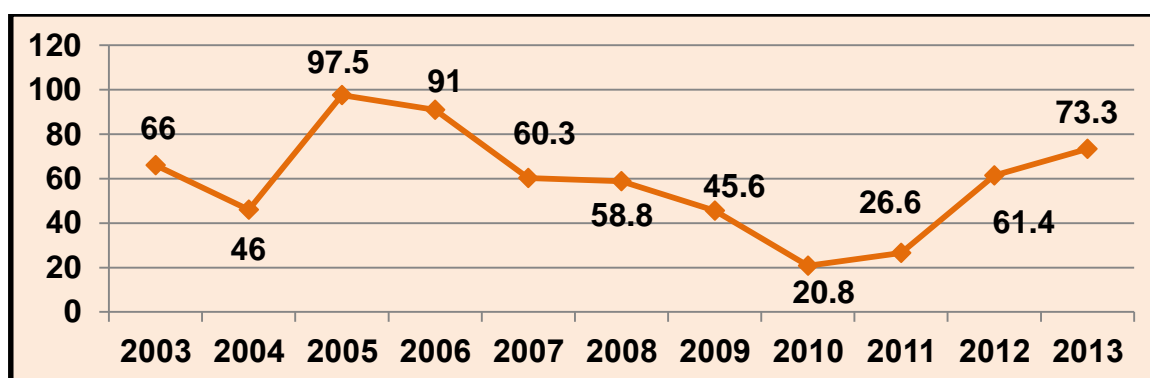
Viral hepatitis is one of the most serious health problem worldwide, with some variation from one type to another and from country to another. It caused by several viruses that differ in clinical presentation, risk of chronicity, transmission, and means of prevention. In Palestine the most common are hepatitis A, hepatitis B and hepatitis C.

## **Acute Hepatitis A**

Acute Hepatitis A is considered as one of the most common communicable diseases and the leading cause of acute viral hepatitis worldwide. The majority of hepatitis A virus (HAV) infection still takes place in early childhood, where it is asymptomatic, self-limiting and leaves life-long immunity. Palestine as one of developing countries is still endemic for acute hepatitis A. In the year 2013, there was a continuous increase of reported number of cases compared to the previous years. During 2013, a total of 1248 cases were reported with an incidence of 73.3 per 100.000 population while during 2012, a total of 1010 cases (61.4 per 100.000 population) were reported and 423 cases (26.6 per 100.000 population) in the year 2011. This increase is registered after a continuous decrease registered from the year 2005, where the incidence rate was 97.5 per 100.000 population to the year 2010, where the incidence rate was 20.8 per 100.000 population (graph 24).

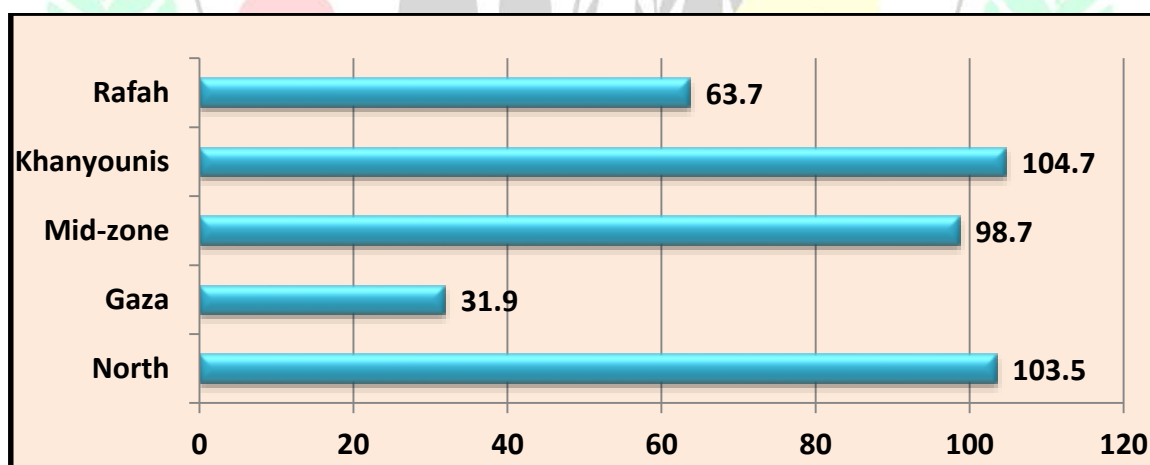


**Graph 24: Annual incidence rate per 100.000 of HAV in GS, years 2003-2013**



The highest incidence rate per 100.000 population of reported cases in the year 2013 was reported in the Khan-Younes governorate (104.7), followed by North governorate (103.5) and Mid-Zone governorate (98.7). In Gaza and Rafah Governorates, the incidence rate was 30.9 and 63.7 respectively (graph 25). This geographical distribution could be explained by the variation of bad infrastructure in some governorates and bad personal hygiene.

**Graph 25: Geographical distribution of Acute Hepatitis A incidence rate per 100.000 population in GS, year 2013**

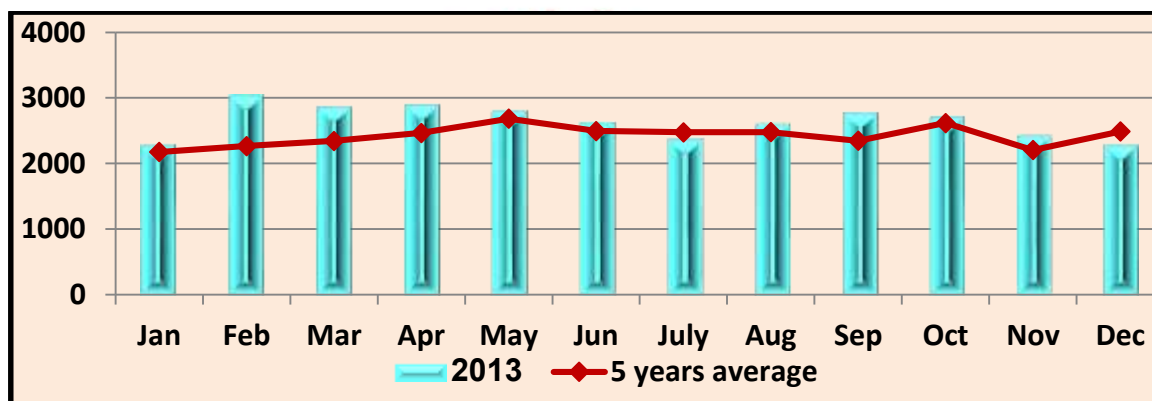


## Hepatitis B

Hepatitis B is caused by infection with the hepatitis B virus (HBV), a virus of the family Hepadnaviridae. HBV infection is a major public health problem in the Middle East. According to WHO classification, Palestine is considered as intermediate endemic area of hepatitis B.

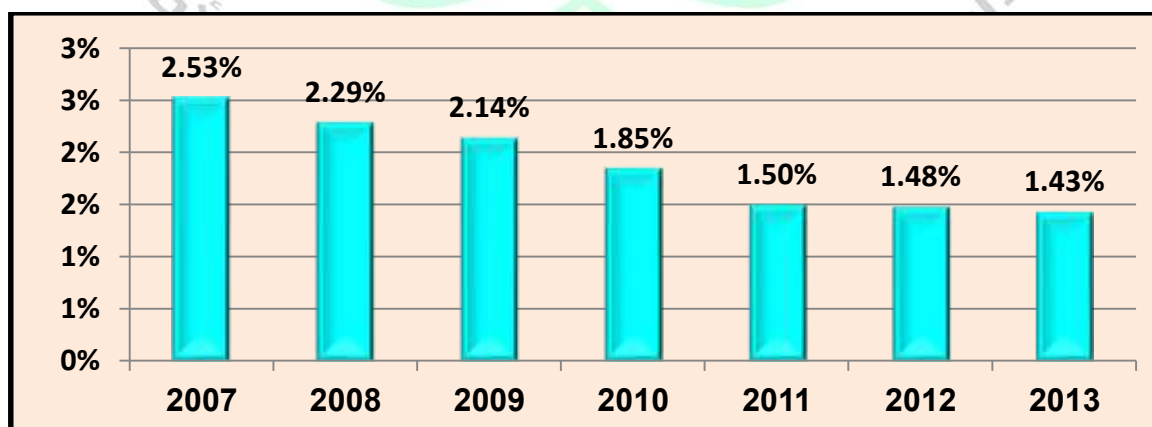
In Palestine, screening for Hepatitis B includes all blood samples from blood donors, pre-employment investigation, external migrants, drug addicts, prostitutes, TB patients, HIV patients and close HIV contacts. During 2013 among blood donors (Annex 11), a total of 31585 blood samples were tested for hepatitis B and 451 samples were positive with an incidence of 1.43% (graph 26).

**Graph 26: Monthly tested samples for HBV among blood donors in GS, 2013**



As seen on graph 27, the incidence of HBV infection among blood donors registered a continuous decrease since 2007 where the incidence was 2.53% to 2013 where the incidence decreased to 1.43%. This decrease could be due to strong prevention program adopted by MOH through blood screening, investigation of registered hepatitis B cases, administration of HB vaccine in EPI for all children and high-risk groups and increase the awareness among the population about the importance of vaccination.

**Graph 27: Annual incidence rate of HBV infection among blood donors in GS, years 2007-2013**



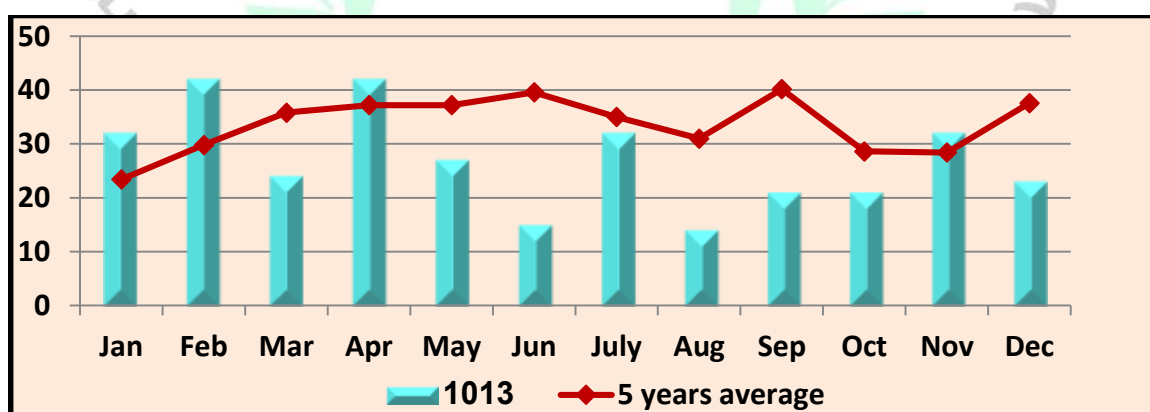
Hepatitis B vaccine (HBV) was integrated in EPI for children in the year 1993. Primary vaccination with the Hepatitis B series consists of a three-doses; the first dose is administered at birth; the second dose at the age of one month and the third dose at sixth month. Since June 2012, vaccine against Hepatitis B was included in Penta vaccine, so some changes of hepatitis B vaccine was implemented. The first dose is given at birth as a single dose and then three doses included in Penta vaccine are given at ages 2, 4 and 6 months. In the year 2013, a total of 56601 children were vaccinated with a total coverage with Hep3 vaccine of 99.7% (table 9).

**Table 9: Hepatitis B immunization coverage in GS, 2013**

Type of vaccine	Vaccinated and registered	Total
<b>Hep B3</b>	Total vaccinated	56601
	Total registered population	56743
	<b>Coverage</b>	<b>99.7%</b>

In 2013, a total of 325 cases (5 cases with acute Hepatitis B and 320 with Hepatitis B carriers) were reported to the epidemiology department with an incidence rate of 19.1/100.000 population reflecting a clear decrease compared to the five years reported average(graph 28). About 36% of cases were reported in Gaza governorate and 32.6% of cases were reported in North governorate. In 2012, a total of 354 cases were reported with an incidence of 21.6/100.000 population.

**Graph 28: Monthly reported cases of Hepatitis B carrier in GS, 2013**

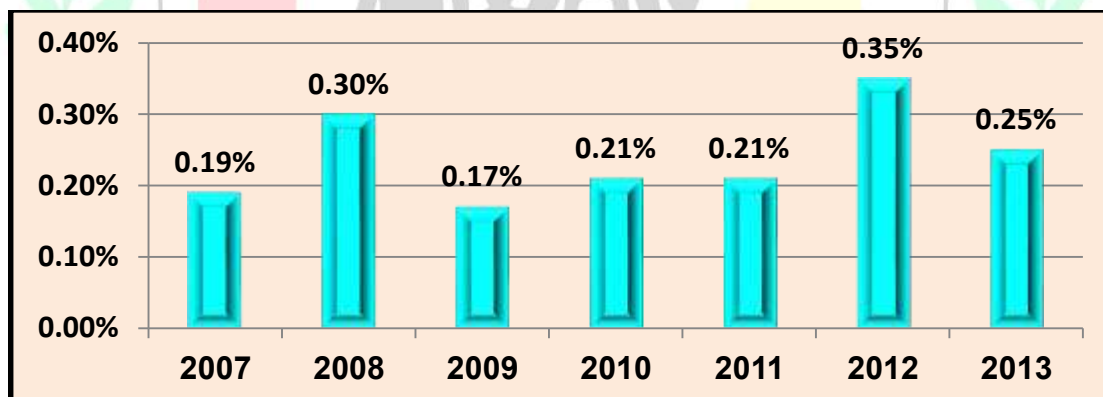


## Hepatitis C

Hepatitis C virus (HCV) is a single stranded RNA virus, a member of the family Flaviviridae. Hepatitis C is one of the major diseases causing public health problem in the Middle East. Palestine is considered as a low endemic country of Hepatitis C. Surveillance of hepatitis C in Palestine started in 1994 for all blood donors. The low burden of the disease in Palestine compared to the neighboring countries suggests that more attention should be paid to screen all patients transferred for treatment abroad.

Among blood donors (Annex 11), a total of 31585 blood samples were tested for anti-hepatitis C and 79 samples were positive with an incidence of 0.25% (graph 29). In fact, this incidence is not representative as not all Anti-HCV positive samples in fact are infected. It is observed that a decrease of the incidence of Hepatitis C cases was registered in the year 2013 compared to the year 2012, where the incidence was 0.35%.

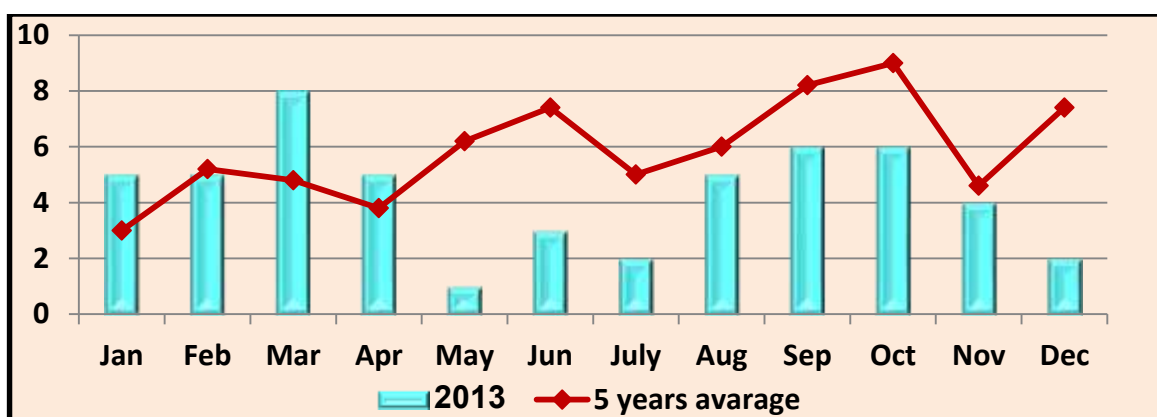
**Graph 29: The incidence of HCV infection among blood donors in GS, years 2007-2013**



In the year 2013, a total of 51 new cases were reported to epidemiology department having positive anti-HCV with an incidence of 3.0/100.000 population compared to 71 new cases reported in the year 2012 with an incidence rate of 4.3/100.000 population (graph 30). About 46% of cases were reported in North governorate followed by Gaza governorate with 33% of cases.



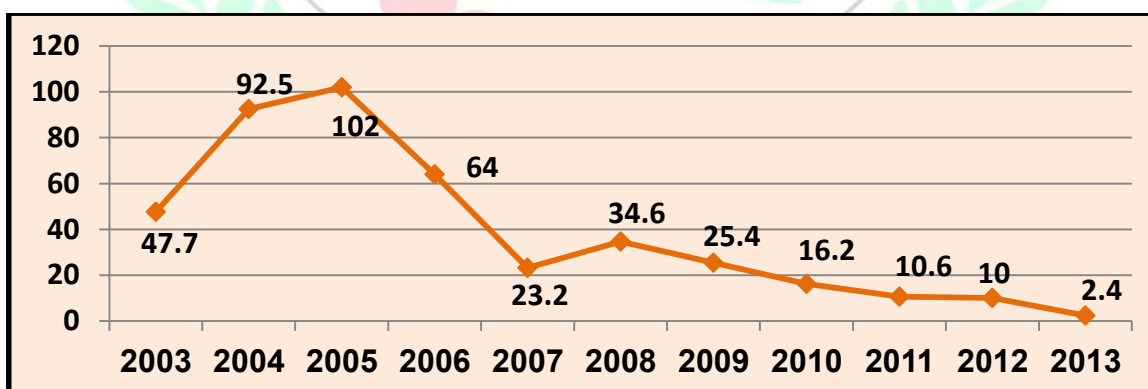
**Graph 30: Monthly reported cases of HCV carrier in GS, 2013**



### Typhoid fever

Typhoid fever (enteric fever) is a septicemic illness caused by *Salmonella typhi*. This disease is endemic in Palestine. Since the last several years, there are steadily decline of incidence (graph 31). In the year 2013, a total of 40 cases were reported to the epidemiology department with an incidence rate of 2.4 per 100.000 population. While in the year 2012, a total of 166 cases were reported with an incidence rate of 10 per 100.000 population and in the year 2011, a total of 169 cases were reported with an incidence of 10.6 per 100.000 population (graph 31).

**Graph 31: Annual incidence rate per 100.000 of Typhoid fever in GS, years 2003-2013**

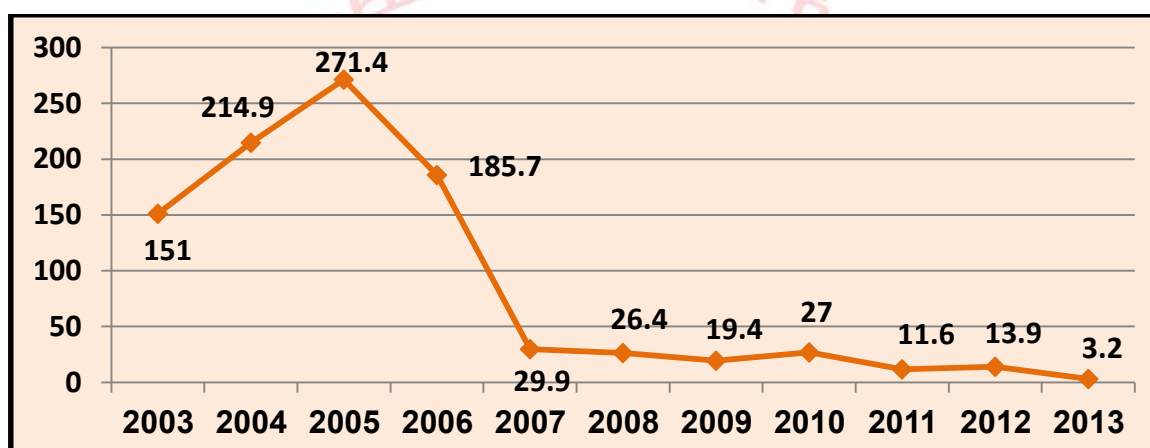


### Typhus (spotted) fever

Typhus fever is a disease caused by gram-negative coccobacilli and short bacilli. Epidemics are associated with conditions that prevent bathing and washing of clothes in hot water, such as war, poverty, displacement of populations and lack of hygiene. Despite that, the disease is endemic in Palestine but it is considered under control.

Since the last several years, there are steadily decline of incidence (graph 32). During the year 2013, a total of 55 cases were reported with an incidence of 3.2 per 100.000 population reflecting the same decrease since many years. During the year 2012, a total Of 228 cases were reported with an incidence rate of 13.9 per 100.000 population, while in the year 2011, a total of 185 cases were reported with an incidence of 11.6 per 100.000 population. All reported cases were diagnosed based on Proteus OX19 test, which is not confirmatory test.

**Graph 32: Annual incidence rate per 100.000 of Typhus Fever in GS, years 2003-2013**



### Tuberculosis

Tuberculosis (TB) is an infectious disease caused mainly by *Mycobacterium tuberculosis*. Tuberculosis can affect most organs in the body, but the lung is the main organ affected. In spite of major advances in diagnosis, treatment and prevention of TB the disease still constitutes a major health problem throughout the world.

The current coverage level for BCG is a good indicator of an immunization program's ability to reach newborns. The BCG vaccine is one of the most widely used of all current vaccines and it is a part of the national childhood immunization program. BCG is currently the only available TB vaccine, provides protection against TB meningitis and the disseminated form of the disease in infants and young children. In Palestine, BCG vaccine was introduced into the EPI in 1957 and is given to all infants as soon as possible after birth.

Table 10 shows that during 2013, a total of 56958 children were vaccinated with a total coverage with BCG vaccine of about 100%.

**Table 10: BCG immunization coverage in GS, 2013**

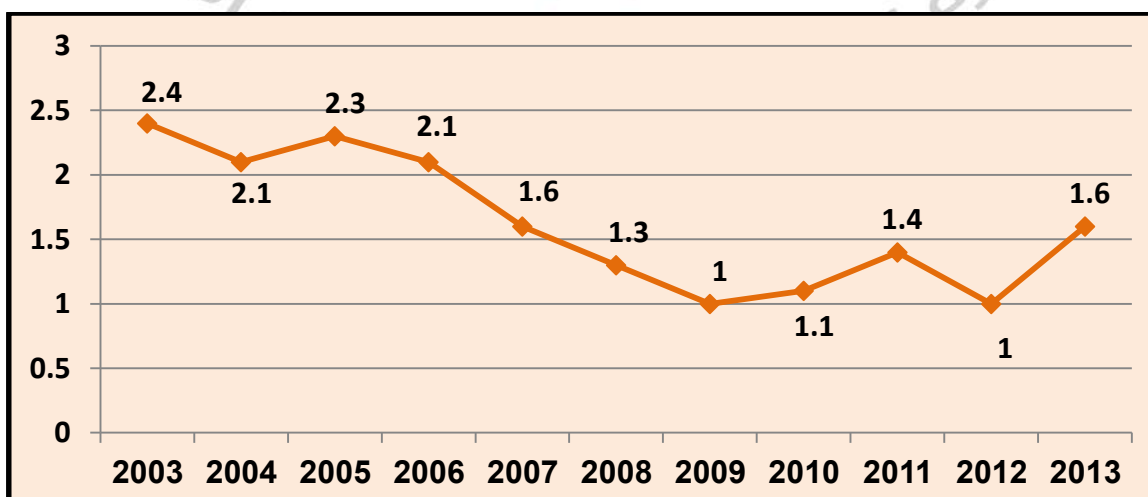
Type of vaccine	Vaccinated and registered	Total
BCG	Total vaccinated	56958
	Total registered population	56681
	Coverage	100.5%

Globally, WHO conducts an international recommended strategy for TB prevention and control. The aim of this strategy is achieving 70% of case detection rate and more than 90% of treatment success rate.

Palestine is a low TB burden country with a low estimated incidence rate by WHO of 14 per 100,000 population. According to this estimation in the year 2013 the case detection rate was 11.3% which reflects a very low case detection rate. This issue could be due to over estimation of the incidence of TB by WHO or to real under diagnosis and under reporting of TB cases. An inventory study was conducted in Palestine on April-June 2013 under complete supervision of EMRO in order to estimate the real incidence of TB. The data of this study are in process of analysis and interpretation by EMRO.

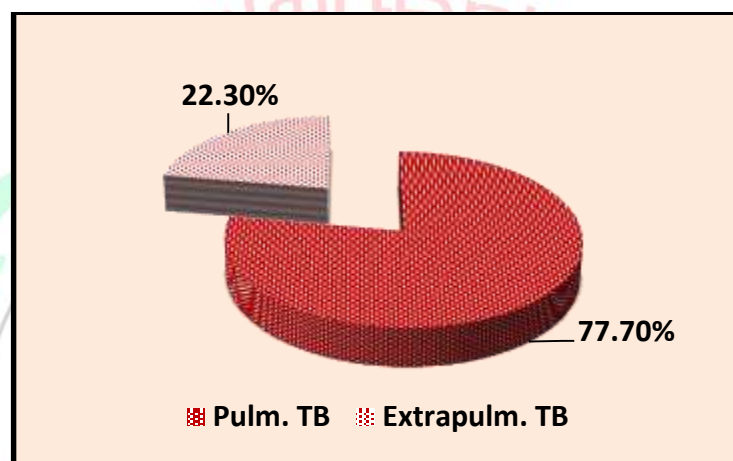
As seen in graph 33, the incidence rate of TB decreased dramatically from 2.4 per 100.000 in 2003 to 1 per 100.000 in 2009. This decrease of incidence could be explained by real decrease as Palestine considered as a low burden country or by under-diagnosis and under-reporting from health providers. Since 2010 till 2013, there was a mild increase of incidence (from 1,1 to 1.6 per 100.000 population respectively).

**Graph 33: Annual incidence rate per 100.000 of TB in GS, years 2003-2013**



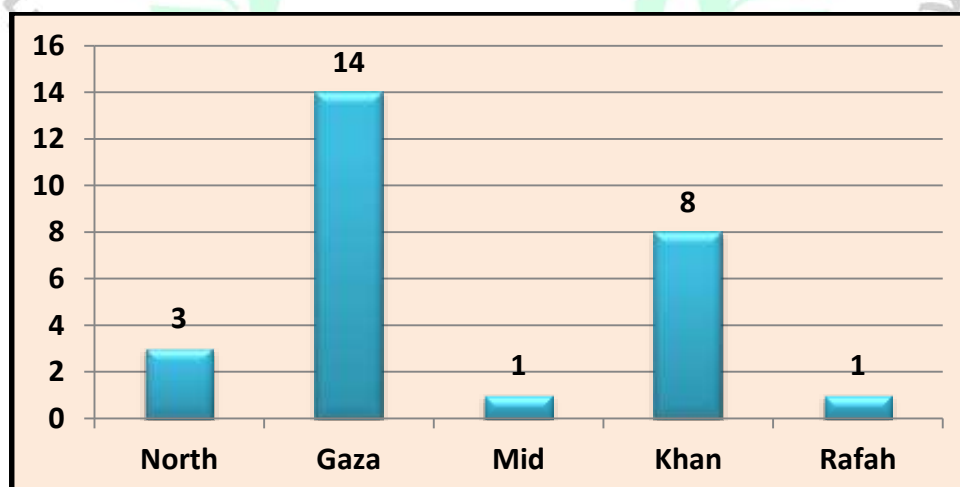
During 2013, a total of 27 cases of TB were reported in GS with an incidence rate of 1.58 per 100.000 population. Among these cases, 21 cases (77.7%) were pulmonary TB with an incidence rate of 1.23 per 100.000 population (Graph 34), while the incidence rate of extra-pulmonary males was 0.4 per 100.000. The majority of pulmonary TB cases were smear negative (66.6%). The treatment success rate was higher than 94%.

**Graph 34: Percentage of reported cases of TB by type of disease in GS, 2013**



According to the geographical distribution (graph 35), the majority of TB cases during 2013 were reported in Gaza governorate (14 cases representing 52%) and Khan-Younes governorate (8 cases representing 30%). In Mid-zone and Rafah governorates, only one case was reported in every governorate.

**Graph 35: Geographical distribution of TB reported cases in GS, year 2013**



## **Group C diseases**

Some of diseases of this group registered a mild increase of incidence (different types of diarrhea and amebiasis) and other diseases remain under expected trend (varicella, pneumonia, giardiasis and ascariasis).

### **Diarrheal diseases**

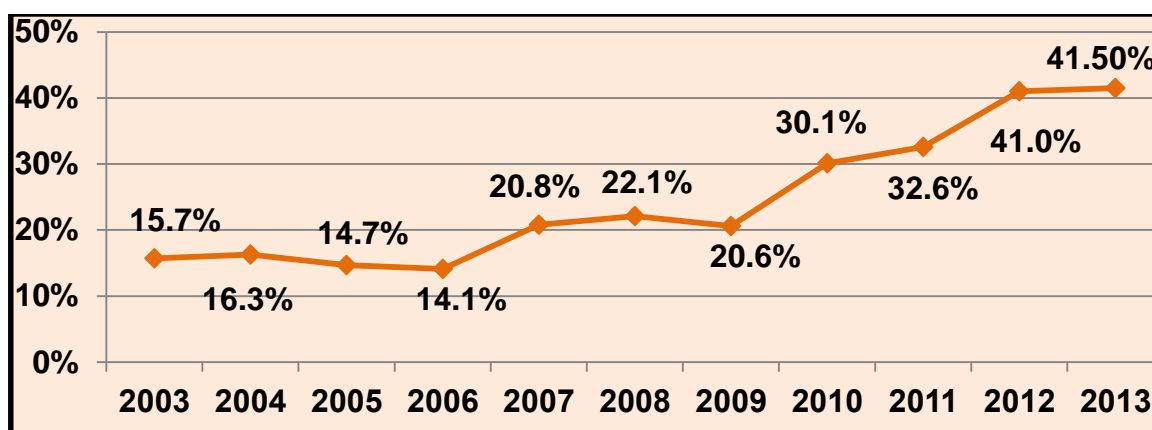
Diarrhea is a common problem that generally lasts for few days. In Gaza strip, acute diarrhea is one of the most common childhood illnesses and the main cause of outpatient visits and hospitalizations. Globally, the average of diarrhea among children under 3 years of age reaches one to three episodes annually and acute diarrhea accounts for almost 10% of all childhood hospital admissions. The high incidence of diarrheal disease in some governorates often linked to contaminated food, poor water quantity and quality and due to bad sanitation and hygiene. The most effective control measures to prevent diarrhea are maximizing access to sanitation, safe water, safe food supplies, and improving personal hygiene practices. According to the classification of Palestinian surveillance system, diarrhea is classified as syndromic disease into diarrhea less than 3 years, diarrhea more than 3 years and bloody diarrhea.

#### **Diarrhea less than 3 years**

In Gaza strip, in the year 2013 a total of 65296 cases of Diarrhea among children less than three years old were reported to the epidemiology department with an incidence rate of 41.5% representing a similar incidence rate with the year 2012 where a total of 64830 cases were reported with an incidence of 41.1%. Since the year of 2006, there are a continuous increase in the incidence, which could be attributed to deterioration of infrastructure (graph 36).

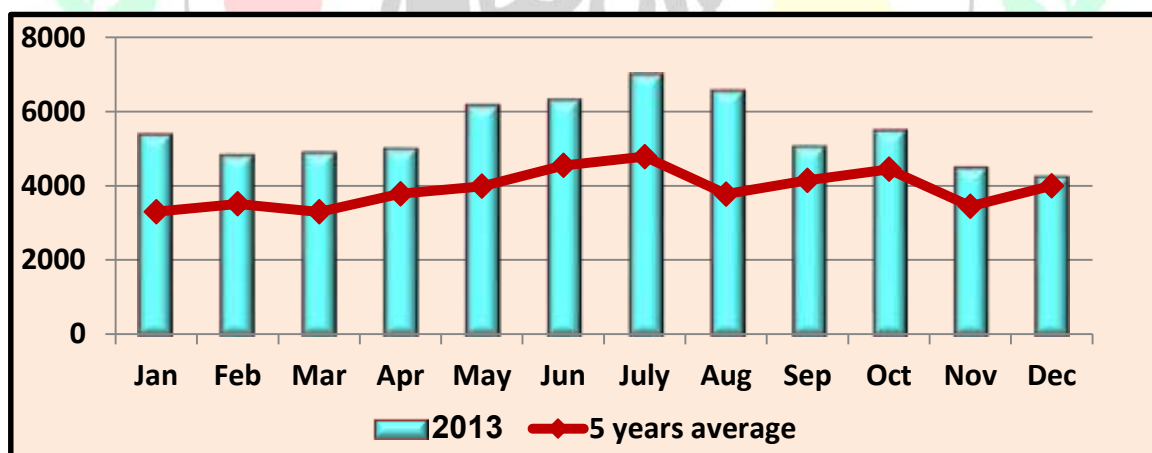


**Graph 36: Annual incidence rate of Diarrhea less than 3 years in GS, years 2003-2013**



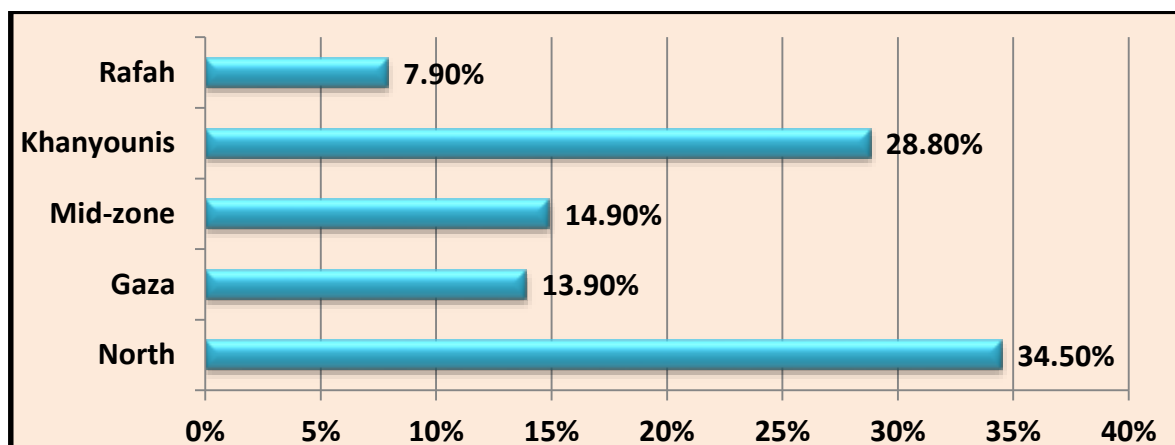
As shown on graph 37, the incidence of diarrhea cases registered a significant increase of reported cases compared to five years average reported cases. The highest incidence was reported in summer months and the lowest incidence was in the late autumn and winter months, which is going with the natural seasonality of the disease.

**Graph 37: Monthly reported cases of Diarrhea less than 3 years in GS, year 2013**



According to graph 38, the highest incidence (34.5%) of reported cases was in North governorate followed by Khan-Younes governorate with an incidence of 28.8%. In the Mid-zone and Gaza governorates, the incidence was 14.9% and 13.9% while in Rafah governorate it was 7.9%. This geographical distribution could be related to infrastructure situation of each governorate.

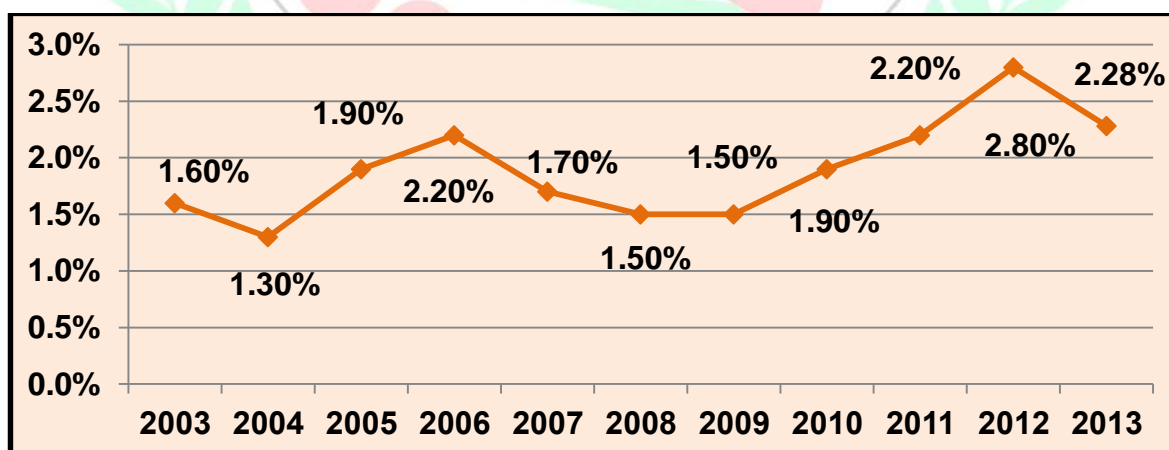
**Graph 38: Geographical distribution of Diarrhea less than three years reported cases in GS, year 2013**



#### **Diarrhea more than 3 years**

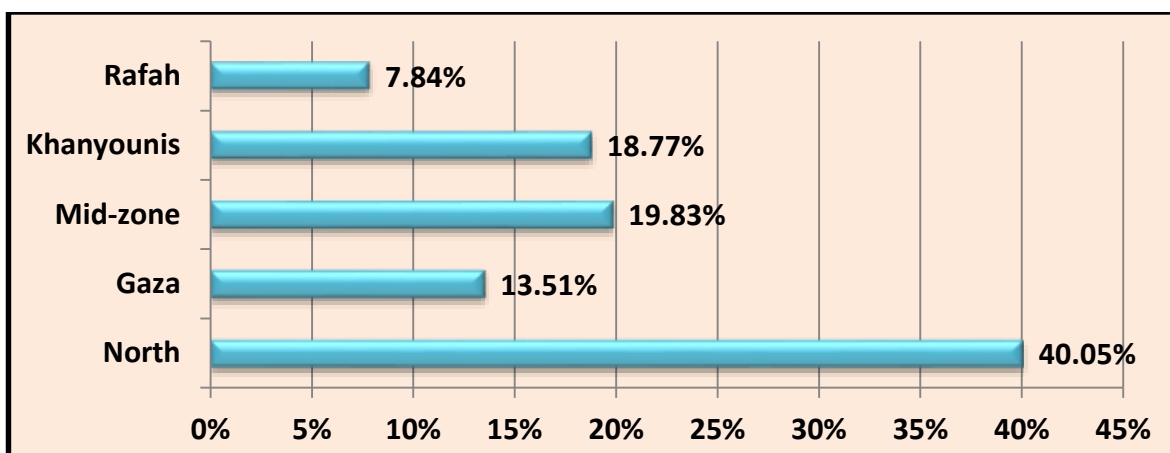
As seen on graph 39, in the year 2013 a mild decrease of reported cases of Diarrhea among patients more than 3 years was observed after a consecutive increase in the previous three years (2010-2012). A total of 35284 cases were reported during the year 2013 with an incidence rate of 2.28%, while a total of 39390 cases were reported during 2012 with an incidence of 2.8%.

**Graph 39: Annual incidence rate of Diarrhea more than 3 years in GS, years 2003-2013**



As shown on graph 40, the highest notification of cases was from North governorate (40.02%) compared to other governorates.

**Graph 40: Geographical distribution of Diarrhea more than three years in GS, 2013**

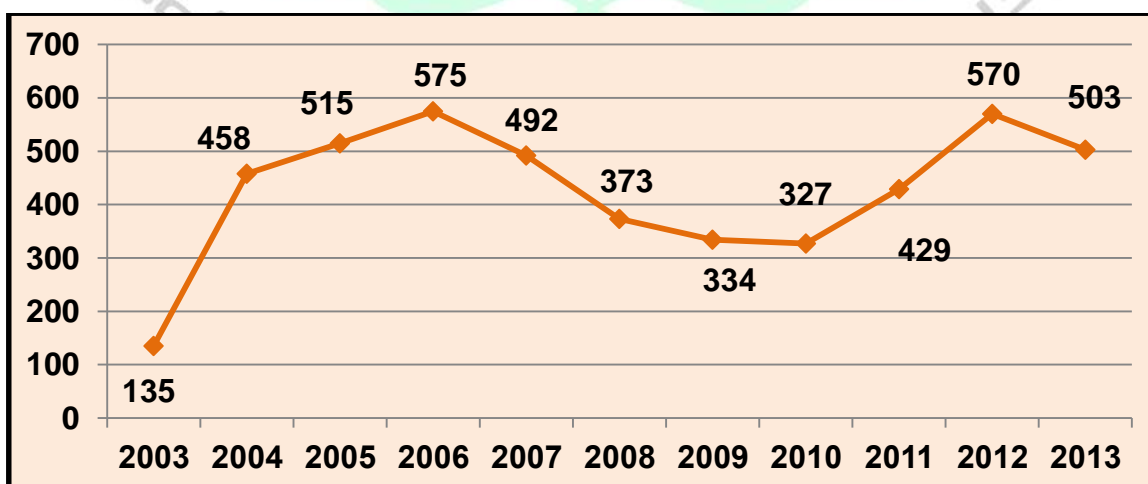


### **Bloody Diarrhea**

Bloody diarrhea is a potentially critical condition in which there is blood mixed with loose watery stools. Under this disease all cases with bloody diarrhea are included regardless the cause which could be bacterial infection or parasitic infestation.

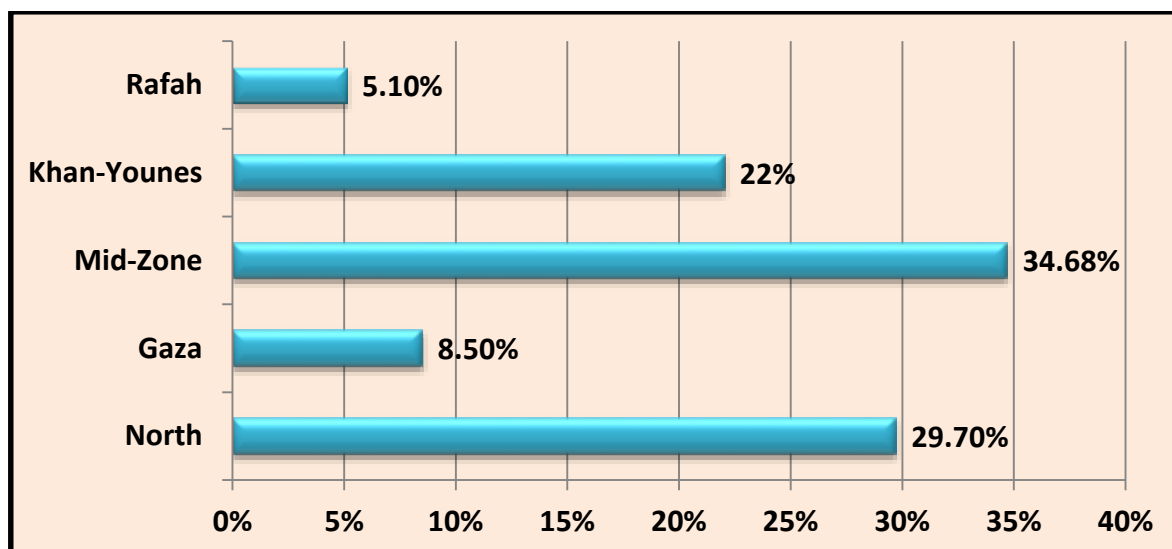
As seen on graph 41, during the year 2013 a total of 8555 cases of bloody diarrhea were reported with an incidence rate of 503/100.000 population representing a mild decrease compared to the year 2012 where a total of 9384 cases were reported with an incidence of 570/100.000. From the year 2006 to 2010, there were a continuous decrease of reported cases.

**Graph 41: Annual incidence of Bloody Diarrhea per 100.000 population in GS, years 2003-2013**



Geographically as shown in graph 42, 34.66% of notified cases were reported from Mid-Zone governorate followed by North governorate (29.69%) and Khan-Younes governorate (22%). This distribution reflects the bad sanitation situation in these governorates.

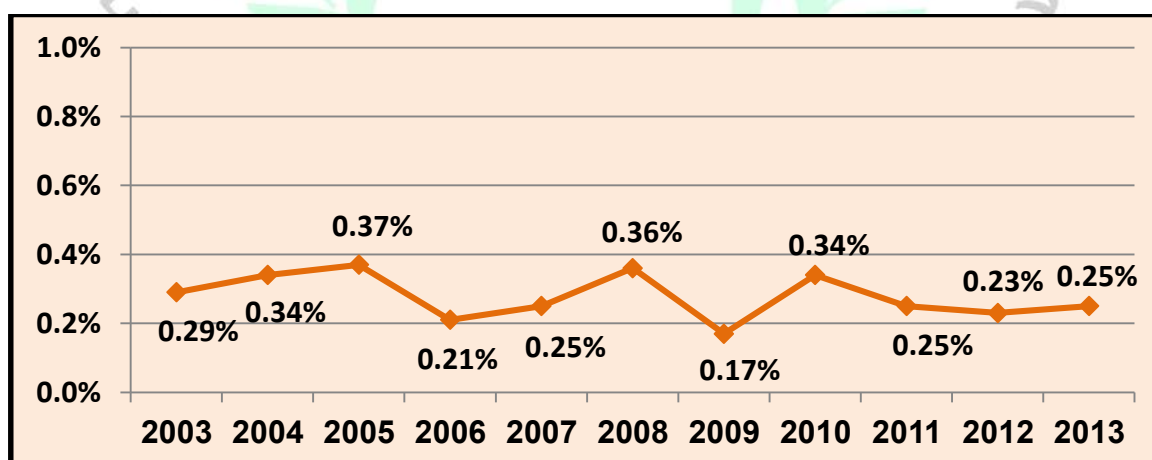
**Graph 42: Geographical distribution Bloody Diarrhea in GS, year 2013**



### Varicella (Chickenpox)

An illness caused by varicella-zoster virus. This disease is endemic in Palestine especially between children and adolescents and considered of low importance. It is one of notified communicable disease monthly.

**Graph 43: Annual incidence rate of Chicken Pox in GS, years 2003-2013**



During the year 2013, a total of 4185 cases were reported with an incidence rate of 0.25%, while during 2012, a total of 3819 cases were reported with an incidence of 0.23%. As seen

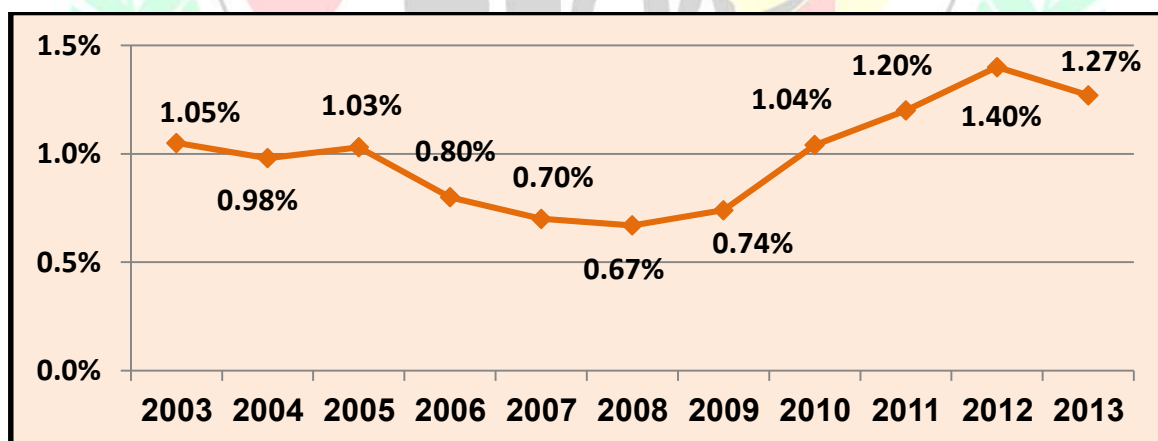
in graph 43, the annual incidence is fluctuating with some variation from year to year but this fluctuation does not has an epidemiological importance.

### Conjunctivitis

Conjunctivitis is an inflammation of the conjunctiva that can arise from a number of causes, with viral, bacterial and allergic being the commonest. Viral conjunctivitis is highly contagious and can cause epidemics in communities. Transmission is through direct or indirect contact with infected individuals. Seasonal allergic conjunctivitis occurs mainly in spring and summer. Conjunctivitis is endemic disease in Palestine and to be notified monthly.

As seen in graph 44, it was observed that after four years (2009-2012) of gradually obvious increase of the incidence (from 0.74% in the year 2009 to 1.4% in the year 2012), a mild decrease was observed in the year 2013, where a total of 21631 cases were reported with an incidence of 1.27% . The majority of cases were reported from Khan-Younes and North governorates.

**Graph 44: Annual incidence rate of Conjunctivitis in GS, years 2003-2013**



### Influenza and URTI

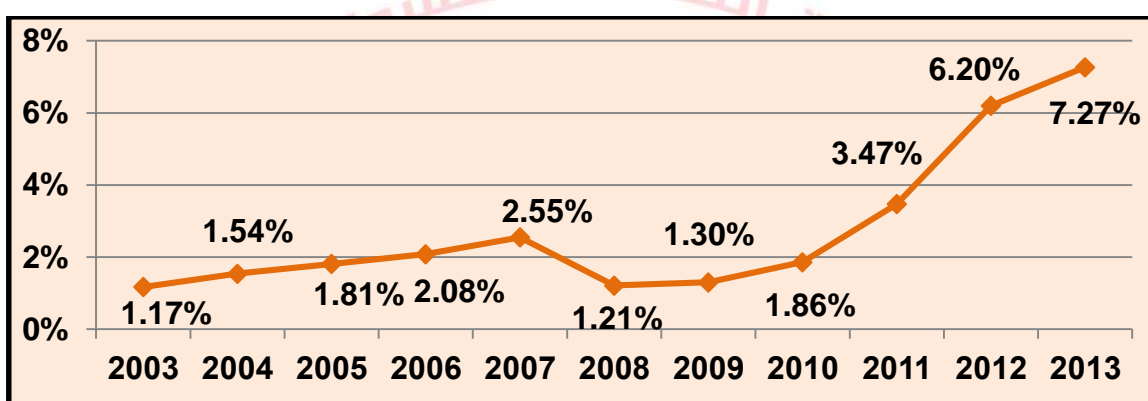
Influenza is a viral infection mainly caused by influenza group A viruses which is endemic in Palestine. It is diagnosed as a clinical syndrome. Seasonally Influenza vaccine is available in Palestine which it given to risky population.



URTIs are the illnesses caused by an acute infection that involves the upper respiratory tract. URTIs are the commonest acute problem dealt with in primary care caused by viruses or bacteria. URTIs range from mild self-limited to life-threatening illnesses.

According to the revised surveillance of communicable diseases in Palestine in the year 2011, URTIs were included in notification with suspect influenza cases.

**Graph 45: Annual incidence rate of influenza and URTIs in GS, years 2003-2013**

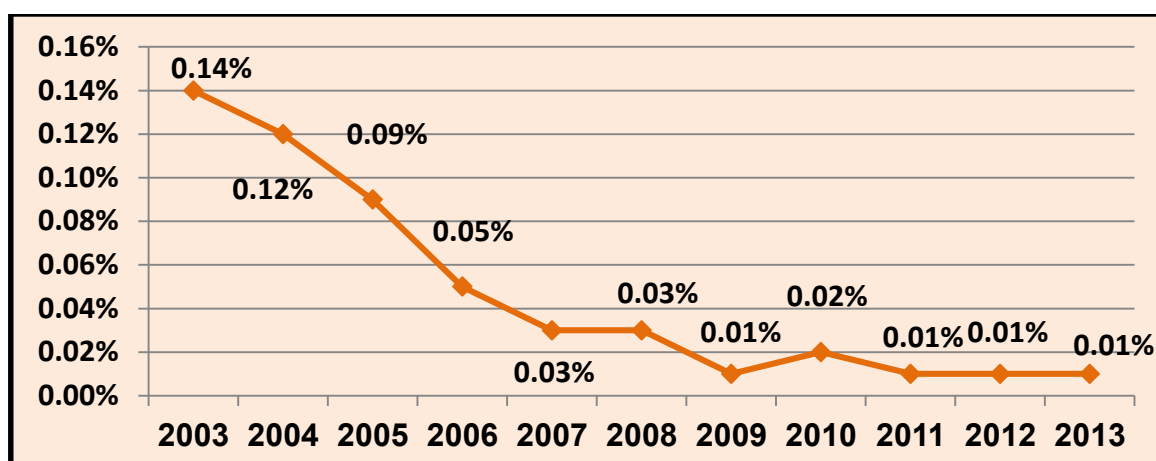


During the year 2013, a total of 123661 cases were reported with an incidence rate of 7.27%. While in the years 2012 and 2011, the incidence was 6.2 and 3.47% respectively. As seen in graph 45, the increase in incidence since in the last three years (2011-2013) could be attributed to the mentioned revision of the surveillance system.

### Ascariasis

Ascariasis is a human disease known as soil-transmitted helminthes caused by *Ascaris lumbricoides*, a large intestinal roundworm and *Ascarissuum*, a similar parasite primarily affecting pigs and occasionally humans. Ascariasis is an endemic disease in Palestine. During the year of 2013, a total of 138 cases were reported with an incidence of 0.01%. As seen on graph 46, there was a continuous decrease of reported incidence since the year 2003 (0.14%) until 2013 (0.01%).

**Graph 46: Annual incidence rate of ascariasis in GS, years 2003-2013**

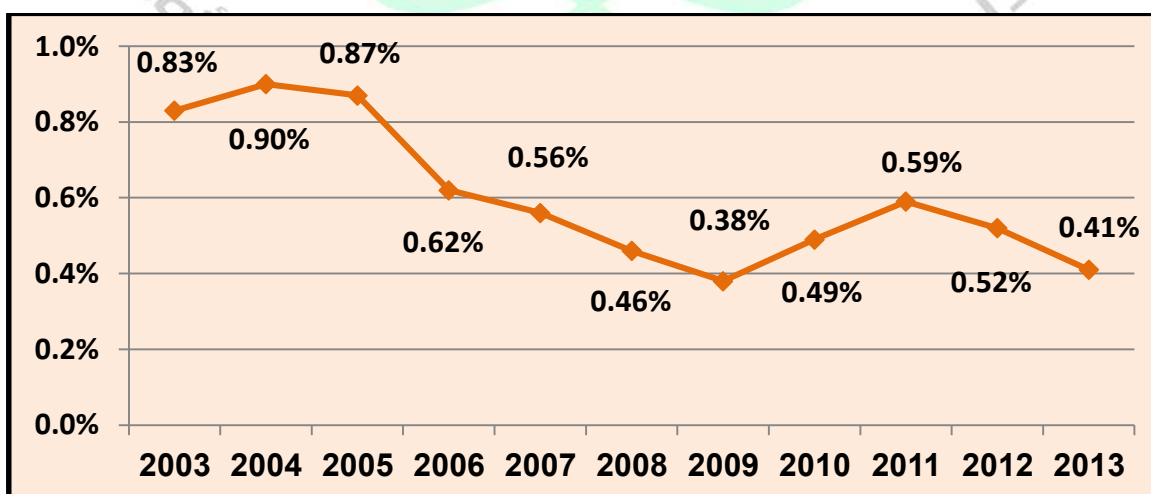


### Amebiasis

Amebiasis is an infection of the intestine (but there are extra-intestinal forms) caused by a protozoa called *Entamoeba histolytica*. In Palestine, the disease is endemic and confirmed cases were reported from the laboratories.

During the year 2013, a total of 7003 cases were reported with an incidence rate of 0.41%. This incidence represents a contentious decrease registered in the year 2012 (0.52%) compared to the year 2011 (0.59%). In general, it was observed a continuous decrease since the year 2004 (0.90%) until the year 2013 (graph 47). This incidence represents only the laboratory confirmed cases and could not reflect the real situation because the disease is treated empirically.

**Graph 47: Annual incidence rate of Amebiasis in GS, years 2003-2013**

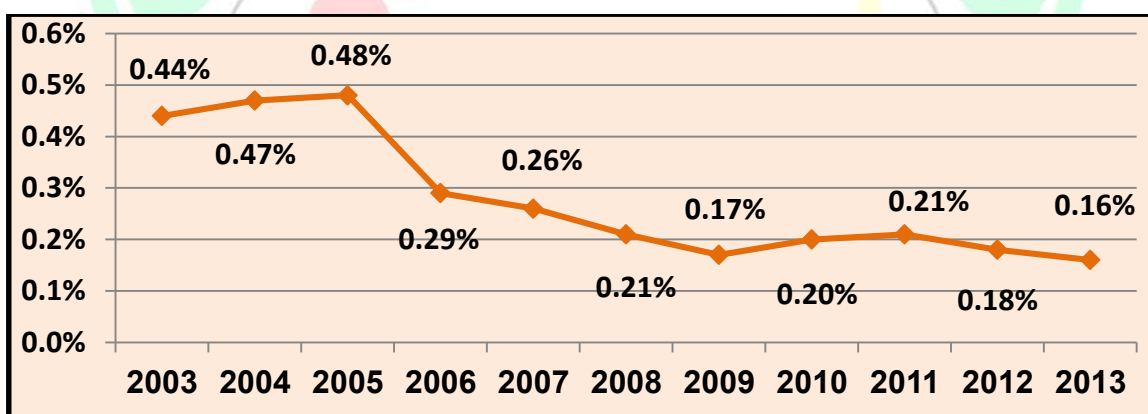


## Giardiasis

Giardiasis is an infection of the small intestine caused by protozoa called *Giardia lamblia*, which lives in the duodenum and jejunum. In Palestine, the disease is endemic and confirmed cases were reported from the laboratories.

During the year 2013, a total of 2674 cases were reported with an incidence of 0.16%. This incidence represents a mild decrease compared to the last year 2012 where the incidence was 0.18% and it shows a decreasing trend since 2005 where the incidence was 0.48% (graph 48). This incidence represents only the laboratory confirmed cases and could not reflect the real situation because the disease is treated empirically.

**Graph 48: Annual incidence rate of Giardiasis in GS, years 2003-2013**



Other diseases including parasitic infestation were registered during 2013 with low incidence and low epidemiological importance.

## Annexes

### Annex 1: Monthly epidemiological report, 2009

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Group A													
AFP	0	1	0	1	0	0	0	1	1	0	0	0	4
AIDS/HIV	0	0	0	0	0	0	0	0	0	0	0	0	0
Cholera	0	0	0	0	0	0	0	0	0	0	0	0	0
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0
Measles	0	0	0	0	0	0	0	0	0	0	0	0	0
Meningococcal Disease	3	14	19	10	3	15	12	13	12	11	12	8	132
HI Meningitis	0	0	0	0	0	0	0	0	0	0	0	0	0
Bacterial Meningitis	4	1	1	3	11	11	15	16	17	25	20	12	136
Non Specific Meningitis	0	0	6	2	32	39	66	44	39	54	35	26	343
Vaccine Adverse Events	1	1	2	3	1	1	0	1	1	0	1	1	13
Food poisoning	0	0	93	0	0	0	0	1	0	0	0	0	94
Influenza H1N1	0	0	0	0	0	0	0	0	0	0	0	230	230
Group B													
Brucellosis	0	0	0	0	0	1	1	0	0	0	0	0	2
hepatitis A	56	65	74	66	48	48	63	59	66	49	53	31	678
Hepatitis B	7	43	45	32	38	34	31	33	23	30	20	21	357
Hepatitis C	0	0	6	4	4	8	2	5	3	7	3	4	46
Malaria	0	0	0	0	0	0	0	0	0	0	0	0	0
Mumps	2	1	1	0	0	0	6	9	5	2	8	0	34
Rubella	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonellosis	0	0	0	2	0	0	0	0	0	0	0	0	2
Septicemia	21	16	36	13	15	33	25	16	2	23	26	26	252
Shigellosis	0	0	0	0	0	1	0	0	2	0	0	0	3
TB Pulmonary	0	2	1	0	0	2	1	0	1	1	1	1	10
TB Extra-pulmonary	0	1	0	0	2	0	1	1	0	0	0	1	6
Typhoid Fever	31	15	32	41	51	3	65	7	49	41	24	19	378

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Typhus Fever (ox19)	8	12	1	32	48	5	28	0	74	35	28	17	288
Whooping Cough	0	1	0	0	0	0	0	0	0	0	0	0	1
Chemical Poisoning	6	7	4	13	11	0	0	0	5	0	6	6	58
Group C													
Animal Bite	3	9	26	30	43	154	29	20	11	19	23	32	399
Chicken Box	106	113	112	417	479	447	234	96	159	160	117	99	2539
Conjunctivitis	685	545	827	1194	1174	1040	962	392	1106	1024	967	1092	11008
Diarrhea <3 years	2290	2409	2447	2979	3247	3607	2328	2258	3464	3313	3574	3253	35169
Diarrhea >3 years	1302	1076	1317	1443	1713	1970	1903	1445	2047	2065	1699	1608	19588
Bloody Diarrhea	285	368	349	378	447	425	515	413	520	450	383	437	4970
Influenza	1238	1228	1498	1994	1793	1546	1589	708	1897	1562	1716	2558	19327
Pediculosis	0	0	0	0	0	0	0	0	0	0	0	0	0
Pneumonia	81	177	183	249	249	173	235	146	283	345	301	436	2858
Rheumatic Fever	0	0	0	0	1	1	2	0	0	0	0	2	6
Scabies	0	0	0	0	14	5	0	1	2	6	5	5	38
Trachoma	0	0	0	0	0	0	0	0	0	0	0	0	0
Laboratory													
Ascariasis	9	32	14	30	10	21	26	17	9	13	20	15	216
Hymen. Nana	5	9	8	7	20	6	7	9	7	2	4	2	86
TricurisTrich.	1	1	0	2	0	1	1	0	1	0	0	4	11
Enterobiasis	0	6	1	0	0	3	4	2	1	0	2	3	22
Strongoloidosis	0	0	2	0	0	0	0	1	4	0	0	0	7
Entam.His	207	454	381	666	375	766	811	450	346	382	403	395	5636
Giardia lambila	110	218	155	310	204	353	280	199	160	194	184	214	2581
Screening													
HBsAg test	3039	3644	3986	3973	3878	3051	3467	3919	3617	4341	3174	2426	42515
HBsAg test +ve	64	111	133	95	110	80	97	514	73	131	103	85	1596
HCV test	2863	2780	3376	3499	3155	2804	2975	3173	3231	3978	2841	3176	37851
HCV test +ve	17	22	32	34	34	26	29	433	19	26	22	17	711
HIV test	2871	2931	3258	3209	2969	2744	3247	3835	3343	3594	2468	2978	37447
HIV test +ve	0	0	0	0	0	0	0	0	0	0	0	0	0



## Annex 2: Monthly epidemiological report, 2010

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Group A													
AFP	0	1	0	0	0	0	1	0	0	1	1	0	4
AIDS/HIV	0	0	0	0	0	0	0	0	0	0	0	0	0
Cholera	0	0	0	0	0	0	0	0	0	0	0	0	0
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0
Measles	0	0	0	0	0	0	0	0	0	0	0	0	0
Meningococcal Disease	7	10	8	3	7	17	7	6	7	9	9	14	104
HI Meningitis	0	0	0	0	0	0	0	0	0	0	0	0	0
Bacterial Meningitis	4	14	5	8	5	19	17	19	9	25	19	18	162
Non Specific Meningitis	23	22	44	80	86	121	49	46	32	63	45	32	643
Vaccine Adverse Events	1	1	0	3	0	1	2	3	0	1	0	1	13
Food poisoning	0	0	0	0	3	0	0	0	0	102	0	0	105
Influenzae H1N1	36	0	0	0	0	0	0	0	0	0	0	0	36
Group B													
Brucellosis	1	1	2	0	0	1	1	0	0	2	0	0	8
hepatitis A	23	27	18	14	18	29	47	32	40	30	8	33	319
Hepatitis B	32	27	36	33	18	42	41	36	35	48	25	34	407
Hepatitis C	7	3	2	2	7	7	5	12	3	8	3	5	64
Malaria	0	0	0	0	0	0	0	0	0	0	0	0	0
Mumps	1	1	1	0	0	1	21	40	15	9	0	0	89
Rubella	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonellosis	0	0	0	1	0	0	0	0	1	0	0	0	2
Septicemia	15	32	17	27	23	37	44	18	24	44	32	20	333
Shigellosis	0	0	0	0	0	0	0	30	0	0	0	0	30
TB Pulmonary	0	1	1	1	1	3	0	0	0	0	0	0	7
TB Extrapulmonary	1	1	2	1	1	0	0	1	2	1	0	0	10
Typhoid Fever	3	13	11	15	13	39	51	23	34	29	5	13	249

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Typhus Fever (ox19)	5	24	27	22	26	56	72	61	52	50	10	10	415
Whooping Cough	0	0	0	0	0	0	0	0	0	0	0	0	0
Chemical Poisoning	5	5	16	16	20	16	18	14	9	8	8	6	141
Group C													
Animal Bite	26	23	35	35	34	41	36	38	28	42	20	30	388
Chicken Box	144	235	320	649	895	1089	685	301	314	246	198	144	5220
Conjunctivitis	1069	1146	1463	1591	1360	1703	1464	1317	1278	1136	1176	1329	16032
Diarrhea <3 years	2681	2972	3229	3433	3452	4083	5052	4349	3999	5998	2294	3717	45259
Diarrhea >3 years	1615	1864	1760	2248	2056	2582	2712	2204	2214	1993	1044	2209	24501
Bloody Diarrhea	427	434	475	483	473	518	480	418	433	359	183	335	5018
Influenza	2559	2346	2366	2590	2382	2346	2172	1984	2110	2217	2818	2598	28488
Pediculosis	0	0	0	0	0	0	0	0	0	0	0	0	0
Pneumonia	306	316	480	415	411	365	272	313	257	292	527	628	4582
Rheumatic Fever	1	3	2	2	0	0	0	0	12	0	2	0	22
Scabies	0	7	9	8	3	4	0	0	0	0	0	0	31
Trachoma	0	0	0	0	0	0	0	0	0	0	0	0	0
Laboratory													
Ascariasis	20	22	20	13	20	17	12	13	9	25	51	10	232
Hymen. Nana	2	5	8	10	3	6	5	8	5	5	5	3	65
TricurisTrich.	1	2	0	0	0	2	4	0	0	2	0	1	12
Entrobiasis	2	2	2	3	8	1	23	1	0	5	3	7	57
Strongoloidosis	0	0	1	0	0	0	3	0	3	1	0	0	8
Entam.His	445	517	646	751	743	860	695	699	461	705	572	420	7514
Giardia lamblia	185	225	261	330	321	298	257	274	220	286	221	172	3050
Screening													
HBsAg test	3892	3452	4326	3404	3100	3607	4186	4270	4049	4633	3305	3730	45954
HBsAg test +ve	118	94	99	73	90	90	118	111	101	113	87	84	1178
HCV test	3404	3221	3250	2971	3433	3913	3760	3712	3768	4371	2930	3228	41961
HCV test +ve	27	25	40	23	27	27	30	38	30	27	27	28	349
HIV test	3434	2960	3753	3252	3043	3187	3731	3705	3690	4079	2631	3178	40643
HIV test +ve	0	0	0	0	0	0	0	0	0	0	0	0	0

### Annex 3: Monthly epidemiological report, 2011

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Group A													
AFP	1	0	0	2	0	1	0	0	1	0	1	0	6
AIDS/HIV	0	0	0	0	0	0	2	0	2	0	1	0	5
Cholera	0	0	0	0	0	0	0	0	0	0	0	0	0
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0
Measles	0	0	0	0	0	0	0	0	0	0	0	0	0
Meningococcal Disease	16	7	13	11	11	8	20	15	18	7	14	11	151
HI Meningitis	1	0	1	0	0	0	0	0	0	0	0	1	3
Bacterial Meningitis	21	38	38	32	21	13	34	41	22	42	22	19	343
Non Specific Meningitis	31	74	89	59	7	53	58	71	64	137	68	88	799
Vaccine Adverse Events	0	3	0	1	0	0	1	1	2	0	0	2	10
Food poisoning	0	1	0	0	0	0	0	0	0	9	0	0	10
Influenza H1N1	20	11	2	0	0	0	0	0	0	0	0	0	33
Group B													
Brucellosis	0	2	2	2	0	2	3	2	0	0	0	0	13
hepatitis A	31	22	26	20	15	15	25	27	64	38	71	69	423
Hepatitis B	28	24	35	23	39	29	38	23	39	22	34	41	375
Hepatitis C	1	4	4	3	9	6	4	2	15	14	1	8	71
Malaria	0	0	0	0	0	0	0	0	0	0	0	0	0
Mumps	1	1	0	2	3	31	17	1	2	23	10	0	91
Rubella	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonellosis	5	0	0	0	0	1	0	0	5	5	1	0	17
Septicemia	25	38	29	18	29	20	32	45	27	49	27	11	350
Shigellosis	0	1	6	1	0	1	2	1	3	0	1	1	17
TB Pulmonary	1	0	3	0	1	1	1	1	0	1	2	2	13
TB Extrapulmonary	0	0	1	0	0	4	0	1	1	1	1	1	10
Typhoid Fever	9	3	11	53	18	19	11	27	15	3	0	0	169

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Typhus Fever (ox19)	11	6	11	20	19	19	28	37	8	21	0	5	185
Whooping Cough	0	0	0	0	0	0	0	0	0	0	0	0	0
Chemical Poisoning	13	14	1	13	18	12	8	18	8	13	9	6	133
Group C													
Animal Bite	25	28	29	32	38	43	29	25	23	23	14	21	330
Chicken Box	182	229	377	312	582	523	526	269	263	265	256	246	4030
Conjunctivitis	1384	1811	2093	2038	1721	1570	1573	1321	1535	1472	1362	1373	19253
Diarrhea <3 years	3559	4374	4167	4135	4336	4863	4993	3941	4460	4375	3668	4796	51667
Diarrhea >3 years	2187	2374	2403	2325	2553	2964	2860	2683	2500	2358	2064	2766	30037
Bloody Diarrhea	347	435	487	426	554	666	807	453	784	587	539	741	6826
Influenza	3965	5336	4203	5311	4505	4587	3590	3454	4721	4967	4759	5700	55098
Pediculosis	0	0	0	0	0	0	0	0	0	0	0	0	0
Pneumonia	692	734	457	508	472	541	406	406	483	528	363	568	6158
Rheumatic Fever	0	0	0	0	0	0	0	0	0	0	0	0	0
Scabies	0	0	0	0	0	0	0	0	0	0	0	0	0
Trachoma	0	0	0	0	0	0	0	0	0	0	0	0	0
Laboratory													
Ascariasis	19	11	11	13	14	21	18	14	22	19	7	23	192
Hymen. Nana	8	6	2	8	1	14	7	6	12	9	4	9	86
TricurisTrich.	0	0	2	1	0	2	0	0	3	4	1	0	13
Entrobiasis	8	14	6	12	11	14	3	5	4	2	0	4	83
Strongoloidosis	1	0	1	0	3	2	0	0	0	0	0	0	7
Entam.His	389	512	605	622	975	1186	1114	787	961	1233	493	568	9445
Giardia lamblia	188	208	239	280	316	289	346	253	385	443	163	201	3311
Screening													
HBsAg test	3541	3424	3827	4327	4884	4786	4245	4922	4153	4763	2140	3683	48695
HBsAg test +ve	73	69	77	96	111	108	113	73	105	378	49	42	1294
HCV test	2380	3048	3560	3513	3783	3646	2651	4238	3470	4423	1886	3502	40100
HCV test +ve	14	18	34	26	34	27	23	39	40	35	19	26	335
HIV test	2824	2983	3128	3754	4391	4134	3236	4427	3225	3761	1625	3050	40538
HIV test +ve	0	0	0	0	0	0	0	0	0	0	0	0	0

#### Annex 4: Monthly epidemiological report, 2012

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Group A													
AFP	0	0	0	0	2	0	2	3	1	0	0	1	9
AIDS/HIV	0	0	0	0	0	0	0	0	0	1	0	0	1
Cholera	0	0	0	0	0	0	0	0	0	0	0	0	0
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0
Measles	0	0	0	0	0	0	0	0	0	0	0	0	0
Meningococcal Disease	17	8	16	5	8	3	5	14	11	5	8	3	103
HI Meningitis	0	0	0	0	0	0	0	0	1	0	0	0	1
Bacterial Meningitis	32	37	46	47	71	46	74	51	29	40	11	9	493
Non Specific Meningitis	89	139	178	136	165	115	150	140	118	101	68	54	1453
Vaccine Adverse Events	0	0	1	0	0	0	0	0	1	1	0	1	4
Food poisoning	0	6	0	0	9	5	9	11	16	0	25	11	92
Influenza H1N1	0	0	0	0	0	0	0	0	0	0	0	0	0
Group B													
Brucellosis	0	0	0	2	0	0	0	0	2	1	2	0	7
hepatitis A	57	86	81	49	54	51	109	91	102	82	111	137	1010
Hepatitis B	44	28	30	26	31	12	27	21	53	29	22	31	354
Hepatitis C	5	11	6	4	5	3	8	2	13	7	3	4	71
Malaria	0	0	0	0	0	0	0	0	0	0	0	0	0
Mumps	0	4	2	7	8	3	6	0	5	13	9	3	60
Rubella	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonellosis	0	0	0	0	2	0	0	0	0	0	0	0	2
Septicemia	52	13	35	48	34	20	46	41	55	56	44	39	483
Shigellosis	1	0	3	2	0	0	0	0	0	1	1	1	9
TB Pulmonary	6	1	1	0	0	0	2	0	2	0	0	0	12
TB Extrapulmonary	0	0	0	1	0	0	0	1	0	2	0	1	5
Typhoid Fever	7	3	0	22	35	24	28	3	13	5	13	13	166



	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Typhus Fever (ox19)	11	20	2	46	35	34	23	20	25	5	3	4	228
Whooping Cough	0	0	0	0	0	0	0	0	0	0	0	0	0
Chemical Poisoning	7	11	7	0	7	8	6	4	2	4	0	8	64
Group C													
Animal Bite	32	23	24	23	23	27	25	24	16	14	8	14	253
Chicken Box	321	176	188	251	524	516	391	328	343	301	200	280	3819
Conjunctivitis	1931	1712	1694	2277	2414	2056	1959	1602	1912	2122	1771	1850	23300
Diarrhea <3 years	3935	3662	3519	4333	6442	7106	7776	5684	5910	5943	4989	5531	64840
Diarrhea >3 years	2425	2579	2426	3395	3507	3748	4422	3188	3826	3155	3427	3292	39390
Bloody Diarrhea	649	449	477	754	928	1000	956	761	832	878	777	923	9384
Influenza	8848	8246	5802	8724	9183	8269	6627	7094	8183	11066	8660	11584	102286
Pediculosis	0	0	0	0	0	0	0	0	0	0	0	0	0
Pneumonia	780	762	990	816	844	703	551	403	897	778	832	1402	9758
Rheumatic Fever	0	0	0	0	0	0	0	0	0	0	0	0	0
Scabies	0	0	38	63	56	48	22	18	10	0	5	11	271
Trachoma	0	0	0	0	0	0	0	0	0	0	0	0	0
Laboratory													
Ascariasis	13	15	37	4	39	9	6	10	12	12	11	18	186
Hymen. Nana	3	7	7	5	3	4	7	6	6	2	5	8	63
TricurisTrich.	1	0	0	0	6	4	1	3	2	4	1	0	22
Entrobiasis	3	4	2	2	1	2	1	4	1	4	4	3	31
Strongoloidosis	0	0	0	0	0	0	1	1	0	1	0	0	3
Entam.His	528	516	504	613	1007	1267	1073	574	683	650	568	599	8582
Giardia lamblia	222	221	220	250	295	356	294	199	224	246	225	225	2977
Screening													
HBsAg test	4363	3857	2852	3184	4259	2766	4698	3656	4700	4062	4104	4311	46812
HBsAg test +ve	95	105	82	64	59	75	97	68	113	74	81	97	1010
HCV test	3886	3284	2447	2836	3904	2769	4465	3627	4343	3889	4022	3720	43192
HCV test +ve	40	38	20	27	23	40	50	29	42	31	28	42	410
HIV test	3603	2946	2125	2220	3243	2168	3824	3140	4100	3333	3584	3620	37906
HIV test +ve	0	0	0	0	0	0	0	0	0	0	0	0	0

# Annex 5: Monthly epidemiological report, 2013

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Group A													
AFP	0	3	1	0	1	0	3	0	2	0	0	2	12
AIDS/HIV	0	0	1	0	0	0	0	0	0	0	0	0	1
Cholera	0	0	0	0	0	0	0	0	0	0	0	0	0
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0
Measles	0	0	0	0	0	0	0	0	0	0	0	0	0
Meningococcal Disease	12	6	4	5	9	11	6	9	4	3	7	8	84
HI Meningitis	2	1	0	0	0	0	0	1	0	0	0	0	4
Bacterial Meningitis	9	14	11	9	56	48	59	24	20	46	33	13	342
Non Specific Meningitis	30	42	46	41	449	820	593	259	172	111	98	46	2707
Vaccine Adverse Events	3	1	1	0	5	2	2	1	2	1	0	2	20
Food poisoning	7	12	0	0	0	12	0	0	0	0	0	0	31
Influenza H1N1	66	13	0	0	0	0	0	0	0	0	0	0	79
Group B													
Brucellosis	1	0	1	0	4	1	1	1	3	4	3	0	19
hepatitis A	124	109	118	101	122	98	82	93	91	118	116	76	1248
Hepatitis B	32	42	24	38	26	15	32	14	21	21	32	23	320
Hepatitis C	5	5	8	4	1	3	2	5	6	6	4	2	51
Malaria	0	0	0	0	0	0	0	0	0	0	0	0	0
Mumps	2	12	23	133	198	86	74	85	135	174	483	486	1891
Rubella	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonellosis	0	0	0	0	0	0	0	0	0	0	0	0	0
Septicemia	28	41	59	36	48	68	96	85	25	37	44	52	619
Shigellosis	0	1	2	0	0	0	2	0	0	0	1	0	6
TB Pulmonary	4	0	0	1	3	5	3	0	1	1	1	2	21
TB Extrapulmonary	0	1	0	2	2	0	0	0	0	0	1	0	6
Typhoid Fever	9	10	19	0	0	0	0	0	2	0	0	0	40

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Typhus Fever (ox19)	5	19	15	1	0	0	0	0	2	0	13	0	55
Whooping Cough	0	0	0	0	0	0	0	0	0	0	0	0	0
Chemical Poisoning	4	3	5	18	0	0	13	13	10	7	8	2	83
Group C													
Animal Bite	18	22	22	32	29	25	25	23	18	19	20	22	275
Chicken Box	322	272	325	402	598	501	374	308	292	307	245	239	4185
Conjunctivitis	1908	1806	1888	2233	2050	1899	1861	1803	1562	1544	1495	1582	21631
Diarrhea <3 years	5370	4813	4889	4985	6157	6301	6982	6541	5049	5481	4490	4238	65296
Diarrhea >3 years	3144	3491	2784	2774	3213	3206	3209	3087	3087	2886	2189	2214	35284
Bloody Diarrhea	1027	813	670	858	642	708	768	671	741	643	556	458	8555
Influenza	12453	11837	11542	12135	10769	9781	9554	7952	8974	10059	9056	9549	123661
Pediculosis	0	0	0	0	0	0	0	0	0	0	0	0	0
Pneumonia	1098	855	829	968	1306	575	426	512	756	461	524	888	9198
Rheumatic Fever	0	0	0	0	0	0	0	0	0	0	0	0	0
Scabies	17	0	0	18	28	0	0	0	1	21	10	0	95
Trachoma	0	0	0	0	0	0	0	0	0	0	0	0	0
Laboratory													
Ascariasis	7	15	19	18	17	9	12	16	13	4	8	0	138
Hymen. Nana	5	10	0	12	3	9	6	1	6	2	2	0	56
TricurisTrich.	0	0	2	1	0	1	1	0	1	0	0	0	6
Entrobiasis	7	1	2	0	4	5	1	17	2	0	0	0	39
Strongoloidosis	1	0	0	0	0	0	0	0	0	1	0	0	2
Entam.His	481	521	487	895	792	854	966	559	496	431	516	5	7003
Giardia lamblia	228	199	217	366	269	259	347	226	192	169	188	14	2674
Screening													
HBsAg test	3906	4382	4007	4300	4401	3911	3925	4316	0	4036	0	0	37184
HBsAg test +ve	81	110	96	289	85	80	72	77	0	96	0	0	986
HCV test	3656	4292	4136	3931	3831	3340	3721	4129	0	3847	0	0	34883
HCV test +ve	35	33	30	24	16	14	18	28	0	17	0	0	215
HIV test	3088	3428	3645	3480	3707	3271	3272	3731	0	3578	0	0	31200
HIV test +ve	0	0	0	0	0	0	0	0	0	0	0	0	0

# Annex 6: Weekly Epidemiological situation of Meningeococcal Disease in Gaza Strip, 2009-2013

Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Total
<b>Total 2009</b>	1	1	0	1	4	3	2	4	2	3	4	6	5	2	3	3	1	3	1	0	0	0	4	2	5	5	5	0	2	3	2	4	4	1	4	1	4	4	3	1	2	2	6	5	0	2	5	2	1	3	2	0	<b>133</b>
<b>Total 2010</b>	2	0	0	3	2	3	3	3	2	4	1	1	0	0	2	3	2	4	0	1	2	1	3	4	7	3	3	2	2	0	0	0	0	3	4	1	1	2	2	1	2	4	1	4	1	2	1	3	2	1	5	0	<b>103</b>
<b>Total 2011</b>	3	3	6	3	0	2	2	3	2	0	2	2	6	4	1	2	2	4	6	0	1	2	1	1	4	1	5	1	4	8	4	8	2	3	3	5	9	1	1	1	0	3	1	3	6	4	2	3	3	2	2	4	<b>151</b>
<b>Total 2012</b>	2	7	4	4	1	2	3	2	2	7	2	4	1	0	2	3	0	1	5	0	1	1	0	2	0	1	1	1	1	1	3	5	2	1	5	3	2	2	4	0	1	2	2	1	3	2	0	3	1	0	0	0	<b>103</b>
<b>Total 2013</b>	2	3	5	1	2	1	0	3	1	0	3	1	0	1	2	0	2	0	2	1	2	4	3	3	2	3	2	0	1	0	6	0	2	2	3	1	1	0	0	2	0	0	2	0	0	2	2	4	4	2	0	1	<b>84</b>



Annex 7: Blood screening in Gaza strip, 2009

Blood screening in Gaza Strip, 2009						
	HBsAg		HCV		HIV	
	Blood Bank	Laboratory	Blood Bank	Laboratory	Blood Bank	laboratory
<b>Total Number Of Examined Samples</b>	11623	7376	11623	5371	11623	3418
<b>Number of +ve sample</b>	249	254	20	87	0	0
<b>% of +ve samples</b>	2.1%	3.4%	0.17%	1.6%	0%	0%



Annex 8: Blood screening in Gaza strip, 2010

Blood screening in Gaza Strip, 2010						
	HBsAg		HCV		HIV	
	Blood Bank	Laboratory	Blood Bank	Laboratory	Blood Bank	laboratory
<b>Total Number Of Examined Samples</b>	30086	17837	30086	13310	30086	12157
<b>Number of +ve sample</b>	559	618	63	278	0	0
<b>% of +ve samples</b>	1.85%	3.46%	0.20%	2.08%	0%	0%

Annex 9: Blood screening in Gaza strip, 2011

Blood screening in Gaza Strip, 2011						
	HBsAg		HCV		HIV	
	Blood Bank	Laboratory	Blood Bank	Laboratory	Blood Bank	laboratory
<b>Total Number Of Examined Samples</b>	30127	22494	30127	14226	30127	15389
<b>Number of +ve sample</b>	453	652	65	263	0	5
<b>% of +ve samples</b>	1.5%	2.9%	0.22%	1.8%	0%	0.03%

Annex 10: Blood screening in Gaza strip, 2012

Blood screening in Gaza Strip, 2012						
	HBsAg		HCV		HIV	
	Blood Bank	Laboratory	Blood Bank	Laboratory	Blood Bank	laboratory
<b>Total Number Of Examined Samples</b>	31709	19913	31709	16360	31709	12626
<b>Number of +ve sample</b>	472	614	102	329	0	1
<b>% of +ve samples</b>	1.48%	3.08%	0.32%	1.22%	0%	0%

Annex 11: Blood screening in Gaza strip, 2013

Blood screening in Gaza Strip, 2013						
	HBsAg		HCV		HIV	
	Blood Bank	Laboratory	Blood Bank	Laboratory	Blood Bank	laboratory
<b>Total Number Of Examined Samples</b>	31585	17108	31585	15187	31585	9205
<b>Number of +ve sample</b>	451	595	79	226	0	1
<b>% of +ve samples</b>	1.43	3.48	0.25	1.49	0%	1%

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