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EVALUATION OF SURVEILLANCE SYSTEM OF INFECTION DISEASES AND VACCINATION COVERAGE IN ALBANIA

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Dedicated

My inspirer, my supporter, my friend, my brother, and my father:

Dr. Sejfo B. MATAJ

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Abbreviation

WHO -	World Health Organization
CDC -	Control Diseases Center
MMWR -	Morbidity and Mortality Weekly Report
PPV -	Predictive Positive Value
ECDC -	European Center for Disease Prevention and Control
EUVAC-Net -	Surveillance Community Network for Vaccine Preventable Infectious Diseases
Epinorth -	Cooperation Project for Communicable Diseases Control
EARSS -	Europian Antimocrobial Resistance Surveillance System
EWGLI -	European Working Group for Legionella Infectious
EPR -	Epidemi and Pandemi Alert
NSTAT -	Institute of Statistical in Albania
MoH -	Ministry of Health
PHC -	Primary Health Care
ALERT -	Alarm Epidemiological Reporting Tool
AFP -	Acute Flaccid Paralysis
Hib -	Hemophilus Influenza Type B
STI -	Sexual Transsmesible Infections
IMR -	Infant Mortality Rate
U5MR -	Under-Five Mortality Rate
MMR -	Maternal Mortality Rate
EPI -	Expanded Programme Immunization
IPH -	Institute of Public Health
DE -	Department of Epidemiology

1. Introduction

1.1 The epidemiological surveillance

1.1.1 The definition of surveillance

Epidemiological surveillance is the "continuous, systematic collection, analysis and interpretation of data for the improvement and evaluation of health systems, tightly integrated the timely dissemination of information collected, to all those who are devoted to interventions for prevention and control of diseases ".

By this definition, Alexander D. Langmuir, a well-known American epidemiologist, explained the concept of epidemiological surveillance for the first time and it was the first step towards a progressive development of surveillance systems ***(1).***

In 1965, it was established the Division of Infectious Diseases of the World Health Organization (WHO) and the epidemiological study of disease was then considered to be in "a dynamic process". In 1968, the 21st World Health Assembly, led by Langmuir and Raska, focused its attention on global surveillance of infectious diseases and set out the key aspects of surveillance in public health matters: the systematic collection, analysis, and dissemination of data on health events. In addition, it was agreed that the surveillance had to be followed over time to verify that effective actions had been taken. From that moment, a wide variety of events related to public health, such as tumors, malformations, abortions, accidents, environmental, and behavioral risk factors were included in monitoring programs ***(2).***

1.1.2 The steps and functions of surveillance systems

The surveillance system is undertaken to inform the disease prevention and control measures. This systematic and continuous system follows some steps and functions which enable to design procedures and methodologies in order to have effective systems that support the ongoing researches and public health actions. In ***Figure 1.1.1,*** there is a description of the flow of data and the lines of response in a surveillance system that can help assess the simplicity or complexity of the system. Meanwhile in ***Figure 1.1.2***, there are described the steps of a surveillance system.

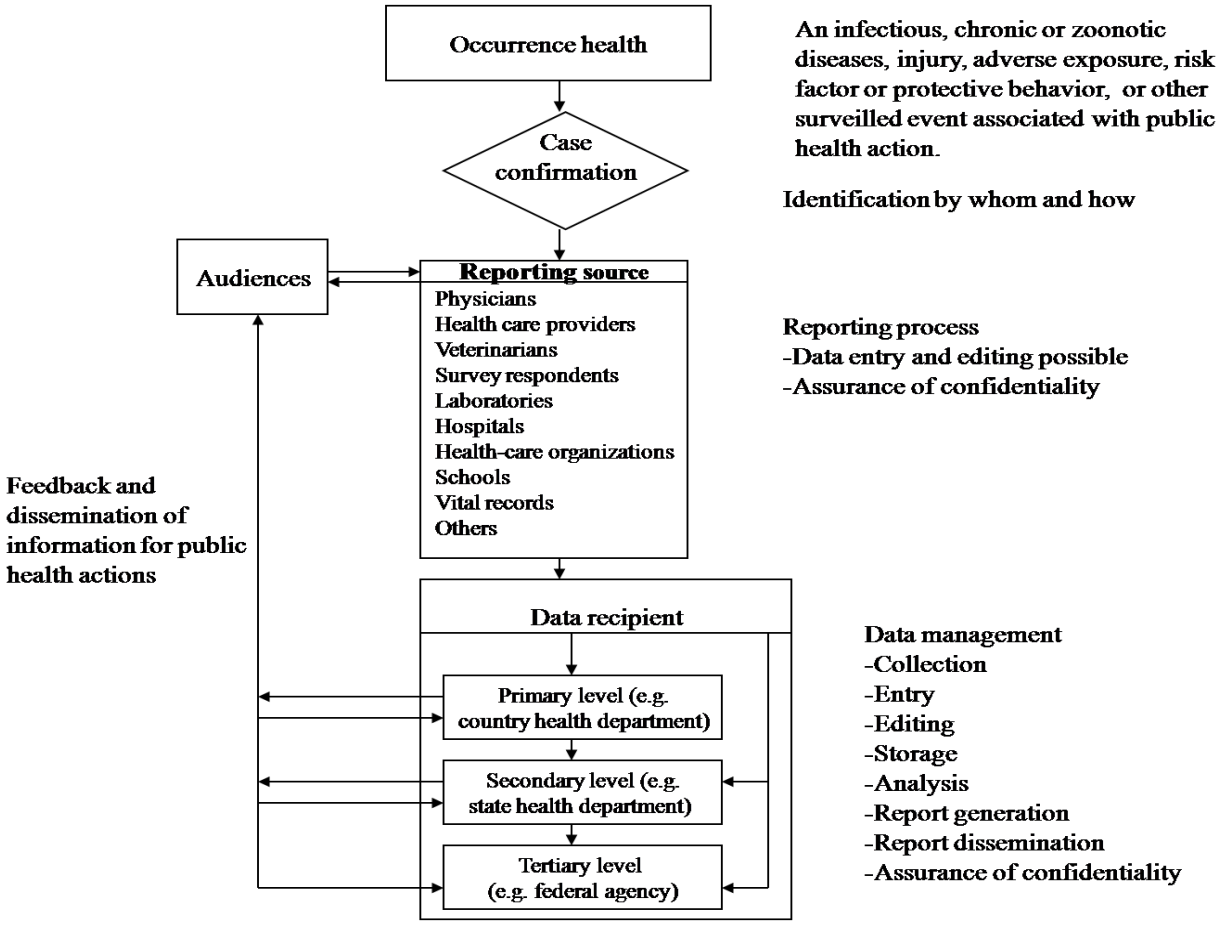


Figure 1.1.1.Public health surveillance: Detection and monitoring (3)

(Centre for Infectious Disease Preparedness, UC Berkeley School of Public Health)

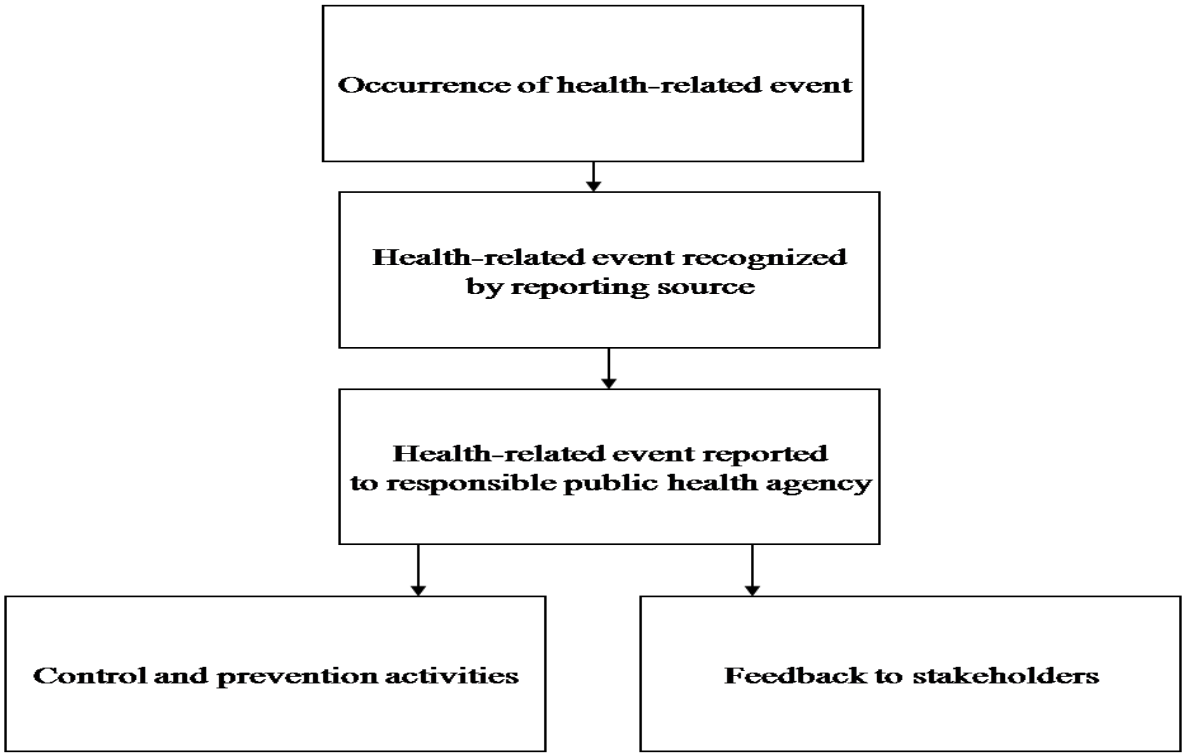


Figure 1.1.2 **the steps of a surveillance system** ***(3)***

MMWR (2001) Updated Guidelines for Evaluating Public Health Surveillance Systems

Surveillance is the foundation of all efforts to understand and control and prevent disease. Once a health-related event occurs, such as infectious, chronic or zoonotic disease, injury, adverse exposure, risk factor or protective behavior, or other surveilled events associated with public health, identification and definition of cases will be in placed. The cases will be identified and analyzed by place, person, and time. At last, it is initiated the report generation and dissemination. This includes also the reporting sources as health care providers: physicians, veterinarians, laboratories, health-care organizations, schools, and vital records, hospitals, and data recipients at different levels as county and health departments. The management of the data is the key of the entire surveillance system. Following the collection, entry, editing, storage, analysis, and reporting of data, the dissemination and feedback of information is useful for public health action to control and prevent the disease. In this way, the generic surveillance system can measure the impact on community's health from any health-related event ***(1, 3).***

It is important to recognize the functions that a surveillance system has to perform in order to be effective. These functions include: detection and notification of health events, collection and consolidation of pertinent data, investigation and confirmation (epidemiological, clinical and/or laboratory) of cases or outbreaks, routine analysis and creation of reports, feedback of information to those providing the data, feed-forward of data, and reporting data from Morbidity and Mortality Weekly Report (MMWR, May 2004/53 [RRo05]).

By achieving all the steps required for a successful generic surveillance system, the public health surveillance will provide the scientific and factual database essential to inform decision making and appropriate public health action. The key objective of this system is to provide information to guide interventions.

1.1.3 The objectives and actions of surveillance system

The key actions taken by the surveillance system can be summarized as: data collection, analysis, the processing of the information, and the return of the information to all those who need the data received. The latter include the local authorities responsible on prevention and control of diseases. These authorities plan and implement the interventions to the content.

The main objectives of a surveillance system are to investigate and carefully assess the health of the population being studied. It also determines the priority actions in public health evaluation programs and provides incentives for scientific research.

The ultimate goal of public health surveillance systems is the control and prevention of diseases, and pervasive and careful monitoring of lifestyles and risk factors related to the acquisition of the disease, in a continuous effort aimed at continually improving state of community health.

Historically, a surveillance system has focused its attention primarily on the activities of infectious diseases controls and their causative agents, but in fact it carries out the surveillance in health interventions and for the prevention of disease and health protection.

A well-organized surveillance system describes the risk factors, natural history, the space-time distribution for documenting the epidemiological characteristics of disease,

and also allows the evaluation of the successful chances of various intervention strategies. For the purposes of control and prevention, it is important that the data are of good quality and are analyzed in real time. This will enable the planning of intervention programs both locally and centrally, and will provide epidemiological information on understanding the transmission mode ***(3).***

The monitoring also allows the describtion and implementation of a careful monitoring of changes in the epidemiological scenario of diseases, with special attention to diseases emerging or "re-emerging, due to the form of new social arrangements and migration, and the problem of resistance of pathogens against antimicrobial drugs, as part of antibiotic resistance. At last, allows to analyze changes associated with the introduction of new health practices, in diagnostic and therapeutic, and assess their impact on the population (the introduction of new vaccines, screening methods, ...) to facilitate the planning for the prevention and control health ***(4, 5).***

Before taking any action which aims the control of disease, it is necessary to define the program of surveillance, which consists of several stages ***(6):***

- identifying its importance;
- defining the intervention objectives;
- the case definition;
- choosing the type and the way of the data collection;
- defining the information flows;
- identifying the tools for analysis, evaluation and feedback;
- the cost planning.

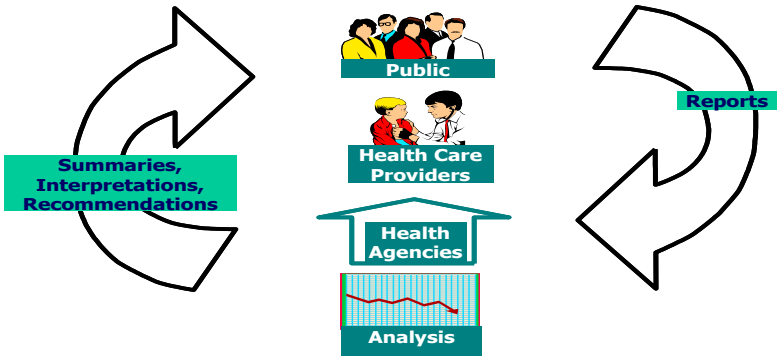
In the surveillance system, there should also be considered some fundamental assumptions ***(7):***

- the event under surveillance (specified by case definition);
- the operators who report the event of interest;
- the location where the event is recorded (such as an individual card for each patient and a cumulative card with the total number of patients seen in a given period of time. These cards are the source of information which is computerized later);
- the frequency with which information is transferred by the notifier to the

collection center;

- the way in which each event is observed from the Collection Center (actively or passively). There exists an active research for the cases and the information which has been gathered directly by health care providers or laboratories, or which has simply been asked from operators to report cases when they occur
- the assessing of the procedures of data assurance which is considered sensitive;
- the type of control and analysis which are performed on the data collected;
- the information characteristics including the frequency with which they are transmitted from the collection center.

Each of the above points is crucial on the quality of implementation of the monitoring system.



Fgure 1.1.3 the circle diagram of the main activities of the surveillance

Overview of public health surveillance, CDC (1)

In the passive surveillance, the collected data are used at different levels, from those who work in health sciences. These data include: the patterns of morbidity and mortality data (medical records and medical certificates, cancer registries, hospital discharge records, death certificates, and especially data related to epidemic events). Passive surveillance of infectious diseases is mainly based on mandatory notification system, organized according to a specific information flow, and on the data for the laboratory strains. The active surveillance is defined as acts through the initiation of epidemiological investigations, or ad hoc surveys planned on the basis of the needs, in order to monitor and investigate the outbreaks and other epidemiological anomalies, reducing the impact

in terms of morbidity and mortality of diseases ***(1).*** The planned ad hoc surveys consist of detection systems used on samples taken from the appropriate population. These methods are based on clinical, instrumental and laboratory techniques, properly conducted in accordance with the objectives of the investigations, and supplemented by information gathered from the direct competition of subjects studied by performing interviews and filling out questionnaires ***(1).***

1.1.4 The characteristics of surveillance system

The evaluation of public health surveillance systems should involve an assessment of system attributes. Some of the latter are simplicity, flexibility, data quality, acceptability, sensitivity, predictive positive values, representativeness, timeline, and stability.

- ***Simplicity*** - the simplicity of a public health surveillance system refers to both its structure and ease of operation. The surveillance systems should be as simple as possible while still meeting their objectives. Simplicity should cover the structure, the organization of the system and its operations. A simple designed system consists a case definition that is easy to apply (i.e., the case is easily ascertained) and in which the person identifying the case will also be the one analyzing and using the information. A more complex system presents additional issues. These special systems might require laboratory confirmation of cases, to perform detailed analysis on the cases of illness, use of multiple levels of reporting the information obtained, and finally to integrate data with other systems to better compare and interpret. Simplicity is closely related to acceptance and timeline. Simplicity also affects the amount of resources required to operate the system ***(4).***

- ***Sensitivity*** - the sensitivity of a surveillance system can be evaluated on two levels: the proportion of cases of disease (or other events relating to public health) detected by the system and the ability to detect outbreaks. The primary importance of the sensitivity of a system is to estimate the proportion of cases of a given disease detected by the system compared to the total number of cases in the population under surveillance. The sensitivity of a system can be increased by implementing an active surveillance through ad hoc surveys, using other monitoring indicators to monitor the quality of the reported cases, accurately identifying the cases of import and diagnostics and monitoring

movement of a specific causative agent ***(4, 8) see figure 1.14.*** The sensitivity of a system is a prerequisite if you intend to analyze the time course of a health problem, such as the trend of a disease and its epidemiological evolution. Sensitive systems are able to capture poorly the static phenomena. When examining the trend of a phenomenon we must always consider the possible changes in terms of sensitivity of a system (eg. the introduction of new diagnostic tests or changes in the conduct of surveillance) which could result in "artifacts, whose recognition is the first step in the study of epidemics;

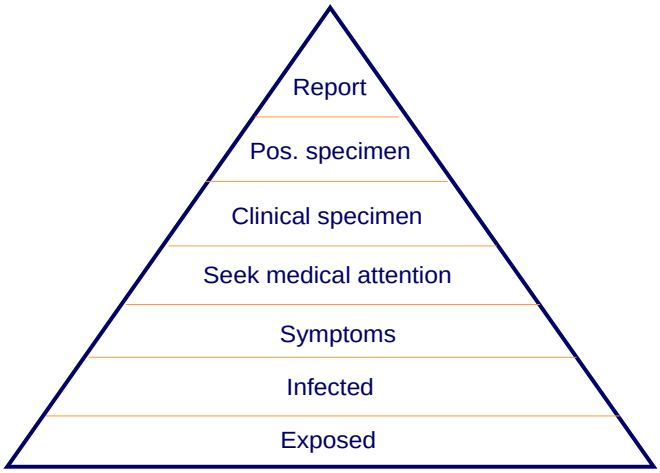


Figure1.1.4 Representation of the sensitivity of surveillance systems (4)

- ***Acceptability*** - acceptability reflects the availability of people and organizations to participate in a surveillance system. Quantitative measurements of the acceptability of a system are: the rate of the participation of the organizations, the institutions or the individuals, the reporting, the timeline of the notifications, the proportion of questions that one answered or did not answer, and finally the rate of notifications carried out by doctors, laboratories, hospitals, and facilities for diagnosis and treatments. Some of these measurements can be obtained through a review of the reports that are received, while others require special studies and investigations;
- ***Representativeness*** - a surveillance system can be defined as representative if it is able to describe the occurrence of an event within the study of the population in terms of space, time and people. The representativeness of a system is evaluated by comparing the characteristics of the events reported by the system with the actual events, examining some important elements, including the characteristics of the study of the population, the

natural history of disease or the evolution of specific events related to the health medical practices,the diagnostic techniques, and at last the other data sources (e.g. rates of morbidity and mortality which emerge from the comparison of the clinical and laboratory reports). Epidemiological investigations carried out in a heterogeneous population over or under a system that has resulted in the lack of representativeness can give misleading conclusions and considerations about the event under surveillance ***(8);***

- ***Flexibility*** - a flexible surveillance system can adapt to rapid changes in information and operating conditions, adding a small amount of time, personnel and funds. The flexible systems are capable to define new events in health, to establish major changes in the case of the definition and the technology, and changes in the way of researching and reporting sources. The systems that use the format of standard data, such as computers, can be easily integrated with other systems, making it possible to compare and cross-analysis of data. The flexibility of a system is better assessed in a retrospective analysis of how the system has responded to a new request. One can easily imagine that the monitoring systems of the dangerous factors associated with the development of a disease must be extremely flexible, reflecting the changes in the lifestyles of the population being studied. In general, simple systems are more flexible, and extremely complex systems often have limited flexibility;
- ***Completeness*** - completeness consists essentially of two elements: the proportion of the total number of the cases having access to health services that are included in the surveillance system and the number of the cases diagnosed and reported in the system database. It is important to monitor the receipt of reports by all health services, monitoring possible delays. During the visits of the supervision it is necessary to estimate the proportion of the cases diagnosed by health services which are reported by surveillance systems;
- ***Data Quality*** - the quality of the data reflects the completeness and the availability of the data collected by the national health surveillance system. The analysis of the percentage of "known" and "unknown" in the context of the quest within the modules to conduct the surveillance, is a simple and easy method for assessing the quality of the data system. However, a more rigorous assessment of the completeness and validity of the data system will requires further study. The calculation of the sensitivity

and the positive predicted value for each field of the data collection is an excellent method for assessing the quality of the information collected. A surveillance system that does not have high-quality data cannot meet the criteria of acceptability and representativeness ***(8);***

- ***Stability*** - stability refers to the reliability (i.e. the capability to collect, manage and provide data properly without losing any useful information) and the availability (i.e. to be operational if needed) of a system of the public health surveillance. A surveillance system is unstable, unreliable and difficult to implement appropriate measurements to prevent and control when it is necessary ***(5, 9);***
- ***Timeliness*** – This requirement reflects the rapidity of the subsequent operative steps while working with a system of the public health surveillance. The timeline is considered as very important for the evaluation of the time period between the onset of a disease case (index case) and the notification of the case by the responsible surveillance system for establishing appropriate measurements to control and prevent the infectious diseases ***see figure 1.1.5.*** Factors that may influence the length of this period of time include the recognition of symptoms and the validity of the case, the waiting for the outcome of laboratory tests for diagnostic confirmation, and then the forwarding of the notification of the cases by the members of the medical system in order to receive it. Another important aspect of the timeline of the system regards the time required to identify the trend of sickness and disease, and the effect of measurements taken for the prevention and control of communicable diseases. Factors that may affect this time include the severity, the contagiousness of the disease, and the timing of the communication between the health care facilities that are diagnosed and the units responsible for the implementation of the targeted interventions. The timeline of a surveillance system of public health can be assessed as a whole in terms of the availability of the information for monitoring the health of the event, including measurements of immediate control, and preventive and intervening plans. The need to obtain a quick response is directly linked to the nature of the event under surveillance and the objectives of the system. In general, for diseases characterized by a long incubation period, it is not essential to quickly identify the cases of the disease, but just early identification methods and sources of transmission, to try to interrupt the chain of

infection and the spread of the infection. The increasing widespread use of the computerized data and of the Internet, as well as the intersection of data from various electronic databases, is gradually promoting the timeline of surveillance systems ***(10, 11).***

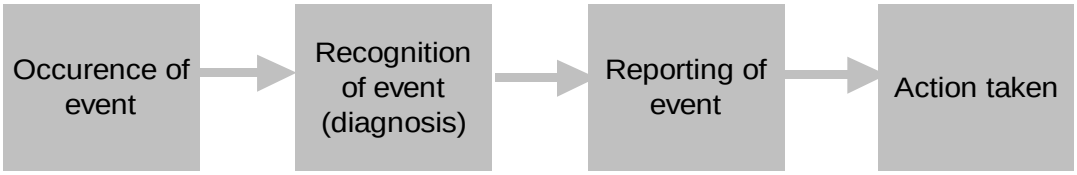


Figure 1.1.5 Timeliness diagram of surveillance system (10)

- ***Predictive positive value (PPV)*** **-** the positive predictive value expresses the true positive compared to the total positive value. In the area of disease surveillance, PPV expresses the probability for a subject with a positive test to be subject of the illness. The PPV depends on the specificity and the prevalence of the disease in the population that is applied to a test ***(10).*** In the field of epidemiology, the PPV is the percentage of cases reported by the system, actually presents the phenomenon (a disease for example) of surveillance. Thus the system represented by the ability to detect cases of disease in specific situations, such as outbreaks. The evaluation of sensitivity and PPV provides a valuable indication of how the system is working. Regarding the detection of outbreaks, a high rate of false positive reports may lead to overestimate the number of cases bof outbreaks, conducting prevention interventions in the wrong direction. Several sources of data can be useful in determining the PPV of a system of public health surveillance, including medical certificates, records of illness and death certificates. Investigating the PPV system is extremely important to prevent wasting time and resources by avoiding the investigation that these cases are neither false nor epidemics;

1.1.5 The surveillance of infectious diseases

An infectious disease crisis of global proportions is today threatening hard-won gains in health and life expectancy. Infectious diseases are now the world's biggest killer of children and young adults and the surveillance of infectious diseases, therefore, plays a crucial role in the control and prevention of diseases, in order to reduce the morbidity and mortality and promote health. They account for more than 13 million deaths a year - one

in two deaths in developing countries ***(12).*** The poverty, old age and co morbidities are the main risk factors.

WHO has set up several surveillance systems for communicable disease control, setting the priority measures for the control of some of them: intestinal parasites, leishmaniasis, schistosomiasis, TBC, malaria, HIV/AIDS, trachoma and trypanosomiasis. Diseases such as leprosy, lymphatic filariasisel'oncocercosi have become the main target of elimination as they often cause permanent disability and serious economic and social problems, but there are effective interventions for most of them ***(13).***

In fact, the whole scenario of European surveillance of infectious diseases is mainly related to ECDC (European Centre for Disease Prevention and Control), in addition to individual active systems within the different nations of the European Union. The consideration of the ECDC is the U.S. CDC (Centre for Disease Prevention and Control) and is operated currently from United States of America ***(10, 11).***

Other systems and active surveillance programs for the control of infectious diseases include:

- Euvac-Net (A Surveillance Community Network for Vaccine preventable Infectious Diseases) responsible on the prevention of infectious diseases within the European Union,
- Episouth (Network for Communicable Disease Control in Southern Europe and Mediterranean Countries) responsible on the control of infectious diseases in Southern Europe and Mediterranean countries (involved Albania 2010-2013),
- Epinorth (Cooperation Project for Communicable Diseases Control Nothern in Europe) for North Europe,
- EARSS (European Antimicrobial Resistance Surveillance System) for surveillance of antimicrobial resistance,
- EWGLI (European Working Group for Legionella Infections) for the control of Legionella infections,
- EPR (Epidemic and Pandemic Alert and Response) of WHO for epidemic and pandemic alert ***(13).***

The health surveillance on the diffusive and infectious diseases takes a strategic importance in the health system. The detection and notification of events from the

national surveillance system will be based on the confirmation of the phases presented in the following scheme (see Figure 1.1.6.Decision-making tool for the notification of infectious diseases).

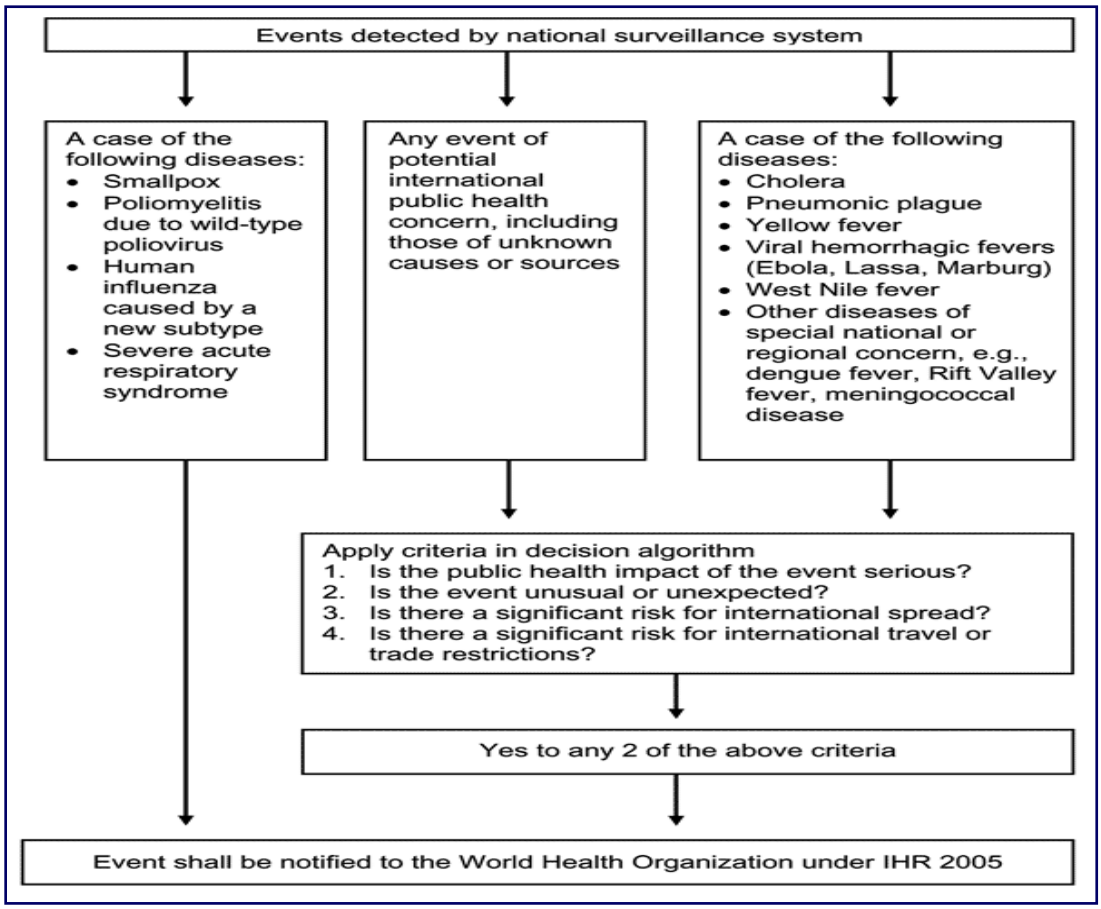


Figure 1.1.6 Decision – making tool for the notification of infectious diseases (13)

1.1.6 The european surveillance system (TESS-y)

TESS-y (The European Surveillance System) is a highly flexible system for the collection, the validation, the analysis and the dissemination of the data. Its goal is to analyze the data in order to begin interventions for the public health. All EU Member States must report their data about the infectious diseases, as described in the Resolution n.2119/98/EC. In addition to the routine surveillance, TESSy has replaced the data collection systems in place for the Dedicated Surveillance Networks (DSNs) to provide experts with a one-stop-shop for EU surveillance data. The ECDC and the competent bodies for the surveillance have developed the objectives for the future surveillance at the EU level. The objectives are formulated with respect to general surveillance, as well as disease specific surveillance and have been agreed by all the Member States. These objectives serve to guide the discussion on the future plans and the development of each of the disease specific surveillance networks in the EU.

The overall goal is to contribute in reducing the incidence and the prevalence of communicable diseases in Europe by providing relevant and accurate public health data, information and timely reports for the decision makers, professionals and health care workers to trigger and inform actions that will result in the prevention and the control of communicable diseases in Europe ***(14).*** To achieve this, they need to achieve an excellent level of quality and comparability of data between Member States and therefore they have introduced the standardized criteria for the analysis of diseases, including a case definition. Developing the case definition has gone through many stages, including discussions of the Commission 2002/253/EC, 2003/534/EC and the subsequent review of the decision 2008/426/EC.

According to this definition, the distinction includes:

- possible case – presence of compatible clinical signs;
- probable case – compatible clinical signs linked epidemiologically;
- confirmed case – clinical signs compatible with laboratory tests ***(15);***

The case definition is intended to create greater unity in the European surveillance, overcoming the differences between individual nations.

For all diseases there is an obligation to report confirmed cases; probable; or possible cases are only shown for some diseases and meeting certain criteria of the European Union ***(15).***

The main goals for European surveillance system (TESS-y) are as follows, to:

- Monitor trends in communicable diseases over time in order to assess the present situation and to compare Communicable Disease (CD) trends across Member States (including health care associated infections and antimicrobial resistance) in the EU to respond and to rise above warning thresholds and to facilitate appropriate evidence-based actions.
- Detect and monitor any multi-national infectious disease outbreaks with respect to source, time, and population and place in order to provide a rationale for public health action.
- Contribute to the evaluation and monitoring of the prevention and control programs targeted at infectious disease surveillance in order to provide the evidence for the recommendations and to strengthen and improve these programs at the national and European level.
- Identify population groups in danger and in need for targeted preventive measurements.
- Contribute to the assessment of the burden of communicable diseases on the population using such data as disease prevalence, complications, hospitalization, and mortality.
- Generate hypotheses on (new) sources, modes of transmission and groups mostly at risk and identify needs for research and development and for pilot projects ***(14, 16).***

1.1.7 The vaccination system in Europe

All nations that are part of the European Union share the same goal for the control and eradication of vaccine-preventable diseases. However, there are differences in child immunization strategies and schedules among nations, depending upon health care systems, immunization habits and epidemiology of infectious diseases. All nations immunize the children against diphtheria, tetanus, poliomyelitis, measles, rubella and mumps. Immunization against pertussis, haemophilus influenza, hepatitis B and tuberculosis are not systematically applied.

Immunization programs can be divided into different groups such as:

- Mandatory vaccinations for all
- Mandatory vaccinations for those at risk
- Recommended routine vaccinations for all
- Recommended vaccinations for those at risk.

The mandatory vaccines are governed by the legislation that the recommended vaccinations are voluntary. The ten most common diseases, against which vaccinations are provided, are diphtheria, tetanus, pertussis, polio, measles, and mumps rubella, *Haemophilus influenzae* b, Hepatitis B and BCG. Other childhood vaccines include meningococcal C, pneumococcal, varicella and influenza ***see table 1.1.7*** which shows the Childhood Vaccination Schedule in European Countries. These vaccines are less commonly administered according to national vaccination schedules ***(18).***

Inactivated polio is administered for all doses in the childhood schedule in 24 countries.

Measles mumps rubella (MMR) vaccine is included in the routine childhood immunization schedule of all twenty eight participating countries.

Hemophilus influenza B vaccine is routinely administrated in 25/28 participating countries. Hepatitis B vaccine is currently routinely given in 20 participating countries.

Countries	Age - group									
	At birth – 1month	2 months	3 months	4 months	6 months	12 – 24 months	6-9 years	9 years +	13 years	13 – 16 years
Austria	RV	DTaP, IPV, HepB, PCV		DTaP, IPV, HepB, PCV	DTaP, IPV, HepB, PCV	DTaP, IPV, HepB, PCV, MMR	dT-IPV	Var, HPV	HepB,	dTaP
Belgium		DTaP, Hib,IPV, HepB, PCV, RTV	DTaP, Hib,IPV, HepB, RTV	DTaP, Hib,IPV, HepB, PCV, RTV		DTaP, Hib,IPV, HepB, MMR, MenC	DTaP, IPV, MMR,		HepB, MMR, HPV	MMR, dTap
Bulgaria	HepB, BCG	DTaP, IPV, Hib, PCV	DTaP, IPV, Hib, PCV	DTaP, IPV, Hib, PCV	HepB,	PCV, BCG, MMR, DTaP, IPV, Hib,	DTaP, IPV, BCG,	MMR, dT, BCG		dT, BCG
Cyprus	BCG	DTaP, IPV, Hib, HepB, PCV		DTaP, IPV, Hib, HepB, PCV	DTaP, IPV, Hib, HepB, PCV	DTaP, IPV, Hib, HepB, MMR, MenC, PCV, Var	DtaP, IPV, MMR	HepB, MMR, Var		DTaP
Czech Republic	BCG		DTaP, IPV, Hib, HepB	PCV	DTaP, IPV, Hib, HepB, PCV	DTaP, IPV, Hib, HepB, PCV, MMR, BCG	DTaP	IPV, BCG, HepB		T
Denmark	HepB		DTaP, IPV, Hib, PCV	DTaP, IPV, Hib, PCV		DTaP, IPV, Hib, PCV, MMR	IPV, MMR, DTaP	MMR, HPV		
Estonia	HepB, BCG		DTaP, IPV, Hib	DTaP, IPV, Hib	DTaP, IPV, Hib, HepB	MMR, DTaP, IPV, Hib	DTaP, IPV,	HepB	HepB, MMR	dT
Finland	BCG	RV	DTaP, IPV, Hib, PCV, RV	DTaP, IPV, Hib, PCV, RV		DTaP, IPV, Hib, PCV, MMR	DTaP IPV, MMR			DTaP
France	HepB, BCG	DT, aP, IPV, Hib, HepB, BCG, PCV	DT, aP, IPV, Hib,	DT, aP, IPV, Hib, HepB, PCV		DT, aP, IPV, Hib, MMR, HepB, PCV, MenC	dT, IPV		dT, aP, IPV	IPV, HPV, dT
Germany	HepB	DTaP, IPV, Hib, PCV, HepB	DTaP, IPV, Hib, PCV, HepB	DTaP, IPV, Hib, PCV, HepB		DTaP, IPV, Hib, PCV, HepB, MMR, Var, MenC	dTap	IPV, HepB, Var, dTap		HPV
Greece		DTaP, IPV, Hib, PCV, HepB, MenC		DTaP, IPV, Hib, PCV, HepB, MenC	DTaP, Hib, PCV,	Hib, IPV, MMR, HepB, MenC, PCV, Var, DTaP	DTaP, IPV, MMR, BCG	dT	Var	dT
Hungary	HepB, BCG	DTaP, IPV, Hib, PCV,	DTaP, IPV, Hib,	DTaP, IPV, Hib, PCV,		DTaP, IPV, Hib, PCV, MMR	DTaP, IPV,	MMR, dTap		HepB
Ireland	BCG	DTaP, IPV, Hib, HepB, PCV		DTaP, IPV, Hib, HepB, MenC	DTaP, IPV, Hib, , HepB, MenC, PCV	Hib, MenC, MMR, PCV	DTaP, IPV, MMR	HPV		BCG, Dt
Italy	HepB	DTaP, IPV, Hib, HepB		DTaP, IPV, Hib, HepB		DTaP, IPV, Hib, HepB, MMR, MenC, PCV, Var	DTaP, IPV, MMR		dTap, Var	
Latvia	HepB, BCG	DTaP, IPV, Hib, HepB, PCV		DTaP, IPV, Hib, HepB, PCV	DTaP, IPV, Hib, HepB, PCV	DTaP, IPV, Hib, HepB, PCV, MMR, Var	DTaP, IPV, MMR	MMR, HPV		IPV, HepB, dT
Lithuania	HepB, BCG	DTaP, IPV, Hib		DTaP, IPV, Hib	DTaP, IPV, Hib, HepB	DTaP, IPV, Hib, MMR	DTaP, IPV, MMR	MMR, HepB		dT
Luxenbourg	HepB	DTaP, IPV, Hib, HepB, PCV, RV	DTaP, IPV, Hib, HepB, PCV, RV	DTaP, IPV, Hib, PCV, RV		DTaP, IPV, Hib, HepB, MMR, PCV, MenC	DTaP, IPV, MMR	HepB, HPV		IPV, dTap
Malta	DTaP, IPV, Hib, HepB,		DTaP, IPV, Hib, HepB,	DTaP, IPV, Hib, HepB,		DTaP, IPV, Hib, HepB, MMR	MMR	BCG		IPV, dT
Netherlands	HepB	DTaP, IPV, Hib, HepB, PCV	DTaP, IPV, Hib, HepB, PCV	DTaP, IPV, Hib, HepB, PCV		DTaP, IPV, Hib, HepB, PCV, MMR, MenC	DTaP, IPV, MMR, dT			
Poland	HepB, BCG	DTwP, Hib, HepB	DTwP, IPV, Hib,		DTwP, IPV, Hib, HepB	DTwP,IPV, Hib, MMR	DTaP, OPV	MMR		HepB, dT
Portugal	HepB, BCG	DTaP, IPV, Hib, HepB,	MenC	DTaP, IPV, Hib,	DTaP, IPV, Hib, HepB,	DTaP, Hib, MMR, MenC	DTaP, IPV, HepB, MMR, dT			HPV
Romania	HepB, BCG	DTaP, IPV, Hib, HepB,		DTaP, IPV, Hib,	DTaP, IPV, Hib, HepB,	DTaP, IPV, Hib, MMR	DTaP, IPV, MMR			dT
Slovakia	BCG	DTaP, IPV, Hib, HepB, PCV		DTaP, IPV, Hib, HepB, PCV		DTaP, IPV, Hib, HepB, PCV, MMR	DTaP, IPV,	MMR, DTaP, IPV, dT		
Slovenia	HepB, BCG		DTaP, IPV, Hib,	DTaP, IPV, Hib	DTaP, IPV, Hib,	DTaP, IPV, Hib, MMR	HepB, MMR, dTap	HPV		T
Spain	HepB	DTaP, IPV, Hib, MenC, HepB		DTaP, IPV, Hib,	DTaP, IPV, Hib, MenC, HepB	DTaP, IPV, Hib, MenC, MMR	DTaP, MMR,	HepB, Var	HPV	dT
Sweden	BCG, HepB	DTaP, IPV, Hib, PCV			DTaP, IPV, Hib, PCV	DTaP, IPV, Hib, PCV, MMR	DTaP, IPV, MMR	DTaP, HPV, MMR		dTap
United Kingdom	HepB, BCG	DTaP, IPV, Hib, PCV, HepB	DTaP, IPV, Hib, MenC	DTaP, IPV, Hib, PCV, HepB		Hib, MenC, PCV, MMR, HepB	DTaP, IPV, MMR	HPV		IPV, Td

The table 1.1.7 Childhood Vaccination Schedule in European Countries

First dose is given at birth in eight countries (BG, EE, ES, LT, LV, PL, PT, RO) while the remaining countries commence the vaccination at 2-3 months of age. If a mother is HBs Ag positive, the first dose is given within 12 hours of birth. In Latvia and Italy,

where the mother is known to be HBs Ag positive, four doses of Hepatitis B vaccine are recommended for the child.

In addition, Belgium, Czech Republic, Denmark, Finland, Ireland, Netherlands, Norway, Portugal, Sweden and the United Kingdom administer Hepatitis B vaccine to groups in danger.

In total, nineteen countries are administered BCG. BCG is given at different ages ranging from within 24 hours of birth to 13-15 years of age. In France if BCG is not given at birth, it must be given before age of 6 years, prior to commencing the school. BCG is only given to those who are categorized as high risk groups either due to family member with tuberculosis or else if native of a country with high endemicity.

In Cyprus, BCG is given only to children when there is continuous contact with a case of contagious form of TB. Norway normally administers BCG at 13-15 years of age; however, children of immigrants from countries outside low endemic countries receive BCG at birth. In the UK, BCG is recommended for high risk group infants, previously unvaccinated new immigrants from high prevalence countries for TB and children who after screening for TB risk factors and tested Mantoux negative. In Bulgaria, the Czech Republic and Slovakia BCG is recommended only if tuberculin negative at 7, 11 and 10 years respectively. Other vaccines that are applied in EU countries are **Meningococcal (**the Men C) which is given routinely in eleven countries;

Pneumococcal - The vaccine used in childhood vaccinations is the pneumococcal conjugate PnV7, which is given routinely in nine of the participating countries; **Varicella.** Varicella is listed as a routine childhood vaccination in four countries; **Influenza vaccine -** Influenza vaccination is recommended for children in at risk groups i.e. children with underlying medical conditions which place them at increased risk of developing potentially fatal complications in 27 of the participating countries.

Challenges of vaccination schedules in EU countries are:

1. Despite availability of vaccines, children in the EU continue to suffer from vaccine preventable disease

2. Harmonization of schedules would be important, but will be hard to achieve in the near future

3. Lack of comprehensive and adequately funded vaccination programs is the real problem

4. New vaccines and vaccination strategies should be recommended and funded

a. according to each countries resources

b. with cross-border outbreaks / public health in mind

WHO/Europe's goal is to reach and maintain high levels of child immunization, particularly in vulnerable groups, at the appropriate ages and recommended doses. To achieve this goal, WHO/Europe works with Member States, international organizations and bilateral agencies to help countries strengthen their programs for the control of infectious diseases ***(19).***

Current major initiatives include:

- promoting safe immunization practices;
- introducing new and underused antigens;
- eliminating measles, linked to accelerated prevention of congenital rubella infection and

Vaccination is one of the most cost-effective health interventions available, saving millions of people from illness, disability and death each year. Effective and safe vaccines, which protect against more than 20 serious diseases, are available and many new promising vaccines are being developed ***(20).***

Immunization is a shared responsibility of governments, legislators, health care providers, parents/caregivers, the pharmaceutical industry and other stakeholders.

One country's routine immunization system starts when vaccine is supplied by the manufacturer and ends when it reaches children. This process involves a supply system and careful quality control to ensure that only vaccines of demonstrated quality, safety and efficacy are used.

2. The geography and population in Albania

The Republic of Albania is a small country located on the Balkan Peninsula in south-eastern Europe. It has a surface area of 28,748 square kilometers. It shares a 172 km border with Montenegro to the north-west, a 115 km border with Kosovo to the north-east, a 151 km border with Macedonia to the north and east, and a 282 km border with Greece to the south and south-east. Its coastline is 487 km long. The lowlands of the west face the Adriatic Sea and the strategically important Strait of Otranto, which puts less than 100 km of water between Albania and the heel of the Italian 'boot' and links the Adriatic Sea to the Ionian and the Mediterranean Sea.

Albania has a coastline on the Adriatic Sea and the Ionian Sea. The country is characterized by three geographic areas—mountainous areas, mostly to the north and east, a central area, and a coastal area of lower lying land. Mount Korab is the highest point in Albania at 2,753 meters, located in the district of Dibra in the northeast of the country. The capital of Albania is Tirana with 700.000 habitants.

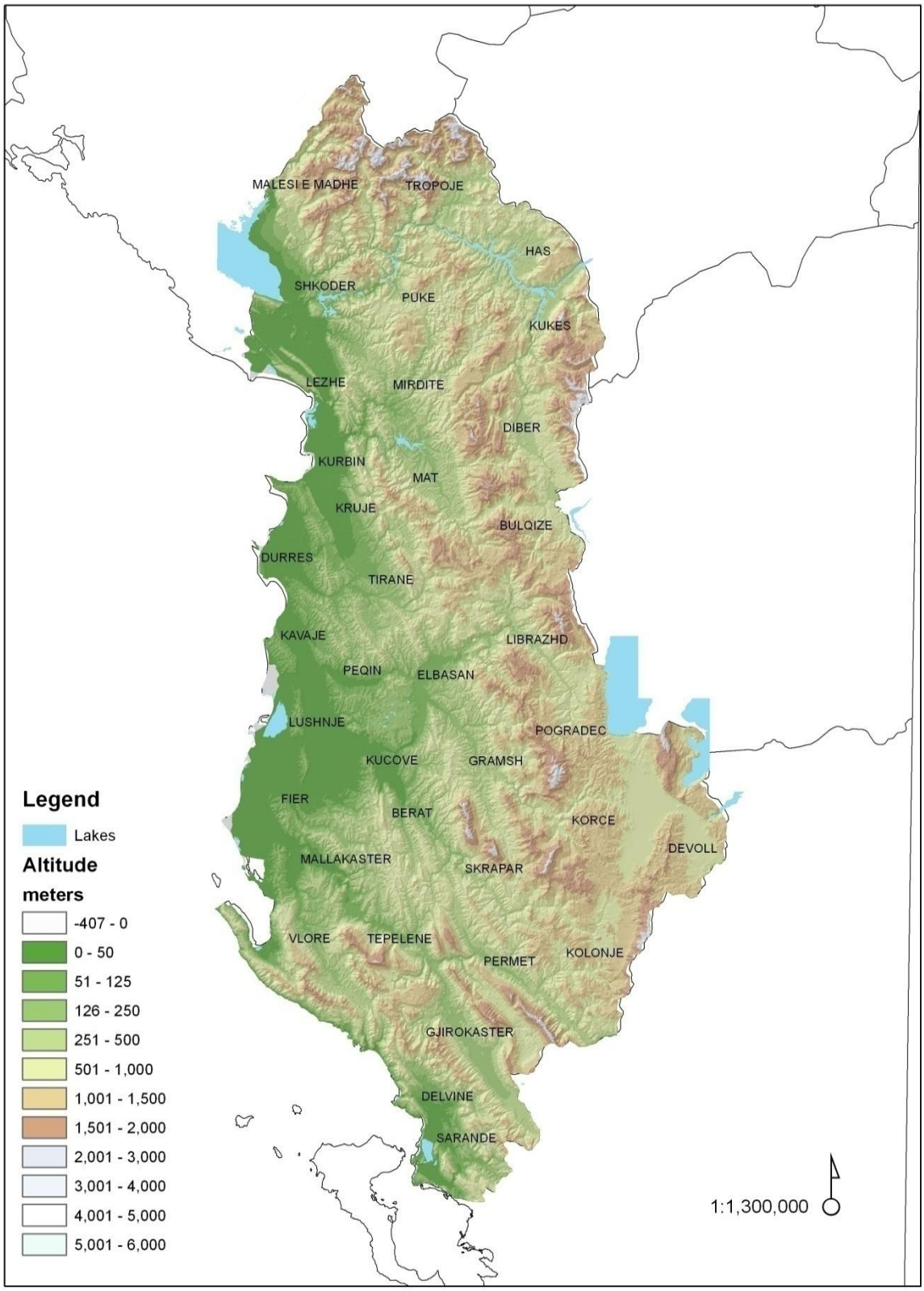
The climate is considered a continental climate characterized by cold winters and hot summers. Albania has 12 prefectures (or counties), 36 districts. Sharing the third level administrative features municipalities in urban and rural municipalities. The municipalities are called *bashki*in Albanian.

Albania's official population count registered in the 2001 Population and Housing Census was 3,069,275 (INSTAT, 2002). In 2008, the population of Albania was estimated at 3,170,048 and the density was about 110 people per square kilometer. Compared with the population count in the 2001 Population and Housing Census, Albania's population has increased by approximately 106,748 people. The average life expectancy at birth for the period 2005-2008 was 72.1 years for males and 78.6 years for females. Life expectancy is higher in urban areas than rural areas—both women and men in urban areas live approximately 3 years longer than those in rural areas (INSTAT, 2008).

More than 98 percent of the populations are ethnic Albanians with small groups of Greeks, Macedonians, Vlachs, Roma, Bulgarians and Serbs. Although religion was banned during the communist period and a majority of Albanians do not practice any religion, the populations are nominally of three main religions—Muslims are found

throughout the country, while Catholics are mostly in the north and Orthodox Christians are concentrated in the south.

The majority of people (58%) still live in rural areas, although the cities have grown rapidly since the early 1990s, particularly the capital Tirana. Migration within the country is one directional: from the mountainous rural areas to the central-coastal urban and periurban areas ***(21).***



Map of Albania

2.1 The characteristics of the health system in Albania

2.1.1 The health care system

The health system in Albania is mainly public. The state is the major provider of health services, health promotion, and the disease prevention, diagnosis and treatment. The private sector, which is still developing, covers most of the pharmaceutical and dental services, as well as some clinics for highly specialized diagnosis, mostly in Tirana and in a couple of other big cities. The Ministry of Health (MoH) is the leader of the health policy development and planning and of the implementation of health strategies ***(22).***

The diagnostic and curative health service in Albania is organized in three levels: primary health care, secondary hospital service and tertiary hospital service ***(Figure 2.1.1).*** The public health services are provided within the framework of primary health care and are coordinated and supervised by the Institute of Public Health. Other national health institutions that report to the MoH and that provide specific services are: the National Centre for Blood Transfusion, the Centre for Child Development and Growth, the National Centre for the Quality, Safety and Accreditation of Health Institutions, the National Centre for Drug Control, the Centre the Continuing Education, and the National Centre of Biomedical Engineering.

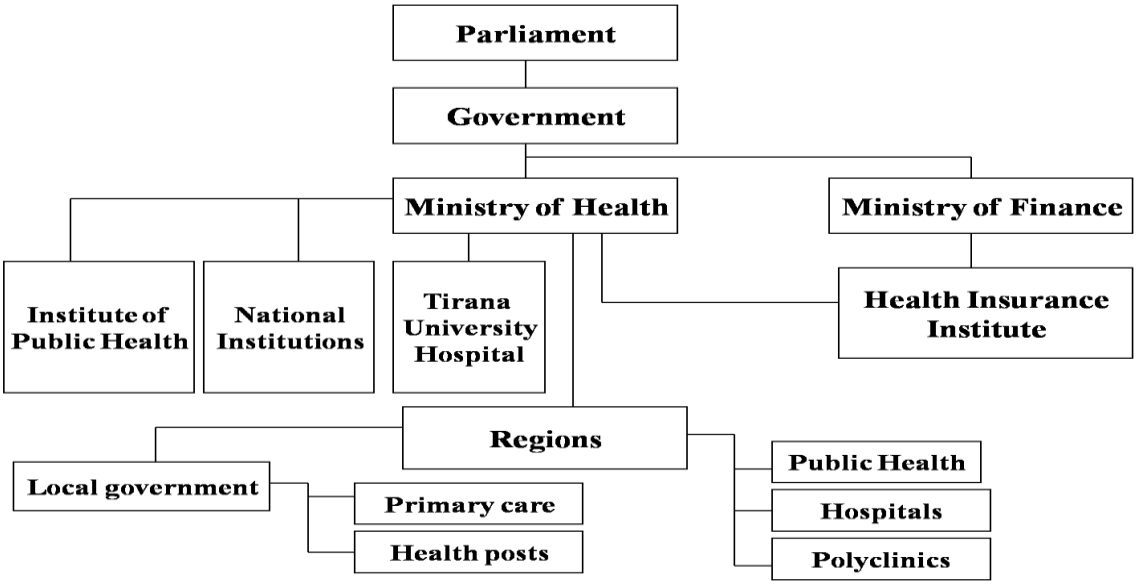


Figure.2.1.1Organization of Diagnostic and Curative Health Services in Albania (23)

2.1.2 The primary health care

The main mission of the Primary Health Care (PHC) system in Albania is to ensure the best possible health conditions for the population to confirm the main goal of the MoH, 'Health for All'. PHC services at the community level represent the first level of access of health care. The PHC system puts high priority on the hygiene and epidemiological situation of the population and population's need for health services. The integrated PHC services are especially cost effective and efficient in responding to urgent health situations. In December 2006, the MoH introduced the Reform of Primary Health Care with the main goal of redirecting the PHC system into a single-source setting. The reform was based on the Decision of the Council of Ministers (No. 857), 20 December, 2006 'Financing of the Primary Health Care Services'.

The implementation of the Reform of Primary Health Care started in January 2007and consisted of the following elements:

- Pooling all PHC funds at the Health Insurance Institute;
- Payment for PHC services based on facility's performance (i.e., quality of PHC services provided)
- Autonomy of health centers to set their own objectives and to manage their own resources according to the services provided;
- Health services provided in accordance with the package of services approved by MoH;
- Combining of public and private funding by expanding services to include those financed through the PHC insurance scheme;
- Improved planning of PHC services at the regional level to better meet population needs.

2.1.3 The hospital services

In Albania, the second level of health care is provided by hospitals. There are over forty public hospitals in the country, including 22 District Hospitals, 11 Regional Hospitals, four University Hospitals Centre, University Trauma Centre, Psychiatric Hospitals, and National Centre for Child Development and Growth.

With a continuous support from both the Albanian government and donors, the hospital infrastructure and medical equipment and supplies have been improved substantially in recent years. It is imperative that hospitals to use the standardized treatment protocols that ensure not only the quality of services, but also the efficient use of financial resources. The MoH is under the process of approving of the decree on 'Financing of Hospital-Based Health Care Provided in Public Hospitals from the Obligatory Scheme of Health Insurance'. Considering hospitals as a priority, the MoH will continue to finance the Psychiatric Hospitals, the National Service of Blood Transfusion, the Electro-medical Repair Services Centre, and the Helicopter Emergency Transport Unit from the government budget (Albanian Ministry of Health, 2009; Albanian Ministry of Health, 2002; Albanian Ministry of Health, 2004) ***(22, 23).***

2.1.4 The public health structure

Public health is a function of government and is organized into central, regional and district levels. At the central level, the public health directorate in Ministry of Health is organized in three sectors which conduct their activity according to the respective legislation (see Legislation on public health) ***(23).***

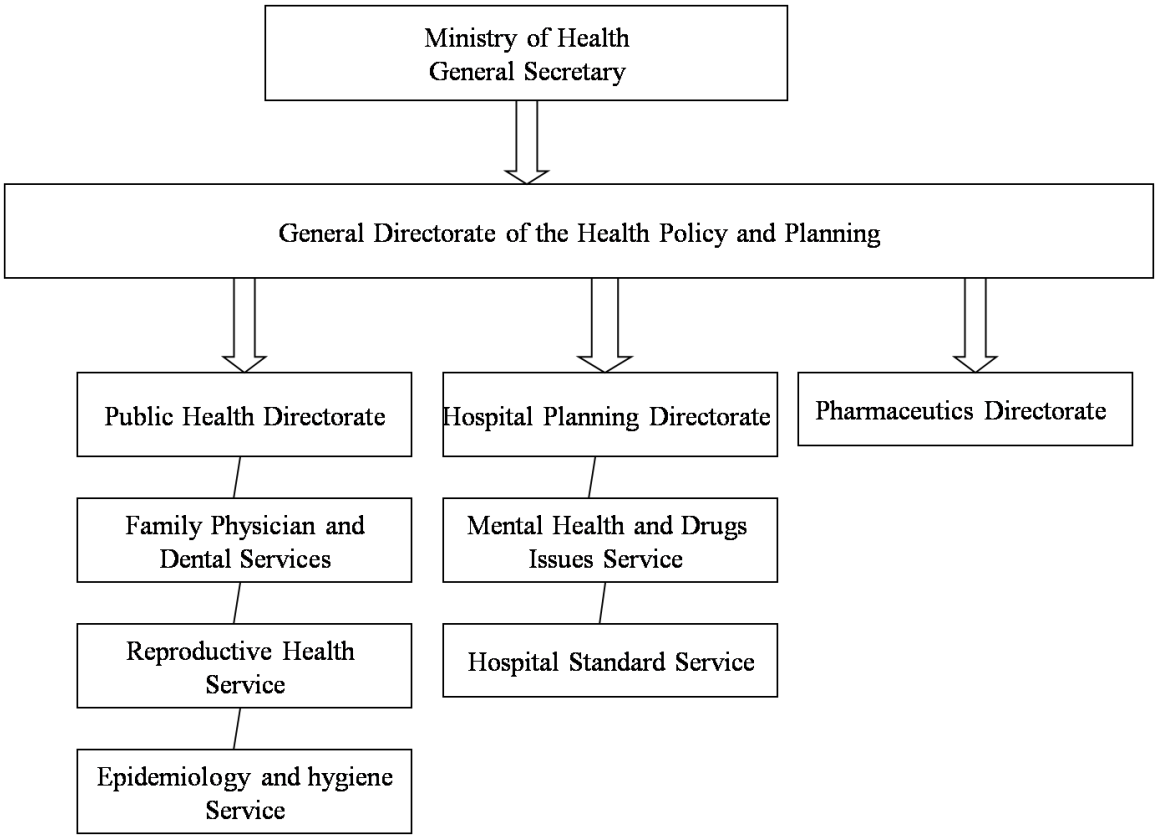


Figure.2.1.2 The structure of Health Ministry in Albania (22)

The organization and structure of public health at the country level is based on the administrative division in 12 prefectures, 62 municipalities, 36 districts and 302 communes in total (see figure **2.1.3**. the map of Demographic and health survey) ***(24).***

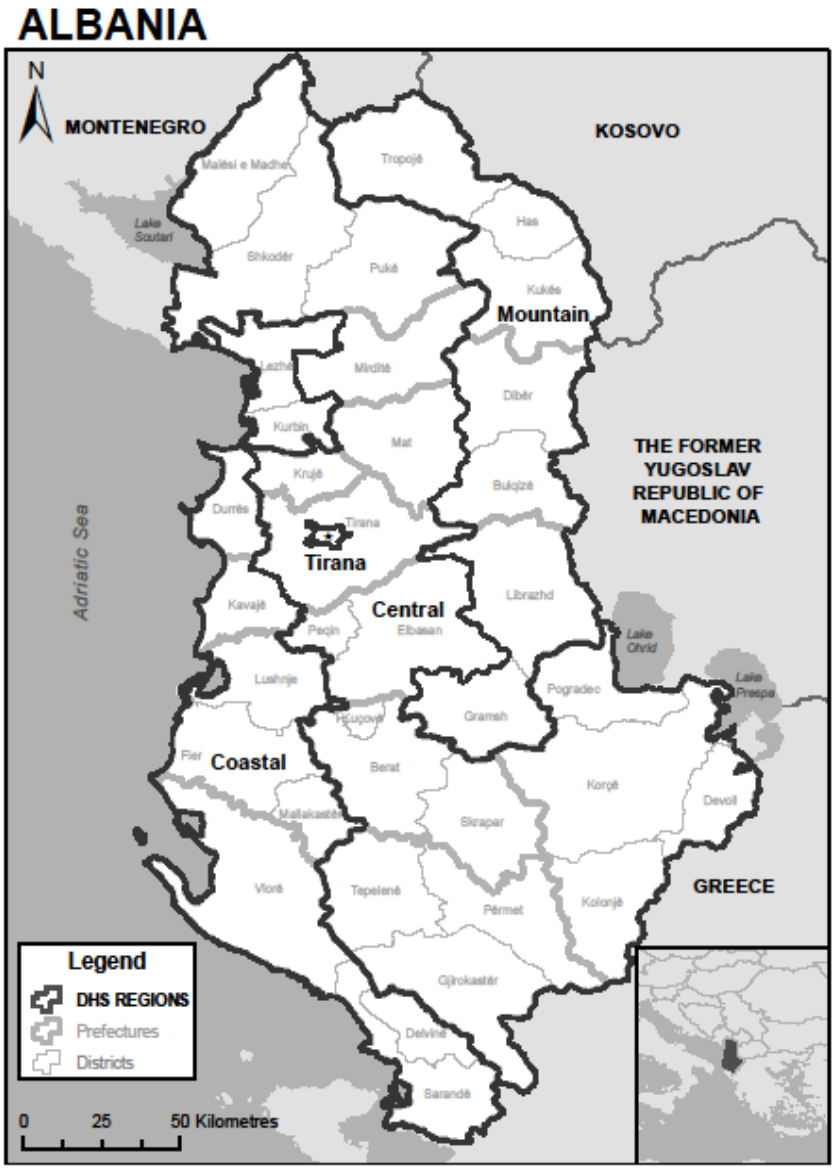


Figure 2.1.3 the map of demographic and health survey in Albania (24)

At the national level, the Institute of Public Health operates as the leading, referring, and coordinating institution of public health problems. Institute of Public Health supports the MoH in the field of expertise, research and training ***(23, 24).***

This department (***see figure.2.1.4***) consists of the sector of Hygiene and Epidemiology, reproductive health, family medicine and oral health. It supports their activities on six jurisdictions, (Health Insurance Law as amended, the Law on infectious diseases, the law on HIV/AIDS, the Law on dental services, and the law on tobacco and on alcohol law).

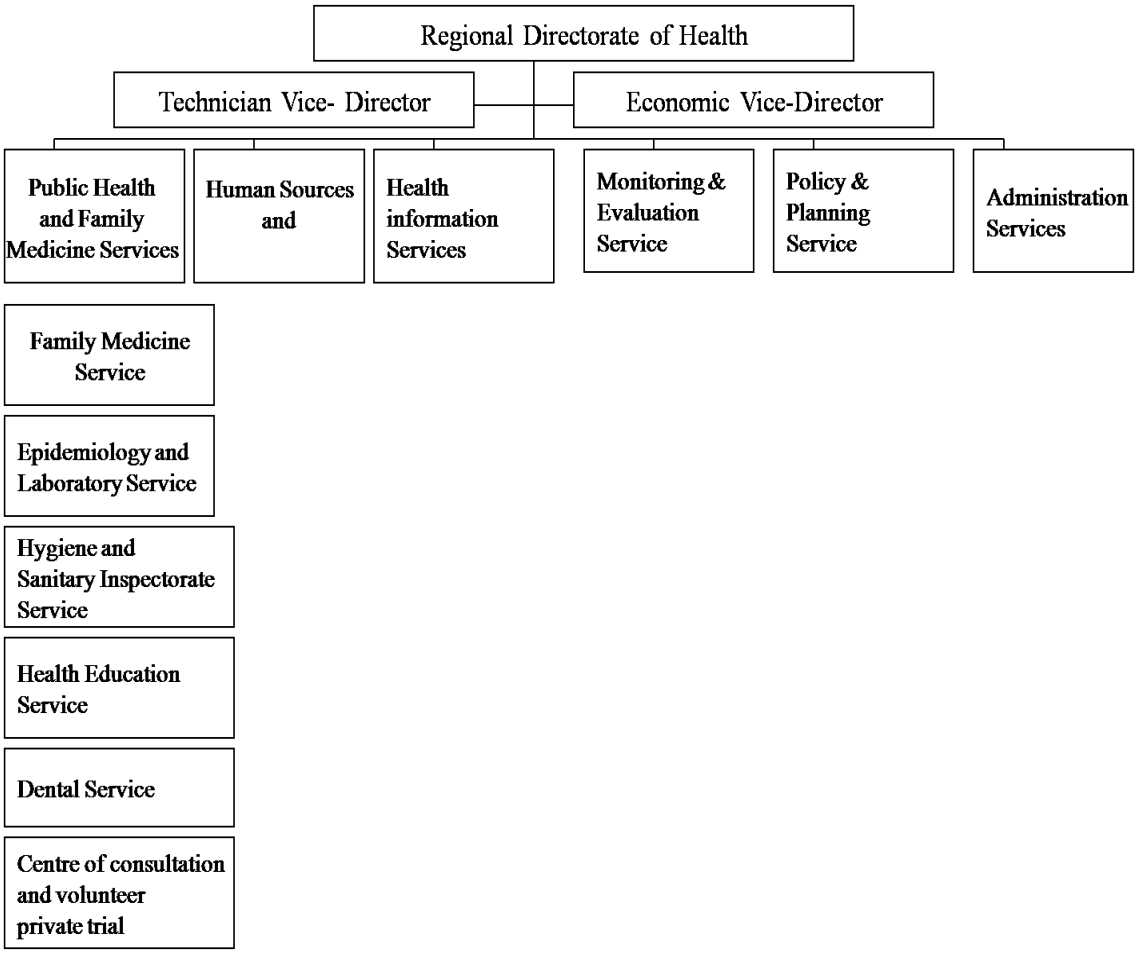


Figure 2.1.4 Structure of Public Health at the regional level (24)

At the regional level, (12regions) the public health is organized into regional health departments which have the respective sectors (see organization chart of the regional public health). At the district level, (24districts), the public health is organized into public health departments of the respective sectors (***see figure 2.1.5*****).**

The organization and the dependency of the public health services is vertical where the orders and instructions are coming from the Ministry of Health to regional or district Public Health Directorates.

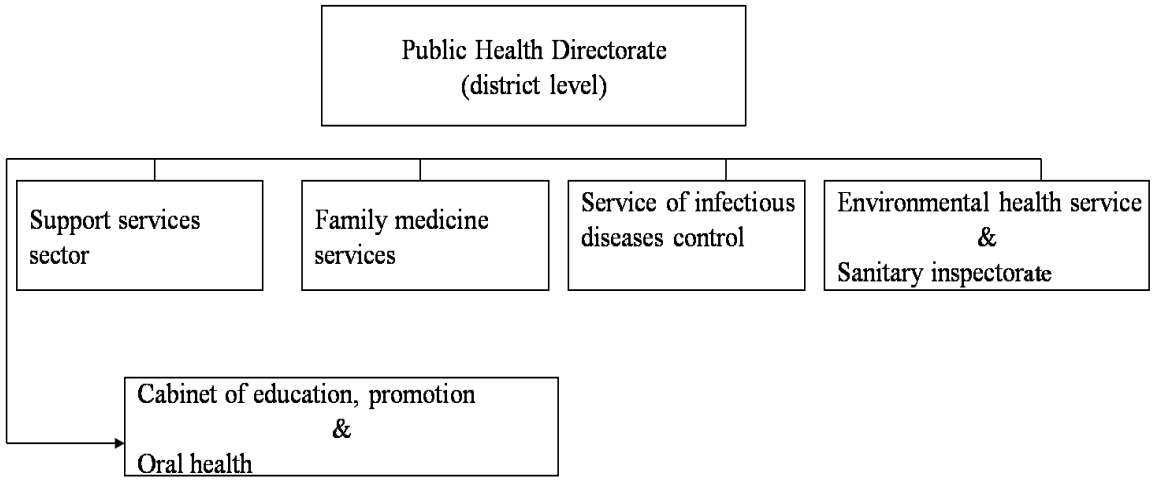


Figure.2.1.5 Structure of Public Health at the district level (24)

At the national level, the Public Health Service is led by the Chief Health Inspector and in region or district level is led by the chief who is also director of the respective Department. The public heal that the country level is financed by the state budget, but it might accept funding from other lawful sources too ***(24).***

2.2 The Legislation of Public Health, Infectious Diseases and Immunization in Albania

The infectious diseases have represented and still represent the major burden of the total morbidity in Albania. As result of their great harmful impact on public health, infectious diseases have always been subject of an ongoing intense legislative activity.

The various problems concerning the relationship (of a cause – effect nature) between infectious diseases and environment hazards (pollution of water, air, and soil and food safety as well) are regulated by numerous Laws such as: ***(23)***

- Law "On Public health and the State Sanitary Inspectorate" (No.7643 of 02/12/1992) amended in 1995 and 2006 expresses the organization of inspectorate structure, the problems and fields covered by this organism. Sanitary State Inspectorate is vertical structure organized into regional and district level nears the Public Health Directories.

This structure has the function and mission of the "monitoring and controlling" of all of the activities that take place in the country by public and private entities that may affect human health by air, land and waters.

• Law "On fighting and prevention of infectious diseases" (No. 7761 of 19/10/1993) amended 1999 expresses widely all of the problems of infectious diseases in the field of fighting and prevention of them by causes. In the first chapter, articles 1-8 are described their group, organs and structures that cover the areas of fighting and prevention of infectious diseases, also the employees must be specialized persons.

In the second chapter of articles 9-22 are described the fighting measures of the infectious diseases, financing and modalities of their announcement.

In the third chapter, there are presented the set of measures for immunization of the population, types of vaccine, vaccination calendar and determining of type of vaccine and their import, which are the obligation of Ministry of Health and National Immunization Committee.

- In Republic of Albania, Law "On Health Care" (No.10107 of 30/03/2009) expresses the essential principles, legal framework and regulations that should apply the public and private entities which operate in the health care system.

• Law "On Public Health" (No.10138 of 05/11/2009) aims the health protection and promotion of healthy living through organized activities by public health structures.

In this law "Umbrella" is summarized in detailed manner of legal documents in the public health field. In the first chapter, the articles 1-4 present the purpose, scope, the key definitions and the basic principles of the public health.

Chapter II, Sections 5-8, presents the main public health activities and determine the package of services also reflects the main directions of public health services and the attention is "a professional of the public health" as a person specialized in public health ***(23, 25).***

In the third chapter, is presented the main public health systems with a combination of all health and non-health structures dealing with problems of this field.

The main responsibility of public health is given to the Ministry of Health and the National Council on Public Health.

In fourth and fifth chapter, are presented tasks, functions, organization, financing and dependencies of IPH and regional public health structures.

The sixth chapter is focused mainly on the new module of Inspection Health.

From seventh chapter to seventeenth chapter, are presented the problems and key fields of public health respectively the infection diseases and immunization, public health laboratories, non-infectious diseases, environmental health, radiation, food and nutrition, health education, smoking, alcohol and drugs.

In eighteenth chapter are presented the health information and way of organization and reporting by public and private entities.

- Law "On Hospital Service" (No.9106 of 17/07/2003) has as purpose to arrange all the activities in the hospital service at the country level.

In the first chapter, the sections 1-10, describe in detail the definitions belonging to the hospital structures, rules that apply both to public and private hospitals, modalities of the hospital service and the ambulatory, hospital and emergency services and the agreements linking a hospital with public and private health insurance.

In Chapter Two, the articles 11-22 present in detail the management structures of health authority for public hospitals.

The third chapter, the articles 23-30 describes the rules, functions and duties of public hospitals and the role of the Ministry of Health in organizing and implementing the health policy and the involvement of the health insurance.

In chapter four, the Articles 31-38 determine that the Ministry of Health, in the context of health policy, is charged on the recognition, opening, classification and licensing of hospitals.

In the fifth chapter, the articles 39-42, present in detail the issues of hospital planning, the establishment of the National Committee for hospital planning at central and regional level.

In chapter six, in article 43 detail the description of non-public hospitals, the rules required to apply for their opening, specific conditions, the type and way of medical management ***(23, 25).***

- Law "On the Blood Transfusion Service (No. 9739 of 21.05.2007), sets the exact rules of transfusion activity, object, key definitions and its application areas that are part of sections 1-4.

In chapter II, the articles 5-10 define the age allowed to donate blood (18-60 years), the required documentation and the responsibilities and duties of the National Transfusion Center.

In chapter three, sections 11-12 represent basic transfusion services structures, organization, levels and national standards for products manufactured and offered by these services.

In chapter four, the section 13 presents the role and functions the Albanian Red Cross and non-profit organizations in the field of blood transfusion, the registration of their members and the coordination of work within the transfusion public service.

The fifth chapter, articles 14-17 introduces the role and tasks of the Ministry of Health, on national services of blood transfusion.

In chapter six, the articles 18-22 present in detail the essential measurements to the self-sufficiency of blood and its derivatives and the Ministry of Health annual programs.

In the seventh chapter, articles 23-24 provide for PHI, the inspection structure and which should not exceed up 2 years.

- Law “On Prevention and Control of HIV/AIDS” (No.9952 of 14/07/2008) substitutes the law of year 2000 and is focused on the setting of measures for the prevention and control of this entity in our country.

In the first chapter, there are presented all the necessary definitions in the field of HIV prevention, the management of the situation and its preventive principles, the modalities of the policies composition.

The second chapter is divided into two sections which present the problems of information, education and communication about the purpose, content, institutions and groups who should follow this process: in the second section there are presented the measurements to prevent HIV / AIDS, which clearly state the duties of the public and the private health institutions, local governments and the role of the MOH in the coordination of this activity.

The third chapter presents extensively the epidemiological research modalities, sentinel, and the modalities of voluntary and mandatory testing for HIV / AIDS.
In the fourth chapter, there are described the other medical measurements for the control and the prevention of HIV / AIDS, blood donor institutions, prevention of the sexually transmitted infections, and the prevention of the transmission from mother to child.
The fifth chapter represents all considerations regarding the HIV / AIDS as a positive case that is required to be performed by health institutions, rules and defined the tasks by the MOH and the reimbursement in case of infection by health institutions ***(25).***

2.3 *The infrastructure and operation of public health*

One of the main priorities of the MoH is the building capacity of human resources in the public health sector. In Albania, there are included: hygienist (specialized and not specialized) epidemiologist (specialized and not specialized) microbiologist (specialized and not specialized) chemist (specialized and not specialized) and secondary staff (**see table 2.3.1**). Training and specializations of the public health staff are carried out at the Faculty of Medicine in the respective departments. Specializations in the field of public health even though with the same purpose, they are separated into these categories: hygiene, epidemiology and microbiology. We have not standards regarding the number of specialized staff versus number of population and the problems in public health field (**see table 2.3.1**) Also, the public health structures do not operate within a region but within an administrative district. Actual experts are specialized after graduating from the Medicine and Chemical School; after 2007 it was created the public health school at the Faculty of Medicine (based in educational system of Bologna, Italy) attended after student graduate from the secondary school. The assistants of the public health are trained after completing secondary school by training courses (about 1 to 2 years). We have a lack of specialized epidemiologist in 15 districts (41.7% of their total) and of specializes microbiologists in 13 districts (36.1% of total districts). In the state and the health policies the prevention of the infectious diseases is the main goal, the reforms carried out did not belong to a health strategy or long-term approved policy. Reforms in the health services are mainly based on financing the health system through health insurance funds. Public Health is led and is funded from the Ministry of Health.

No	Specialty field / Districts	Hygienist		Assistant/ Hygienist		Epidemiologist		Assistant/ Epidemiologic		Microbiologist		Lab. Mikrobiologist		Chemist		Lab.Chemist		Total
		Spec	non-Spec	Spec	non-Spec	Spec	non-Spec	Spec	non-Spec	Spec	non-Spec	Spec	non-Spec	Spec	non-Spec	Spec	non-Spec	
1	Berat	1	0	0	9	0	0	1	5	1	0	8	0	0	2	0	4	31
2	Bulqize	0	0	0	1	0	1	0	2	0	0	0	2	0	0	0	0	6
3	Delvine	0	0	2	0	7	0	1	0	0	0	0	0	0	0	0	0	10
4	Devoll	1	0	2	2	0	0	0	2	1	0	0	0	0	0	0	0	8
5	Diber	0	1	4	1	0	0	2	2	0	0	0	5	1	0	0	2	18
6	Durres	5	0	12	0	2	0	5	0	2	0	8	1	2	0	3	0	40
7	Elbasan	4	0	7	1	1	0	7	0	1	0	7	0	3	0	3	0	34
8	Fier	3	1	7	1	2	1	0	6	1	0	7	0	1	0	1	0	31
9	Gramsh	1	0	1	2	0	0	1	1	1	0	1	0	1	0	1	0	10
10	Gjirokaster	1	2	4	0	1	0	3	0	2	0	6	0	1	0	1	0	21
11	Has	0	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	6
12	Kavaje	1	0	1	1	0	0	3	0	1	0	3	0	1	0	1	0	12
13	Kruje	1	0	3	1	1	0	3	1	1	0	3	0	1	0	1	0	16
14	Kolonje	0	0	0	4	0	1	0	2	0	0	2	0	0	1	1	0	11
15	Korce	3	0	11	0	1	0	3	0	1	0	5	2	2	0	1	1	30
16	Kuçove	1	0	0	2	0	0	0	2	1	0	0	1	0	0	0	1	8
17	Kukes	1	0	4	3	1	0	0	4	1	0	2	0	1	2	1	2	22
18	Laç	0	0	0	4	1	0	0	2	0	0	1	0	1	0	1	0	10
19	Lezhe	0	0	0	4	0	0	0	5	1	0	5	0	1	0	1	0	17
20	Librazhd	1	0	3	0	1	0	3	0	0	0	3	0	1	0	1	0	13
21	Lushnje	1	0	1	4	1	0	2	3	1	0	0	3	2	0	3	0	21
22	M.Madhe	0	1	1	2	1	0	1	1	0	0	0	0	1	0	0	0	8
23	Mallakaster	1	0	1	2	0	0	0	2	0	0	0	0	0	0	0	0	6
24	Mat	1	0	3	0	1	0	3	0	2	0	5	0	0	0	2	0	17
25	Mirdite	1	0	0	3	0	0	0	2	1	0	4	0	1	0	1	0	13
26	Peqin	1	0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	7
27	Permet	1	0	1	1	0	1	0	3	0	0	2	0	1	0	1	0	11
28	Pogradec	1	1	0	4	1	0	0	4	1	0	4	0	1	0	2	0	19
29	Puke	1	0	0	3	1	0	0	3	0	0	4	0	0	1	0	1	14
30	Sarande	0	1	0	4	0	0	0	2	1	0	4	0	0	1	1	0	14
31	Skrapar	0	0	0	5	0	0	0	2	0	0	0	4	0	0	0	2	13
32	Shkoder	1	1	0	8	2	0	7	0	1	0	10	0	1	1	0	3	35
33	Tepelene	0	0	2	2	1	0	0	2	0	0	0	3	0	1	0	2	13
34	Tirane	23	1	21	0	5	3	16	0	5	0	18	0	4	0	4	0	100
35	Tropoje	1	1	0	3	0	0	2	1	1	0	2	0	1	0	2	0	14
36	Vlore	2	0	5	7	1	1	6	1	2	0	6	0	2	0	1	0	34
	TOTAL	59	11	98	85	34	8	71	61	31	0	121	21	31	9	35	18	693

Table.2.3.1The actual number of public health staff in Albania by districts

The government's mission is to improve the quality of life in Albania by ***(26)***:

- prevention of the infectious diseases (reducing of the infectious diseases incidence)
- improvement of water and sanitation
- improvement of food safety
- prevention of chronic diseases
- promotion of a healthy lifestyle.
- the major disease-based surveillance, which is mainly hospital-based and mandatory.

The structure of the system for the detection of cases and outbreaks of communicable disease is carried out by infectious disease surveillance ***(21, 27)***.

Infectious diseases are reported each month through a particular form called 14Sh (ICD-9). This form is divided into three groups: notification within 24 hours (with emphasis on

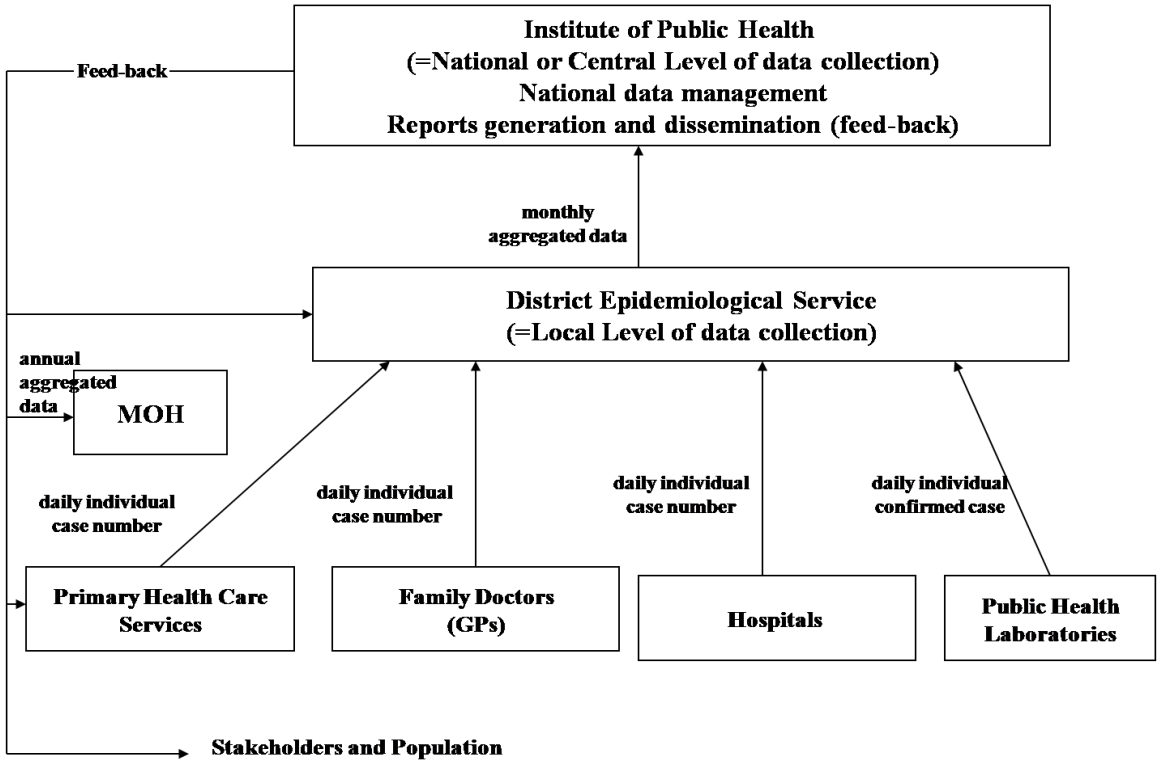
outbreaks and cases within 24-48 hours), weekly reporting, and mandatory monthly reporting as follows;

- 'ALERT', a syndrome-based surveillance system, which is based on GP and emergency units and involves a mandatory weekly notification of nine specific infectious syndromes;
- case-based AFP (Acute Flaccid Paralysis) surveillance for polio;
- case-based measles/rubella surveillance;
- case-based, hospital-based surveillance system of congenital rubella syndrome (CRS);
- case-based, hospital-based HiB (Hemophilus influenza type b) (severe pediatric diseases: meningitis, sepsis and severe pneumonia) surveillance;
- case-based, hospital-based surveillance of viral hepatitis (A, B and C);
- hospital-based surveillance of pediatric gastroenteritis for rotavirus-associated diarrhea, with laboratory confirmation;
- case-based surveillance of aseptic meningitis and encephalitis;
- case-based surveillance of hemorrhagic fevers. Yearly biological surveillance of infectious agents that are transmitted through blood transfusion for patients receiving multiple transfusions;
- case-based surveillance of HIV and AIDS;
- syndromes surveillance of STI;
- case-based surveillance of syphilis;
- Sentinel Seasonal influenza surveillance;
- case-based surveillance of severe respiratory syndrome and unexpected deaths, which is hospital-based (related with case definition of pandemic influenza and avian influenza in humans);
- second-generation surveillance for HIV/AIDS.

2.4. The epidemiological surveillance system of infectious diseases in Albania

The Albanian system of epidemiological surveillance for infectious diseases has continuously been mandatory: the infectious diseases included in this system should be reported by law. The statutory notification system dates from the years '50. In spite of small improvements over the time, the essential features of the system remained as before until 1998.Before the years '98, the surveillance system have had registered as shortage and deficiency on the information flow on infectious diseases due to the non applicable active and sentinel epidemiological surveillance, which is related directly to the quantitative and the qualitative shortage of the existing form of mandatory reporting of infectious diseases ***(28).***Today in Albania, the information flow on infectious diseases has been released and continues to be released through the monthly reporting form (named-14/Sh).The monthly reporting form of infectious diseases (14/Sh) is compiled by the epidemiological service in the district level and sent to the Department of Epidemiology and Biostatistics at the Public Health Institute (under the direction of the Minister of Health nr.189, dt.08.08.1995, and the approval of the Statistical Institute, 134 letters, dated, 08.25.1995).

The flow chart of collected data by mandatory notification systems in Albania (28)



It should be emphasized, that the content of the monthly reporting form (14/Sh- ***see annex.1***) which has hardly changed in the performance of time implicitly reflects the fact that the mandatory report of infectious diseases from the epidemiological services of the district, has continuously been based on passive epidemiological surveillance.

The deficiencies of monthly reporting form of infectious disease before 98 years are as follows:

- In the monthly reporting form (14/Sh) before years' 98, the number of infectious diseases has been limited. Specifically, in the reporting form up to the year of 94 "cholera" did not exist, so as a consequence of the Cholera epidemic in 1994 this entity was included in the reporting form. But the possibility and reality of an eventual importation of cholera is a very meaningful fact. This means that eventual importation is not excluded in Albania and for other infectious diseases with tropical nature as cholera. Just for illustration, the Ebola cases imported to Germany in 1995, or plague epidemic in some European countries in 1995. These cases were a proof that it is important to include in the monthly reporting form (14/Sh) other infectious diseases, taking into account always the features of the Albanian ecosystem (physical, chemical, biological, and social).
- In the existingform14/Sh, the label of some infectious diseases is general, which did not allow the determination of specific diseases entities included under the same label. Thus, "TB" is a general label which includes diseases as: pulmonary tuberculosis and extra-pulmonary, tuberculosis meningitis, etc., who are with tubercular nature, but within the theoretical and practical importance of the epidemiological surveillance, the data are necessary to be reported as separate diseases.
- In the previous monthly reporting form there did not exist a division of infectious diseases in three groups (according to the respective Ministry of Health guidelines based on the degree of importance and urgency of report). In addition, the previous form did not contain the terms "suspected case" and "confirmed case".
- The data through the monthly form of these diseases have been reported as a case number. These data have not had a scientific value because they are not associated with the data at the individual level.

- The previous monthly reporting form also did not contain the fatality rate data.

The presentation of morbidity data without mortality data creates a gap in the flow of information on the infectious diseases.

- The quantitative and qualitative improvement of information flow on the infectious diseases in Albania was an immediate necessity. This mainly related to the restructuring of the monthly reporting form (14/Sh) and the individual epidemiologic forms of infectious diseases which implicitly dictate the application of the active epidemiological surveillance in addition to the passive routine. This will also require the application of sentinel epidemiological surveillance.

In 1990, WHO started the Intensified Programme of Action for strengthening epidemiological capacity (Intensified Action Program for strengthening epidemiological capacity) for each of its members ***(29).***

Monthly reporting form (14/Sh) of infectious diseases of the restructured **- (Annex 1)**

1. In the monthly reporting form there are included 73 infectious diseases (from 41 infectious diseases before 98 years) for the following reasons:

In this form, there are added those infectious diseases which, although not present in Albania, they contain in themselves the potential of their survival and proliferation in case of an eventual importation.

On the other hand, there are included the sub-divisions of special diseases (according to ICD-9) infectious diseases already existing in the monthly reporting form (14/Sh) specifically for diarrhea diseases, tuberculosis, syphilis, leprosies, common cold (flulike syndrome) and pediculosis etc.

2. The infectious diseases are sub-grouped into three groups confirmed by the Ministry of Health Guidelines on reporting of the infectious diseases. (A sub-division does not exist in previous form).

- Group A - contains 20 infectious diseases, which are subject to International

Health Regulations represent particular importance to the public health. Any suspected case from the clinical medical service immediately is declared near epidemiological service at district level, and from there immediately is reported to the shortest path (telephone, telegram, fax, radio transmitters, etc.) to the Ministry of Health and IPH. The

reporting to the central level is urgent, within 24 hours of clinical suspicion of the case. The regional epidemiological service in cooperation with regional clinical service fills out the individual form which is sent to the IPH after appropriate laboratory confirmation. The individual form is a subject of a mandatory urgent (within 24 hours) notification.

- Group B contains 48 diseases that are reported by the clinical service to the epidemiological service of the district (same as of Group A). The latter fills the epidemiological individual form. In general, the reporting time for this group is within 1-3 days. In case of eventual outbreaks, the reporting timeline is the same as for the group A, diseases (urgent, within 24 hours) from data sources to IPH.
- This is not the feature for the last 5 infectious diseases of the group C, where the monthly notification is not based on specific case definition (see table 2.4.1).

CLASS	TIME FOR REPORTING	DISEASES
First Class diseases for which notification is required to be immediate, as the subject of international regulation of health or special interest	24 hours	plague, cholera, yellow fever, anthropod-borne and mosquito-borne hemorrhagic fevers, dengue fever, botulism, exanthematic typhus, relapsing fever, mosquito-borne and tick-borne viral encephalitis, acute flaccid paralysis, diphtheria, malaria and rabies.
Second Class major diseases with high frequency and / or control and intervention opportunities	within 1-3 days	abdominal typhus, varicella, pre-typhus, measles, non typhoid salmonellas, rubella, shigellosis (bacillary dysentery), influenza with virus isolation, bacterial alimentary intoxication, unspecified hepatitis, viral hepatitis, amoeba dysentery, viral hepatitis B, meningococcal meningitis, viral hepatitis nA nB, non meningococcal bacterial meningitis, endemic parotitis, anthrax, brucellosis, pertussis, scarlatine, erysipela, non neonatal tetanus, aseptic viral meningitis, unspecified encephalitis, encephalitis after vaccination, endemic murrain typhus, butonose fevers, Q fevers, rickeciosis, visceral leishmania, cutaneous leishmania, leptospirosis, anchilostomiasis, legionelosis
Third Class Diseases for which reporting of the case by the physician must follow the local health unit reporting only when outbreaks occur	24 hours	unspecified gastroenteritis, influenza, common cold, scabies and pediculosis

Table 2.4.1 Classes of notification of infectious diseases, and the time of reporting (30)

The aggregated data in the 14/Sh monthly form are presented for each infectious diseases according to place (urban and rural), specific case definition (suspected and confirmed

case), age groups (16 ones in total, that is by a narrow division). The next column belongs to the hospitalization admission number, and the last column to the number of deaths.

The 14/Sh monthly form of the actual reporting system is obligatory by law to be accompanied by the individual forms 14-1/Sh (for each of group A diseases) ***see annex 2,*** 14-2/Sh (for most of the group B diseases) ***see annex 3***, 14-3/Sh (for TBC entities included in group B) ***see annex 4***, and 14-4/Sh (for the sexually transmitted infectious included also in the group B).

The individual forms contain a highly detailed epidemiological information about the case-patient (protocol field investigation) thus increasing first of all the specificity of the surveillance system and quantitatively and qualitatively enriching the system epidemiological evidence. Therefore, they serve as a necessary complement to the 14/Sh form's aggregated data. The individual forms are constructed in such a form to simplify and standardize data entry on computer, control, and statistical analysis required for tabulation.

- ***Infectious diseases of group A (14-1/Sh individual form)***

The individual file (14-1/Sh) is divided into:

1. **Part I** – general information on the case
2. **Part II** – history of the case
3. **Part III** – the data of microbiological diagnosis (signed by microbiologist's doctor)
4. **Part IV** – epidemiological survey conducted by epidemiologist of the respective districts.

Finally, based on clinical, laboratory and epidemiological data are presented the conclusions on the case definition according to criteria 1, 2, 3, 4, which are explained in the following section on infectious diseases of group B/1 (14-2/Sh individual form)**.**

Specifically, not only for infectious diseases in group A, but also for those of group B / 1, Group B / 2, and group B / 3, (which are individual forms), we used only two case definitions: the probable case - when are not realized all the required criteria for infectious diseases and the confirmed case - when are realized all the required criteria for these diseases.

- ***Infectious diseases of group B/1 (14-2/Sh individual form)***

In group B / 1 are included the infectious diseases of a high frequency (incidence) and for which the intervention and control is possible.

Individual form of group B / 1 of infectious diseases (14-2/Sh) is the same (Part - I, II, III, and IV), with individual form of group A (14-1/Sh) **(*see annex.3*).**

Also, the 14-2/Sh gives the conclusions on the case definition (probable and confirmed case) according to criteria 1, 2, 3, 4 which are explained as follow:

1. **Clinic**: the presence of the symptoms (clinical manifestations perceived by the doctor) and the symptoms (clinical manifestations perceived by patients) of pathology in the review.
2. **Direct examinations**: Identification of the etiological agent by microscopic examination.
3. **Culture:** Isolation and cultivation of the etiological agent in proper conditions and its identification through serotype. ***Positivity in culture is sufficient criterion of laboratory confirmation in the absence of direct examination or serology***
4. **Serology**: Identification of specific antibodies against etiological agents in significant titre when a single sample of blood serum of the patient or identification of sero- positive between the two serums samples of blood (growth 4 times the titre of specific antibodies between acute and convalescent phase of the disease.

- ***Infectious diseases of group B/2 (individual form 14-3/Sh)***

In the group B/2 is included tuberculosis in all its forms, pulmonary and extra pulmonary. Why tuberculosis is reported on separated form, because it has own epidemiological specifics as disease compared with group B/1. The 14-3/Sh individual file is divided into three parts:

1. **Part I** - contains the vital information on the case and the onset of the disease, signed by family physician;
2. **Part II** - Clinical and epidemiological investigation detailing all requirements related to clinical aspects of qualified clinical diagnostics and epidemiological aspects on concomitant risk factors;

3. **Part III** - Data on the microbiological diagnosis, (signed by microbiologists), aims to confirm the definitive case, i.e. full confirmation of tuberculosis infection nozologic entity **(*see annex.4*).**

In Albania, as an European global level, the surveillance of infectious diseases is one of the most important aspects of prevention and control of diseases, according to the principles set out in Law "On fighting and prevention of infectious diseases" (No. 7761 of 19/10/1993) amended 1999 which expresses widely all of the problems of infectious diseases in the field of fighting and prevention of them by different causes.

In Albania, at the 2010 has started the new action plan for prevention and elimination of infectious diseases rely mostly on the development of specific programs and strategies for chronic and infectious diseases as well as the formulation of policies and strategies for immunization, HIV / AIDS and sexually transmitted diseases.

The monitoring of infectious disease is crucial to identify the eventual outbreaks and assess the impact, study the risk factors, evaluate the possible strategies for prevention and control.

Under this perspective, at the end of 2010, the Region of Puglia has invested on an electronic quality system of Infectious Diseases Information, which will provide useful epidemiological data for the planning of the service and monitoring of the performance. This computerized information system is based on the individual notification forms of the respective diseases ***(see Annex 5, 6, 7)*** which will allow us to statistical analysis of data, offering the opportunity to study and monitor the progress of the disease in different territories of the districts and regions of the our country.

The project of implementation of the surveillance system and notification of infectious diseases undertaken by the Region of Puglia is under the INTERREG IIIA Project (Albania e Puglia: oltre la Sanita). This project has identified four types of tabs called:

- group A of infectious diseases;
- individual tabs of the group B / 1;
- individual tabs 14-2/Sh antropozoonotic diseases and
- individual tabs B / 3 of sexually transmitted diseases.

2.5 The "Alert" syndrome - based surveillance system

Another system of reporting infectious diseases ALERT system is implemented by WHO in January, 2000 [ALERT meaning "alarm" representing in meantime the acronyms Albanian Epidemiological Reporting Tool].

This system is funded by ECHO, and jointly implemented by the Institute of Public Health and WHO, has created an effective early warning system for infectious diseases in Albania.

The "ALERT" system is based on infectious syndromes, which is based on GP and emergency services include weekly compulsory notification of nine specific infectious syndromes, namely: diarrhea without blood, diarrhea with blood, upper respiratory infection, lower respiratory infection, rash with fever, jaundice, hemorrhage with fever, suspected meningitis, and unexplained fever.

The data flow structure of the ALERT system implies the weekly mandatory notification from the basic level (data sources) to the national one (DE of IPH) of the surveillance system through the local level (district epidemiological service).

The report (according to person characteristics and place for each of 9 above – mentioned syndromes) is presented in the **Alert weekly Form** (***see annex. 8***).

2.6. The immunization program in Albania

The immunization of population has started at the end of the 1950 with diphtheria toxoid and later with DT and DTP in the early 1970_s, tuberculosis vaccine (BCG), measles and polio vaccine. After 1993, in the immunization calendar are included other vaccines such as viral hepatitis B, trivalent vaccine (measles, rubella and mumps) and at the end homophiles' influenza type B which is introduced in 2009.

The Expanded Program Immunization is a World Health Organization program with the goal to make vaccine to all children throughout the word and has started in Albania in 1993. The national health system before 1993 has produced the vaccines for Bacillus Chalmette Guerin (BCG), Diphtheria Tetanus Pertussis (DTP) and measles, except the oral polio virus (OPV) which was imported from abroad, covering, in this way, all the country's needs for the compulsory national immunization calendar ***(31).***

Since 1993, UNICEF started to provide the whole vaccines according to the WHO recommendation for immunization. In 1995, Ministry of Health in Albania introduced also the immunization against hepatitis B for all newborns. However, from 1997 the provision and distribution of this vaccine has met some difficulties causing shortage and delay in the national immunization schedule ***see table 2.6.1.***

Every month, the district epidemiologists organize the distribution of the vaccines to the 600 health centers based on commune levels. The vaccines from the health centers are distributed to the village nurses who are equipped with cold box. The distribution from the district to the communes is organized on fixed dates of every month. In the main towns, the immunization is performed every day by Mother and Child Consultancies in each district. In each health centre, at urban as well as at rural level, the nurse in charge with the immunization activity register all data in a specific notification book and in the child immunization card which is given to the mother ***(32).***

This information is transferred every month at district level to the district epidemiologist and every three months from the districts to the IPH by the reporting schedule **(*see annex. 9*).**

Institute of Public Health (IPH) is responsible for planning, monitoring and management of the immunization programme at the national level. The epidemiology units in PHC Directorates provide guidance, monitoring, supervision and assessment of the immunization services delivered by the primary health care facilities and maternity hospitals. They are also responsible for the distribution of vaccines and safe injection equipment, disease surveillance, response during the outbreak, and organization of supplementary immunization activities.

The urban population receives the vaccinations in maternity hospitals (birth doses of BCG and HepB) and near Mother and Child Consultancies situated at the town polyclinics.

In Albania from April to September1 996, there was a polio epidemic which affects for the entire region. A national campaign for the immunization of the population between 0-50 years of age was initiated. In the second stage of the campaign, people above 50 years of age were also included. In the following years, there were three additional national campaigns of immunization against polio, during which children from 0-5 years were

covered. During the political turbulence of 1997, many of the refrigerators, which were part of the EPI cold chain, were damaged. The Ministry of Health, jointly with UNICEF and WHO, have since replaced the refrigerators and rehabilitated the cold chain**.**

Table 2.6.1 Immunization calendar in Albania since 1993

Vaccination Calendar for children born up on 31/ Decembre /2008							
Diseases	Vaccine	Doses and application's age					
		Dose I	Dose II	Dose III	Re-vaccination. I	Re vaccination. II	Re vaccination.III
Tuberculosis	BCG	Born					
Viral Hepatitis B	Hep.B	Born	2 month	6 month			
Diphtheria, Tetanus, Pertussis	DTP	2 month	4 month	6 month	2 years old		
Poliomyelitis	OPV	2 month	4 month	6 month	2 years old	6 years old	
Measles, Mumps & Rubella	MMR	1 year old			5 years old		
Diphtheria, Tetanus	DT					6 years old	
Diphtheria, Tetanus	Td						14 years old

Source: Ministry of Health, UNICEF, WHO

After the year 1993 in the immunization calendar have been introduced the following vaccines:

1995 - Viral hepatitis B,

2000 – bivalent vaccine of measles & rubella (MR)

2005 – trivalent vaccine measles, mumps and rubella (MMR)

2009 – penta-vaccine DTP + Hep.B + HiB (influenza hemophilus B).

The ratio of immunization coverage for every antigen is calculated based on the routine reporting collected from each district starting from the health centers in the villages every three months. According to the data possessed by the Public Health Institute, the ratio of immunization coverage is high for all antigens (***table 2.6.2).***

Table 2.6.2 Immunization coverage rate, 1990 – 1999

Year Antigen	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
BCG	94	80	81	82	87	97	94	94	87	83
Diphtheria	90	78	94	99	96	97	98	98.6	96.6	97
Tetanus	90	78	94	99	96	97	98	98.6	96.6	97
Pertussis	90	78	94	99	96	97	98	98.6	96.6	97
Measles	85	80	87	76	81	91	92	95	90	91
Hep B	NA	NA	NA	NA	NA	88	96	97	94	93
Polio	80	82	97	97	97	98	99.6	99.9	97	97

Source: IPH

In 1999, based on these data, the Ministry of Health, jointly with UNICEF and WHO carried out a national study to estimate the percentage of immunization coverage for every antigen from collected routine data by the Institute of Public Health. The study was conducted nationally in the country's 12 prefectures. This study created an opportunity to evaluate the routine information system. Data supplied from the various health centers were proven to be valuable and overwhelmingly correct. The study showed that the level of immunization coverage was high for each anti gene compared to most European countries. Nevertheless, the high incidence of measles in Albania (measles incidence in children of 5 years is among the highest in Europe (247/100 000 in 1997) as well as the outbreak of polio in 1996 call for increased attention and caution ***(33).***

Actually, Albania is experiencing serious electricity shortages which cause long disruptions in energy supply especially during winter. This situation may affect the appropriate functioning of the cold chain.

Polio eradication

In Albania, poliomyelitis was endemic until the end of 1970. The average incidence rate was 43 in 1950, 15 in 1960, and 14 in 1970. In 1980, poliomyelitis reached the sporadic levels. The epidemic outbreak of polio in 1996 (138 cases, 16 fatal) was preceded by a decade of 0 incidence. In 1996, a massive immunization drive (0-50 years) and National Immunization Day in 1997 and 1998 in addition to the routine coverage of immunization of OPV, led to a spread of polioviruses. After 1997 there is no record of polio incidence.

Diphtheria

At the 1950 the average incidence rate of diphtheria in Albania was 364/100.000.

The introduction of the toxoid diphtheria vaccine was made possible only after the 50's, while DT and DTP were introduced at a later stage in the 1970's. This led to a quick reduction of the incidence of diphtheria.

In the years 1990-1996, 126 cases were recorded. The most affected age group were children between 5-14 years (7%), followed by the age group 15-24 years (16%) the greatest part of who were supposed to be immunized, as per the available immunization data. The greater incidence of diphtheria was among inhabitants coming from the rural areas. Serological surveys in the years 1990-1991 confirmed doubts about inflated reports of DTP revaccination in some of the rural areas.

The swift measures taken by the Health Ministry, aided by UNICEF, consisted in the closure of gaps in immunization and in the regular supply of diphtheria vaccines.

In the National EPI Study covering 12 prefectures of the country, the DTP3 immunization coverage was estimated to be high in children of 18-30 months (99%).

Elimination of neonatal tetanus from 1995

The high coverage of tetanus immunization in children from 2 to 15 years before 1995 led to a low neonatal tetanus incidence. The average number of neonatal tetanus cases has declined in each decade as follows:

In the year 2000, in the first six months there has been no record of neonatal tetanus incidence. For over five years there has been no record of neonatal tetanus incidence.

Pertussis

Pertussis was epidemic in Albania in the period before immunization. According to the vaccination scheme introduced in 1974, the first DTP dosages were administered to children 3, 4, and 5 months of age; later, another two dosages were delivered at 6-9 months, while at 2 years of age, children were given DTP3.

In 1950-1960, the annual incidence rate was 3.1/100.000 and 3.7/100.000 population. During the years 1970's, when the DTP vaccine was introduced, over 7,000 cases of pertussis were reported yearly. In 1980's, the average rate of incidence was 1.5/100.000 population, representing an improvement of 79% compared to the period before 1970's.

In 1980's, about 20% of the cases were of children in the age group between 5-14 years. This led to an adjustment in the immunization scheme and to the administration of a re-immunization, a DTP dosage at the age of two years old.

The average incidence of pertussis cases in the years 1990's was 0.3 cases/100.000 population lower than in 1980's.

The spread of pertussis cases by age groups shows more affected are infants of 0-12 month's age and children between 0-14 years.

Measles

Reduction by 95 per cent of deaths and reduction by 90 per cent of measles cases compared to pre-immunization levels by 1995 was a major step to the global eradication of measles in the longer run. Before 1955, measles was endemic in Albania. The Epidemics had taken place in 1948-1949 (40,106 cases) and in 1954-1955 (190,020 cases) and in the years 1970 (37,761 cases).

Until 1980, there was no record of measles incidence. During the period March 1989 to March 1990, another epidemic broke out that covered the entire country, the number of cases was 168,636 with an incidence rate 5.4/100 000 population. The highest incidence was in 1-year-old children (10,122/100,000 population); infants from 01-12 months (76,706 cases/100,000 population) and adolescents between 14-18 years (from 6.735 to 8.134/100,000). The high intensity of the epidemic in 1989-1990, has highlight on a number of issues related to immunization from the diseases resulting from (i) inefficiencies in the cold chain system and (ii) adverse effects from vaccine. In 1991-1992, the measles incidence rate was 0 ***(28).*** In these years, country production of the measles vaccine was interrupted. As the result, half of the birth group in 1989 and the birth group of 1990 were not immunized. The groups in 1991-1993 were only partially immunized.

In 1993, 1994, and 1995, respectively, the incidence of measles was 7, 29 and 15, whereas in the period 1996-1999 the measles incidence rose.

In November 2000, were conducted national immunization campaigns for measles and rubella (the year which marks the introduction of the vaccine bivalent MR), vaccination that covered children 0-15 years old. This campaign was sponsored by UNICEF in Albania ***(33).***

Tuberculosis

A substantial decline in the annual incidence rate of new pulmonary tuberculosis cases was recorded in the second half of 1980. In the year 1887, TB incidence was 26.7 per 100,000 inhabitants. This declining tendency continued until 1992, when the incidence hit 15.4 per 100,000. The year 1993 marked an increase of TB incidence by recording 22.6 per 100 000 inhabitants. The reliability of data after the 1990's is a question if one is to take account of the massive internal and foreign migration.

During the period 1990-1997, the total number of cases affected by TB was 721 (23 per 100,000 inhabitants), in which 75% were affected by pulmonary TB, where the children 0-14 years old represent 9.3% of the new cases **(see table 2.6.3).**

Table 2.6.3 Percentage distributions of all forms of TB, 1990 – 1997

	Age - groups					
	0-1	1-4	5-14	15-24	25-44	> 45
Percentage of cases	0,6	2.0	6.7	16.0	47.0	33.6

Source: Ministry of Health

In 1995, the National Program for the fight against TB sponsored by ECHO/WHO, MERILIN and IMC started in Albania. During the implementation of this program found that only 69 percent of newborns received a BCG injection within 48 hours after birth in some districts.

Viral hepatitis B (VHB)

The acute viral unspecified hepatitis level is decreased over the period 1990-1997. The annual number of incident cases varies in range 11291 to 1990 with an annual incidence rate from 352.2/ 100.000 populations to 60.5/100.000.

The Routine immunization of newborns was introduced in May 1995.

In order to bring its immunization system to the next level, and address these challenges, the Albanian Institute of Public Health (IPH) is collaborating with WHO to ***(34):***

- Validate new approaches that address challenges in quality and use of immunization and vaccine logistics data in Albania.
- Study the cost-benefit of rationalizing vaccine distribution and storage in the country (modeling).
- Demonstrate the management benefits of remote alarm systems in monitoring refrigerator temperatures.
- Establish policies to promote the adoption and scale-up of successful interventions in the country and region, and contribute to the development a national long-term vision for immunization supply systems.

The cold chain of vaccine in Albania

The annual supply interval in the National Central Cold Store, Institute of Public Health, in Tirana is ***twice per year***. The distribution is organized ***four times a year*** from the primary Cold Store to the Districts Cold Store. Vaccines are distributed each month by the Institute of Public Health to the immunization centers in each district and municipality ***(35).*** The cold chain equipments available in the Expanded Program of Immunization in Albania are divided within two types:

1. The active cold chain equipment used for the storage of the vaccines.

This group is composed of:

a. At the central cold store (IPH), 3 walk – in cold rooms and 1 walk – in freezer room.
b. At the district store (Albania has 36 districts), two or more ice-lined refrigerators and one or more freezer and
c. At the commune health centre (Albania has 508 health centers) one refrigerator which can be ice-lined or of Liebher type.

The well being baby consultancies (vaccination centers in urban areas) are generally equipped with ice-lined refrigerators due to their high working load.

2. The passive cold chain equipment serves for the transportation of the vaccines through the consecutive levels. This group is composed by huge vaccine carriers which are used for the transportation of the vaccines from the Primary Cold Store to

Districts Cold Store, and vaccine carriers that are used by health staff for small quantities of vaccines. The complete set of vaccine carriers includes: thermometer, a plastic container (inside vaccine carrier) surrounded by ice-packs to avoid the direct contact of vaccines with ice packs and so on prevent the vaccines from getting wet and having the label on the vial damaged.

Our immunization policy is that in rural vaccinations centres, the vaccines which are needed for the immunization schedule of the current month are picked-up in Commune Health Centre and administered within 48 hours to all target population. The population has to be previously informed and gathered in advance for the immunization session.

During these 48 hours, the vaccine is kept in vaccine carriers with regular exchange of the cold ice packs until the immunization session is finished.

2.7. The country epidemiological profile (over the period 1990-1997)

In Albania, the infant mortality rate (IMR) and under-five mortality rate (U5MR) are relatively high compared with the other European countries, even though the two kind of rates have been decreased consistently over the recent years.

During the recent five-year period, the level of the under-five mortality rate has been 22 deaths per 1,000 births, implying that about 1 in every 45 children born in Albania during this period has died before reaching their fifth birthday. However, the infant mortality rate has been 18 deaths per 1,000 births against infant mortality, which in European countries is an average of 7 deaths per 1000 live births. Looking at the pattern of mortality during the first year of life, almost two-thirds of infant deaths takes place in the first month of life; the neonatal and post-neonatal mortality rates are 11 and 7 per 1,000 births, respectively ***(24).***

Albania presents some peculiarities concerning its epidemiological profile. While the mortality patterns are similar to those observed in other developed European countries, the morbidity patterns are more similar to those of developing countries. There is a high prevalence of infectious diseases such as diarrhea diseases that are related to poor environmental conditions, but at the same time, vaccine preventable diseases such as diphtheria, measles, rubella, and neonatal tetanus are well on their way to being eliminated from the population or have already been eliminated such as polio ***(28)***.

The epidemiological transversal studies (survey), carried out by the Institute of Public Health, provide a further detailed account of the epidemiological picture on some diseases groups namely:

- diarrhoeal diseases
- viral hepatitis
- airborne infectious diseases
- infectious diseases of National Programme on Immunization (EPI - Expanded Programme on Immunization), (most of them being of an airborne nature of transmission)
- tuberculosis (TB)
- zoonoses

It is important to note that the availability of epidemiological surveillance data is from 1990 for all the infectious diseases which are included in the existing mandatory reporting system of Albania that defines the period 1990 – 1997**.**

Diarrheal Diseases

The table 2.7.1 presents the annual frequency (number of cases) and incidence rate (cases/100,000 population) of the diarrheal diseases during the period from 1990 until 1997 (period before our study).

During the period 1990-1997, the annual incidence (cases/100, 000) of diarrheal disease has been much lower than those of the previous period 1970-1990, in which the annual incidence of cases varies from 3.049 to 4.571 cases/100, 000; an incidence which does not show any descending trend annually during 1990-1997 with about 1500-1600 cases per 100,000 inhabitants ***(see table 2.7.1).***

Table.2.7.1 Annual frequency (number of case) and Incidence rate (case/10^5) over the period 1990-1997

Year	Typhoid fever & Paratyphoid fever		Salmonellosis (non-typhoid)		Shigellosis (bacillary dysentery)		Food borne intoxication		Amoebiasis (amoebic dysentery)		Unspecified gastroenteritis		Diarrheal diseases (total)	
	no. of case	Incidence rate cases/10^5	no. of case	Incidence rate cases/10^5	no. of case	Incidence rate cases/10^5	no. of case	Incidence rate cases/10^5	no. of case	Incidence rate cases/10^5	no. of case	Incidence rate cases/10^5	no. of case	Incidence rate cases/10^5
1990	97	3.0	2612	81.5	3266	101.8	1309	40.8	NA		114056	3558.6	121340	3784.9
1991	102	3.1	1369	41.6	1789	54.4	1156	35.8	NA		66806	2032.3	71222	2221.6
1992	141	4.2	800	24.3	1188	36.1	1160	35.2	NA		41637	1266.6	44926	1366.6
1993	120	3.6	869	26.4	1564	47.5	1182	35.9	NA		54047	1644.1	57782	1757.7
1994	109	3.3	937	28.5	1939	58.9	1323	40.2	0	0	66456	2021.6	70764	2152.7
1995	54	1.6	816	24.8	1268	38.6	745	22.7	5	0.1	51992	1581.6	54880	1669.5
1996	67	2.0	853	25.9	1062	32.3	696	21.2	0	0	47197	1435.8	49875	1517.2
1997	34	1.0	549	16.7	1028	31.3	742	22.6	0	0	44360	1349.5	46713	1421.0

Typhoid and paratyphoid fever and non-typhoid salmonellosis have been represented as the most important water-borne diarrheal diseases from public health impact point of view. The annual frequency (number of case) and incidence rates (cases/10^5) of typhoid and paratyphoid fever occurrence during the period 1990-1997 is low. The non typhoid salmonellosis shows a similar decreasing trend.

The cholera epidemic in year 1994 in Albania represents the most conspicuous and at the same time, a terrible example of the potential risk posed by the water infrastructure.

The epidemic, a consequence of cholera importation, was concentrated in 14 out of 36 districts, namely: Kucove, Berat, Librazhd, Lushnje, Fier, Mallakaster, Kavaje, Durres, Tirane, Elbasan, Peqin Pogradec, Korce and Devoll. The districts of Kucove, Berat and Librazhd (where the first cases were appeared) indicated the highest incidence rate ***(28).***

A total of 1748 cases were reported; 74.2% (1297/1748) of them belonged to rural areas.

Shigellosis – During the period 1990-1997, the epidemiological surveillance data on shigellosis (bacillary dysentery), concerning their annual frequency (number of case) and incidence rate (case/10^5), demonstrated a steadily decreasing trend.

Regarding to amoebasis (amoebic dysentery), **there** are no data till 1994, a year which denotes the beginning of mandatory laboratory diagnosis at the district level on *Entamoeba histolytica* (causative agent) as well as (along with that routine on *Shigellae*) in each reported case with diarrhea with blood infectious syndrome. The epidemiological surveillance data during this period indicated a low annual number of reported cases (an average 0f 14-15 cases per year).

The epidemiological surveillance data on the poising, concerning their annual frequency and incidence rate, demonstrated a consistently decreasing trend during the period 1990-1997. It is important to emphasize that most of the tests carried out by the district microbiological agents laboratories have failed to provide a reliable and efficient monitoring system in each of the reported outbreaks of food borne intoxications regarding the etiological agents.

Measles, Rubella, Mumps, Diphtheria, Pertussis and Tetanus

In the air borne infectious diseases are included measles, rubella, mumps, pertussis and diphtheria except influenza, streptococcal infectious. Some of the diseases mentioned above represent in themselves, the infectious diseases which are preventable by vaccination.

Measles

- From 1945 till 1955 measles has had its usual continuous epidemic circulation among the country population with two epidemic peaks.
- In 1956, immediately after epidemic years of the 1954-1955, a strategy of a total and rigorous quarantine toward each eventual imported measles case was established throughout Albania.
- In 1971, the routine of the mandatory vaccination against measles was introduced in the national immunization calendar for all new birth.

The period 1990-1997 was characterized by measles at sporadic level with small and limited outbreaks, with an annual average of 700-800 reported cases but always zeros deaths ***(see table 2.7.2).***

In 1998 Albania passed the measles epidemic with over 140,000 cases spread throughout the country. The Ministry of Health supported by the government undertook some measurements that resulted in the reduction and also the distinction of the epidemic (the

importation of measles vaccine). Measles vaccine till the onset of the epidemic was produced within the country. The year 2000 denoted the beginning of the implementation of the "National Strategy on Measles Eradication by 2007 in Albania ", set up a confirmation on the WHO respective target for the European Region. Under this strategy, starting from January 2001, the 2nd dose (booster dose) of measles at 5 years of age (with measles-rubella bi-vaccine) was introduced in the routine of the mandatory vaccination.

Rubella

For rubella (no congenital rubella) three epidemic peaks were recorded over the period from 1964 to 1994.

- the epidemic of 1969 with 3676 reported cases (or an incidence 0f 180 cases/10^5);
- the epidemic of 1985,which is the largest one, with 78594 reported cases (or an incidence of 3080 cases/10^5);
- and the epidemic of 1994 with 3432 reported cases (or an incidence of 110 cases/10^5).

The annual number of reported rubella cases over the period 1990-1997 except 1994 presents a declined trend.

Table 2.7.2 Annual frequency (number of case) and Incidence rate (case/10^5) over the period 1990-1997

Year	Measles		Rubella		Mumps	
	no. of cases	Inc. cases/10^5	no. of cases	Inc. cases/10^5	no. of cases	Inc. cases/10^5
1990			15	0.5	2598	81
1991	0	0	9	0.3	3102	96.1
1992	0	0	12	0.4	999	30.4
1993	7	0.2	111	3.4	4128	125.5
1994	29	0.9	3432	104.4	2863	87.1
1995	15	0.4	10	0.3	243	7.5
1996	1204	36.6	180	5.5	1324	40.2
1997	2386	72.6	66	2	2969	90.3

Diphtheria, Tetanus and Pertussis

The epidemiological surveillance data of annual frequency (number of reported cases) and incidence rates (cases/10^5) of diphtheria, pertussis and tetanus present a steady decline of their occurrence, during the period 1990-1997 ***see table 2.7.3***

During the period 1990-1997 the number of diphtheria cases is decreased until 0 (zero) cases and they are reported as suspected (not laboratory confirmed) cases. The annual reported cases of *Pertussis* during the period 1990-1997 show the decreased trend.

Also, the Tetanus, over this period presents very low level of disease occurrence; the annual frequency is only 2-4 reported cases ***(see table 2.7.3).***

Table 2.7.3 Annual frequency (cases) and incidence rate (case/10^5) over the period 1990-1997

Year	Diphtheria		Pertussis		Tetanus	
	no. of cases	Inc. cases/10^5	no. of cases	Inc. cases/10^5	no. of cases	Inc. cases/10^5
1990	17	0.5	329	10.3	14	0.4
1991	23	0.7	275	8.5	8	0.2
1992	48	1.4	51	1.5	7	0.2
1993	18	0.5	124	3.8	18	0.5
1994	14	0.4	244	7.4	14	0.4
1995	4	0.1	136	4.1	14	0.4
1996	4	0.1	228	6.9	2	0.06
1997	0	0	78	2.4	3	0.09

Pulmonary Tuberculosis (TB)

The occurrence levels of tuberculosis in Albania have remained nearly constant over the period of 1990-1997. The annual numbers of incident cases vary in a range from 530 to 765 with an annual average 0f 660 cases or 20.1 new cases/10^5 as incidence rate ***(see table 2.7.4).*** Despite of the measurements taken by the Ministry of Health, TB prevention system was weak. There was a lack of proper methods for diagnosis, lack of information about the patient treatment and poor communication between the responsible medical centers namely TB dispensaries and the epidemiological services at the district level.

Table 2.7.4 Annual frequency (cases) and incidence (case/10^5) over the period 1990-1997

	Tuberculosis (TBC)	
Years	**no. of cases**	**Incidence rate - cases/10^5**
1990	653	20.4
1991	628	19.5
1992	530	16.1
1993	636	19.3
1994	547	16.6
1995	664	20.2
1996	707	21.5
1997	655	19.9

Viral Hepatitis

The 14/Sh form of the statutory contains along with *"Unspecified viral hepatitis", the three basic types of viral hepatitis (Viral hepatitis A, Viral Hepatitis B and Viral hepatitis C)* as well. Nevertheless, the following data belong to *"Unspecified viral hepatitis"* only, due to the impossibility (the lack of diagnostic test kits) of routine virus type identification by the district microbiological laboratories. The data on the viral hepatitis over the period 1990-1997 are characterized by a decreasing trend with huge oscillations of the annual incidence rates around an average level of 100 cases per 100,000 population ***(see table 2.7.5).***

Table 2.7.5 Annual frequency (cases) and incidence (case/10^5) over the period 1990 – 1997

	Hepatitis, acute, viral, unspecified	
Year	**no. of cases**	**Incidence rate - cases/10^5**
1990	11291	352.2
1991	6814	208.4
1992	4576	139.2
1993	5255	159.9
1994	7624	222.1
1995	3973	120.9
1996	2035	61.9
1997	1990	60.5

Zoonoses (Anthrax, Brucellosis, Leishmaniasis and Leptospirosis)

The term of "zoonoses" includes a very large number of infectious diseases.

The zoonoses diseases are subject of the veterinary medicine control and prevention and a public health importance, namely anthrax, brucellosis, leishmaniasis and leptospirosis.

The occurrence of all zoonoses shows a common increasing trend, mainly because of a conspicuous increase of brucellosis frequency during the period 1990-1997

The epidemiological surveillance data on leishmaniasis in Albania, during the period from 1990-1997 regarding the annual frequency and incidence rate shows a fluctuated trend with an increase in the disease occurrence every 3-5 years ***(see table 2.7.6).***

The frequency and incidence rate of leptospirosis in Albania shows a declined trend during the period 1990-1997 ***(36, 37).***

Table 2.7.6 Annual frequency (cases) and incidence (case/10^5) over the period 1990 – 1997

Year	Anthrax		Brucellosis		Leishmaniasis visceralis		Leishmaniasis cutis		Leptospirosis	
	no. of cases	Inc. rate cases/10^5	no. of cases	Inc. rate cases/10^5	no. of cases	Inc. rate cases/10^5	no. of cases	Inc. rate cases/10^5	no. of cases	Inc. rate cases/10^5
1990	98	3	42	1.3	120	3.7	7	0.2	148	4.6
1991	63	1.9	17	0.5	77	2.4	0	0	75	2.3
1992	111	3.4	62	1.9	58	1.8	1	0.03	46	1.4
1993	76	2.3	29	0.9	40	1.2	13	0.4	51	1.55
1994	135	4.1	118	3.6	76	2.3	12	0.4	33	1
1995	90	2.7	172	5.2	108	3.3	20	0.6	20	0.6
1996	74	2.2	149	4.5	75	2.3	5	0.15	32	1
1997	75	2.3	155	4.7	83	2.5	5	0.15	10	0.3

3. The research objectives

The purpose of this thesis is to introduce (or to improve) the surveillance system of infectious diseases in Albania through a comprehensive survey of the current system and a comparative analysis of data from the data base system (14/Sh monthly reporting system for the period 1998 -2009) and individual data (personal information for the period 2007-2009). This results from the discrepancies and the gaps in the presentation of the monthly reporting data from 1998-2009 and of the individual forms mainly for the period 2007-2009. There forms were introduced around 1995.

The goal of this study is to compare the data reported by monthly reporting form with the notified data by individual form of notification. The trend of the analysis of infectious diseases following proposes:

1. Evaluation of epidemiological situation of these diseases by focusing attention on:

a. Description of the trend of infectious diseases in Albania during the period of study (data from the monthly reporting forms) and the evaluation of the information by the individual form of infectious diseases notification;

b. Distribution of the infectious diseases by sex and age;

c. Distribution by the regions and the areas (urban and rural);

d. Assessment of the vaccine coverage for vaccine preventable diseases in Albania;

e. Comparing of the levels of infectious diseases and our surveillance system with those of other European countries.

2. Analysis of the characteristics of the surveillance system (the way of completing the individual forms) in terms of sensitivity of recording the cases of infection, emphasizing the importance of the system and making a balance between the strengths and weaknesses of the system, in order to implement of the measures to improve the monitoring of infectious diseases and the introduction of surveillance systems for specific diseases.

The analysed parameters are as follows:

a. sensitivity - the ability of the system for registration of actual cases of illness;

b. simplicity - the structure and functioning of the system;

c. flexibility - which has to do with the system's ability to add new data if necessary and to supplement existing ones;

d. timeliness - timeline about the possibility of rapid detection of outbreaks;

3. Assessment of the organizational structure of the monitoring system, trying to find out any restrictions on the development and management of data from local levels of health;

4. Providing a comparison of surveillance system on infectious diseases through the intersection of monthly and individual data to assess and calculate the percentage of cases reported by the monthly reporting forms and individual form, to assess whether there were any challenge in reporting of them and to understand the inadequacy of data from both forms, with the ultimate goal of improving the current system of surveillance on infectious diseases.

4. The material and method

4.1 Proceedings of the system analysis of data (monthly reporting system and the system of individual notification)

Comparative analysis between the data of infectious diseases surveillance is based on the data by monthly reporting and by individual notification form. Monthly information system of infectious diseases surveillance (14/Sh monthly reporting) is based on aggregated data obtained from individual patient forms.

In the study there are included all the reported infectious diseases from the monthly reporting system for the period 1998-2009 and there are assessed individual notification forms of infectious diseases which constitute the key point of the system of surveillance of these diseases from which depends and quality and reliability of monthly reporting data.

The statistical analysis and the elaboration are presented by graphs and tables (through the use of Excel and the Epi-2002 software). The analysis was based on general information related to the total number of cases from monthly reporting system, in order to describe the trends and key variables of infectious diseases under the study, and the data reported by the individual notification forms, so that makes an assessment of the system through cross-analysis of data.

The procedure followed can be summarized as follows:

1. detailed analysis of each of the databases in order:

- description of the epidemiological trend of infectious diseases, the distribution by sex and age groups, geographical distribution (regional, urban and rural), exposure mode, hospitalization and risk factors for acquisition of infection;
- describe the characteristics of the monthly reporting system to analyze and evaluate individual notification form on quality indicators such as simplicity, flexibility, and completeness / quality of data;

2. Subsequent comparison of the previously estimated parameters to compare information provided by each system, their characteristics and the recognition of the strengths parts and limitations of each;

3. Nominal analysis (patient to patient), individual cases of illness and laboratory confirmation derived by individual notification form, to search for cases that may have been lost by monthly reporting form in order to assess the surveillance activities conducted from the monthly and individual notification system regarding infectious diseases, with the ultimate goal of identifying appropriate strategies for improving the current system.

We note that the system is not electronic.

Study of the functioning of surveillance system of infectious diseases was based on assessment of individual characteristics and comparing of them in accordance with the following steps:

1. ***Calculation of simplicity and flexibility of the system***

The simplicity of this system was investigated by analyzing the following parameters assessed by operators who usually use 14/Sh system:

- use the database
- access to information

The flexibility of the system was determined by assessing the possibility of upgrading the database to get information about speed and ease with which we can make changes and additions to existing data and new data.

2. ***Calculation the completion system***

We have estimated the percentage of the total number of cases included in the surveillance system and the number of cases diagnosed and reported in the database and the individual form of system.

3. ***Calculation of data quality***

We have estimated by calculating the percentage of the "familiar" and "unknown" in the context of the questions within the modules that perform monitoring, calculation of sensitivity and positive predictive value in data collection.

4.2 Structure and organization of the database system based on monthly reporting

After 1997 is invested about the system of surveillance of infectious diseases (including the monthly reporting form to a considerable number of infectious diseases, the implementation of the ALERT system, and the introduction of individual files to the notification) in order to have an Information System quality of epidemiological data and programming and verification of results. Monthly reporting system and the individual notification cards are not electronic, and the data which are collected from this form are aggregated data which allow statistical analysis by providing the opportunity to study and monitor the trend of disease in the various territories of the country.

Data recorded in the monthly reporting system are present in the form of general data, not specific to the patient, although the data are based on individual size. Monthly reporting variables are:

- region
- district
- diagnosis
- residence (urban & rural)
- gender
- confirmed or suspected
- age group
- hospitalized
- dead

Statistical processing of the monthly data is based on:

1. Analysis of ***general data*** describes trends and epidemiological characteristics of infectious diseases for the period 1998-2009, according to these parameters:

- general cases of infectious diseases estimated for each year;
- the distribution by sex and age (second division 0-4 years, 5-14 years, 15-44 years, 45-59 years and more than 60 years), to assess who are most at risk for getting infection;
- geographic distribution by region and residence (urban & rural)
- situation of the disease (confirmed or suspected);
- analysis of collected data and organize the database in order to analyze the characteristics of the surveillance system, in particular: simplicity flexibility, timeliness and completeness / quality of data.

2. Analysis of individual forms, is based on cross-comparisons of monthly data for the period 2007-2009, this to determine the loss of data in the system. Individual forms are different for various diseases as described above.

So and analysis of various data contained in these forms is shared by groups of diseases:

a. Analyzed variables of the individual forms for group B / 1 (14-2/Sh):

- details of the first part - general information: name, surname, father's name, age, sex, occupation and address;
- details of the second part - history of case: the place of onset of symptoms, date of onset of symptoms, date of hospitalization, the situation of the disease, vaccination status;
- details of the third section - laboratory diagnosis: direct examination (date and place of examination, the outcome), culture examination (date and place of examination, the outcome), serological examination (date and place of examination, the outcome).
- details of the fourth part - the epidemiological investigation: endemic or sporadic cases, the origin of the disease and the number of persons infected family members or not;
- details of fifth part – conclusion (confirmed or suspected case).

b. Analyzed variables of the individual form for group B / 2 (14-3/Sh)

- details of the first part - the vital records on the case and the onset of the diseases: name, surname, father's name, age, sex, profession and address, place of onset of symptoms, date of onset of symptoms, date of hospitalization date of commencement of therapy and vaccination status;
- details of the second part - clinical and epidemiological Investigation: risk factors (exposure to TB, alcohol or drug user), the classification of past history (if new or recurrent), previous therapy, the last therapy, X-ray examination, intradermo reaction, epidemiological investigation (sporadic or endemic), the number of infected persons;
- data of the third section - laboratory diagnosis: direct examination (date and place of examination, the outcome), culture examination (date and place of examination, the outcome), serological examination (date and place of examination, the outcome), the conclusion (pulmonary TB positive - BK +, negative pulmonary TB - BK - and the case unclassifiable.

5 RESULTS

5.1 Epidemiological characteristics of diarrheal diseases

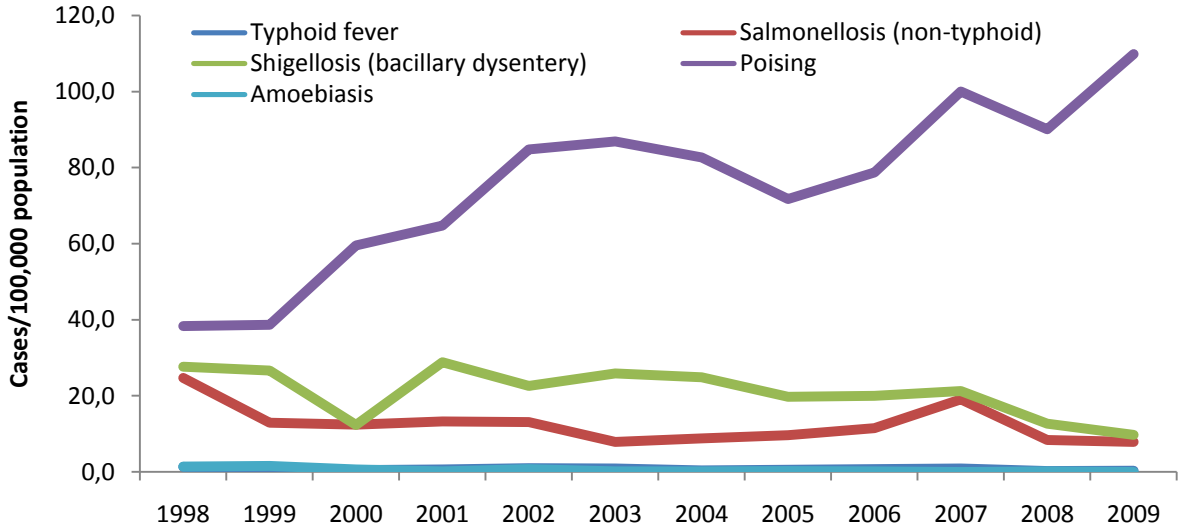
Reporting of infectious diseases in central level is based on monthly reporting of cases through 14/Sh form. Monthly data are aggregated data distributed by gender, age group, residence (urban & rural). Monthly reporting is the amount of infectious disease cases for each collected data by individual notification forms.

Table 5.1.1 shows that the number of cases of these diseases reported by monthly reporting form is greater in year's 2007 for diseases: Typhoid fever, salmonellosis and shigellosis, while, the poising cases represent the greater number of cases in year's 2009. Number of cases of these diseases is decreased from year to year, except the number of cases with poising which are increasing. Discordance between the data (monthly reporting and individual) expresses a major gap in the system of surveillance of infectious diseases in Albania.

Table.5.1.1 Number of cases of diarrheal diseases in Albania [repoted by monthly form and by individual schedule ( )]

Disease	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Typhoid fever	41	13	15	21	30	29	13	19	22	**29** (16)	8 (4)	11 (7)
Salmonellosis (non-typhoid)	757	395	380	407	401	242	270	294	352	**584** (133)	257 (69)	241 (61)
Shigellosis (bacillary dysentery)	848	817	728	885	694	795	764	607	614	**652** (170)	390 (87)	300 (60)
Poising	1176	1186	1826	1987	2601	2665	2536	2200	2415	3067 (58)	2764 (57)	**3370** (70)
Amoebiasis	45	49	20	4	24	4	5	7	6	0 (4)	6 (6)	0

Figure.5.1.1 The incidence rate (cases/100,000 inhabitants) of diarrheal diseases over the study period (1998-2009)



The annual incidence rate of diarrheal diseases during the period 1998 - 2009, shows the decreased trend for each disease presented in figure 5.1.1 except the incidence rate of poising which is higher than the other diarrheal diseases and is increased from 40.0 to 120.0 cases/100.000 population. The incidence rate of typhoid fever and amoebiasis is very low, the annual incidence rate of shigellosis and salmonellosis obtained oscillate around 24.7 to 9.3 cases/100.000 population and also showing a decreasing trend.

Table.5.1.2 Number of cases of diarrheal diseases reported by monthly and individual form ( ) by regions during the years 2007-2009

Regions	Typhoid fever	Salmonellosis (non-typhoid)	Shigellosis (bacillary dysentery	Poisoning	Amoebiasis
Berat	1 **(2)**	54 (39)	157 (107)	1514	1 **(4)**
Diber	2	5 (4)	5 (5)	1003	0
Durres	3 **(5)**	3 (1)	48 (3)	84	0
Elbasan	9 (9)	107 (2)	100 (5)	84 (80)	0 (6)
Fier	1	6 (5)	16 (2)	138 (4)	0
Gjirokaster	0	0	4 (3)	10 (7)	0
Korce	2	13 (7)	90 (78)	144	6 (0)
Lezhe	1	68 (58)	28 **(30)**	0	0
Tirane	23 (11)	231 (132)	170 (42)	105 (87)	0
Shkoder	0	523	618	0	0
Kukes	4	60	76	6111	0
Vlore	2	10	30	8	5
Total	**48 (27)**	**1080 (248)**	**1342 (275)**	**9201 (178)**	**12 (10)**

The ***table 5.1.2*** presents number of cases of diarrheal diseases by regions reported by monthly and individual form over the period 2007-2009. It's evident a discordance between the number of notified cases with the total number of cases reported by monthly form.

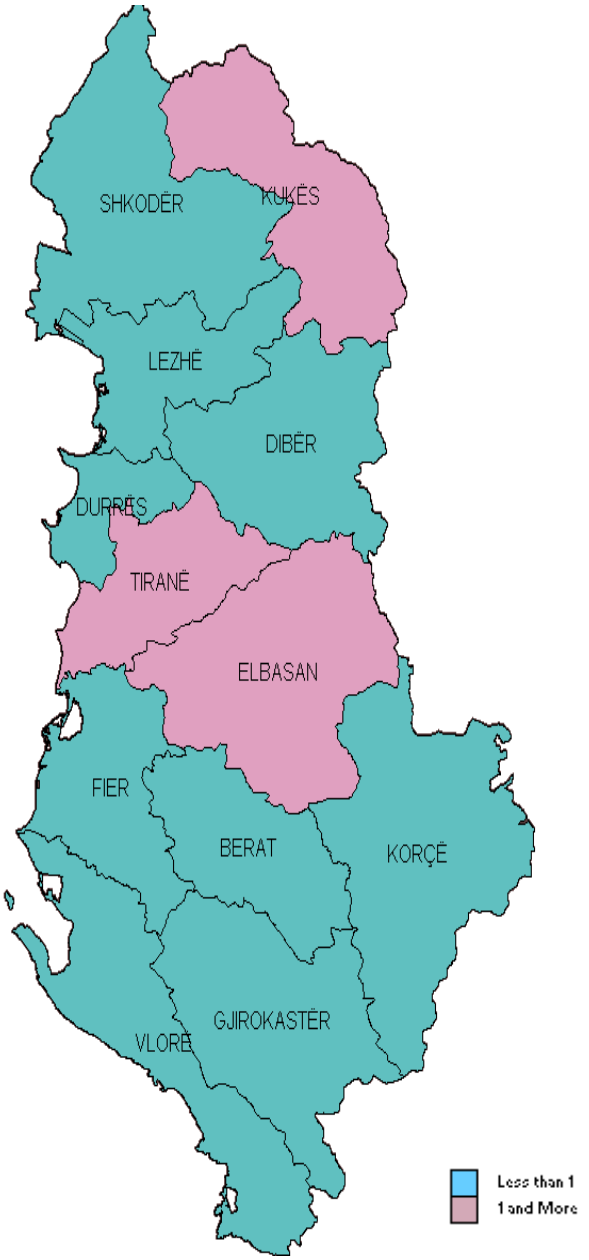
50 % of regions have reported only the number of cases by monthly reporting form (14/Sh); 33% of them have presented monthly and individual data. As shown in the table above, some of regions represent more data by individual notification form than monthly data such as: Berat and Durres region for typhoid fever; Lezhe region for shigellosis; and Berat and Elbasan region for amoebiasis.

Distribution of diarrheal diseases over the period 1998 – 2009 by region

Country Mean Incidence (cases/100,000 population) and range

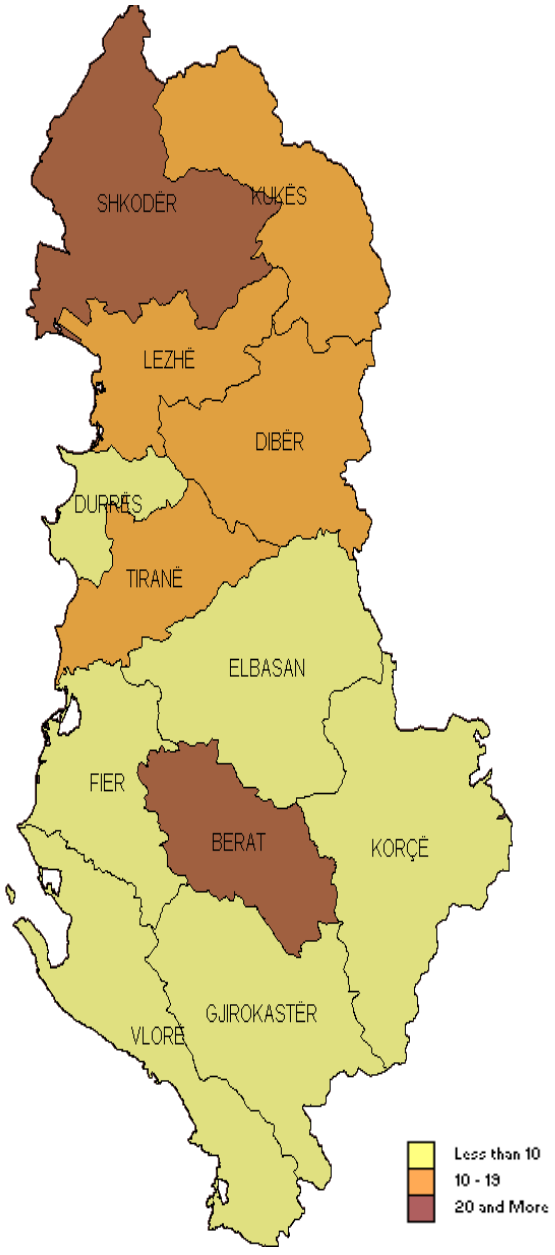
Typhoid fever

0.6 (0.1 – 1.4)



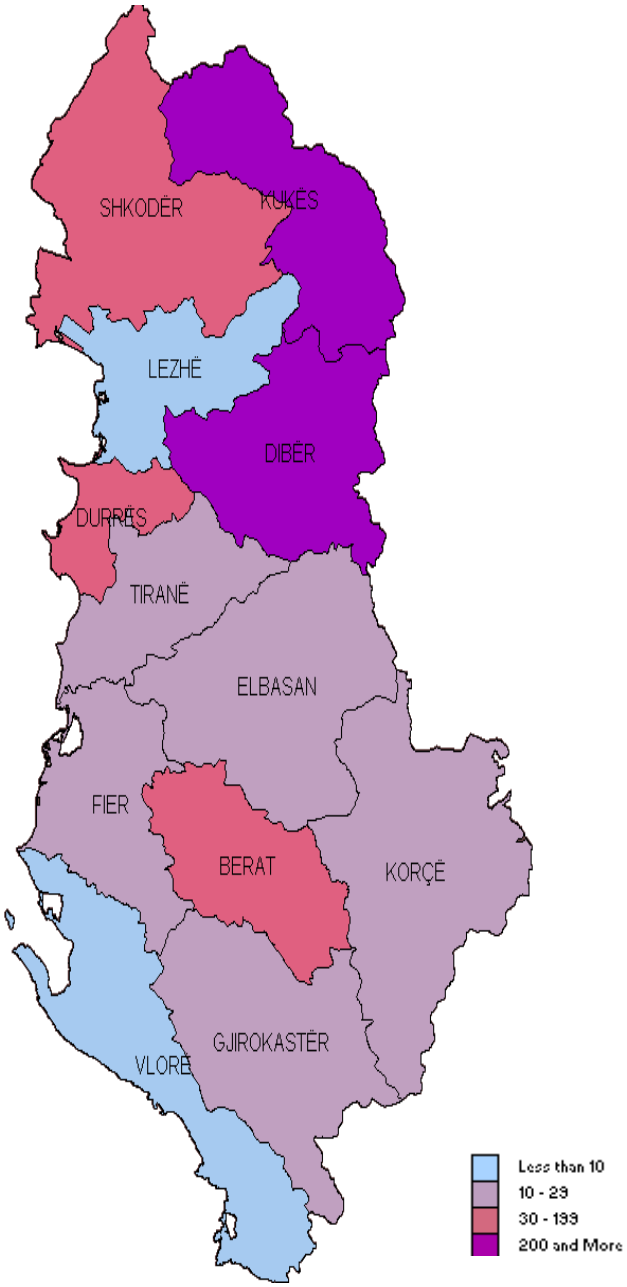
Salmonellosis (non-typhoid)

13.6 (1.3 – 42.0)



Poisoning

168.3 (2.7 – 1568.4)



Shigellosis

24.2 (2.9 – 65.8)

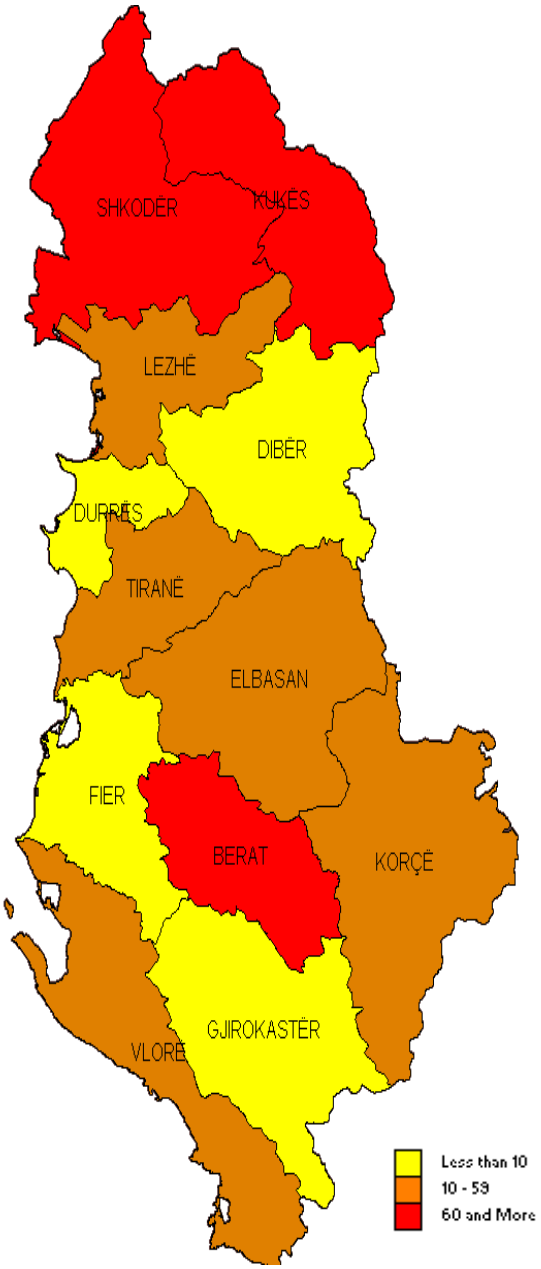
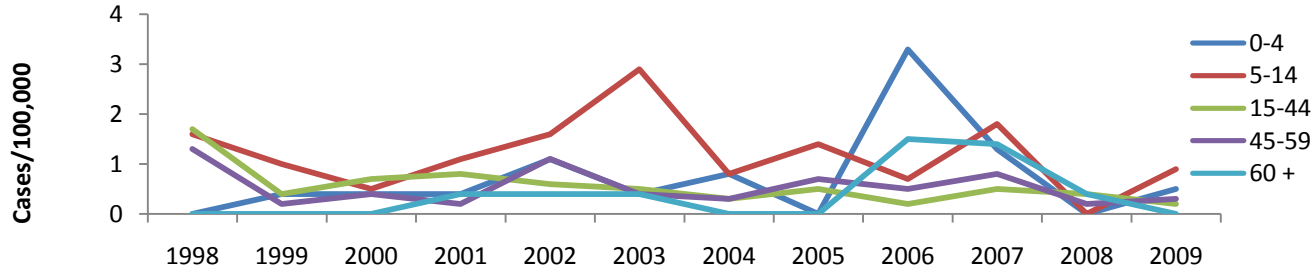


Table 5.1.3 Distribution of cases number of diarrheal diseases over the period 1998-2009 by age - group

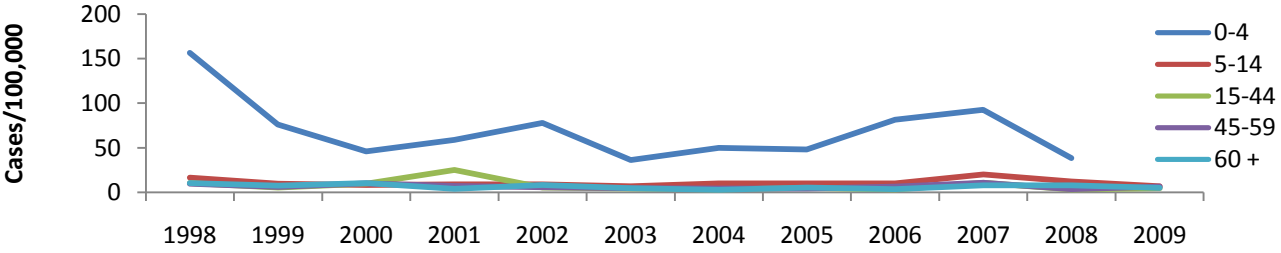
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Typhoid fever	0-4	0	1	1	1	3	1	2	0	8	3	0	1
	5-14	10	6	3	7	10	18	5	8	4	10	0	5
	15-44	21	8	6	2	17	2	0	2	0	0	3	0
	45-59	5	1	3	1	2	2	0	0	2	0	1	17
	60 +	0	0	0	1	1	1	0	0	4	4	1	0
Salmonellosis (non-typhoid)	0-4	429	206	125	162	207	94	127	120	196	222	90	74
	5-14	106	62	54	58	57	43	61	59	56	113	69	39
	15-44	145	75	137	137	78	64	48	72	48	158	50	70
	45-59	53	34	56	40	39	29	26	28	41	68	25	43
	60 +	24	18	24	10	20	12	8	15	11	23	23	15
Shigellosis (bacillary dysentery)	0-4	386	343	301	437	347	349	339	301	317	313	158	127
	5-14	132	150	145	162	138	158	206	120	108	114	87	63
	15-44	207	198	154	155	117	169	120	96	93	104	74	46
	45-59	90	92	83	91	63	80	63	52	59	91	38	46
	60 +	33	34	45	40	29	39	36	38	37	30	33	18
Poisoning	0-4	264	176	209	164	296	269	282	197	220	399	342	325
	5-14	264	283	317	392	592	437	528	402	471	611	593	599
	15-44	472	583	957	1091	1217	1418	1264	877	1208	1391	1240	1657
	45-59	143	109	282	283	373	447	388	500	408	528	466	611
	60 +	33	35	61	57	123	94	74	224	108	138	123	178
Amoebiasis	0-4	11	28	11	1	2	0	3	3	4	0	1	0
	5-14	5	12	0	0	1	0	2	1	0	0	0	0
	15-44	21	8	6	2	17	2	0	2	0	0	3	0
	45-59	5	1	3	1	2	2	0	0	2	0	1	0
	60 +	3	0	0	0	2		0	1	0	0	1	0

Figure 5.1.2The incidence rate of diarrheal diseases during the years 1998-2009 by age groups

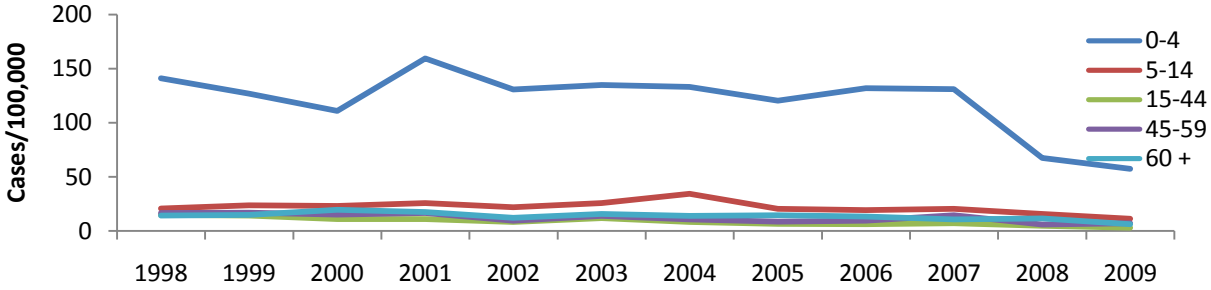
Typhoid fever



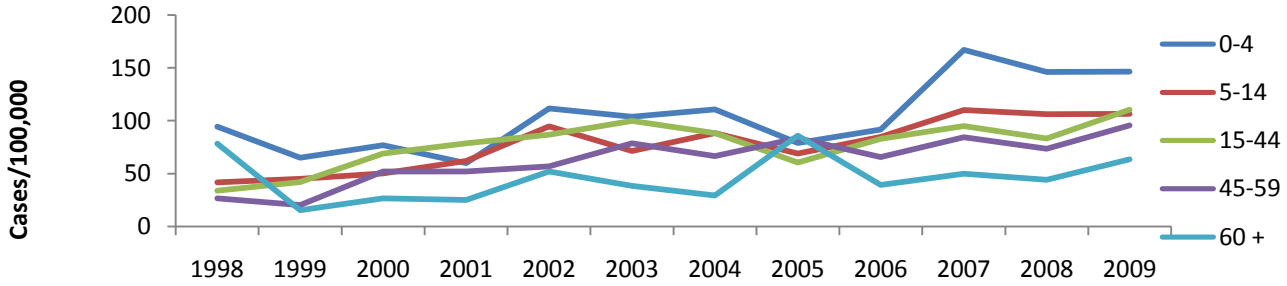
Salmonellosis (non-typhoid)



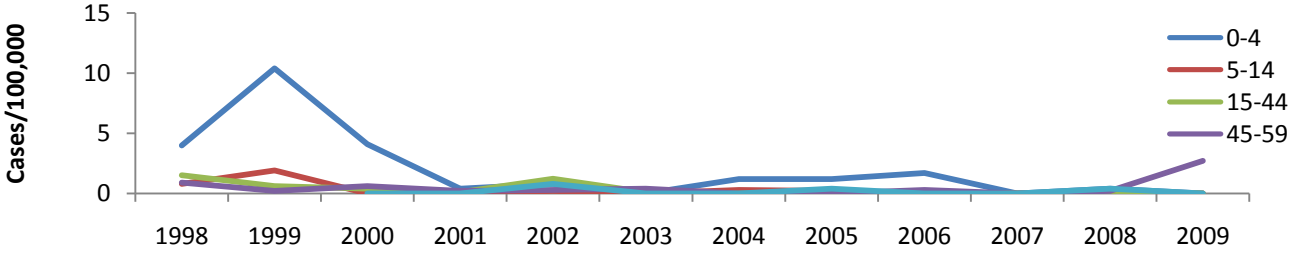
Shigellosis (bacillary dysentery)



Poisoning



Amoebiasis



The epidemiological surveillance data on diarrhea diseases (typhoid fever, salmonellosis, shigellosis, and food-borne intoxication aomebiasis) during the period from 1998 to 2009 by age group are presented in Table 5.1.3 (cases number) and Figure 5.1.2 (incidence rate – case number/100.000 population). Their occurrence (typhoid fever, salmonellosis and shigellosis) over the time demonstrates a consistently decreasing trend from year to year. The pediatric age groups ***(0-4 and 05-14 years)*** are more affected by these diarrhea diseases.

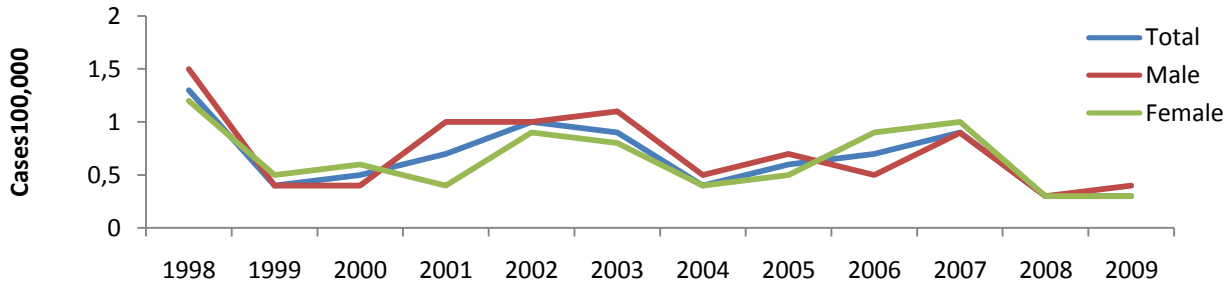
The annual frequency and incidence rate of poisoning is higher for all age-groups compared with others diseases of this diseases group, showing increased trend.

Table 5.1.4 Distribution of cases number of diarrheal diseases during the years 1998-2009 by gender

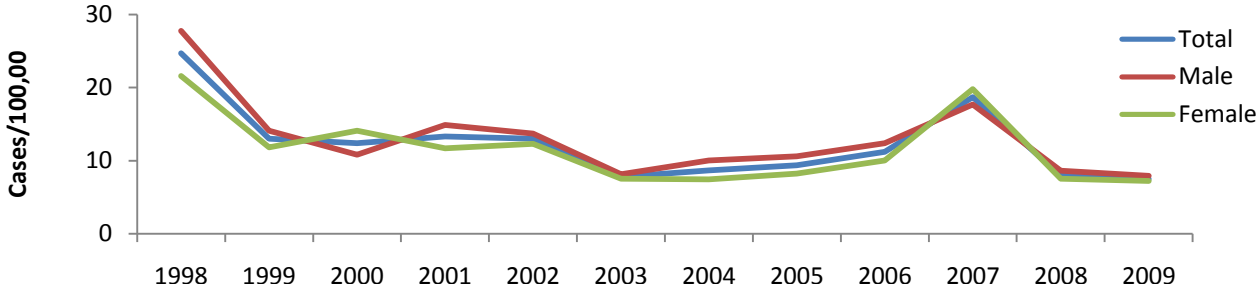
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Typhoid fever	Total	41	13	15	21	30	29	13	19	22	29	8	11
	Male	23	6	6	15	16	17	7	11	8	14	4	6
	Female	18	7	9	6	14	12	6	8	14	15	4	5
Salmonellosis (non-typhoid)	Total	757	395	380	407	401	242	270	294	352	584	257	241
	Male	431	216	165	228	211	125	155	165	194	278	138	127
	Female	326	179	215	179	190	117	115	129	158	306	119	114
Shigellosis (bacillary dysentery)	Total	848	817	728	885	694	795	764	607	614	652	390	300
	Male	458	412	370	490	384	410	402	297	320	338	198	161
	Female	390	405	358	395	310	385	362	310	294	314	192	139
Poisoning	Total	1176	1186	1826	1987	2601	2665	2536	2200	2415	3067	2764	3370
	Male	617	591	902	976	1353	1452	1434	1101	1376	1661	1538	1880
	Female	559	595	924	1011	1248	1213	1102	1099	1039	1406	1226	1490
Amoebiasis	Total	45	49	20	4	24	4	5	7	6	0	6	0
	Male	29	25	9	3	17	2	3	4	4	0	1	0
	Female	16	24	11	1	7	2	2	3	2	0	5	0

Figure 5.1.3The incidence rates of diarrheal diseases during the years 1998-2009 by gender

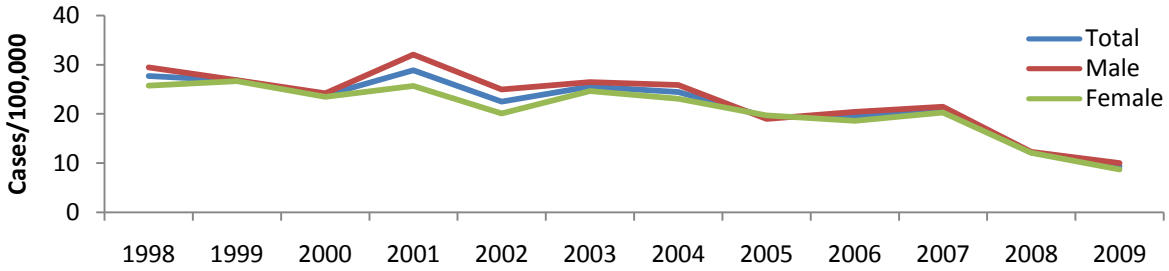
Typhoid fever



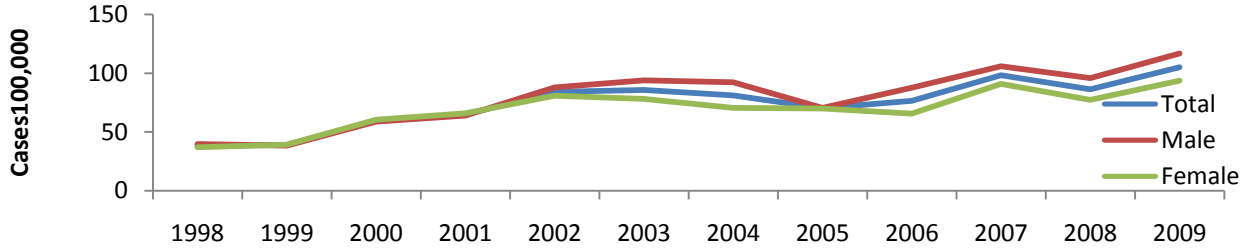
Salmonellosis (non-typhoid)



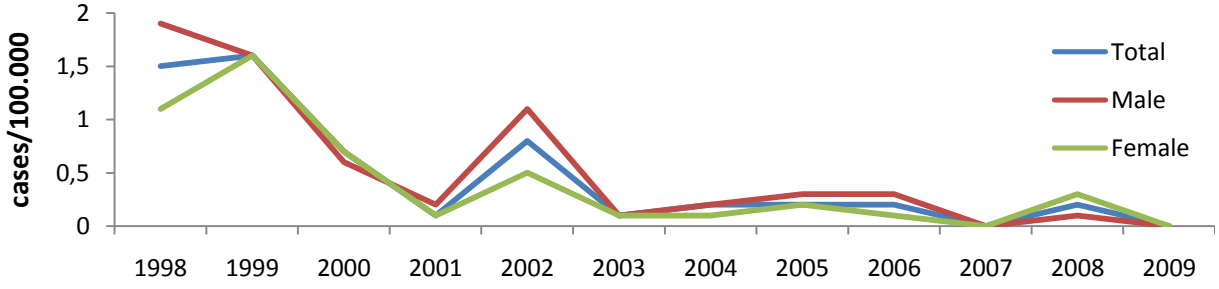
Shigellosis (bacillary dysentery)



Poisoning



Amoebiasis



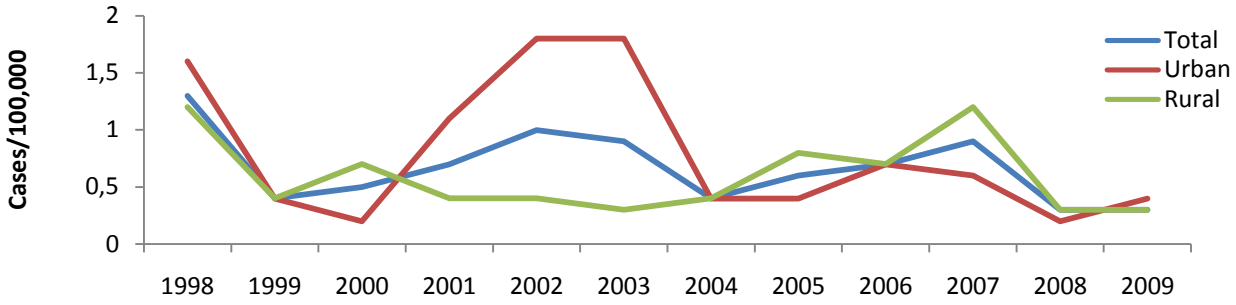
Epidemiological surveillance data for diarrheal diseases by gender are presented in detail in Table 5.1.4 (number of cases), and in Figure 5.1.3 is presented the incidence rate (cases/100.000 inhabitants). During the study period the incidence rate of typhoid fever, salmonellosis and shigellosis show a decreased trend although there is no difference between the incidence rate by gender (male and female). The incidence rate of poising is presented with an increased trend from year to year; also, there is no difference between gender incidence rate (males and females).

Table 5.1.5 Distribution of cases number of diarrheal diseases over the period 1998-2009 by residence

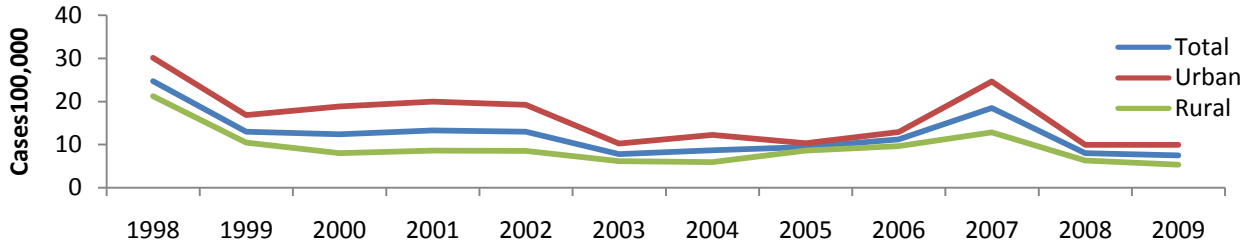
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Typhoid fever	Total	41	13	15	21	30	29	13	19	22	29	8	11
	Urban	19	5	3	14	23	24	6	6	11	9	3	6
	Rural	22	8	12	7	7	5	7	13	11	20	5	5
Salmonellosis (non-typhoid)	Total	757	395	380	407	401	242	270	294	352	584	257	241
	Urban	370	208	236	254	249	136	167	144	195	379	155	155
	Rural	387	187	144	153	152	106	103	150	157	205	102	86
Shigellosis (bacillary dysentery)	Total	848	817	728	885	694	795	764	607	614	652	390	300
	Urban	441	471	399	509	336	373	442	320	325	388	210	234
	Rural	407	346	329	376	358	422	322	287	289	264	180	66
Poisoning	Total	1176	1186	1826	1987	2601	2665	2536	2200	2415	3067	2764	3370
	Urban	398	507	814	811	1117	1194	1309	979	1271	1706	1496	1639
	Rural	778	679	1012	1176	1484	1471	1227	1221	1144	1361	1268	1731
Amoebiasis	Total	45	49	20	4	24	4	5	7	6	0	6	0
	Urban	27	16	5	2	8		3	4	1	0	0	0
	Rural	18	33	15	2	16	4	2	3	5	0	6	0

Figure 5.1.4 The incidence rate of diarrheal diseases during the years 1998-2009 by residence

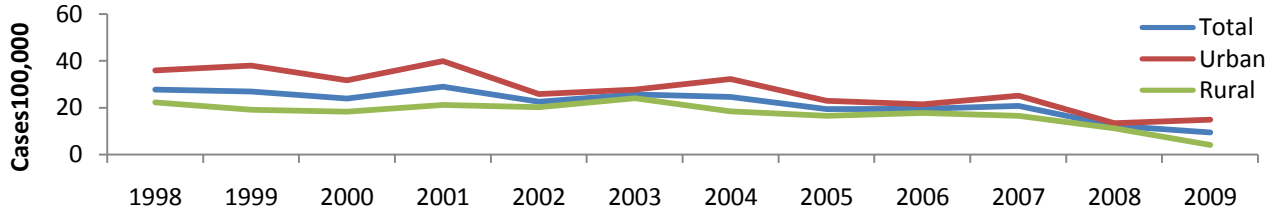
Typhoid fever



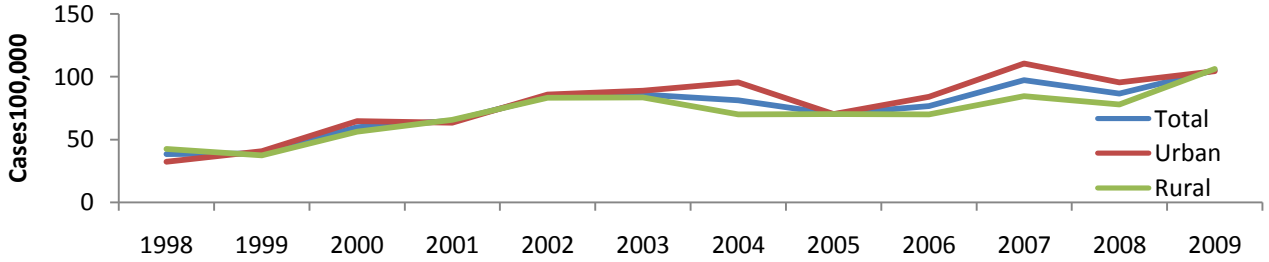
Salmonellosis (non-typhoid)



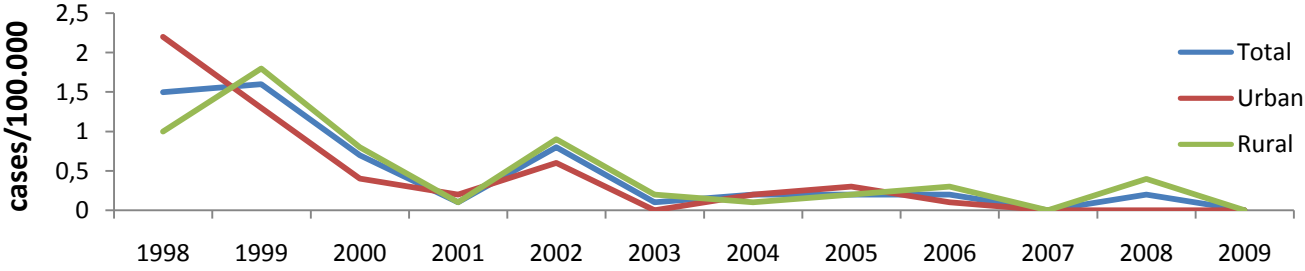
Shigellosis (bacillary dysentery)



Poisoning



Amoebiasis



In the table 5.1.5 and figure 5.1.4 are showed number of cases and incidence rate about the distribution of diarrheal diseases by residence.

Our data show that in urban areas the occurrence of these diseases (typhoid fever, salmonellosis, shigellosis, poising and Amoebiasis) is about 1.5 times more than rural areas. Expressed in percentage urban areas are 55.7% more than rural areas for typhoid fever, salmonellosis, shigellosis and aomebiasis. The poising cases show the increasing trend and there is no difference between areas (urban and rural areas).

Individual notification schedul for diarrheal diseases

As explained in section ***(2.4),*** the monthly reporting system of infectious diseases is based on data for each patient (individual notification form). The individual notification form contains 5 parts with corresponding questions on the generalities of the patient, history of disease, laboratory diagnosis, epidemiological investigation of the case and the conclusions on the disease.

Statistical analysis is based on the quality and reliability of the information of the system (individual and monthly data).

Indicators of general information about the patient are shown in Table 5.1.6.

Results obtained show that the generalities of the patient are compiled at the highest percentage of forms, except for "name of the father" which is almost the same values for the "yes" and "missing".

The average age groups affected by diarrhea diseases presented by individual form are: for typhoid fever is 22 old years in range (0-73); for salmonellosis (non typhoid) is 20.2 years old in range (0-88); for shigellosis is 14.1 years old in range (0-88) and for poisoining is 29.6 years old in range (1-78).

- ***Part I – " General information"***

Table 5.1.6 the general information data from the individual form

	Typhoid fever		Salmonellosis (non-typhoid)		Shigellosis (bacillary dysentery)		Poisoning		Amoebiasis	
	Yes	Missing	Yes	Missing	Yes	Missing	Yes	Missing	Yes	Missing
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	n (%)
Father's name	16 (59.3)	11**(40.7)**	132 (50.2)	131**(49.8)**	251(79.2)	66 **(20.8)**	57 (30.8)	128 **(69.2)**	6 (60)	4 **(40)**
Gender	27 (100)	0	263 (100)	0	317 (100)	0	185 (100)	0	10 (100)	0
Age	25(92.6)	2 (7.4)	261(99.2)	2 (0.8)	309 (97.5)	8 (2.5)	185(100)	0	10 (100)	0
Profession	27 (100)	0	263 (10)	0	317 (100)	0	185(100)	0	10 (100)	0
Address	26 (96.3)	1(3.7)	203(77.2)	60 (22.8)	288 (90.8)	29 (9.2)	154(83.2)	31(16.8)	10 (100)	0

- ***Part II – " History of disease"***

The second part of the notification form contains indicators of "date of onset", data of patient hospitalization and the disease prognosis (see table 5.1.7 and 5.1.8). The obtained results show that in the highest percentages of these indicators are completed.

Table 5.1.7The data of the disease history by individual form of notification

	Typhoid fever		**Salmonellosis (non-typhoid)**		**Shigellosis (bacillary dysentery)**		**Poisoning**		**Amoebiasis**	
	Yes	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**
	No (%)	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**
Date of onset	26 (96.3)	1 (3.7)	229 (87.1)	34 (12.9)	303 (95.6)	14 (4.4)	181 (97.8)	4 (2.2)	10 (100)	0
Hospitalized	27 (100)	0	255 (96.9)	8 (3.1)	312 (98.4)	5 (1.6)	185 (100)	0	10 (100)	0

Table 5.1.8 the disease prognosis for each disease

	Typhoid fever		**Salmonellosis (non-typhoid)**		**Shigellosis (bacillary dysentery)**		**Poisoning**		**Aomebiasis**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Cured	25	92.6	225	85.6	260	82	164	88.6	10	100
Deceased	0	0	0	0	0	0	0	0	0	0
Missing	2	7.4	38	14.4	57	18	21	11.4	0	0
Total	27	100.0	263	100.0	317	100.0	185	100.00	10	100.0

- ***Part III- "Laboratory diagnosis"***

Case definition is based on case confirmed by specific laboratory tests

Different diseases have different criteria for its confirmation.

Basic criteria are:

1. Clinic: the presence of the symptoms (clinical manifestations perceived by the doctor) and the symptoms (clinical manifestations perceived by patients) of pathology in the review.

2. Direct examinations: Identification of the etiological agent by microscopic examination.

3. Culture: Isolation and cultivation of the etiological agent in proper conditions and its identification through serotype. ***Positivity in culture is sufficient criterion of laboratory confirmation in the absence of direct examination or serology***

4. Serology: Identification of specific antibodies against etiological agents in significant titre when a single sample of blood serum of the patient or identification of sero- positive between the two serums samples of blood (growth 4 times the titre of specific antibodies between acute and convalescent phase of the disease.

Criteria for confirmation of ***poisoning and typhoid fever*** are: clinics, culture and serology, but the results presented in the ***table 5.1.9*** show that although the low percentage of positivity by directs examination which is not applicable for confirmation of these diseases.

Salmonellosis and shigellosis unlike typhoid fever are confirmed by clinical and culture examination.

In the individual form of notification is not included clinical diagnosis criteria, so these two diagnoses in over 80% were confirmed by culture.

Aoebiasis confirmation is performed by clinical and direct examinations.

Our results show that in 10 cases 3 of them are confirmed by cultur examination (not applicable) and in 7 other cases of aomebiasis we have "missing" of laboratory confirmation.

Table 5.1.9 laboratory examinations for each disease

Disease		Direct	Culture	Serology
		No. (%)	No. (%)	No. (%)
Typhoid fever	**Positive**	2 (7.4) **not applicable**	15 (55.6)	12 (44.5)
	negative	0	2 (7.4)	0
No. = 27	Missing	25 (92.6)	10 (37)	15 (55.5)
Salmonellosis (non-typhoid)	**Positive**	5 (1.9) **not applicable**	237 (90.1)	1(0.4) **not applicable**
	negative	0	0	0
	Missing	258 (98.1)	26 (9.9)	262 (99.6)
No. =263				
Shigellosis (bacillary dysentery)	**Positive**	10 (3.2) **not aplicable**	280 (88.3)	1 (0.3) **not applicable**
	negative	0	3(0.9)	0
	Missing	307 (96.8)	34 (10.7)	316 (99.7)
No. =317				
Poisoning	**Positive**	22 (11.9) **not applicable**	65 (35.1)	1(0.5)
	negative	0	0	0
No. =185	Missing	163 (88.1)	120 (64.9)	184(99.5)
Amoebiasis	Positive	0	3(30) **not applicable**	0 **not applicable**
	negative	0	0	0
No. =10	Missing	10 (100)	7(70)	10 (100)

Not applicable – means wrong laboratory examination

- ***Part IV – "Epidemiological investigation"***

The fourth section contains indicators of the nature of outbreaks and origin of infection (see Tables 5.1.10 and 1.5.11).

In over 40% of individual forms, the indicator of nature of outbreaks of infection is "missing".

Results on the origin of infection indicate that the largest number of cases is "missing" and "unknown".

Table 5.1.10 Outbreak nature of disease

	Typhoid fever		Salmonellosis (non-typhoid		Shigellosis(bacillary dysentery)		Poisoning		Amoebiasis	
	Yes	Missing	Yes	Missing	Yes	Missing	Yes	Missing	Yes	Missing
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Sporadic	14 (51.9)	12 **(44.4)**	114 (43.3)	129 **(49.1)**	233 (73.5)	71**(22.4)**	60 (32.4)	107**(57.9)**	10 (100)	0
Endemic	1(3.7)		20 (7.6)		13 (4.1)		18 (9.7)		0	

Table 5.1.11 Origine of infectious for each disease

	typhoid fever	salmonellosis	shigellosis	poisoning	amoebic dysentery	Total
Known	1	23	35	5	0	**64**
Unknown	13	82	156	55	6	**312**
Missing	13	158	126	125	0	**422**
Total	**27**	**263**	**317**	**185**	**6**	**798**

- ***Part V – " Conclusion"***

The fifth part is the last part of the individual notification form; it contains the conclusions of the diagnosis (classification of the case) as a suspected or confirmed case.

The "confirmed cases" are over 60% of cases with diarrhea diseases, except the poisoning cases which in 57% of them are "suspected". The data of ***table 5.1.9*** compared with the case classification data ***(table 5.1.12)*** represent a difference between the positivity of the case by appropriate laboratory tests and confirmation of diagnosis.

Figure 5.1.12 Case classification for each disease

Disease	Confirmed		Suspected		Missing		Total
	No.	%	No.	%	No.	%	
Typhoid fever	18	66.7	3	11.1	6	22.2	**27**
Salmonellosis (non-typhoid)	230	87.5	18	6.8	15	5.7	**263**
Shigellosis (bacillary dysentery)	272	85.8	12	3.8	33	10.4	**317**
Food borne intoxication	73	39.5	107	57.8	5	2.7	**185**
Amoebiasis	10	100.0	0	0	0	0	**10**

5.2 Epidemiological characteristics of Viral hepatitis

The 14/Sh Form of the statutory MDBSS (Major Diseases Based Epidemiological Surveillance System) contains along with the "Unspecified viral hepatitis" and three basic types of viral hepatitis (Viral hepatitis A, Viral hepatitis B, Viral hepatitis nAnB) as well.

Nevertheless, the following data belong to the "Unspecified viral hepatitis", because of the impossibility (lack of diagnostic tests kits) of routine type identification by district microbiological laboratories.

The table 5.2.1 shows of viral hepatitis cases (unspecified viral hepatitis, viral hepatitis A, Viral hepatitis B and Viral hepatitis nAnB) by monthly surveillance over the period 1998-2009 and by individual form from 2007 untill 2009.

We have lack of information regarding to the basic types of viral hepatitis reported by monthly surveillance from 2002 and in continuous.

During the years 2007-2009 are presented in the table only the number of cases reported by individual forms of hepatitis A, hepatitis B and hepatitis nAnB while we have lack of data by monthly reporting.

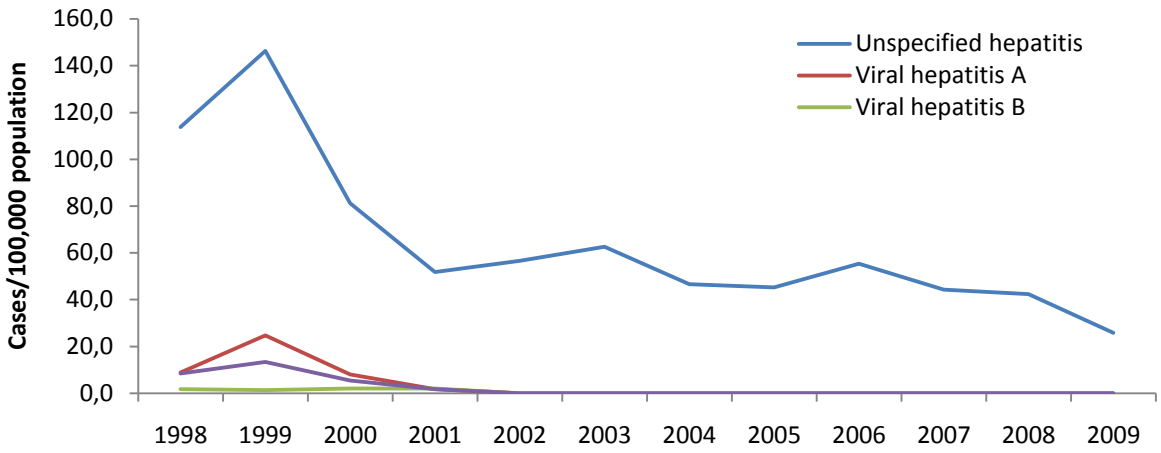
The results obtained show significant differences in reporting of cases for each type of hepatitis versus the number of cases of unspecified hepatitis.

As result of lack on viral hepatitis B data can not explain if the level of vaccination coverage have influenced on the reduction or increasing trend for this disease.

5.2.1 Number of cases of viral hepatitis in Albania [reported by monthly reporting and by individual schedules ( )]

Disease	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Unspecified hepatitis	3489	4489	2489	1589	1734	1920	1430	1388	1699	**1357**(162)	1298 (145)	791(93)
Viral hepatitis A	274	758	248	54	0	0	0	0	0	0 **(41)**	0 **(97)**	0 **(76)**
Viral hepatitis B	54	40	63	62	0	0	0	0	0	0 **(20)**	0 **(28)**	0 **(21)**
Viral hepatitis nAnB	262	411	168	55	0	0	0	0	0	0 **(150)**	0 **(130)**	0 **(55)**
Vaccine coverage viral Hep.B (%)	94.4	91.8	97.8	98.2	95.9	94.4	98.3	98.5	97.6	97.5	98.9	98.7

Figure 5.2.1The incidence rate of viral hepatitis over the study period (monthly surveillance)



The available epidemiological surveillance data on viral hepatitis (especially unspecified hepatitis) present a detailed picture on disease occurrence as incidence rate (***figure 5.2.1***). In this period the annual incidence rate is characterized by decreasing trend.

Table 5.2.2 Number of cases of viral hepatitis reported by monthly reporting form and individual schedules ( ) by region 2007-2009

Regions	Unspecified hepatitis	Viral hepatitis A	Viral hepatitis B	Viral hepatitis nANB
Berat	140 (16)	0 **(62)**	0 **(23)**	0 **(1)**
Diber	334	0	0	0 **(53)**
Durres	346	0	0	0
Elbasan	411 (1)	0	0 (10)	0 **(270)**
Fier	281	0	0	0
Gjirokaster	59	0 **(26)**	0 **(5)**	0 **(6)**
Korce	377	0	0	0
Lezhe	152 (104)	0 **(1)**	0	0
Tirane	930 (232)	0 **(108)**	0 **(14)**	0 **(1)**
Shkoder	174	0	0	0
Kukes	112	0	0	0
Vlore	130 (49)	0 **(17)**	0 **(20)**	0 **(6)**
Total	***3446 (403)***	***0 (213)***	***0 (72)***	***0 (237)****

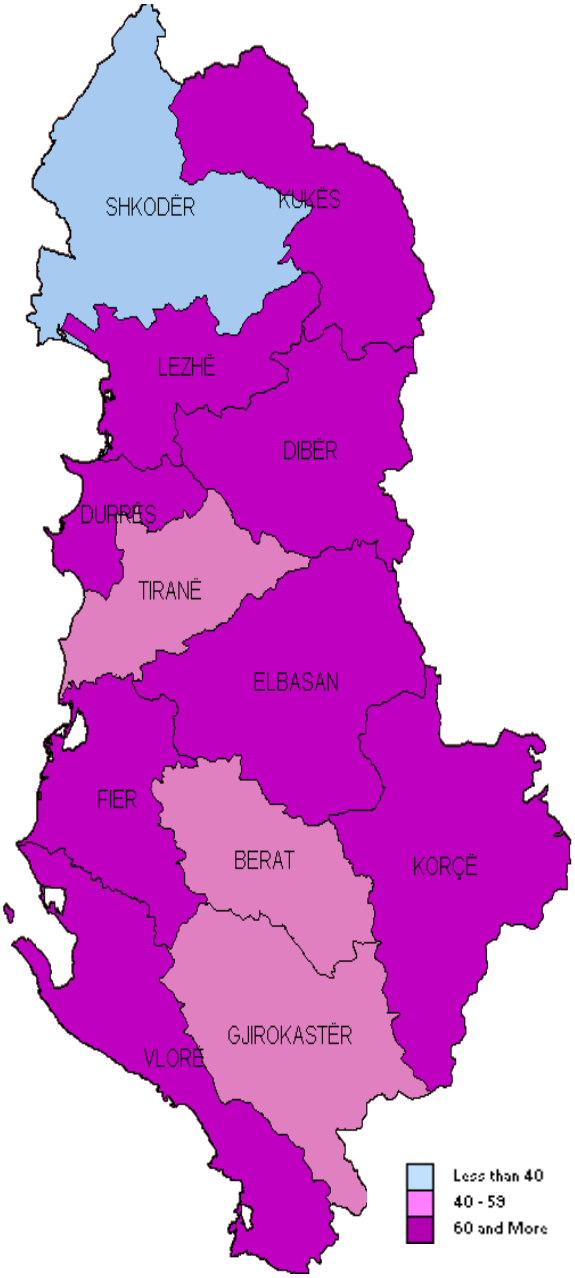
Just as in diarrhea disease and for viral hepatitis, the distribution by regions express great differences between the data reported by monthly reporting and individual notification (table 5.2.2). In 53.3% of the regions is presented lack of information on the number of individual cases according to the notification form and in 46.7% of them the present cases number by individual notification and monthly reporting forms.

Distribution of Unspecified Viral Hepatitis over the period 1998 – 2009 by region

Country Mean Incidence (cases/100,000 population) and range

Unspecified Viral Hepatitis

65.4 (24.5 – 99.6)

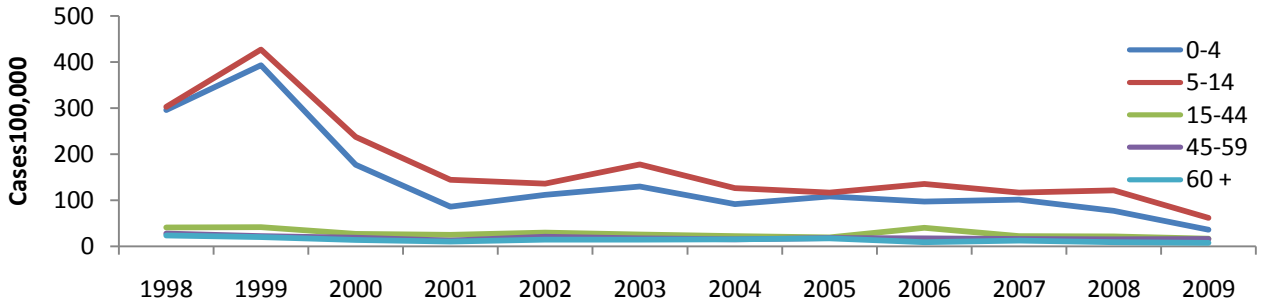


5.2.3 Number of cases of viral hepatitis over the period 1998-2009 by age - group

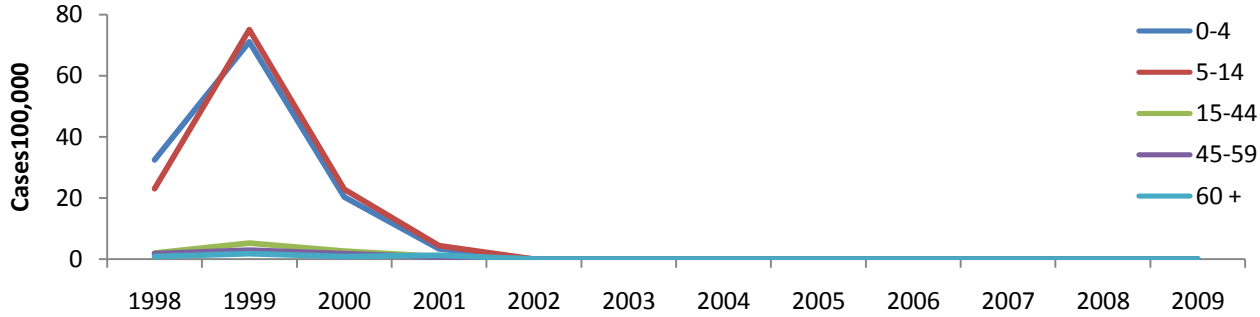
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no .cases	no .cases	no .cases	no .cases	no .cases	no .cases	no .cases	no .cases	no .cases	no .cases	no .cases	no .cases
Unspecified hepatitis	0-4	810	1062	480	236	296	337	234	270	234	243	181	80
	5-14	1909	2686	1499	912	852	1086	754	679	752	649	678	348
	15-44	565	575	378	351	415	363	317	284	583	333	322	253
	45-59	151	120	101	66	136	98	86	109	106	98	93	99
	60 +	54	46	31	24	35	36	39	46	24	34	24	21
Viral hepatitis A	0-4	89	192	55	9	0	0	0	0	0	0	0	0
	5-14	145	473	144	28	0	0	0	0	0	0	0	0
	15-44	28	73	37	11	0	0	0	0	0	0	0	0
	45-59	10	16	10	3	0	0	0	0	0	0	0	0
	60 +	2	4	2	3	0	0	0	0	0	0	0	0
Viral hepatitis B	0-4	8	4	1	6	0	0	0	0	0	0	0	0
	5-14	11	22	24	24	0	0	0	0	0	0	0	0
	15-44	28	13	31	23	0	0	0	0	0	0	0	0
	45-59	7	1	4	7	0	0	0	0	0	0	0	0
	60 +	0	0	3	2	0	0	0	0	0	0	0	0
Viral hepatitis nANB	0-4	63	106	41	3	0	0	0	0	0	0	0	0
	5-14	144	252	92	27	0	0	0	0	0	0	0	0
	15-44	49	43	22	17	0	0	0	0	0	0	0	0
	45-59	4	4	10	7	0	0	0	0	0	0	0	0
	60 +	2	6	3	1	0	0	0	0	0	0	0	0

Figure 5.2.2The incidence rate of viral hepatitis over the period 1998-2009 by age-group

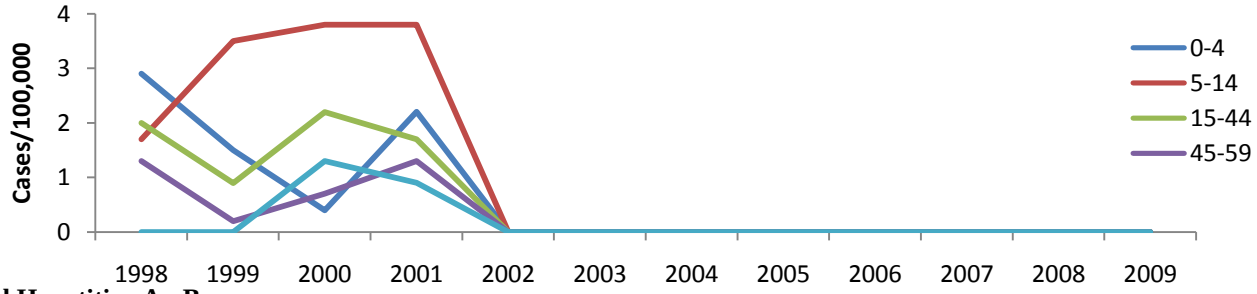
Unspecified hepatitis



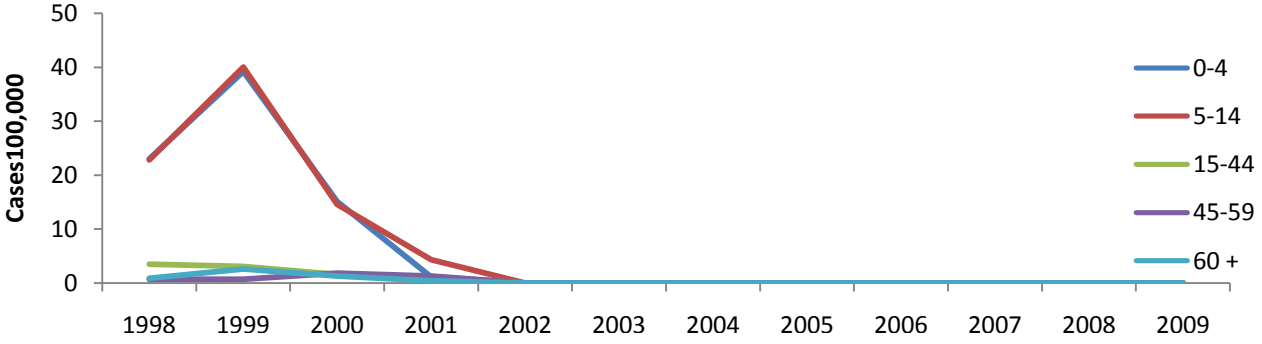
Viral Hepatitis A



Viral Hepatitis B



Viral Hepatitis nA nB



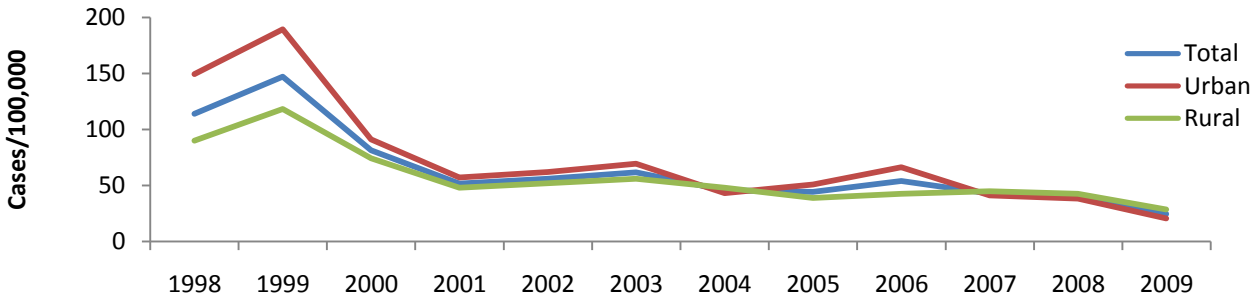
Pediatric age group (0-14 years) occupies the major burden of the disease, representing 45-54% of total annual cases ***(Table 5.2.3),*** followed by age group 15-44 years with 27 - 30% of total during the period 1998-2009 (in particular, viral hepatitis unspecified). The trend of unspecified viral hepatitis shows a decreased trend over this period.

Table 5.2.4 Number of cases of viral hepatitis over the period 1998-2009 by residence

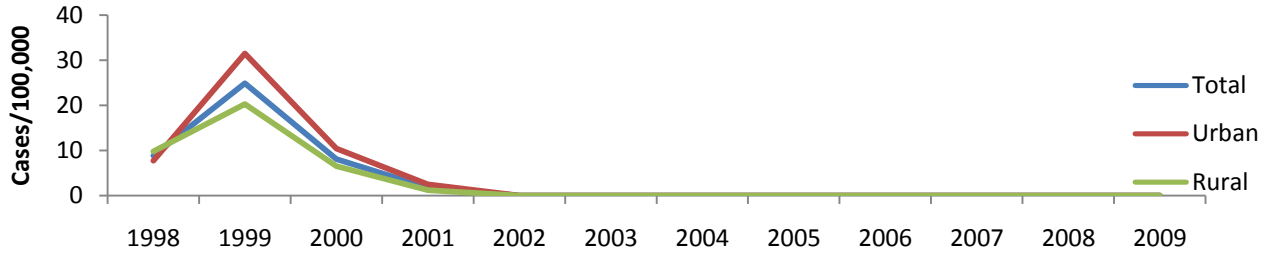
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Unspecified hepatitis	Total	3489	4489	2489	1589	1734	1920	1430	1388	1699	1357	1298	791
	Urban	1840	2350	1150	731	809	933	591	711	1003	636	602	325
	Rural	1649	2139	1339	858	925	987	839	677	696	721	696	466
Viral hepatitis A	Total	274	758	248	54	0	0	0	0	0	0	0	0
	Urban	95	391	131	32	0	0	0	0	0	0	0	0
	Rural	179	367	117	22	0	0	0	0	0	0	0	0
Viral Hepatitis B	Total	54	40	63	62	0	0	0	0	0	0	0	0
	Urban	1	2	2	2	0	0	0	0	0	0	0	0
	Rural	36	21	35	32	0	0	0	0	0	0	0	0
Viral hepatitis nAnB	Total	262	411	168	55	0	0	0	0	0	0	0	0
	Urban	59	98	69	20	0	0	0	0	0	0	0	0
	Rural	203	313	99	35	0	0	0	0	0	0	0	0

Figure 5.2.3The incidence rates of viral hepatitis over the period 1998-2009 by residence

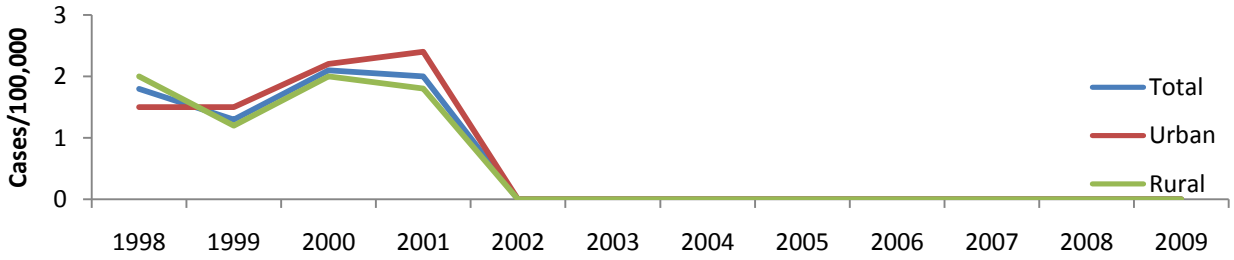
Unspecified hepatitis



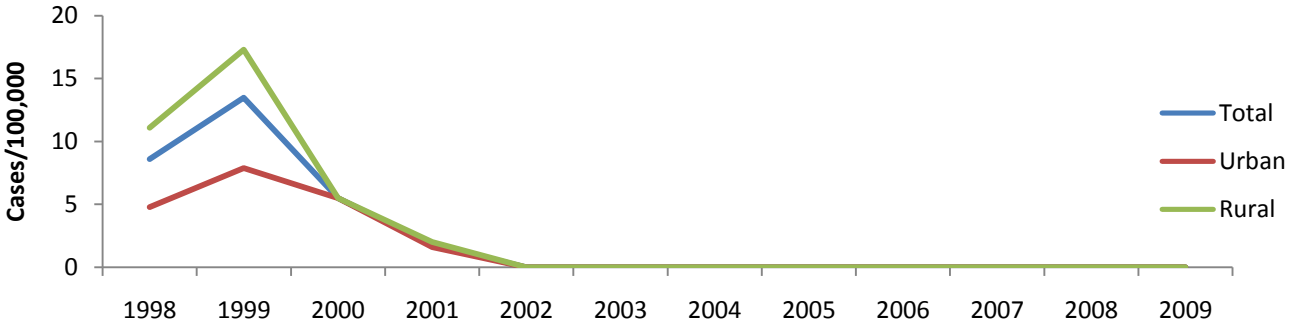
Viral Hepatitis A



Viral Hepatitis B



Viral Hepatitis nAnB

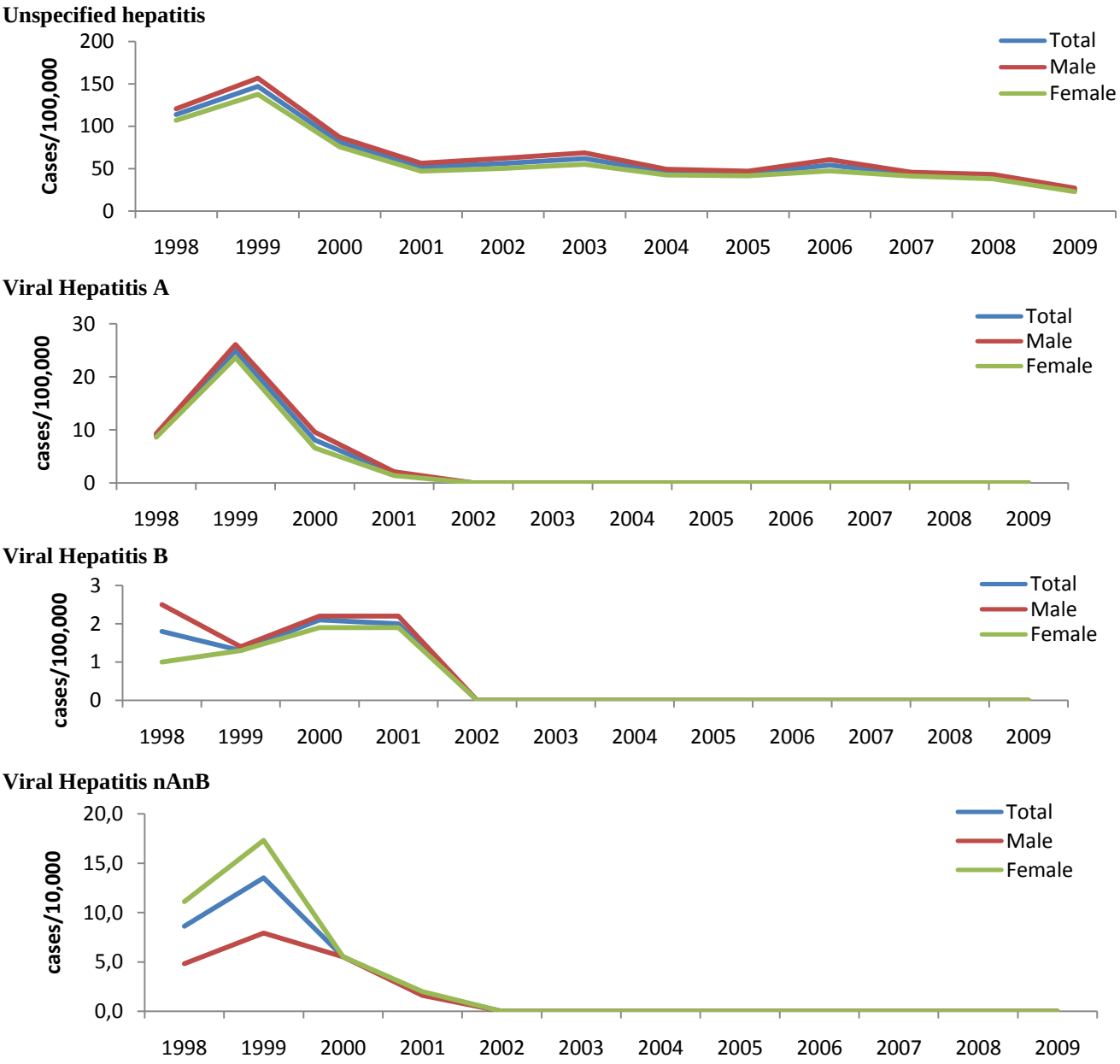


Urban areas show a disease occurrence of around 1.3 times higher than rural areas for unspecified viral hepatitis during our study period.The incidence rates of viral hepatitis shows a decreasing trend from year to year.

Table 5.2.5 Number of cases of viral hepatitis over the period 1998-2009 by gender

Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Unspecified hepatitis	Total	3489	4489	2489	1589	1734	1920	1430	1388	1699	1357	1298	791
	Male	1872	2404	1333	863	956	1060	764	733	950	718	697	428
	Female	1617	2085	1156	726	778	860	666	655	749	639	601	363
Viral hepatitis A	Total	274	758	248	54	0	0	0	0	0	0	0	0
	Male	144	401	147	32	0	0	0	0	0	0	0	0
	Female	130	357	101	22	0	0	0	0	0	0	0	0
Viral hepatitis B	Total	54	40	63	62	0	0	0	0	0	0	0	0
	Male	39	21	34	33	0	0	0	0	0	0	0	0
	Female	15	19	29	29	0	0	0	0	0	0	0	0
Viral hepatitis nAnB	Total	262	411	168	55	0	0	0	0	0	0	0	0
	Male	145	226	84	34	0	0	0	0	0	0	0	0
	Female	117	185	84	21	0	0	0	0	0	0	0	0

Figure 5.2.4 the incidence rates of viral hepatitis over the period 1998-2009 by gender



The incidence rate of unspecified viral hepatitis by gender presented in figure 5.2.4 show a decreasing trend and also, was no differences between male and female incidence rate over study period. Regarding the viral hepatitis A, viral hepatitis B and viral hepatitis nAnB (or viral hepatitis C) tregohet decreasing trend over the period 1998-2001, but distribution by gender of the incidence rate for viral hepatitis C is higher in female.

Individual notification schedul for viral hepatitis

- ***Part I – "General information"***

The patient's general information mainly "father's name" is "missing" in 23, 6 % for viral hepatitis B, 19.5% for viral hepatitis A and unspecified hepatitis and 16% for viral hetatits nAnB, (see 5.2.6). The average age groups most vulnerable to viral hepatitis reported by individual forms are: 18.5 years old in range (0-78) for unspecified viral hepatitis; 14.1 years old in range (0-87) for viral hepatitis A; 33.1 years old in range (50-70) for viral hepatitis B and 15.8 years old in range (0-78) for viral hepatitis C (nAnB).

Table 5.2.6 Percentage of the general information data from the individual form

	Unspecified hepatitis		**Viral hepatitis A**		**Viral hepatitis** B		**Viral hepatitis nA nB**	
	Yes	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**
	No. (%)	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**
Father's name	324 (80.6)	78 **(19.4)**	172 (80.4)	42 **(19.6)**	55 (76.4)	17 **(23.6)**	283 (84)	154 **(16)**
Gender	402 (100)	0	214 (100)	0	72 (100)	0	337 (100)	0
Age	338 (84.1)	64 (15.9)	198 (92.5)	16 (7.5)	70 (97.2)	2 (2.8)	328 (97.3)	9 (2.7)
Profession	402 (100)	0	214 (100)	0	72 (100)	0	337 (100)	0
Address	349 (86.8)	53 (13.2)	200 (93.5)	14 (6.5)	71 (98.6)	1(1.4)	324 (96.1)	13 (5.9)

- ***Part II – "History of disease"***

Table 5.2.7The data of disease history

	Unspecified hepatitis		**Viral hepatitis A**		**Viral hepatitis** B		**Viral hepatitis nA nB**	
	Yes	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**
	No. (%)	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**
Date of onset	402 (100)	0	214 (100)	0	72 (100)	0	337 (100)	0
Hospitalized	391 (97.3)	11 (2.7)	213 (99.5)	1 (0.5)	72 (100)	0	337 (100)	0
Vaccination	141 (35.1)	261 (64.9)	0	0	23 (31.9)	49 **(68.1)**	0	0

Table 5.2.8 Percentage of the disease prognosis for each disease

Disease	Cured		Deceased		Missing		Total
	No.	%	No.	%	No.	%	
Unspecified hepatitis	292	72.6	1	0.2	109	27.1	402
Viral hepatitis A	144	67.3	0	0	70	32.7	214
Viral hepatitis B	34	47.2	2	2.8	36	50.0	72
Viral hepatitis nA nB	298	88.4	0	0	39	11.6	337

Table 5.2.7 and 5.2.8 present the second part of the individual form of notification as: history and prognosis of the disease. In 35.1% of individual forms is completed on vaccination against hepatitis unspecified instead of viral hepatitis B; in 61.8% of the individual forms is lack of information on vaccination against hep.B and lack of information on disease prognosis ranging from11.6% for viral hepatitis nAnB to 50% for hepatitis B ***(see table 5.2.8).***

- ***Part III – "Laboratory diagnosis"***

Based on the criteria for confirming the diagnosis of viral hepatitis are outlined clinical and serological examinations. The obtained results by statistical analysis of individual notification forms show that the highest percentage of positivity confirmation is performed by direct examination and some of cases present postivity confirmation by culture examination. These examinations are not applicable for viral hepatitis.

Table 5.2.9 the laboratory examinations for each disease

Disease		Direct	Culture	Serology
		No. (%)	No. (%)	No. (%)
Unspecified hepatitis no = 402	**Positive**	252 (62.7) **not applicable**	0 -	93 (23.1)
	negative	18 (4.5)	0	92 (22.9)
	Missing	132 (32.8)	402 (100)	217 **(54)**
Viral hepatitis A no = 214	**Positive**	84 (39.3) **not applicable**	3 (1.4) - **not applicable**	93 (43.5)
	negative	15 (7)	0	25 (11.7)
	Missing	115 (55.7)	210 (98.6)	98 **(45.8)**
Viral hepatitis B no = 72	**Positive**	19 (26.4) **not applicable**	0 -	45 (62.5)
	negative	1(1.4)	0	3 (4.2)
	Missing	52 (72.2)	72 (100)	24 **(33.3)**
Viral hepatitis nA nB no = 337	**Positive**	272 (80.7) **not aplicable**	2 (0.6) - **not applicable**	4 (1.2)
	negative	13 (3.9)	0	3 (0.9)
	Missing	52 (15.4)	335 (99.4)	330 **(97.9)**

Not applicable – means wrong laboratory examination

- ***Part IV – "Epidemiological investigation"***

The data tables 5.2.10 and 5.2.11 show the nature of the outbreak of infection during the period 2007-2009 which is ***"missing"*** in: 55.3% for unspecified hepatitis, 28.9% for viral hepatitis A, 23.6% for viral hepatitis B and for viral hepatitis nAnB is in 31. % . While on the origin of the infection in 62.2% of unspecified hepatitis is ***"unknown***" and in 35.6% of them is ***"missing"***; for viral hepatitis A is about 67.8% ***"unknow***n" and in 13.1% of cases is ***"missin***g"; origin of hepatitis B viral infection is ***"unknown"*** about 73.6% of cases and is ***"missiing"*** in 23.6% of them and for viral hepatitis nAnB is ***"unknown"*** about 82.2% of cases and ***"missing"*** in 17.2%.

Table 5.2.10 the outbreak nature of disease

	Unspecified hepatitis		**Viral hepatitis A**		**Viral hepatitis** B		**Viral hepatitis nA nB**	
	Yes	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**
	No. (%)	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**
Sporadic	187 (46.5)	182 **(55.3)**	117 (54.7)	62 **(28.9)**	53 (73.6)	17 **(23.6)**	108 (32)	106 **(31.5)**
Endemic	33 (8.2)		35 (16.4)		2 (2.8)		123 (36.5)	

Table 5.2.11 Origine of infectious for each disease

	unspecified hepatitis	**viral hepatitis A**	**viral hepatitis B**	**viral hepatitis nA nB**
Known	9	41	2	2
Unknown	250	145	53	277
Missing	143	28	17	58
Total	402	214	72	337

- ***Part V – "Conclusion"***

Individual form of notification for viral hepatitis contains the same elements (parts) as individual form of notification for diarrhea diseases.

Although, the positivity and negativity are not confirmed by relevant laboratoritical tests ***(see table 5.2.9)***, our results show that the highest percentage of viral hepatitis diagnosis in general is *"**confirmed**"*.

Table 5.2.12 Case classification for each disease

Disease	Confirmed		Suspected		Missing		Total
	No.	%	No.	%	No.	%	
Unspecified hepatitis	320	79.6	35	8.7	47	11.7	402
Viral hepatitis A	176	82.2	19	8.9	19	8.9	214
Viral hepatitis B	61	84.7	4	5.6	7	9.7	72
Viral hepatitis nA nB	295	87.5	19	5.6	23	6.8	337

5.3 Epidemiological characteristics of zoonoses

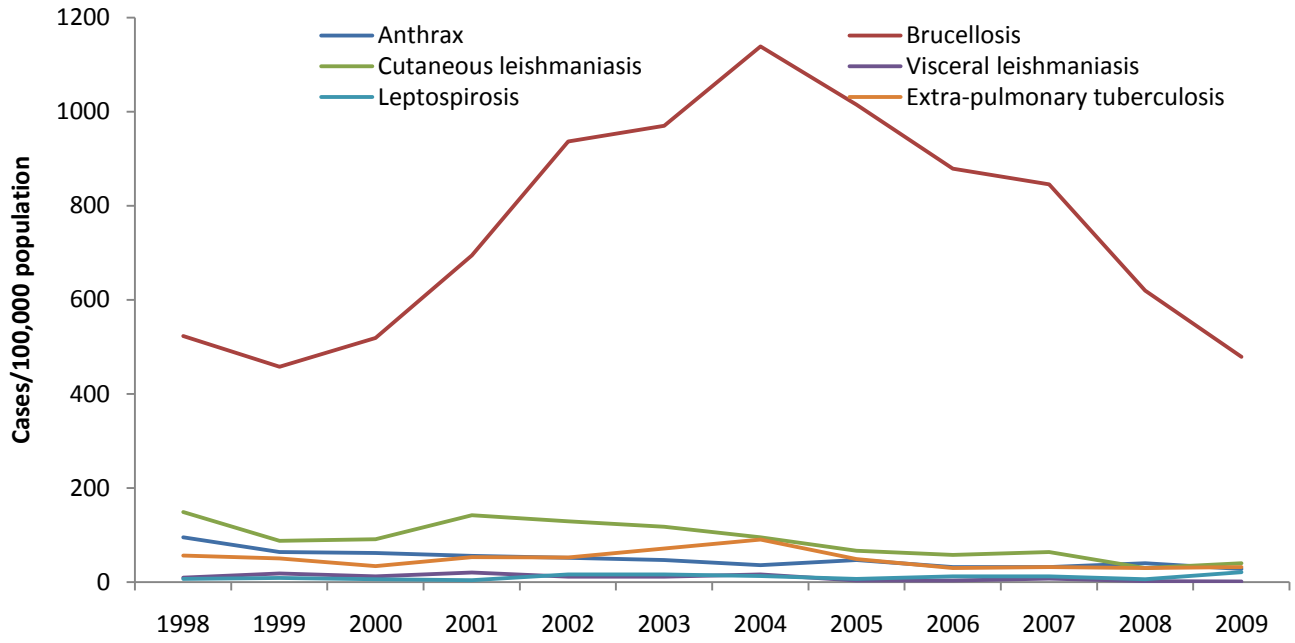
Zoonotic diseases are another infectious diseases group included in infectious diseases surveillance system. Monthly reporting data are based on notified cases by individual form of notification. Zoonotic diseases are included in the individual form of notification called 14-2/Sh. Table 5.3.1 shows the number of cases of zoonotic diseases through monthly reporting for the period 1998-2009 and the notified cases number for the years 2007-2009 which are expressed by ***( ).***

Numbers of cases reported by both of forms (monthly and individual forms) show the difference between them. Also, important is that during 2007-2009 the cases number of visceral leishmanies by individual form is higher than the cases number reported by the monthly form.

Table 5.3.1 Number of cases of zoonosis in Albania [*by monthly reporting and individual schedules* ***( )]***

Disease	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Anthrax	95	64	62	56	52	47	36	47	32	32 (16)	40 (11)	28 (2)
Brucellosis	523	458	519	695	937	970	1139	1015	879	846 (451)	620 (244)	479 (168)
Coetaneous leishmaniasis	149	88	91	142	129	118	95	67	58	64	30 (1)	40
Visceral leishmaniasis	9	18	12	20	11	11	16	3	3	7 **(44)**	2 **(16)**	1**(16)**
Leptospirosis	7	9	6	4	16	16	13	7	12	12(4)	6 (3)	21(6)
Extra-pulmonary tuberculosis	56	50	34	53	52	71	90	49	30	32 (7)	30 (10)	32 (6)

Figure 5.3.1The incidence rate of zoonosis over the period 1998 – 2009 in Albania



The occurrence of zoonoses such as anthrax, leishmaniasis, leptospirozis and extra-pulmonary tuberculosis during the period 1998-2009 was characterized by a tendency more or less stable in decreasing trend. The highest level of incidence rate is shown for ***brucellosis***, with a high peak in year's 2004.

Table 5.3.2 Number of zoonoses cases reported by monthly and individual forms ( ) by region during the years 2007-2009

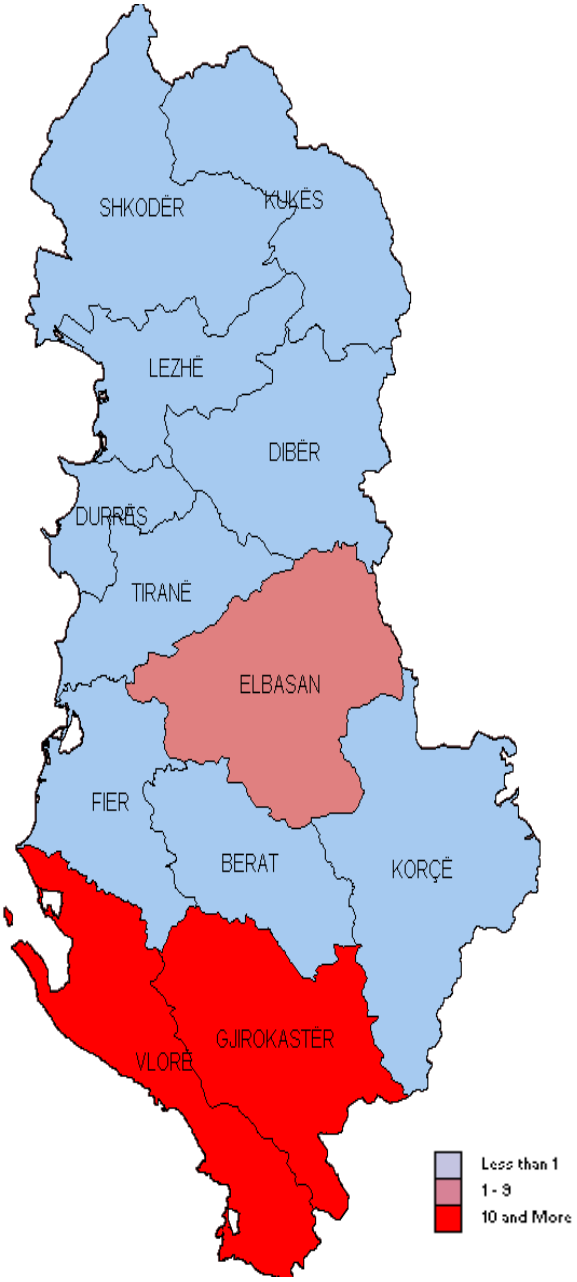
Regions	Anthrax	Brucellosis	Coetaneous leishmaniasis	Visceral leishmaniasis	Leptospirosis	Extra-pulmonary tuberculosis
Berat	0	91 (27)	0	18 (17)	4	1
Diber	1	71 (49)	0	13	0	22 (23)
Durres	0	20 (11)	0	1	4	4
Elbasan	3 (4)	170 (57)	0	11 (8)	3 (2)	7
Fier	6	255 (127)	3	3 (2)	8 (1)	27
Gjirokaster	26 (9)	274 (127)	1 (1)	8 (4)	0	1
Korce	9	467 (233)	10	134	39	9
Kukes	2	38 (42)	0	2 (3)	0	2
Lezhe	0	3 (1)	0	16 (10)	2 (1)	2
Tirane	5 (4)	42 (16)	6	28 (29)	16 (9)	0
Vlore	48 (12)	499 (235)	0	7 (4)	0	5
Shkoder	0	15	0	27	2	14
Total	***99 (29)***	***1945 (869)***	***20 (1)***	***268 (77)***	***78 (13)***	***94 (23)***

Distributions of zoonoses by region express inconsistency of data between monthly reporting and individual notification (which must be equal). Some of regions present number of notified cases more than the monthly reported data as: the region of Tirana for visceral leishmaniasis; Elbasan region for anthrax; Kukes region for brucellosis and visceral leishmaniasis and Diber region for extra-pulmonary tuberculosis. Also, the table presents the lack of notified cases reported by the individual forms of notification (table 5.3.2).

Country Mean Incidence (cases/100,000 population) and range

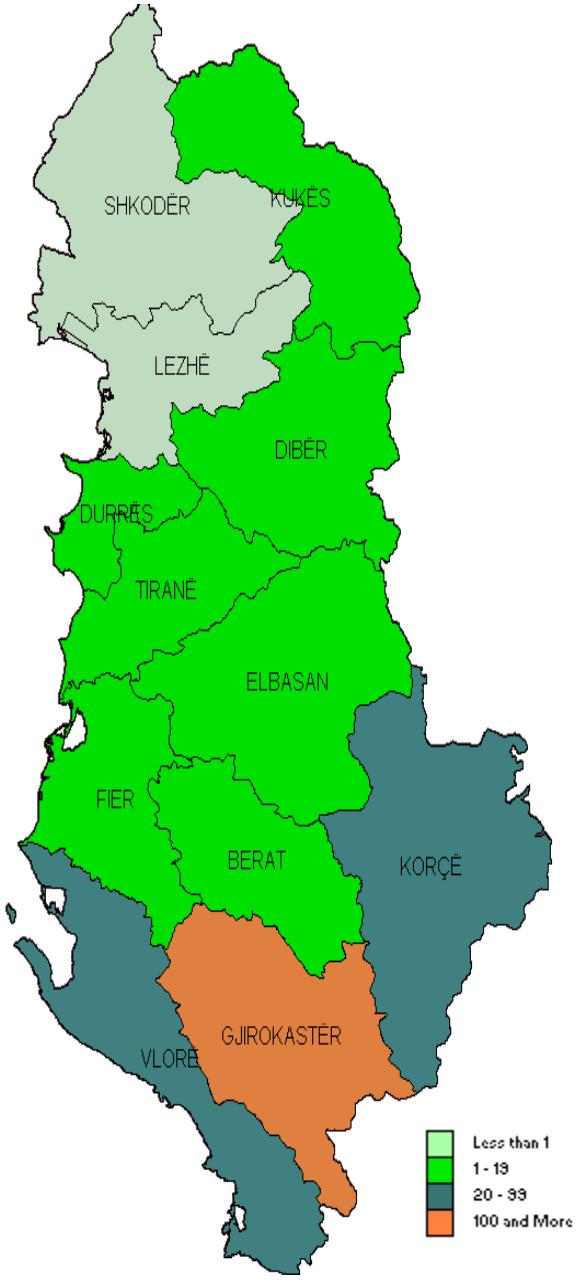
Anthrax

2.7 (6.5 – 18.3)



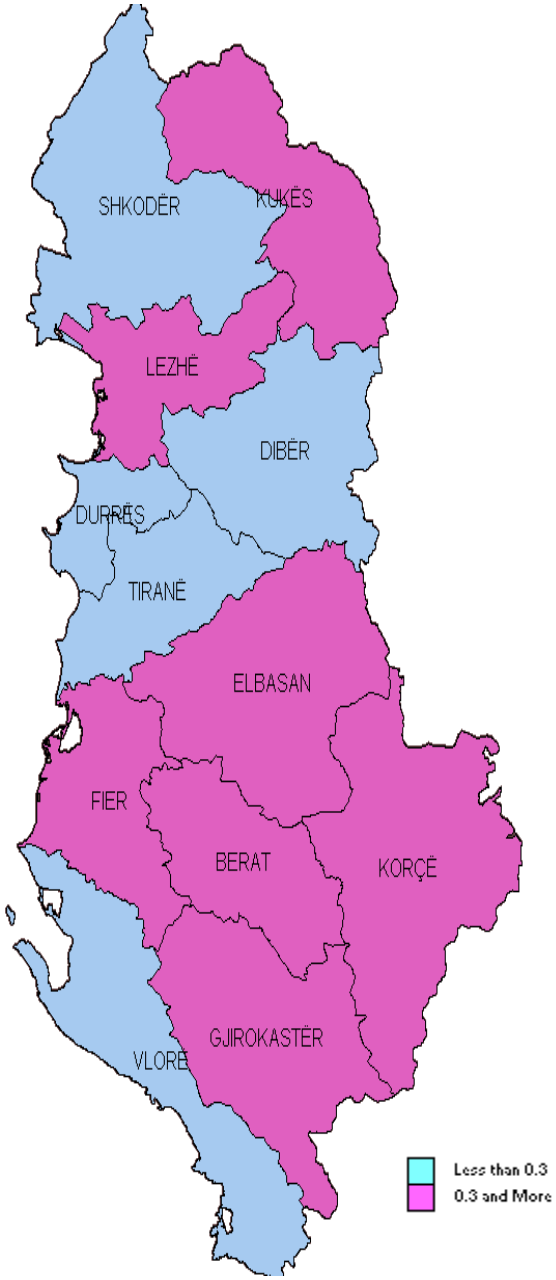
Brucellosis

32.8 (0.7 – 123.7)



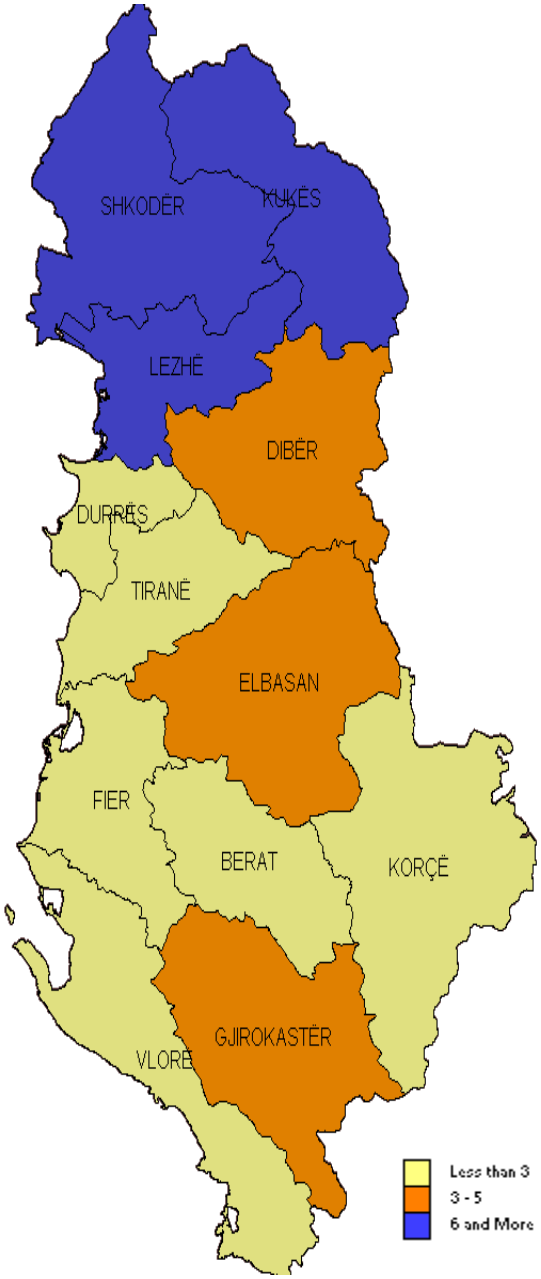
Coetaneous leishmaniasis

0.3 (0.2 – 0.6)



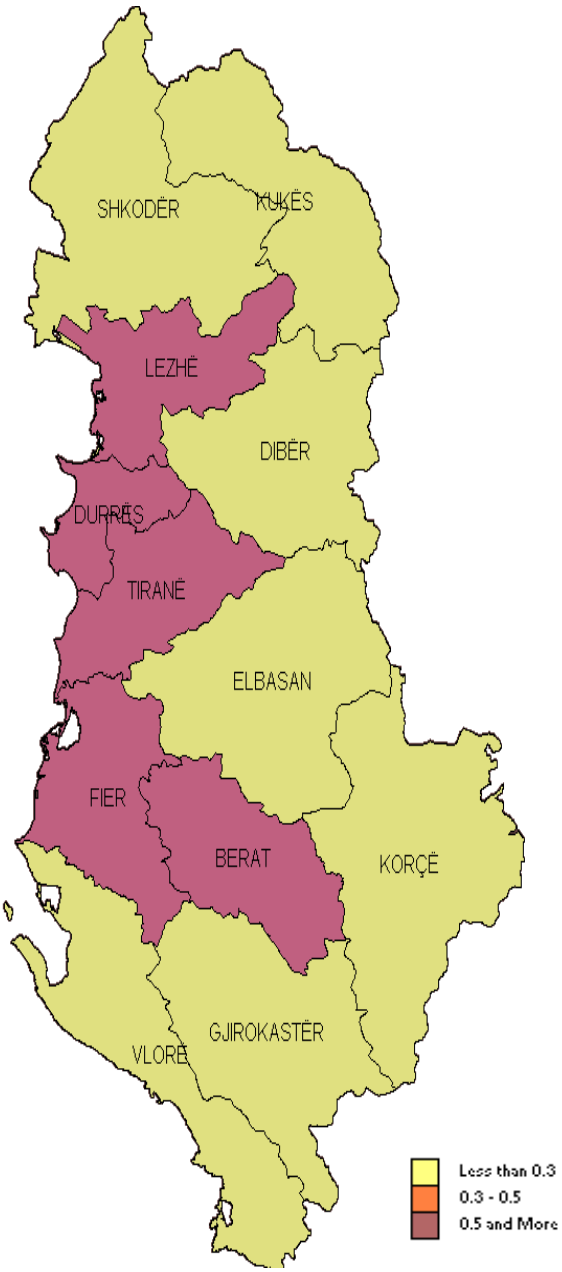
Visceral leishmaniasis

3.4 (0.2 – 7.7)



Leptospirosis

0.3 (0 – 0.6)



TBC extra pulmonary

1.5 (0.1 – 6.5)

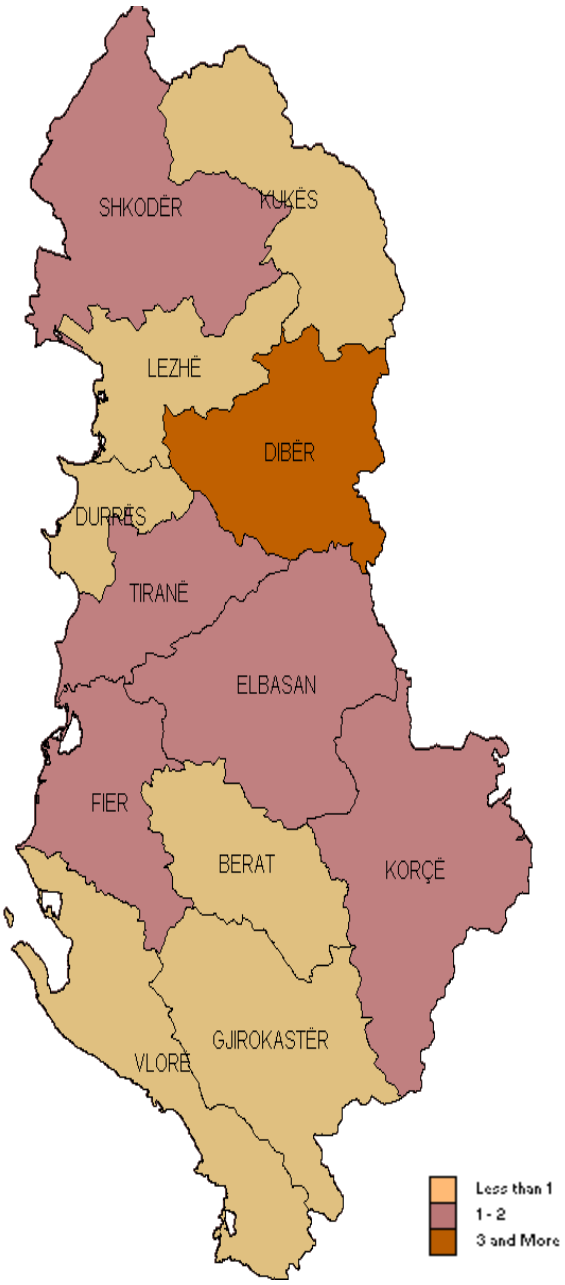
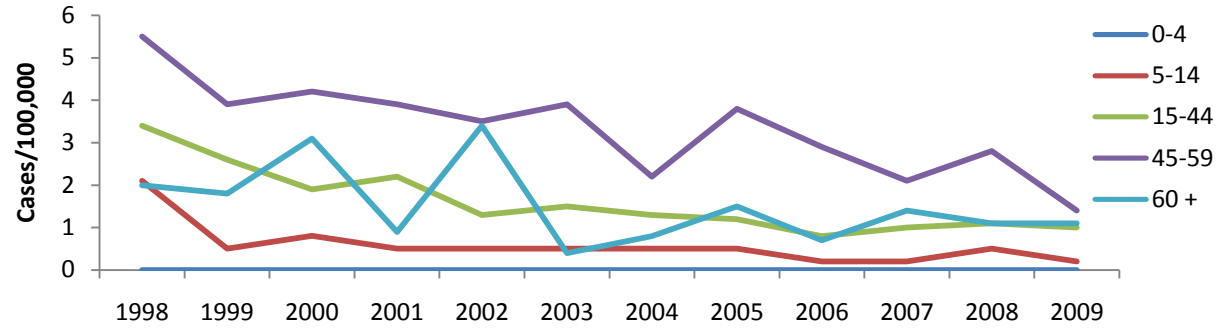


Table 5.3.3 the number of zoonoses cases over the period 1998-2009 by age-group

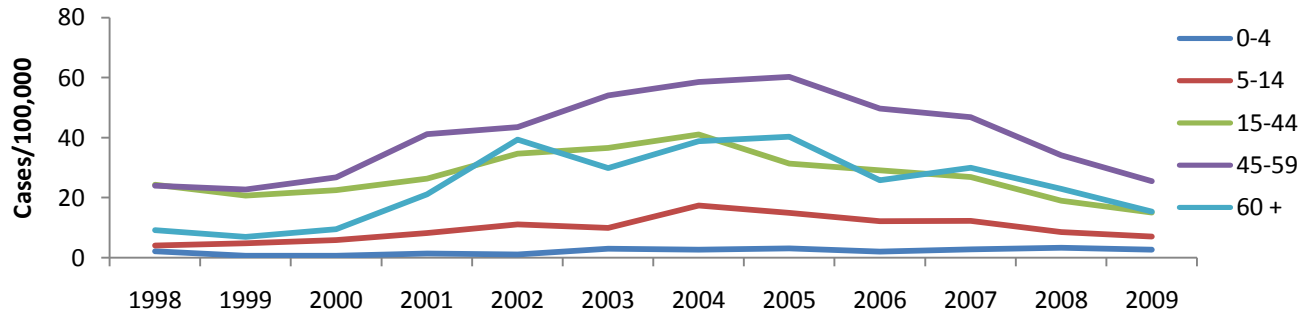
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Anthrax	0-4	0	0	0	0	0	0	0	0	0	0	0	0
	5-14	13	3	5	3	3	3	3	3	1	1	3	1
	15-44	47	36	27	30	18	21	18	17	11	14	16	15
	45-59	30	21	23	21	23	22	13	23	18	13	18	9
	60 +	5	4	7	2	8	1	2	4	2	4	3	3
Brucellosis	0-4	6	2	2	4	3	8	7	8	5	7	8	6
	5-14	26	30	37	52	69	61	104	87	68	68	48	40
	15-44	339	287	313	367	486	520	588	454	425	394	283	226
	45-59	131	123	145	224	286	308	342	361	310	294	217	164
	60 +	21	16	22	48	93	73	98	105	71	83	64	43
Coetaneous leishmaniasis	0-4	5	7	5	7	6	4	13		2	1		1
	5-14	0	5	5	7	4	3	0	0	0	3	1	0
	15-44	3	5	1	4	1	4	3	3	0	3	0	0
	45-59	1	0	0	2	0	0	0	0	1	0	0	0
	60 +	0	1	1	0	0	0	0	0	0	0	1	0
Visceral leishmaniasis	0-4	114	69	63	92	81	75	64	43	9	41	18	21
	5-14	13	13	16	40	37	20	22	16	42	13	7	8
	15-44	14	6	7	8	9	15	4	5	5	4	4	9
	45-59	7		4	1	2	4	1	1	2	3	1	1
	60 +	1	0	1	1	0	4	4	2	0	3	0	1
Leptospirosis	0-4	1	0	0	0	0	0	0	0	0	0	0	0
	5-14	0	0	0	0	2	1	0	1	0	0	0	0
	15-44	6	3	4	3	2	7	4	4	6	8	2	8
	45-59	6	2	1	10	6	7	2	6	4	3	11	
	60 +	0	0	0	0	2	2	2	0	0	0	1	2
Extra-pulmonary tuberculosis	0-4	3	1	1	3	1	3	2	0	1	1	0	1
	5-14	5	6	7	3	7	6	13	2	0	1	1	2
	15-44	20	23	14	27	18	33	27	13	9	13	13	10
	45-59	19	12	8	11	15	20	30	18	16	13	11	8
	60 +	9	8	4	9	11	9	18	16	4	4	5	11

Figure 5.3.2The incidence rates of zoonoses over the period 1998-2009 by age - group

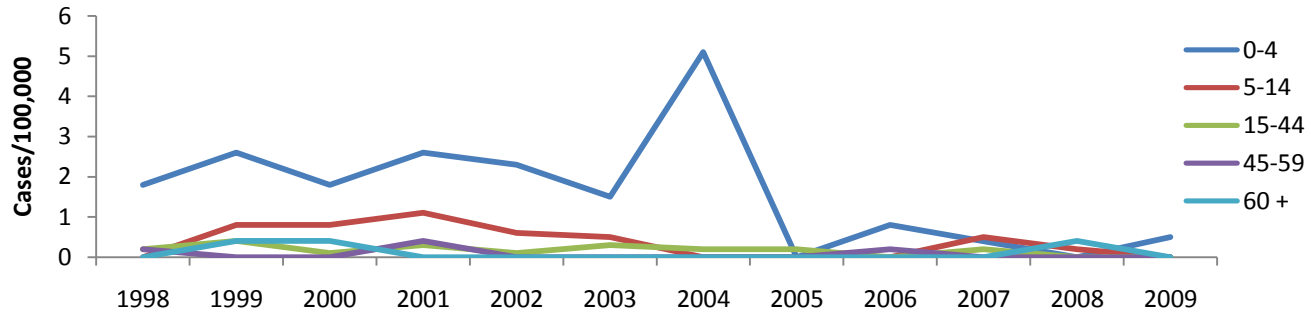
Anthrax



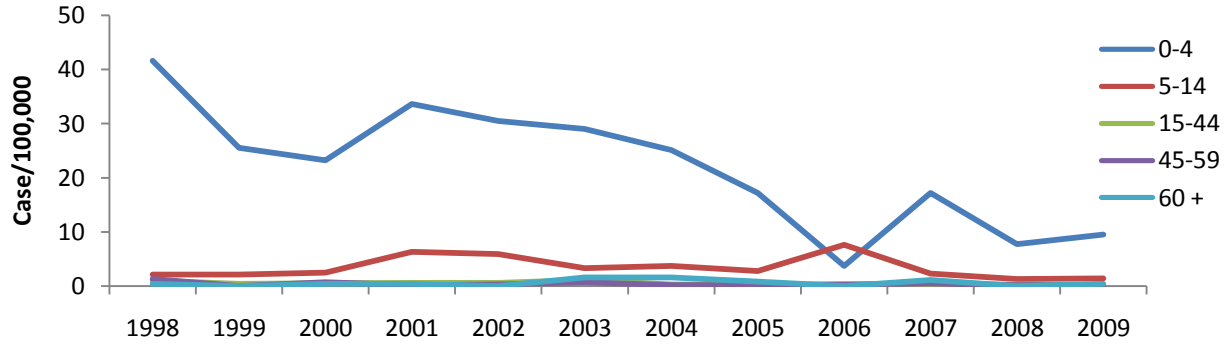
Brucellosis



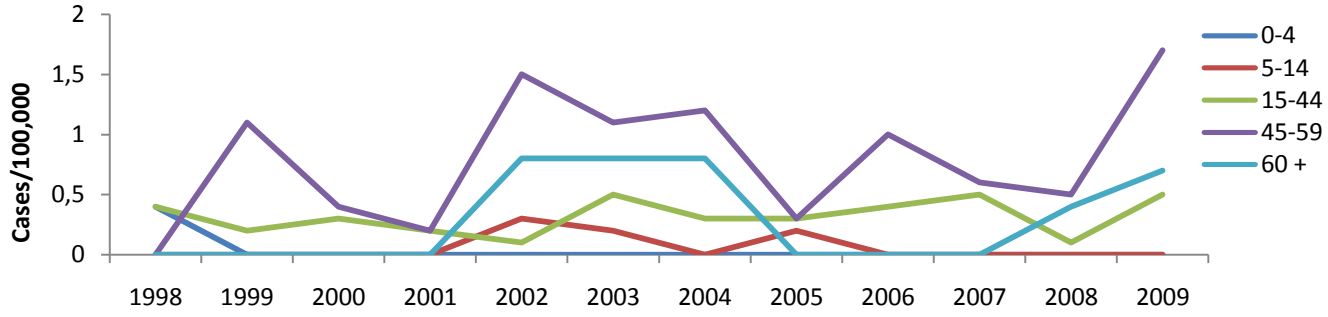
Coetaneous leishmaniasis



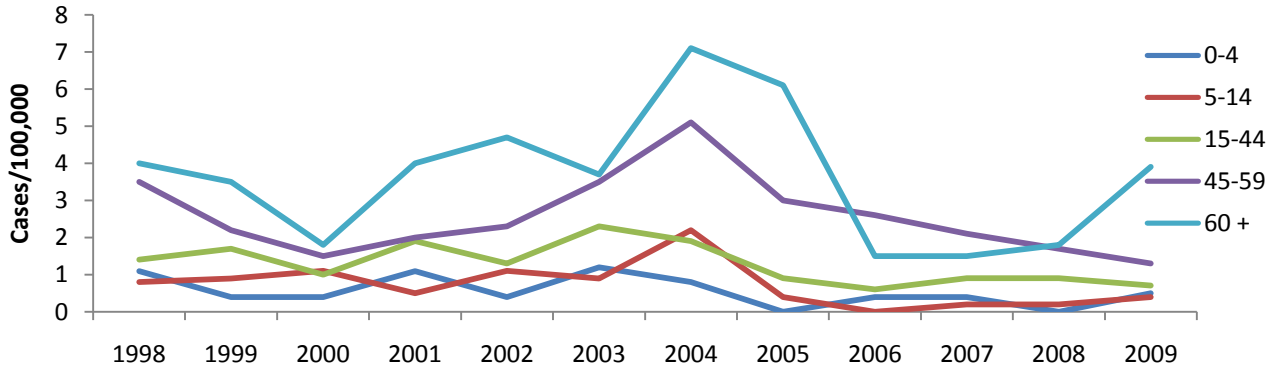
Visceral leishmaniasis



Leptospirosis



Extra-pulmonary tuberculosis



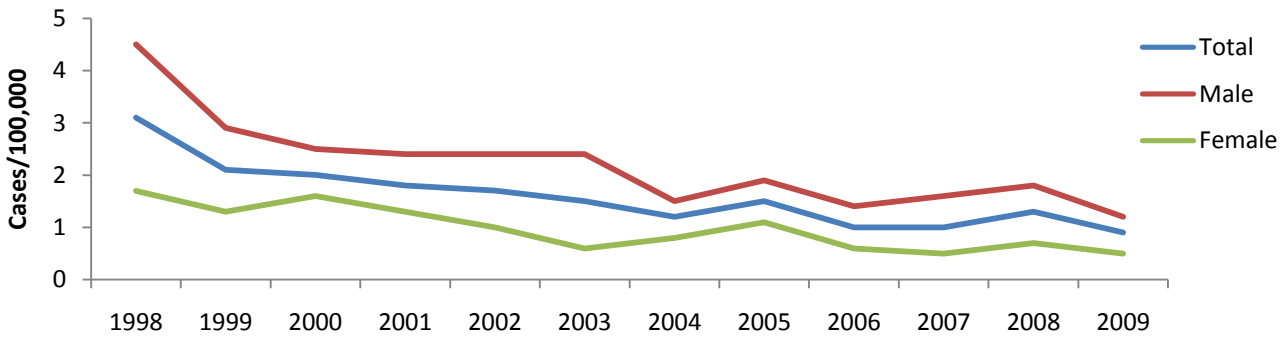
Most affected by anthrax, brucellosis, leptospirosis and extra-pulmonary tuberculosis are age groups over 15 years. Regarding of visceral and coetaneous leishmaniasis, most affected is the pediatric age group 0-4 years ***(table 5.3.3 & figure 5.3.2),*** which occupies the major burden for visceral and coutaneous leishmaniasis whith around 60-65% of reported cases.

Table 5.3.4 the number of zoonosis cases over the period 1998-2009 by gender

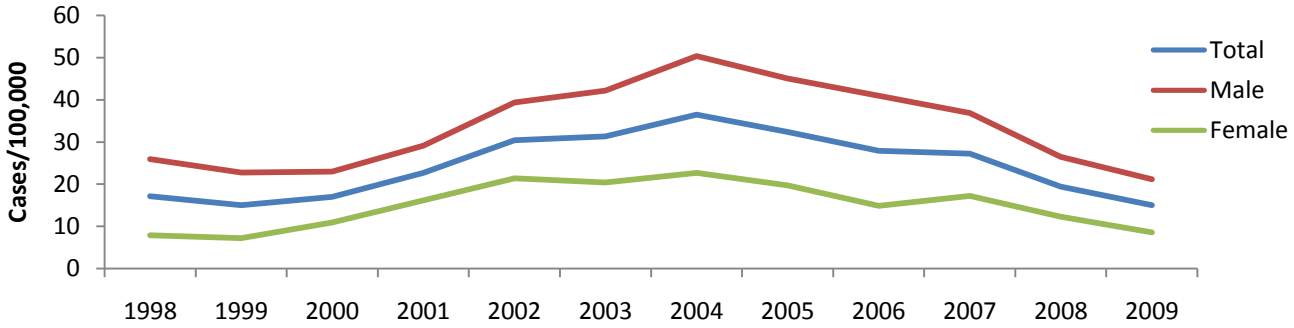
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Anthrax	Total	95	64	62	56	52	47	36	47	32	32	40	28
	Male	70	44	38	36	37	37	23	29	22	25	29	20
	Female	25	20	24	20	15	10	13	18	10	7	11	8
Brucellosis	Total	523	458	519	695	937	970	1139	1015	879	846	620	479
	Male	404	349	352	446	606	652	784	705	643	580	425	342
	Female	119	109	167	249	331	318	355	310	236	266	195	137
Coetaneous leishmaniasis	Total	9	18	12	20	11	11	16	3	3	7	2	1
	Male	6	12	7	9	6	2	10	3	1	4	1	1
	Female	3	6	5	11	5	9	6	0	2	3	1	0
Visceral leishmaniasis	Total	149	88	91	142	129	118	95	67	58	64	30	40
	Male	90	46	61	93	76	70	52	40	31	30	19	24
	Female	59	42	30	49	53	48	43	27	27	34	11	16
Leptospirosis	Total	7	9	6	4	16	16	13	7	12	12	6	21
	Male	6	9	6	4	12	13	11	4	11	11	5	19
	Female	1	0	0	0	4	3	2	3	1	1	1	2
Extra-pulmonary tuberculosis	Total	56	50	34	53	52	71	90	49	30	32	30	32
	Male	19	23	11	25	26	38	49	28	13	12	12	15
	Female	37	27	23	28	26	33	41	21	17	20	18	17

Figure 5.3.3The incidence rate of zoonoses over the period 1998-2009 by gender

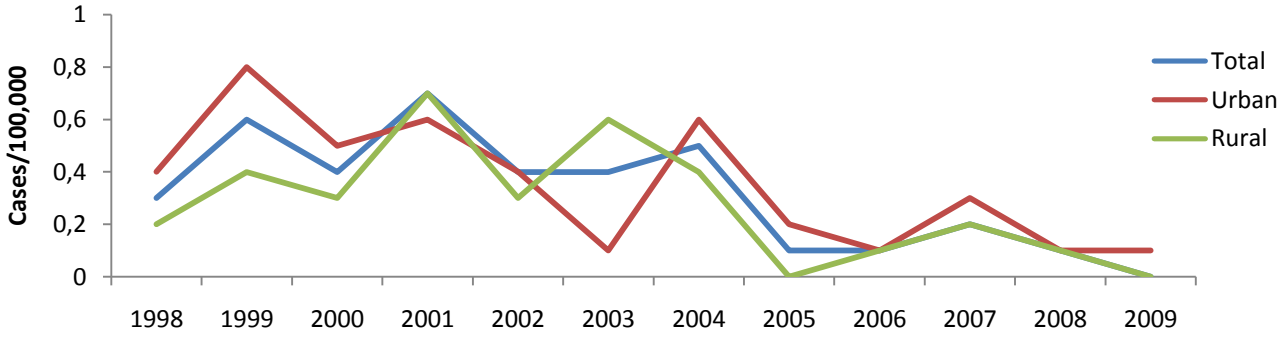
Anthrax



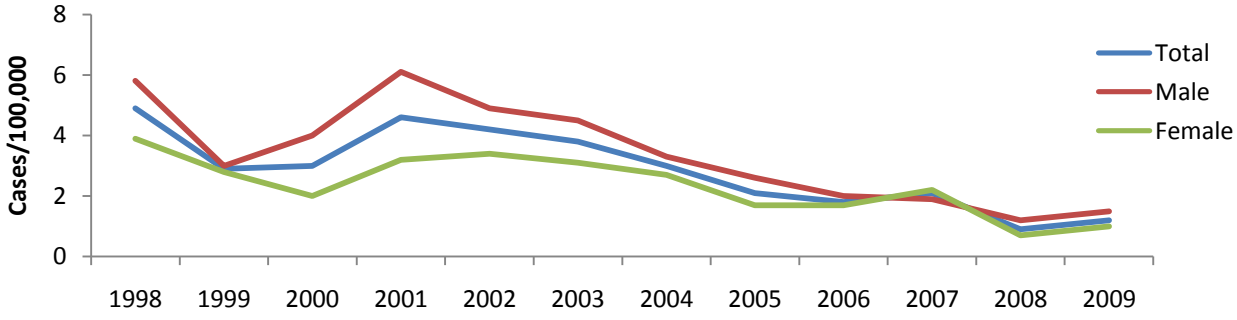
Brucellosis



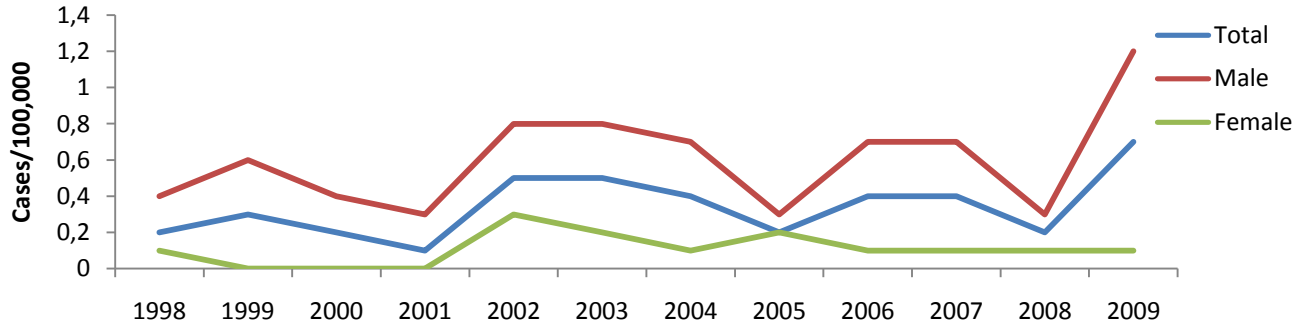
Coetaneous leishmaniasis



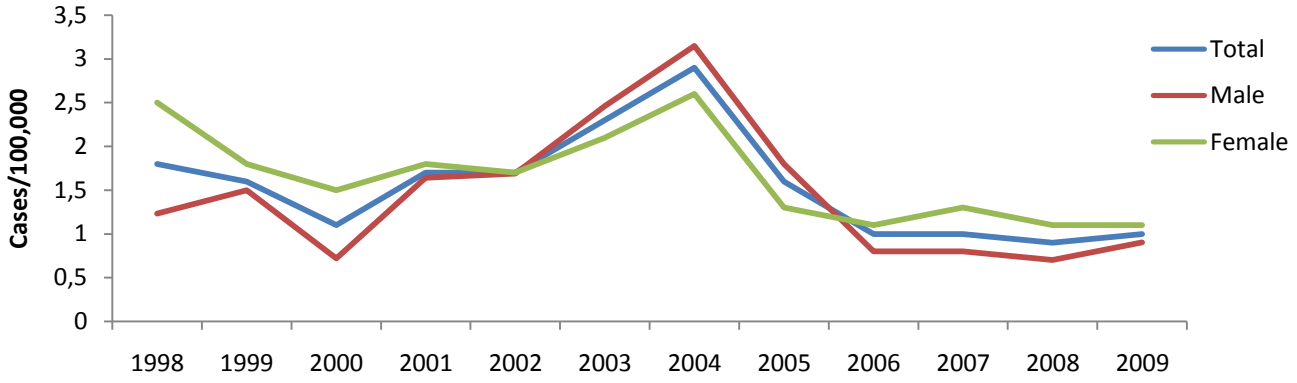
Visceral leishmaniasis



Leptospirosis



Extra-pulmonary tuberculosis



One factor in the development of zoonotic diseases is a professional nature.

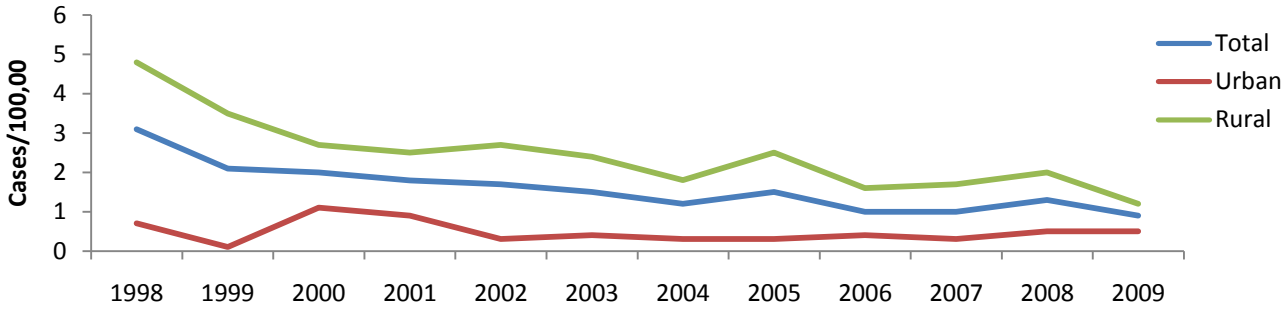
Table 5.3.4 and Figure 5.3.3 show the frequencies (number of cases) and incidence (case/100.000 population) for this group of diseases. Although, the trend is decreased, the major burden occupy by male in 66.3% of cases, as well as the brucellosis disease show higher incidence rate than others diseases of this group.

Table 5.3.5 Number of zoonotic diseases cases over the period 1998-2009 by residence

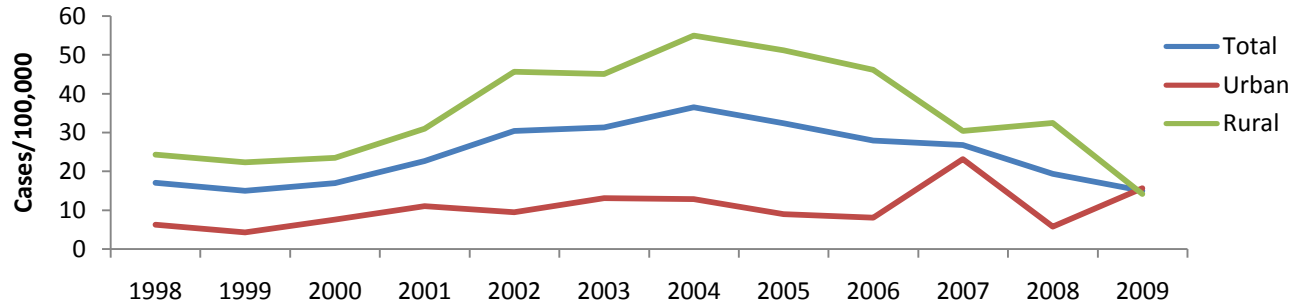
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Anthrax	Total	95	64	62	56	52	47	36	47	32	32	40	28
	Urban	8	1	14	11	4	5	4	4	6	5	8	8
	Rural	87	63	48	45	48	42	32	43	26	27	32	20
Brucellosis	Total	523	458	519	695	937	970	1139	1015	879	846	620	479
	Urban	78	53	96	142	123	176	176	125	123	358	91	247
	Rural	445	405	423	553	814	794	963	890	756	488	529	232
Coetaneous leishmaniasis	Total	9	18	12	20	11	11	16	3	3	7	2	1
	Urban	2	11	6	8	7	6	10	3	1	4	2	1
	Rural	7	7	6	12	4	5	6	0	2	3	0	0
Visceral leishmaniasis	Total	146	88	91	142	129	118	95	67	58	64	30	40
	Urban	54	33	32	53	59	49	35	21	21	35	13	14
	Rural	92	55	59	89	70	69	60	46	37	29	17	26
Leptospirosis	Total	7	9	6	4	16	16	13	7	12	12	6	21
	Urban	4	5	0	3	10	6	7	2	4	7	2	9
	Rural	3	4	6	1	6	10	6	5	8	5	4	12
Extra-pulmonary tuberculosis	Total	56	50	34	53	52	71	90	49	30	32	30	32
	Urban	30	21	13	27	33	32	37	19	12	15	11	12
	Rural	26	29	21	26	19	39	53	30	18	17	19	20

Figure 5.3.4The incidence rate of zoonotic diseases over the period 1998-2009 by residence

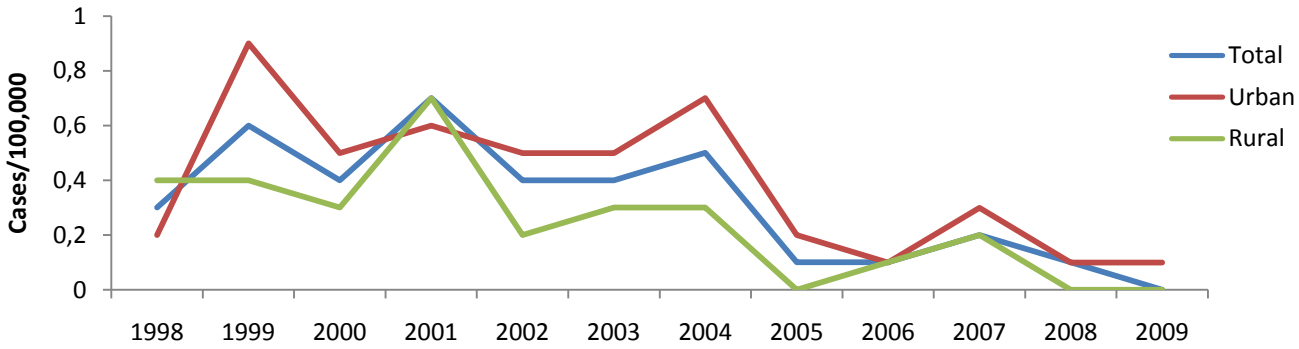
Anthrax



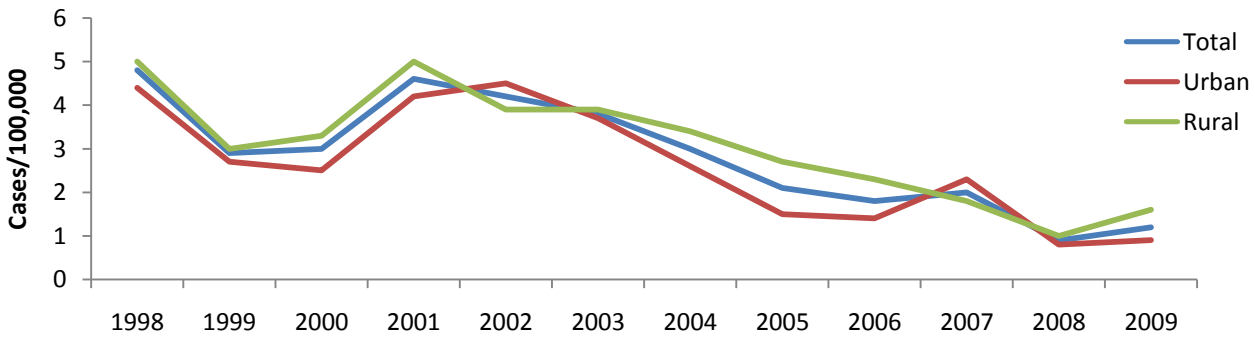
Brucellosis



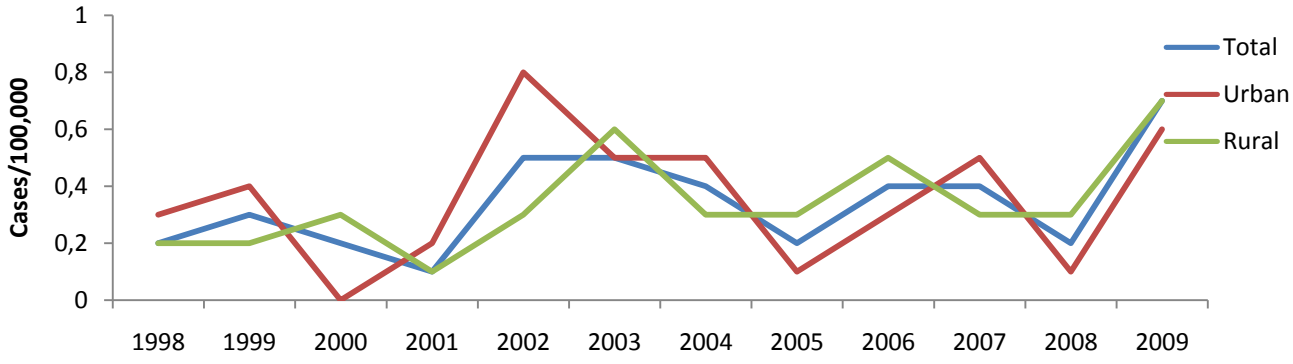
Coetaneous leishmaniasis



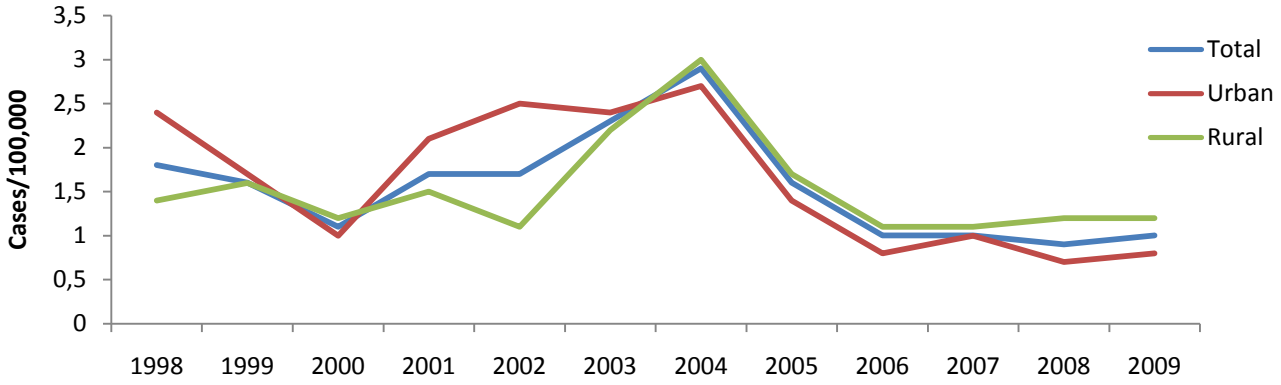
Visceral leishmaniasis



Leptospirosis



Extra-pulmonary tuberculosis



The zoonotic diseases cases have been recorded not only in rural areas, but also in urban ones. Still, the vast majority of reported cases (> 90%) pertain to rural areas and recently to suburban ones as well.

Individual notification schedul for zoonotic diseases

In general, individual forms of notification of zoonotic disease present the general information indicators about the patients (patient's generalities). From these forms result that the average age group affected by each zoonotic disease is: 43.5 years old in range (10-87) for anthrax; 39.1 years old in range (1-81) for brucellosis; 8.1 years old in range (0-77) for visceral leishmaniasis; 39 years old in range (16-64) for leptospirosis and 48.5 years old in range (18-79) for extra-pulmonary tuberculosis.

- ***Part I – "General information"***

Table 5.3.6 Percentage of the general information data from the individual form

	Anthrax		**Brucellosis**		**Coetaneous leishmaniasis**		**Visceral leishmaniasis**		**Leptospirosis**		**Extrapulmonary TBC**	
	Yes	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**	**Yes**	**Missing**
	No. (%)	**No. (%)**	**No. (%)**	**No. (%)**	**No.(%)**	**No. (%)**	**No.(%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**
Father's name	24 (82.8)	5 **(17.2)**	713(82)	156 **(18)**	0	1(100)	73 (94.8)	4 (5.2)	7 (53.8)	6 **(46.2)**	22 (95.7)	1(4.3%)
Gender	29 (100)	0	869 (100)	0	1(100)	0	77 (100)	0	13 (100)	0	23 (100)	0
Age	29 (100)	0	862 (99.2)	7 (0.8)	1(100)	0	75 (97.4)	2 (2.6)	13 (100)	0	23 (100)	0
Profession	29 (100)	0	869 (100)	0	1(100)	0	77 (100)	0	13 (100)	0	23 (100)	0
Address	28 (96.6)	1(3.4)	838 (96.4)	31(3.6)	1(100)	0	66 (85.7)	11 (14.3)	9 (69.2)	4 **(30.8)**	18 (78.3)	5 **(21.7%)**

- ***Part II – " History of disease"***

Tables 5.3.7 and 5.3.8 represent indicators of part II of the notification form of case.

Onset of illness and hospitalization in the highest percentage are completed, while on the prognosis of the disease in each of them result "missing" in 51.7% of anthrax forms; in 43.3% of brucellosis forms and in 34.8% of extra-pulmorary tuberculosis forms (not known if the patients were cured or died).

Table 5.3.7 The data of the disease history

	Anthrax		**Brucellosis**		**Coetaneous leishmaniasis**		**Visceral leishmaniasis**		**Leptospirosis**		**Extrapulmonary tuberculosis**	
	Yes	Missing	Yes	Missing	Yes	Missing	Yes	Missing	Yes	Missing	Yes	Missing
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Date of onset	28 (96.6)	1(3.4)	832 (95.7)	37 (4.3)	1 (100)	0	74 (96.1)	3 (3.9)	13 (100)	0	22 (95.7)	1 (4.3)
Hospitalized	29 (100)	0	834 (96)	35 (4)	1 (100)	0	76 (98.7)	1(1.3)	13 (100)	0	23 (100)	0

Table 5.3.8 Percentage of the disease prognosis for each disease

Disease	**Cured**		**Deceased**		**Missing**		**Total**
	No.	**%**	**No.**	**%**	**No.**	**%**	
Anthrax	14	48.3	0	0	15	**51.7**	29
Brucellosis	493	56.7	0	0	376	**43.3**	869
Coetaneous leishmaniasis	0	0.0	0	0	1	**100.0**	1
Visceral leishmaniasis	65	84.4	0	0	12	15.6	77
Leptospirosis	12	92.3	1	7.7	0	0.0	13
Extra pulmonary tuberculosis	15	65.2	0	0	8	**34.8**	23

- ***Part III – "Laboratory diagnosis"***

For each zoonotic diseases have different laboratory examination. The table 5.3.9 show how are confirmed these diagnosis.

Anthrax is confirmed by clinic, direct and cultura examination. In individual notification schedule there is not the rubric of clinical examination. In 51.7% of cases the laboratory confirmation (direct examination) for anthrax "missing", and 79.3% of them "missing" with cultur examination.

Brucellosis – laboratory confirmation of brucellosis is carried out by clinical and serological examination. Results obtained show that 3% of confirmed cases is directly and 0.5% is cultur examination. In 25.2% of cases of brucellosis we have "missing" for serology examination.

Viscral and coetaneous leishmaniasis is confirmed by clinical and direct examination. 66.2% of cases of visceral Leishmania show "missing" on the laboratory examination (direct examination), even to the case of leishmaniasis coutaneous laboratory examination is not performed (100% "missing").

In 10.4% (positive and negative) of cases indicates that confirmation is done with serology (wrong).

Inadequate confirmation is and for ***leptospirosis*** which is confirmed by clinical and serology examination. Our data presented in table 5.3.9 show that in 69.2% of cases we have "missing" for serology examination and in 23.1% of them the leptospirosis is confirmed by direct examination (wrong).

Laboratory confirmation for ***extra-pulmonary tuberculosis*** presents "missing" for all given cases.

Table 5.3.9 Percentage of the laboratory examinations for each disease

Disease		Direct	Culture	Serology
		No. (%)	No. (%)	No. (%)
Anthrax	**Positive**	12 (41.4)	4 (13.8)	0 **- not applicable**
	negative	2 (6.9)	2 (6.9)	2 (6.9)
N = 29	Missing	15 **(51.7)**	23 **(79.3)**	27 (93.1)
Brucellosis	**Positive**	26 (3) **- not applicable**	4 (0.5) **- not applicable**	644 (74.1)
	negative	0	0	6 (0.7)
N = 869	Missing	843 (97)	865 (99.5)	219 (25.2)
Coetaneous leishmaniasis	**Positive**	0	0 **- not applicable**	0 **- not applicable**
	negative	0	0	0
N = 1	Missing	1 **(100)**	1 (100)	1(100)
Visceral leishmaniasis	**Positive**	25 (32.5)	0 **- not applicable**	6 (7.8) **- not applicable**
	negative	1 (1.3)	0	2 (2.6)
N = 77	Missing	51 (66.2)	77 (100)	69 (89.6)
Leptospirosis	**Positive**	3 (23.1) **- not applicable**	0 **- not applicable**	4 (30.8)
	negative	0	0	0
N = 13	Missing	10 (76.9)	13 (100)	9 **(69.2)**
Extrapulmonary tuberculosis	**Positive**	0	0	1 (4.3)
	negative	7 (39.4)	0	0
N = 23	Missing	16 (60.6)	23 (100)	22 (95.7)

Not applicable – means wrong laboratory examination

- ***Part IV – "Epidemiological investigation"***

In general the indicators of epidemiological investigation are completed except leptospirosis which in 30.8% of forms is "missing" followed by anthrax (17.2% of them) and brucellosis (12.2 %of them). Regarding the origin of the infection which has caused it represents "unknown" and"missing for each disease (see table 5.3.11).

Table 5.3.10 Percentage of outbreak nature for each disease

	Antrax		Brucellosis		Coetaneous leishmaniasis		Visceral leishmaniasis		Leptospirosis		Extrapulmonary tuberculosis	
	Yes	Missing	Yes	Missing	Yes	Missing	Yes	Missing	Yes	Missing	Yes	Missing
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. %)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Sporadic	18 (62.1%)	5 **(17.2)**	529 (60.9)	193 **(12.2)**	1(100)	0	59 (76.6)	15 **(19.5)**	9 (69.2)	4 **(30.8)**	16 (69.6)	1 **(4.3)**
Endemic	6 (20.7%)		147 (16.9)		0		3 (3.9)		0		6 (26.1)	

Table 5.3.11 Origine of infectious for each disease

	Anthrax	**Brucellosis**	**Coetaneous leishmaniasis**	**Visceral leishmaniasis**	**Leptospirosis**	**Extra - pulmonary tuberculosis**	**Total**
Known	16	467	0	10	0	0	493
unknown	2	169	0	43	8	0	**222**
missing	11	233	1	24	5	23	**297**
Total	**29**	**869**	**1**	**77**	**13**	**23**	

- ***Part V – "Final Diagnosis"***

In total, the diagnosis was confirmed in 754 patients compared to 655 positive results by serology examinations (see table 5.3.9); in 18.1% of cases the case classification is "missing".

Table 5.3.12 Percentage of case classification for each disease

Disease	Confirmed		Suspected		Missing		Total
	No.	%	No.	%	No.	%	
anthrax	16	55.2	7	24.1	6	20.7	29
brucellosis	659	75.8	44	5.1	166	19.1	869
coetaneous leishmaniasis	0	0.0	1	100.0	0	0.0	1
visceral leishmaniasis	57	74.0	14	18.2	6	7.8	77
leptospirosis	8	61.5	4	30.8	1	7.7	13
extra pulmonary tuberculosis	14	60.9	5	21.7	4	17.4	23

Occupation is the most important factors in zoonotic infections. Table 5.3.13 shows that 61.4% of patients were farmers more likely to be sick than officials, 84.4% more than workers, and 60.3% more than the unemployed.

Also, in 61.3% of cases (1267 cases out of 2068) is completed in the individual forms the answer "no" for profession.

Table.5.3.13 Occupational indicator

	Yes	No	OR 95%CI	p
Official	204	810	1	**<0.01**
Worker	60	108	2.2 (1.5 - 3.1)	**<0.01**
Unemployed	213	330	2.6 (2.0 - 3.2)	**<0.01**
Farmer	324	19	67.7 (41.6 - 110.2)	**<0.01**

5.4 Epidemiological characteristics of the pulmonary tuberculosis (TB)

Chapter ***2.4*** has dealt the qualitative and quantitative deficiencies of the existing monthly reporting form (14/Sh).

Tubercular diseases in this form are reported only as tuberculous (010). Reporting is done each year, only under this label, creating gaps in the knowledge of frequency of other tuberculosis forms of tuberculosis.

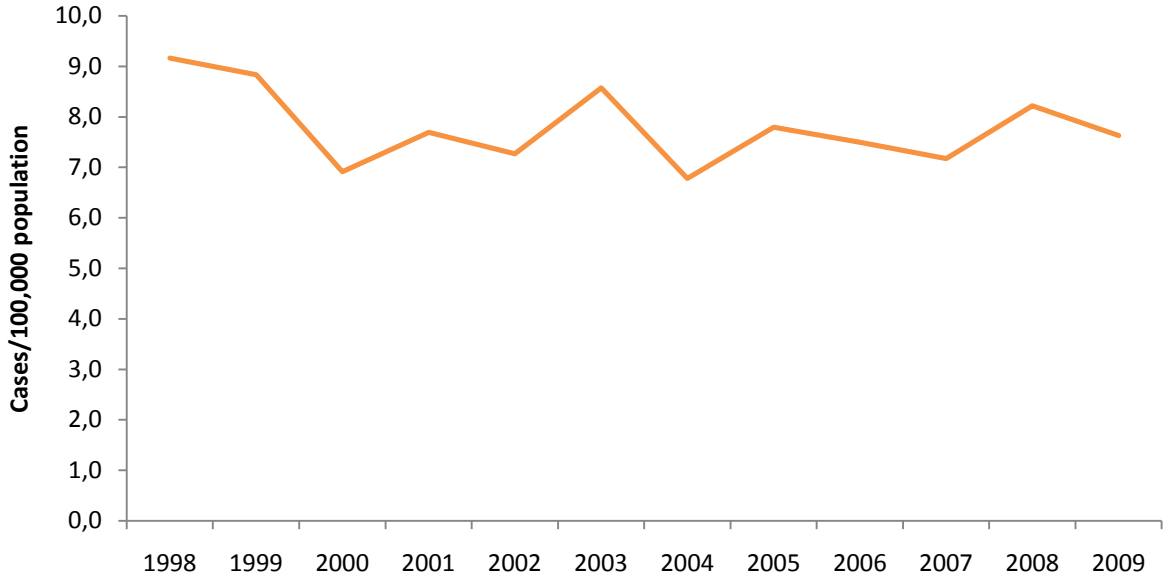
It is known that extrapulmonary form of tuberculosis is zoonotic nature (mainly human infection from bovine tuberculosis).

Individual form of notification for tuberculosis is different with other infectious diseases forms (14-3/Sh). The table 5.4.1 shows gaps between the number of reported cases by individual form and reported cases by monthly reporting during the periof 2007-2009, also the number of cases is almost a same in all study period.

Table 5.4.1 ***Number of pulmonary tuberculosis cases in Albania [by monthly reporting and by individual schedules ( )]***

Disease	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Pulmonary TBC	281	271	212	236	223	263	208	239	230	220 (149)	**252** (150)	234(117)

Figure 5.4.1 The incidence rate of pulmonary tuberculosis over the period 1998-2009 in Albania



The above data are based on mandatory reporting by the monthly form of (14/Sh), summary of infectious diseases which is sent rhythmically from each epidemiological service of the district to IPH. Compared with the data sent to the hospital rateve number of pulmonary diseases reported in the institute of public health are lower. The occurrence levels of tuberculosis in Albania have remained nearly constant over the study period. The annual incident cases vary in a range from 208 to 281 ones, with an incidence rate that vary from 6.67 to 9.2 cases/100.000 population. As seen, the figure 5.4.1 shows little oscillations of trend.

Table 5.4.2 Number of cases of pylmonary tuberculosis by monthly and individual form ( ) by regions during the years 2007-2009

Regions	Number cases reported by monthly form and individual form ( ) for Pulmonary tuberculosis
Berat	6
Diber	54 (32)
Durres	50 **(54)**
Elbasan	51
Fier	66 (1)
Gjirokaster	3
Korce	22
Lezhe	45 (42)
Tirane	291 (249)
Shkoder	70
Kukes	13
Vlore	35 **(39)**

The table 5.4.2 shows that 5 out of 12 regions of the country have not completed the individual notification form for pulmonary tuberculosis. Also, the regions of Durres and Vlora have more notified cases to those reported at the Institute of Public Health by monthly reporting form.

Distribution of Pulmonary TBC over the period 1998 – 2009 by region

Country Mean Incidence (cases/100,000 population) and range

Pulmonary TBC

7.0 (1.0 – 15.8)

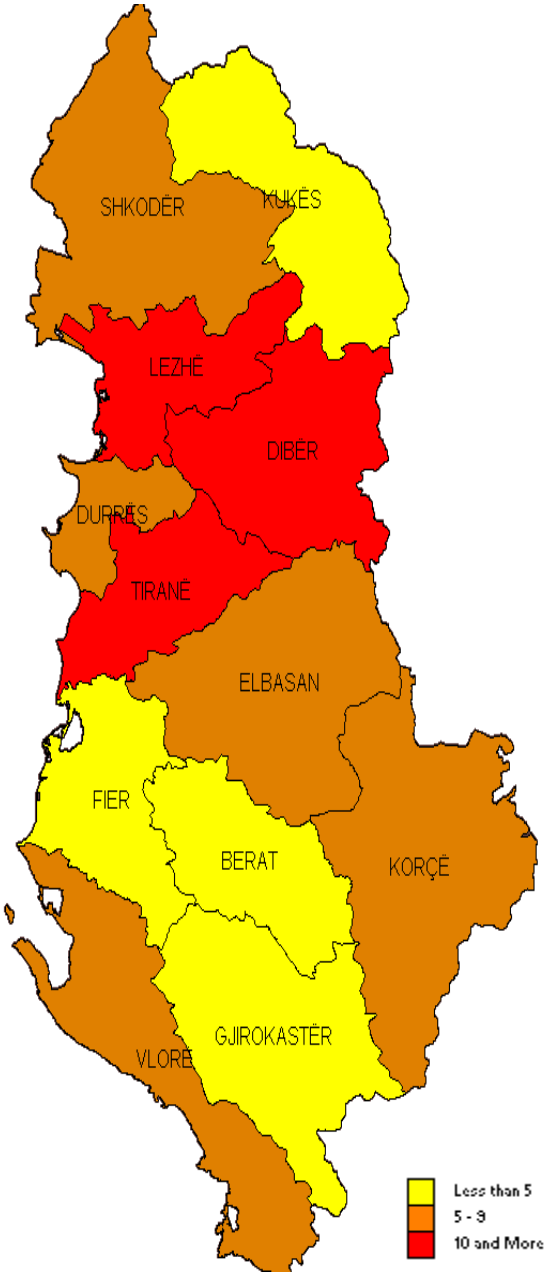
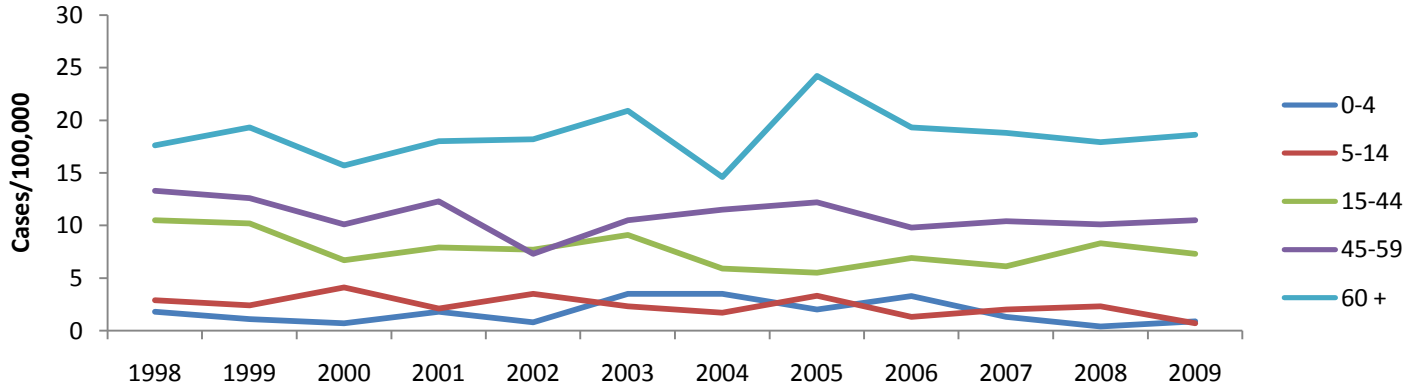


Table 5.4.3 Number of pulmonary tuberculosis cases over the period 1998-2009 by age - group

Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Pulmonary tuberculosis	0-4	5	3	2	5	2	9	9	5	8	3	1	2
	5-14	18	15	26	13	22	14	10	19	7	11	13	4
	15-44	146	141	93	110	108	129	85	79	101	89	124	109
	45-59	72	68	55	67	48	60	67	73	61	65	64	67
	60 +	40	44	36	41	43	51	37	63	53	52	50	52

Figure 5.4.2 The incidence rate of pulmonary tuberculosis over the period 1998-2009 by age - group

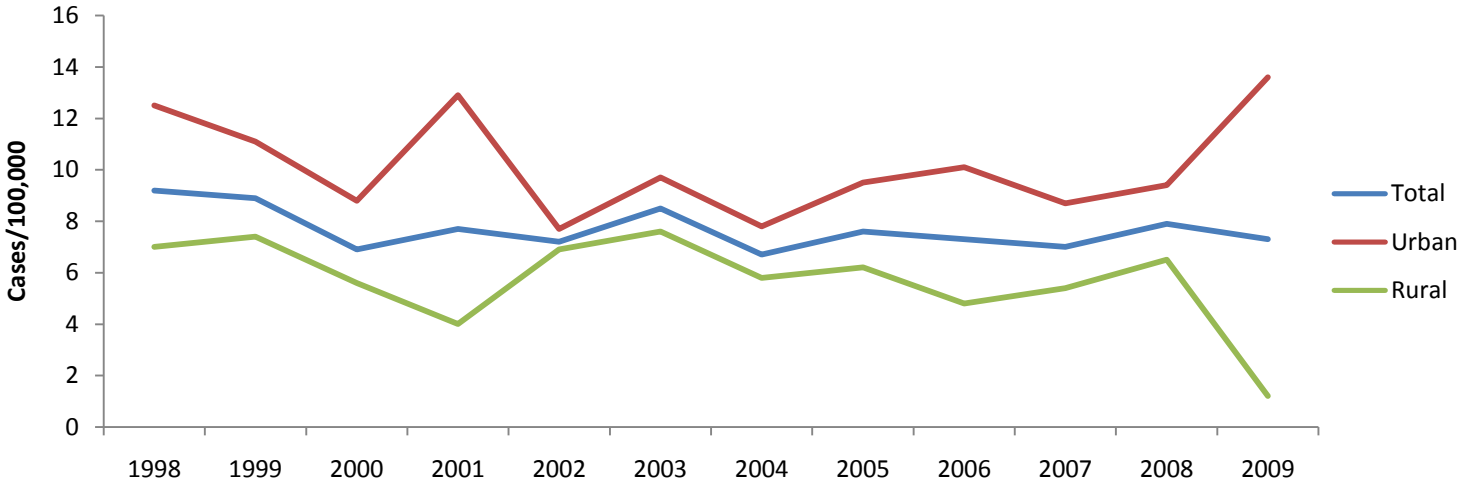


The major burden is occupied from the adult age group (25 and older). Specifically, age 15-44 years represent 45.8% of cases, 45-59 years about 26.7 % of them and 60+ years old represent 19.6 % of cases with pylmonary tuberculosis over the our study period (see table 5.4.3). The incidence rate shows oscillations of trend for all age groups. The higher incidence rate is for age 60+ followed by 45 - 59 years and 15 – 44 years old.

Table 5.4.4 Number of pulmonary tuberculosis cases over the period 1998-2009 by residence

Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Pulmonary tuberculosis	Total	281	271	212	236	223	263	208	239	230	220	252	234
	Urban	153	137	111	165	100	130	107	132	152	134	147	214
	Rural	128	134	101	71	123	133	101	107	78	86	105	20

Figure 5.4.3 The incidence rate of pulmonary tuberculosis over the period 1998-2009 by residence

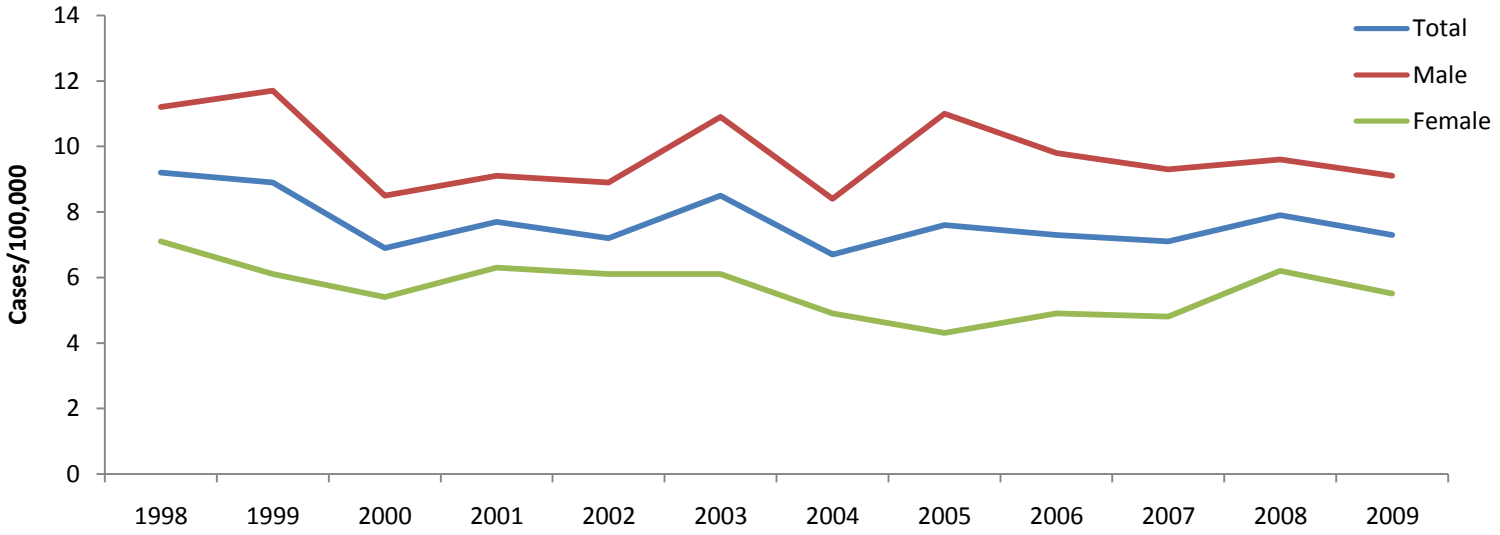


Regarding the distribution by areas of the pulmonary tuberculosis (cases number and the incidence rate) in 58.6% of cases are of urban areas (see figure 5.4.4), and the figure 5.4.3 represent increasing trend for urban cases and decreasing trend for rural cases.

Table 5.4.5 Number of pulmonary tuberculosis cases over the period 1998-2009 by gender

Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Pulmonary tuberculosis	Total	281	271	212	236	223	263	208	239	230	220	252	234
	Male	174	179	130	139	136	169	131	172	153	146	154	146
	Female	107	92	82	97	87	94	77	67	77	74	98	88

Figure 5.4.4 The incidence rate of pulmonary tuberculosis over the period 1998-2009 by gender



Distribution by gender shows that the highest incidence rate and the number of cases are males; expressed in percentage they constitute 63.2% of cases of pulmonary tuberculosis. The ratio male / female is 1.7/1.5 respectively see table 5.4.5 and figure 5.4.4.

Individual notification schedul of pulmonary diseases.

Individual form of pulmonary tuberculosis notification contains three parts.

Part I - Vital records on the case and the onset of the diseases

Part II - Clinical and epidemiological investigation

Part III - Microbiological laboratory diagnosis data

Part I – "Vital records on the case and the onset of the diseases"

The difference between the date of onset of symptoms and hospital admission date and date of hospitalization and date of starting of therapy was calculated as follows:

Time lag (days): median & range

- Date of onset to Date of hospital admission **12 (0 – 160)**
  Kolmogorov-Smirnov test for Normal distribution P<0001- Normality rejected
- Date of hospital admission to Date of starting therapy **0 (0 – 66)**
  Kolmogorov-Smirnov test for Normal distribution P<0001- Normality rejected

This calculation is based on the median as a result of abnormal distribution of data

Other indicators of the first part of the individual notification form also included information on vaccination, the patient is exposed to TB or not and case classification.

From the obtained results show that in 247 (59.2% of cases) have a lack of information on vaccination. The frequency of "missing" is higher than others as: vaccinated, unvaccinated and unknown.

Table 5.4.6 the vital records and onset of diseases

	Yes		Missing	
	No.	**%**	**No.**	**%**
Father's name	227	54.4	190	45.6
Address	417	100	0	0
Profession	347	83.2	70	16.8
Date of onset	334	80.1	83	19.9
Date of hospital admission	309	74.1	108	25.9
Date of starting therapy	327	78.4	90	21.6

Part II – "Clinical and Epidemiological Investigation"

The second part of the form contains risk factors (alcohol and intravenous drug users), classification of the case, radiological and intra dermo reaction examinations and spread of the disease (sporadic or endemic)**.** Table 5.4.7 shows that in 417 patients, 11 of them (2.6%) are users of intravenous drugs and alcohol.

Table 5.4.7 frequency of patients, users of alcohol and intravenous drugs

Intravenous drugs (narcotic)	Alcoholism				Total
	Missing	No	Unknown	Yes	
Missing	43	21	1	10	75
Unknown	0	0	6	0	6
No	0	228	7	85	320
Yes	0	4	1	11	16
Total	43	253	15	106	417

Regarding to exposure in 298 (71.5%) patients there was no exposure to TB cases.

The vast majority of cases are new ones with 85.6% 0f cases (357 cases to 417 in total).

Table 5.4.8 frequency of radiography and intradermoreaction examinations

Intradermo reaction	Radiography examination				Total
	Missing	Not done	Negative	Positive	
Missing	71	3	17	52	143
Not done	0	3	0	10	13
Negative	4	9	35	29	77
Positive	9	8	50	117	184
Total	84	23	102	208	417

The table 5.4.8 shows that 117 (28.1%) of patients with positive results have also conducted two examinations (radiological and intradermoreaction) and in 12% of cases we have "missing" of examination type.

Also, Epidemiological investigation of cases of pulmonary tuberculosis according to individual forms included in the study shows that in 240 (57.6%) cases the extent of infection is "missing" (if the cases are sporadic or endemic).

Part III – "Microbiological laboratory diagnosis data"

Case definition and confirmation of pulmonary tuberculosis was determined and laboratory examinations such as direct examination, culture and serology.

The following tables present the number of cases which have committed directly, culture examinations and serology.

Table 5.4.9 frequency of laboratory results (direct and cultura examination)

	Result Direct			Total
	MISSING	NEGATIVE	POSITIVE	
Result Culture				
MISSING	92	48	49	189
NEGATIVE	8	5	1	1
POSITIVE	195	1	**18**	214
Total	295	54	68	417

In 18 cases (expressed in 4.3% of them) positivity was confirmed by direct and culture examination (see table 5.4.9). 22.1% of cases represent "missing" for direct and culture examination.

Table 5.4.10 frequency of laboratory results (direct and serology examination)

	Result Direct			Total
	MISSING	NEGATIVE	POSITIVE	
Result Serology				
MISSING	294	53	66	413
POSITIVE	1	1	**2**	4
Total	295	54	68	417

In 2 cases (expressed in 0.5% of them) positivity was confirmed by direct and serology Examination (see table 5.4.10). 70.5% of them are "missing" for direct and serology examination.

Table 5.4.11 frequency of laboratory results (serology and cultura examination)

	Result Culture			Total
	MISSING	NEGATIVE	POSITIVE	
Result Serology				
MISSING	186	14	213	413
POSITIVE	3	0	**1**	4
Total	189	14	214	417

In one case (0.2%) positivity was confirmed by three examinations (see table 5.4.11).

44.6% of cases have "missing" for cultura and serology examination.

5.5 Epidemiological characteristics of vaccine preventable deseases – Diphtheria-Tetanus-Pertussis (DTP)

Most of infectious diseases preventable by vaccination, (diseases of the Albanian Programme on Immunization according to WHO Expanded Programme on Immunization – EPI), are of an airborne nature transmission, namely diphtheria, pertussis, measles, rubella. Therefore, their epidemiological surveillance data are presented in tables of the respective subchapter ***(see subchapter 2.6.7).***

The following table 5.5.1 presents data on preventable infectious diseases, the absolute number of cases reported monthly for the period 1998-2009 and the number of individual cases according to the notification form for the period 2007-2009.

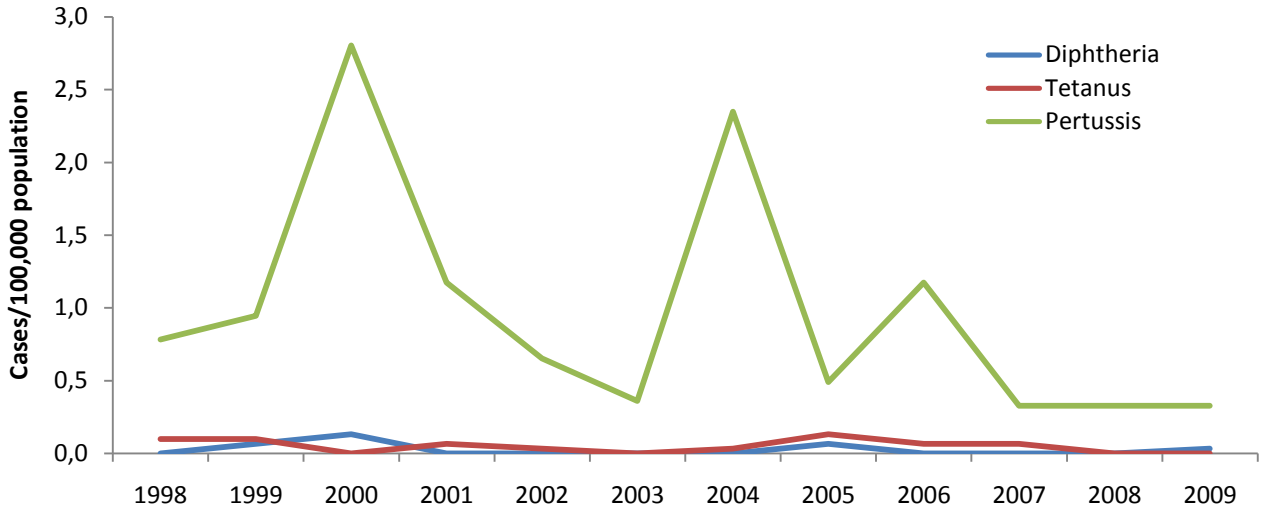
Table shows the total absence of notified cases compared with the monthly data reported at the Institute of Public Health.

The level of vaccination is satisfactory in explaining the decreasing trend of these diseases, especially pertussis cases.

Table 5.5.1 Number of DTP cases in Albania [reported by monthly and individual form ( )]

Disease	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Diphtheria	0	2	4	0	0	0	0	2	0	0	0	1
Tetanus	3	3	0	2	1	0	1	4	2	2	0	0
Pertussis	24	29	86	36	20	11	72	15	36	10 **(1)**	10 **(1)**	10 **(1)**
DTP vaccination	98.1	97.5	96.6	97.6	97.5	97.7	97.8	97.3	98.2	98.4	97.2	98.4

Figure 5.5.1 the incidence rate of DTP over the study period



Actually, the annual diphtheria cases are zero to at 3 reported as suspected (not laboratory confirmed) cases. Very low levels of tetanus characterize over the period 1998-2009 with an annual frequency from 2 to 3 reported cases.

The incidence rate for pertussis shows a decreasing trend with big oscillations.

Table 5.5.2 shows a lack of data from individual notification form for the period 2007-2009 by region. The total number of cases for pertussis is 30 and only three were reported by individual notification form.

*Table 5.5.2 Number of DTP cases reported by monthly and individual form **( )** in region during the years 2007-2009*

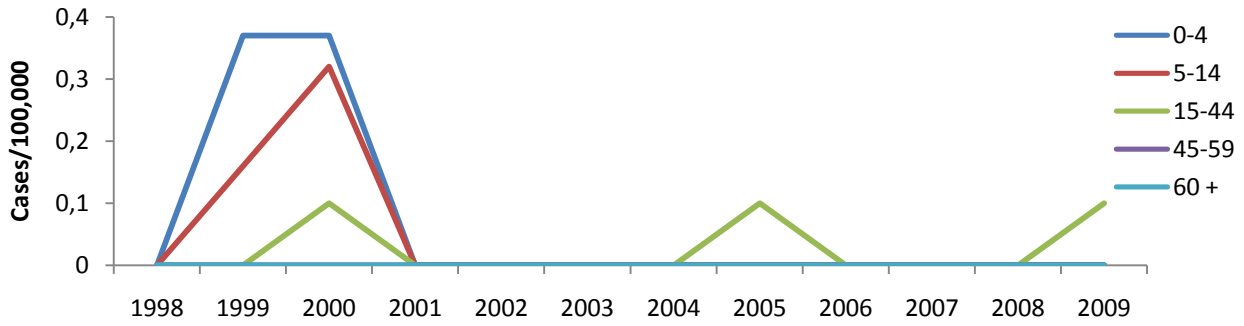
Regions	**Diphtheria**	**Tetanus**	**Pertussis**
Berat	0	0	2
Diber	0	0	0
Durres	0	0	9 (1)
Elbasan	0	0	0
Fier	0	0	9
Gjirokaster	0	0	0
Korce	0	0	3
Lezhe	0	0	0
Tirane	0	1	2 (2)
Shkoder	1	0	5
Kukes	0	0	0
Vlore	0	0	0
Total	***1***	***1***	***30 (3)***

Table 5.5.3 Number of DTP cases during the years 1998-2009 by age group

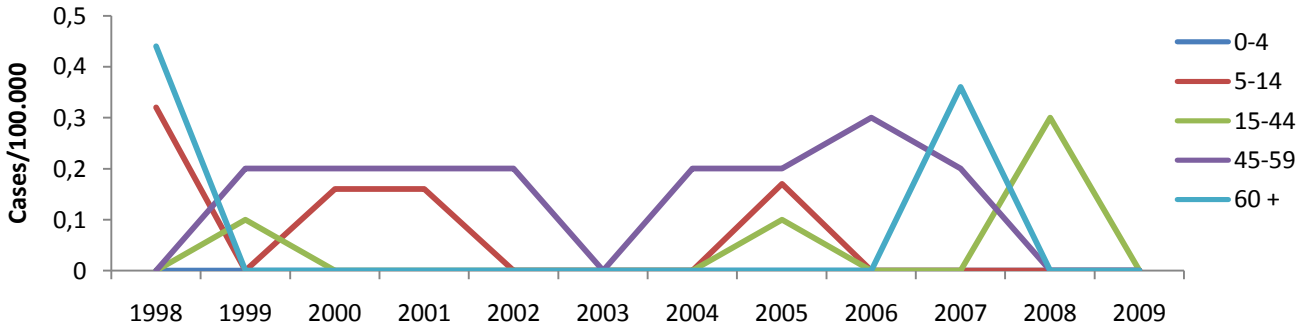
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Diphtheria	0-4	0	1	1	0	0	0	0	1	0	0	0	0
	5-14	0	1	2	0	0	0	0	0	0	0	0	0
	15-44	0	0	1	0	0	0	0	1	0	0	0	1
	45-59	0	0	0	0	0	0	0	0	0	0	0	0
	60 +	0	0	0	0	0	0	0	0	0	0	0	0
Tetanus	0-4	0	0	0	0	0	0	0	0	0	0	0	0
	5-14	2	0	1	1	0	0	0	1	0	0	0	0
	15-44	0	2	0	0	0	0	0	2	0	0	4	0
	45-59	0	1	1	1	1	0	1	1	2	1	0	0
	60 +	1	0	0	0	0	0	0	0	0	1	0	0
Pertussis	0-4	22	18	72	26	8	7	44	9	21	5	9	6
	5-14	2	11	14	8	12	4	27	6	14	5	1	4
	15-44	0	0	0	2	0	0	1	0	1	0	0	0
	45-59	0	0	0	0	0	0	0	0	0	0	0	0
	60 +	0	0	0	0	0	0	0	0	0	0	0	0

Figure 5.5.2 The incidence rate for DTP over the period 1998-2009 by age – group

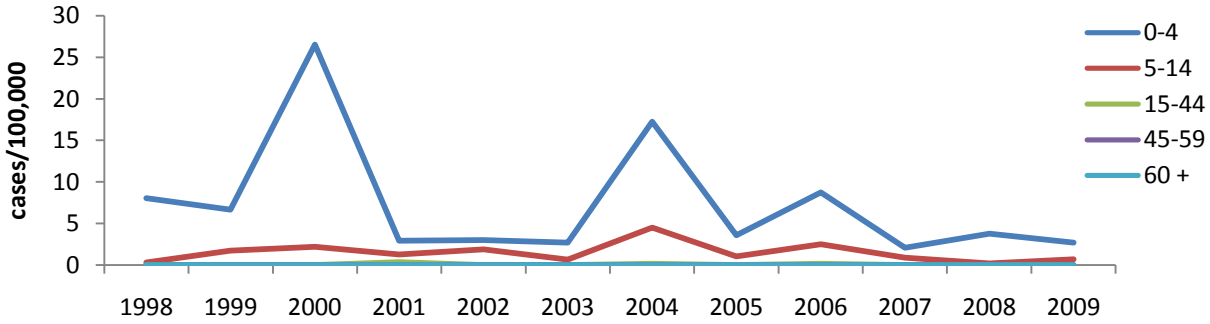
Diphtheria



Tetanus



Pertussis



Distribution by age group of diphtheria cases shows that most vulnerable age groups are 0-4 and 5-14 years. After 2000 number of cases for these age groups becomes zero while the age group 15-44 years old in 2000, 2005 and 2009 represents only 1 case.

Tetanus incidence rate by age-group presents oscillations, which are expressed in the age group 45-59 and 5-14 years old, while incidence rate for the 0-4 age group and ≥ 60 years shows peaks at 2007 and 2008 (see figure 5.5.2).

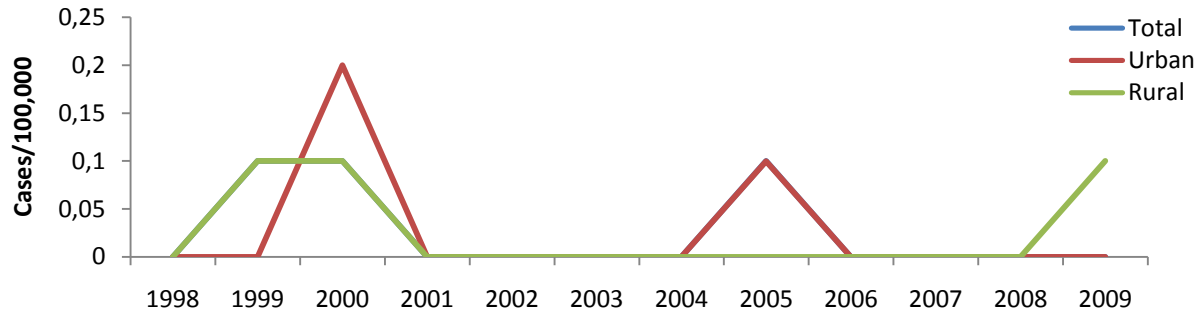
Regarding the pertussis incidence rate, the highest frequency of pediatric age groups are 0-4 and 5-14 years.

Table 5.5.4 Number of cases of DTP during the years 1998-2009 by residence

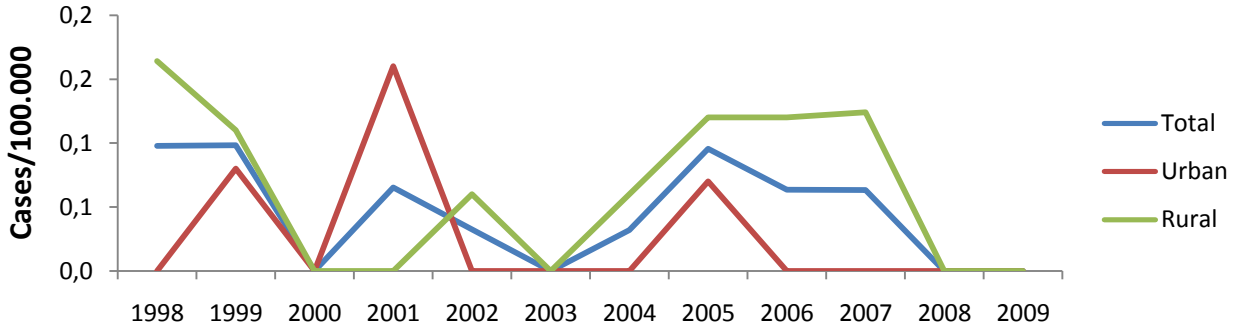
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Diphtheria	Total	0	2	4	0	0	0	0	2	0	0	0	1
	Urban	0	0	2	0	0	0	0	2	0	0	0	0
	Rural	0	2	2	0	0	0	0	0	0	0	0	1
Tetanus	Total	3	3	0	2	1	0	1	3	2	2	0	0
	Urban	0	1	0	2	0	0	0	1		0	0	0
	Rural	3	2	0	0	1	0	1	2	2	2	0	0
Pertussis	Total	24	29	86	36	20	11	72	15	36	10	10	10
	Urban	14	12	40	15	7	3	50	5	15	7	6	6
	Rural	10	17	46	21	13	8	22	10	21	3	4	4

Figure 5.5.3 The incidence rate of DTP during the years 1998-2009 by residence

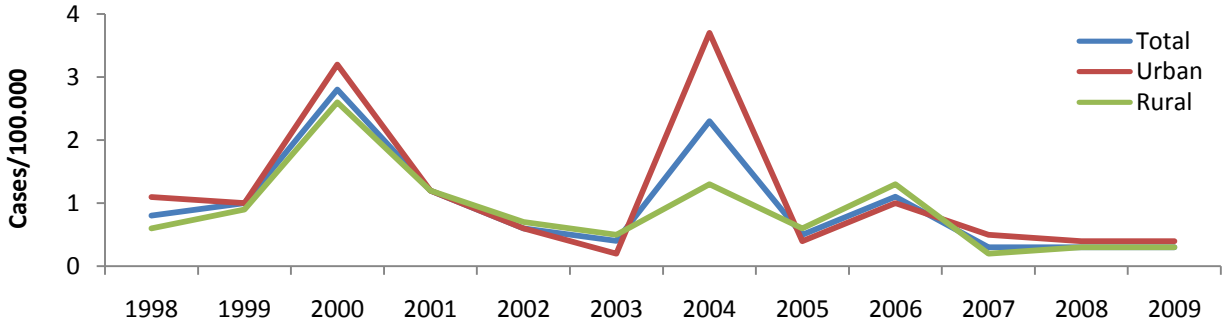
Diphtheria



Tetanus



Pertussis



There was no difference between areas (urban and rural areas) incidence rates for diphtheria and pertussis, while cases of tetanus are present in 76.5% of them in rural areas. The figure shows for diphtheria an increased tred in year 2008 for rural areas with 1/100.000 population.

After year 2008 tetanus shows a decresed trend for urban and rural areas to zero cases.

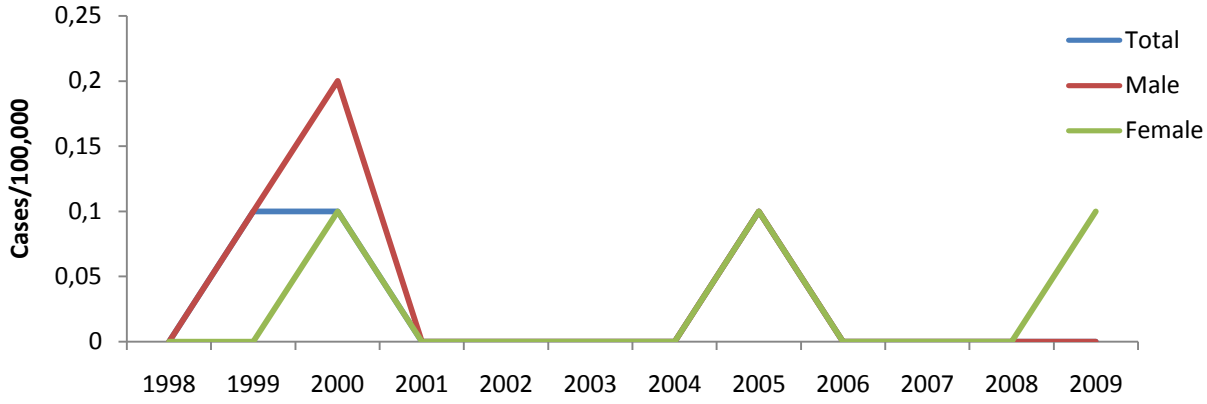
Regarding the pertussis in 2004 the incidence rate for urban areas was reached in 3.5 /100.000 inhabitants and after this year represent the significant reduction of trend.

Table 5.5.5 The number of DTP case during the years 1998-2009 by gender

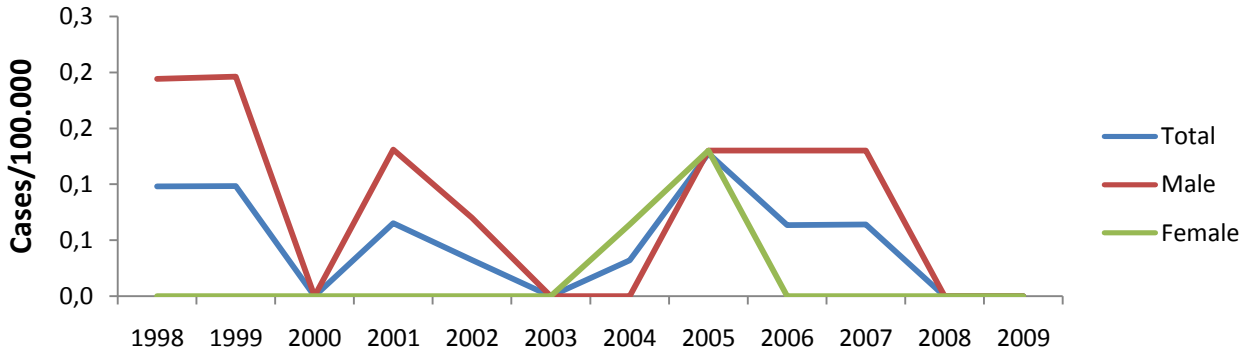
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Diphtheria	Total	0	2	4	0	0	0	0	2	0	0	0	1
	Male	0	2	3	0	0	0	0	1	0	0	0	0
	Female	0	0	1	0	0	0	0	1	0	0	0	1
Tetanus	Total	3	3	0	2	1	0	1	3	2	2	0	0
	Male	3	3	0	2	1	0	0	2	2	2	0	0
	Female	0	0	0	0	0	0	1	2	0	0	0	0
Pertussis	Total	24	29	86	36	20	11	72	15	36	10	10	10
	Male	15	12	48	15	14	8	31	10	17	4	4	8
	Female	9	17	38	21	6	3	41	5	19	6	6	2

Figure 5.5.4 The incidence of DTP during the years 1998-2009 by gender

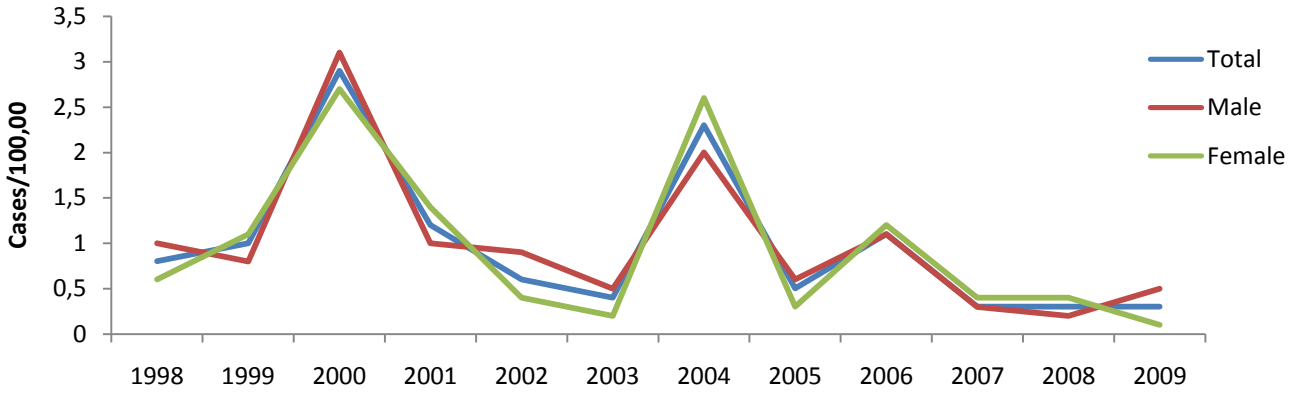
Diphtheria



Tetanus



Pertussis



The distribution by gender for diphtheria and tetanus show low incidence rate for both of gender. The pertussis trend show big oscillations for both of gender with decreasing trend.

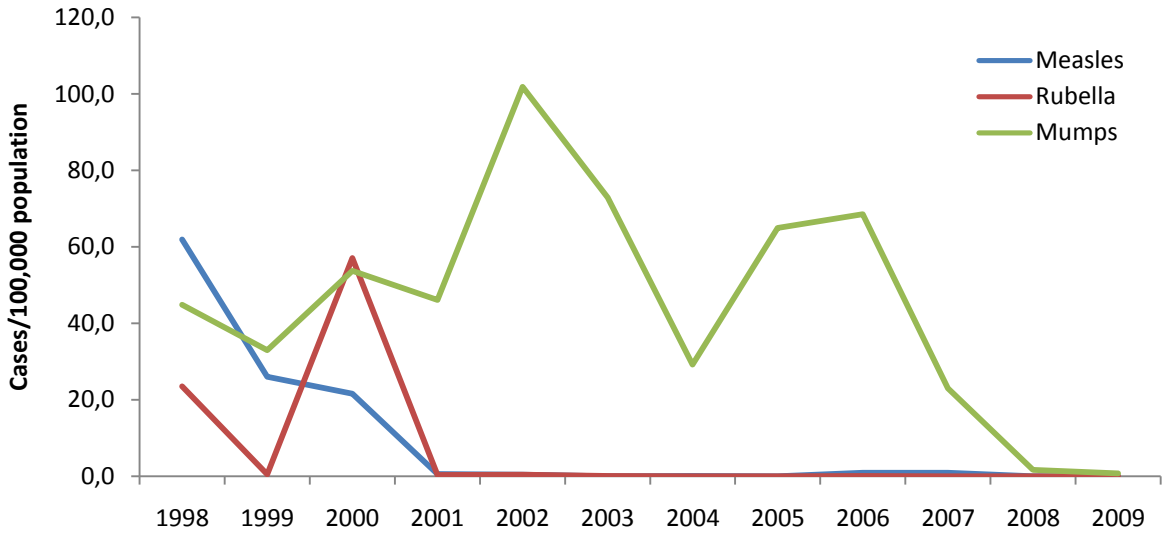
Epidemiological characteristics of vaccine preventable deseases – Measles-Mumps-Rubella

The year 2000 denotes the beginning of the implementation of the national strategy on measles elimination untill 2007 in Albania, set up according to WHO respective target for the European Region. In the year 2001 is introduced the bivalente vaccine (Measles Rubella) and in 2005 is introduced trivalent vaccine (Measles Mumps and Rubella).

Table 5.5.6 Number of cases of MMR in Albania over the period 1998-2009

Disease	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Measles	1900	798	662	18	12	1	3	1	68	28	0	0
Rubella	721	15	1752	10	12	2	1	0	3	0	0	0
Mumps	1375	1011	1648	1414	3124	2236	896	1992	2102	706	50	22
Vaccination coverage	91.7	91.0	89.9	83.9	91.6	95.2	96.1	95.5	96.5	97.2	92.9	95.8
				MR				***MMR***				

Figure.5.5.5 The incidence rate of MMR over the period 1990-2009



The general trend of measles in Albania shows dramatically decrease over the study period. It vary from 1900 cases (62.1/100.000) to zero cases in 2009, due to the increased use of the two doses – vaccination policy and based on WHO strategy objectives, in order to eliminate measles and rubella in 2010.

In 2000 began the application of bivalent vaccine for measles and rubella. The main aim of rubella vaccination is the prevention of congenital rubella infectious (CRI). The vaccination, in the first phase includes the age group 5-14 years old and at the second phase included the vaccination of the female in productive ages.

Obtained results show that after the introduction of this vaccine, the general trend of rubella has a significant decrease to zero cases for 2007, 2008 and 2009.

The epidemiological data as cases number and incidence rates (cases/100.000 inhabitants) present a detailed picture of measles, mumps and rubella epidemiology in Albania over the period 1998-2009 (tables 5.5.6 and figure 5.5.5). This period is characterized by decreasing trend for MMR diseases. Incidence rates of measles and rubella after 2001 has decreased significantly from 2 to 0 cases/100.000 inhabitants and for mumps up to 1-2cases/100.000 over the study period.

Like the above diseases and for measles, mumps and rubella exists discordance and the absence between reported cases by individual form and cases reported by monthly form. The discordance of data between both of surveillance system is expressed for measles disease in country level.In 33.3% of regions (4 out of 12 regions) number of cases reported by individual form is more than number of cases reported by monthly form.

We have lack of data reported by individual form in 100% of cases for mumps and rubella diseases (table 5.5.7)

*Table.5.5.7 Number of MMR cases reported by monthly and individual form **( )** at the regions level during the years 2007-2009*

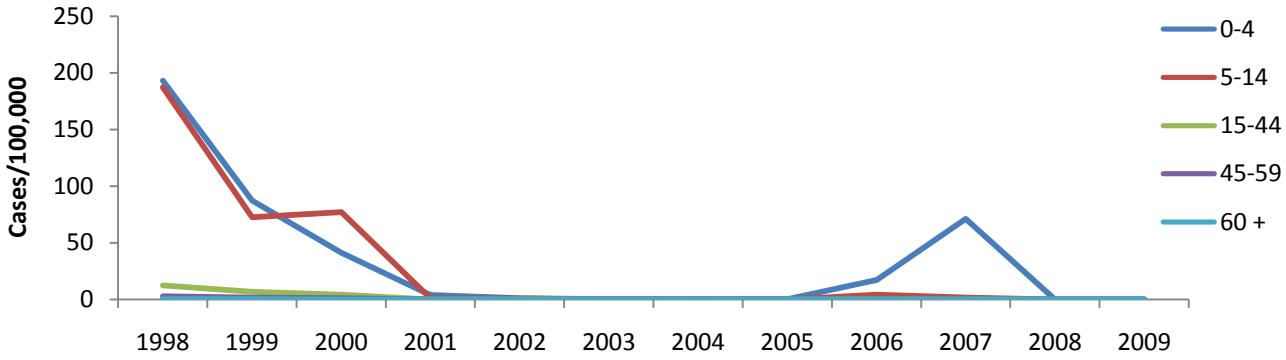
Regions	Measles	Mumps	Rubella
Berat	0 **(3)**	52	0
Diber	0	6	0
Durres	6 (3)	6	0
Elbasan	0	12	0
Fier	0 **(1)**	92	0
Gjirokaster	0 **(3)**	6	0
Korce	0	105	0
Lezhe	0 **(1)**	58	0
Tirane	19 (8)	153	0
Shkoder	3 (1)	60	0
Kukes	0	11	0
Vlore	6 (4)	217	0
Total	***34 (24)***	***778***	***0***

Table 5.5.8 Number of MMR cases over the period 1998-2009 by age group

Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Measles	0-4	529	236	112	11	3	1	1	1	41	17	0	0
	5-14	1182	456	487	6	5	0	2	0	24	10	0	0
	15-44	172	96	57	1	4	0	0	0	3	1	0	0
	45-59	16	9	6	0	0	0	0	0	0	0	0	0
	60 +	1	1	0	0	0	0	0	0	0	0	0	0
Mumps	0-4	326	253	314	284	601	533	179	441	408	193	11	5
	5-14	807	639	1055	927	2042	1285	539	1255	1407	396	32	14
	15-44	229	116	264	195	458	404	171	282	271	113	7	2
	45-59	13	3	14	7	20	12	7	12	15	4	0	0
	60 +	0	0	1	1	3	2	0	2	1	0	0	1
Rubella	0-4	219	4	423	5	7	2	1	0	0	0	0	0
	5-14	422	6	1240	4	5	0	0	0	1	0	0	0
	15-44	73	5	88	1	0	0	0	0	2	0	0	0
	45-59	7	0	1	0	0	0	0	0	0	0	0	0
	60 +	0	0	0	0	0	0	0	0	0	0	0	0

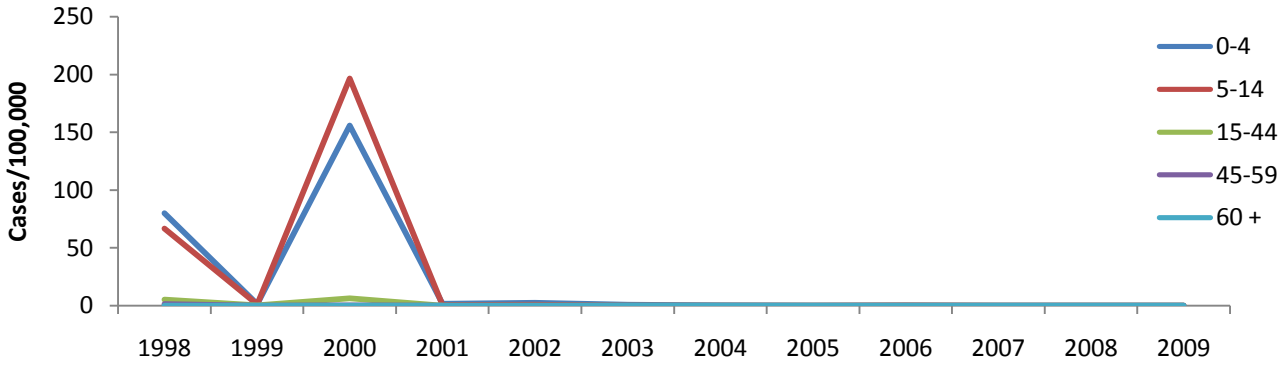
Figure 5.5.6 The incidence rate of MMR over the period 1998-2009 by age group

Measles



Mumps

Rubella



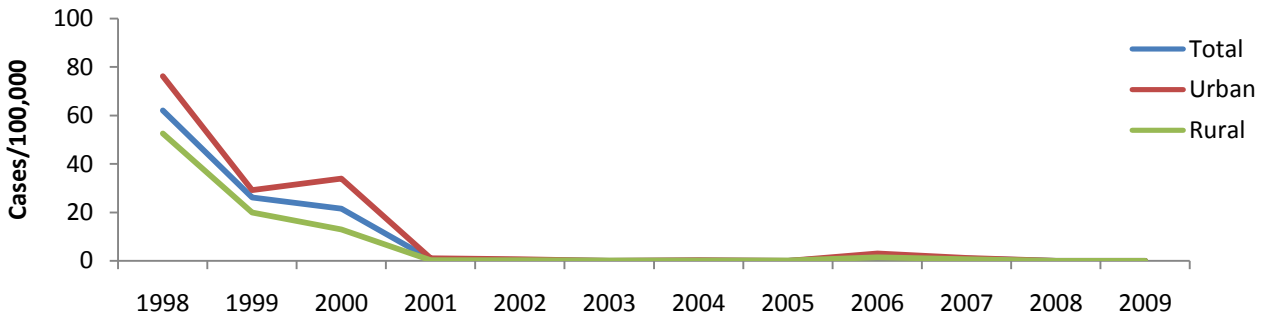
Although, the trend of measles, mumps and rubella has decreased year by year, the highest incidence rate (cases/100.000 population) is for the pediatric age group (0-14 years old) (see table 5.5.8 and figure 5.5.6).

Table.5.5.9 Number of cases of MMR during the years 1998-2009 by residence

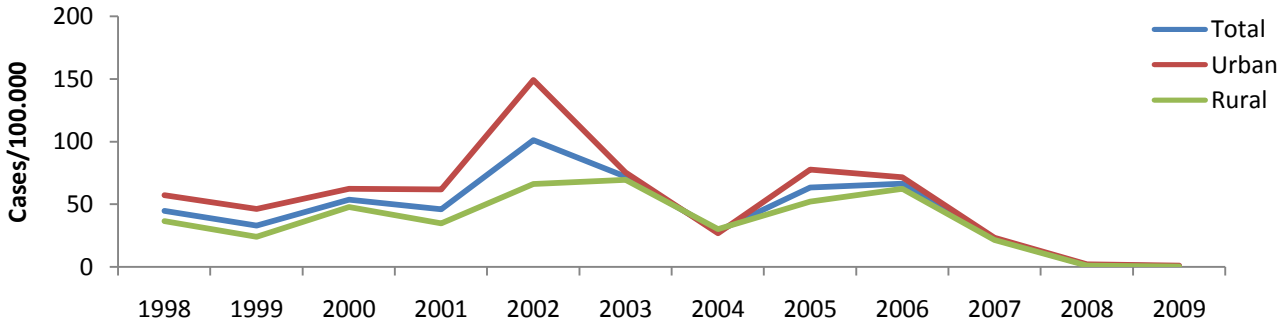
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Measles	Total	1900	798	662	18	12	1	3	1	68	28	0	0
	Urban	937	362	428	13	8	0	2	0	45	18	0	0
	Rural	963	436	234	5	4	1	1	1	23	10	0	0
Mumps	Total	1375	1011	1648	1414	3124	2236	896	1992	2102	706	50	22
	Urban	703	574	786	790	1941	1011	369	1083	1081	360	33	17
	Rural	672	437	862	624	1183	1225	527	909	1021	346	17	5
Rubella	Total												
	Urban	281	8	1302	7	12	1	1	0	0	0	0	0
	Rural	440	7	450	3	0	1	0	0	3	0	0	0

Figure.5.5.7 The incidence rate of MMR over the period 1998-2009 by residence

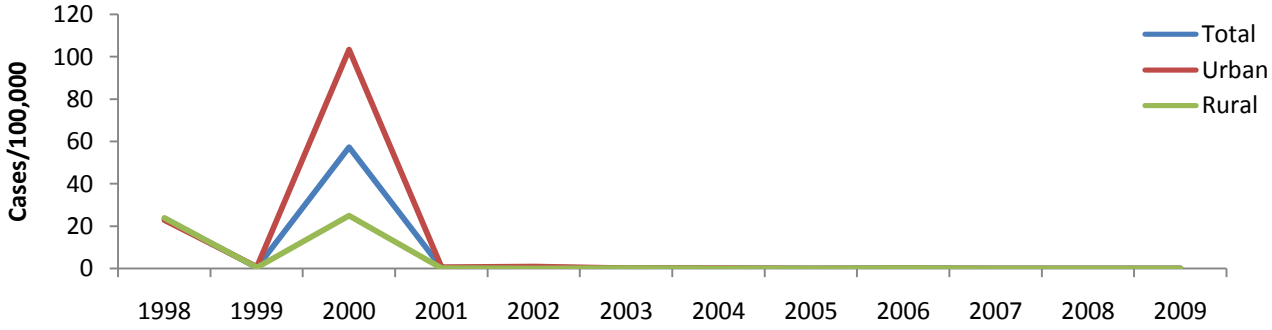
Measles



Mumps



Rubella



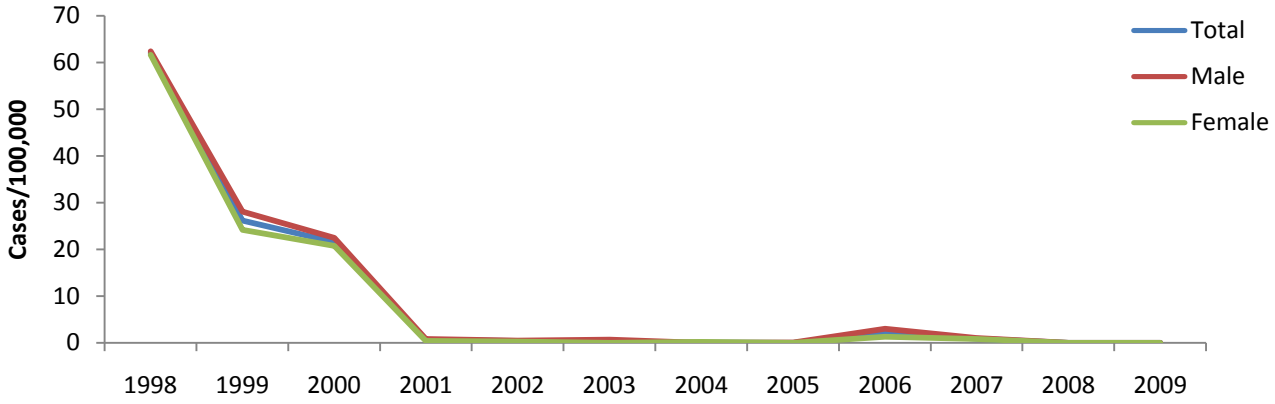
For two respective nosologies: the higher incidence rate for measles dhe rubella is expressed in year 1998-2001 mainly for urban areas and after year 2001 represent significant decreased trend up to zero cases. Regarding mumps the figure presents oscillations with increasing incidence rate during the years 2002-2003 and 2005-2006. After the 2006, the data represent a significant decreasing trend for mumps. Reducing of the incidence rate for mumps is due to well function of the vaccine system (MMR vaccine) introduced in 2005.

Table 5.5.10 the number of MMR cases during the years 1998-2009 by gender

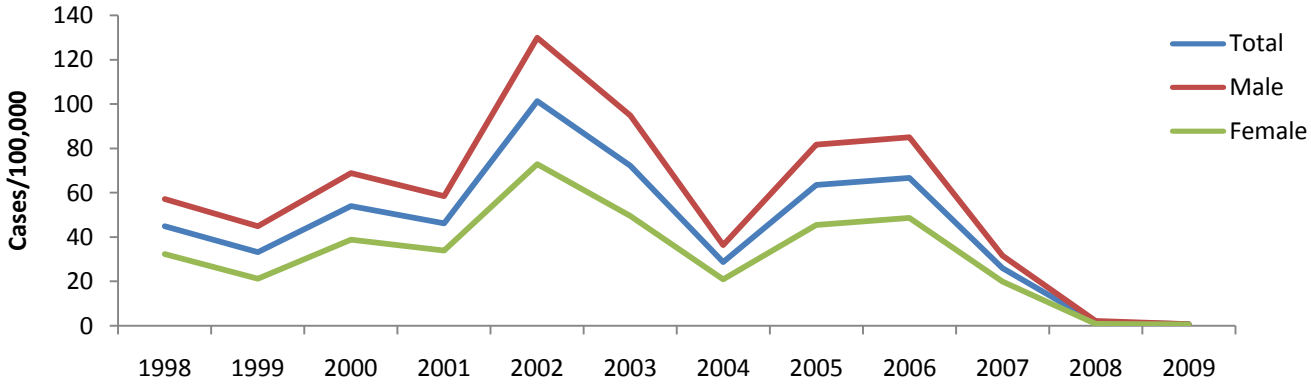
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Measles	Total	1900	798	662	18	12	1	3	1	68	28	0	0
	Male	968	431	345	12	7	1	0	1	47	16	0	0
	Female	932	367	317	6	5	0	3	0	21	12	0	0
Mumps	Total	1375	1011	1648	1414	3124	2236	896	1992	2102	806	50	22
	Male	887	688	1055	893	1997	1466	567	1276	1333	497	35	13
	Female	488	323	593	521	1127	770	329	716	769	309	15	9
Rubella	Total	721	15	1752	10	12	2	1	0	3	0	0	0
	Male	356	7	922	4	9	1		0	2	0	0	0
	Female	365	8	830	6	3	1	1	0	1	0	0	0

Figure 5.5.8 the incidence rate of MMR over the period 1998-2009 by gender

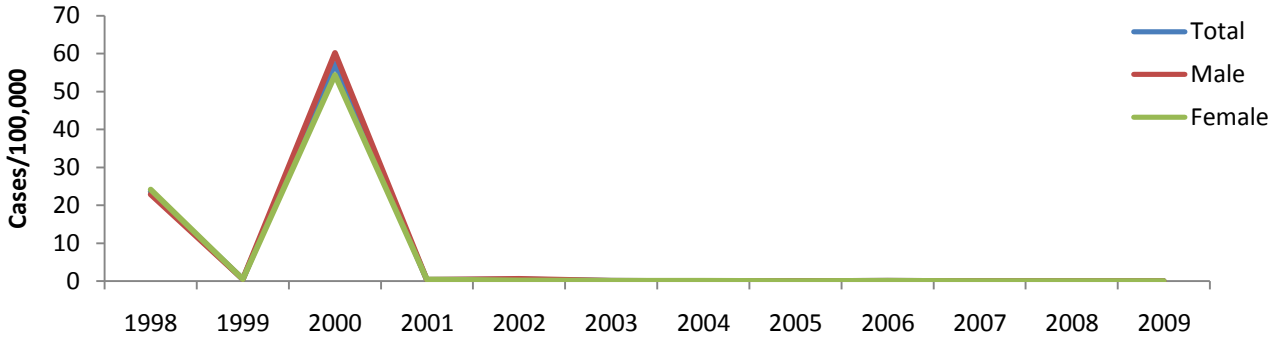
Measles



Mumps



Rubella



Distribution of the number of cases and incidence rate (cases/100.000 inhabitants) for measles and rubella is at same values in both sexes, expressing a significant reduction trend after 2002. Mumps presents big oscillations with the highest incidence rates in males but after 2006 the decreasing trend is expressed in both genders.

AFP- Unspecified (Unspecified Paralyses)

Poliomyelitis is eliminated as indigenous infection in Albania from 1997.

From 1997 onwards Albania is a Polio-free country, thus achieving the WHO target on poliomyelitis elimination by year 2000 in the European Reagion.

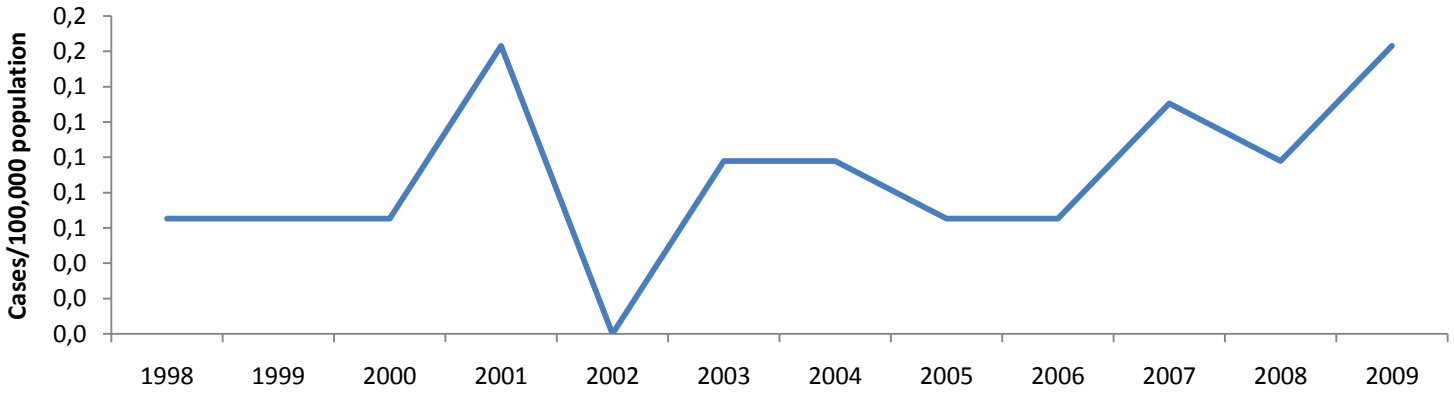
*Table 5.5.11 Number of AFP-unspecified paralysis cases in Albania [reported by monthly and individual form **( )**]*

AFP	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cases	2	2	2	5	0	3	3	2	2	4 **(1)**	3 **(2)**	5 **(4)**

Nevertheless it is value to consider the main features of poliomyelitis epidemiology in Albania on basis of epidemiological surveillance data, available from 1998-2009 (see table 5.5.11 and figure 5.5.9).

Regarding to the individual and general surveillance of infectious diseases even in cases with polio, the table 5.5.11 shows the difference between recorded data in the individual form versus general data reported every month. Results obtained show fluctuacion of the AFP (unspecified paralyses) cases after year 2001 (decrease and increase of trend).

Figure 5.5.9The incidence rate of AFP-unspecified paralysis during the years 1998-2009



Reporting of AFP-Unspecified paralyses cases presents the difference between the individual and monthly reporting; the individual reporting is carried out only in 4 regions (33.3% of the country).

In individual forms for the group of preventable vaccine diseases we have lacks of information about the generalities of the patient, the onset of disease, vaccination (if is applied the respective vaccines for the respective disease), laboratory confirmation and conclusion on the disease.

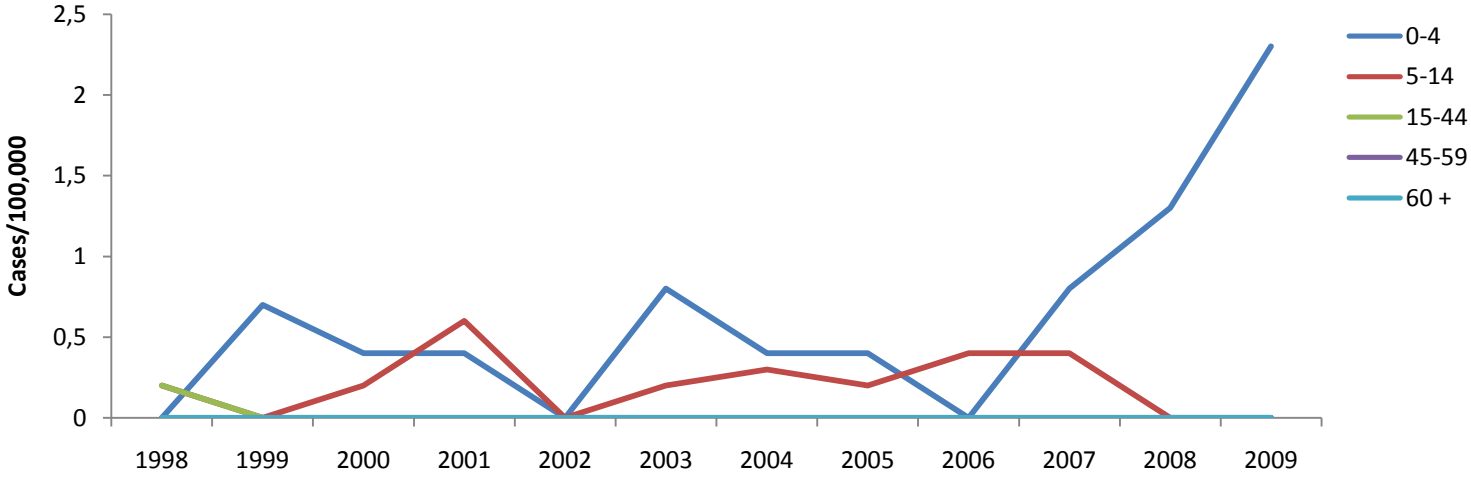
Table 5.5.12 *Number of AFP-unspecified paralysis cases reported by monthly and individual form* ***( )*** *by regions during the years 2007-2009*

Regions	**AFP-unspecified paralysis**
Berat	8 (2)
Diber	0
Durres	1 (1)
Elbasan	0
Fier	0
Gjirokaster	0
Korce	0
Lezhe	0
Tirane	12 (3)
Shkoder	0
Kukes	3 (1)
Vlore	0
Total	24 (7)

Table 5.5.12 Number of AFP unspecified paralysis cases during the years 1998-2009 by age group

Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
AFP - unspecified paralysis	0-4	0	2	1	1		2	1	1		2	3	5
	5-14	1	0	1	4		1	2	1	2	2	0	0
	15-44	1	0	0	0	0	0	0	0	0	0	0	0
	45-59	0	0	0	0	0	0	0	0	0	0	0	0
	60 +	0	0	0	0	0	0	0	0	0	0	0	0

Figure 5.5.10The incidence rate of AFP unspecified paralysis over the period 1998-2009 by age group

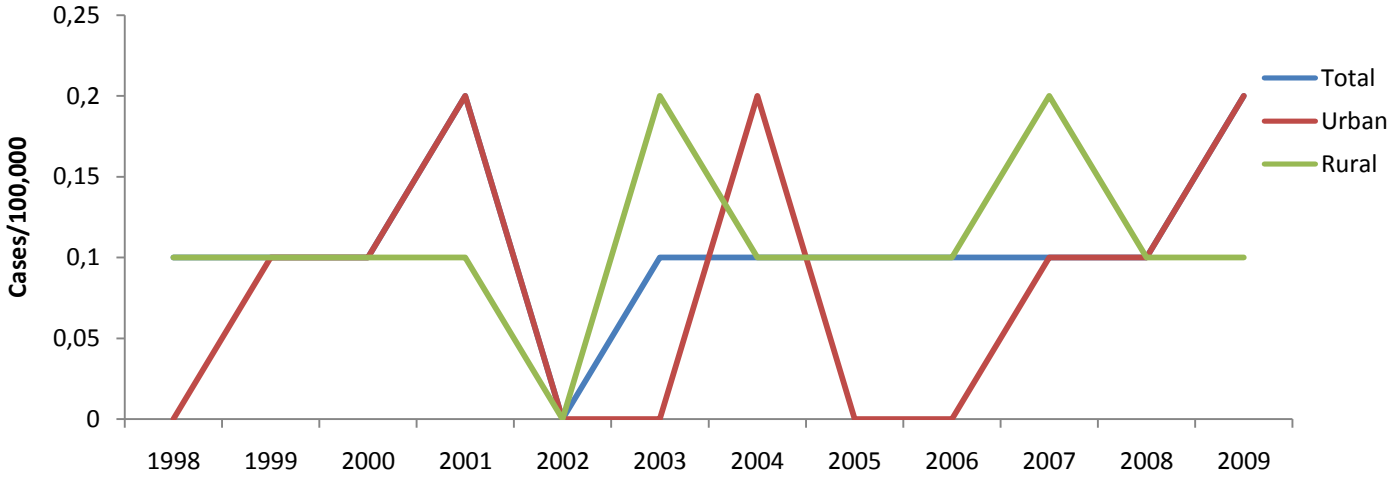


AFP-unspecified paralysis is expressed in the pediatric age group (0-4 years old) with an increasing trend after 2006, and the age group (05-14 years old) with a decreasing trend after 2007.

Table 5.5.13 Number of AFP unspecified paralysis cases during the period 1998-2009 by residence

Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
AFP - unspecified paralysis	Total	2	2	2	5	0	3	3	2	2	4	3	5
	Urban	0	1	1	3	0	0	2	0	0	1	1	3
	Rural	2	1	1	2	0	3	1	2	2	3	2	2

Figure 5.5.11The incidence rate of AFP – unspecified paralysis over the period 1998-2009 by residence



Regarding the distribution by area, the figure represents the peak of the incidence rates as in urban and rural areas.

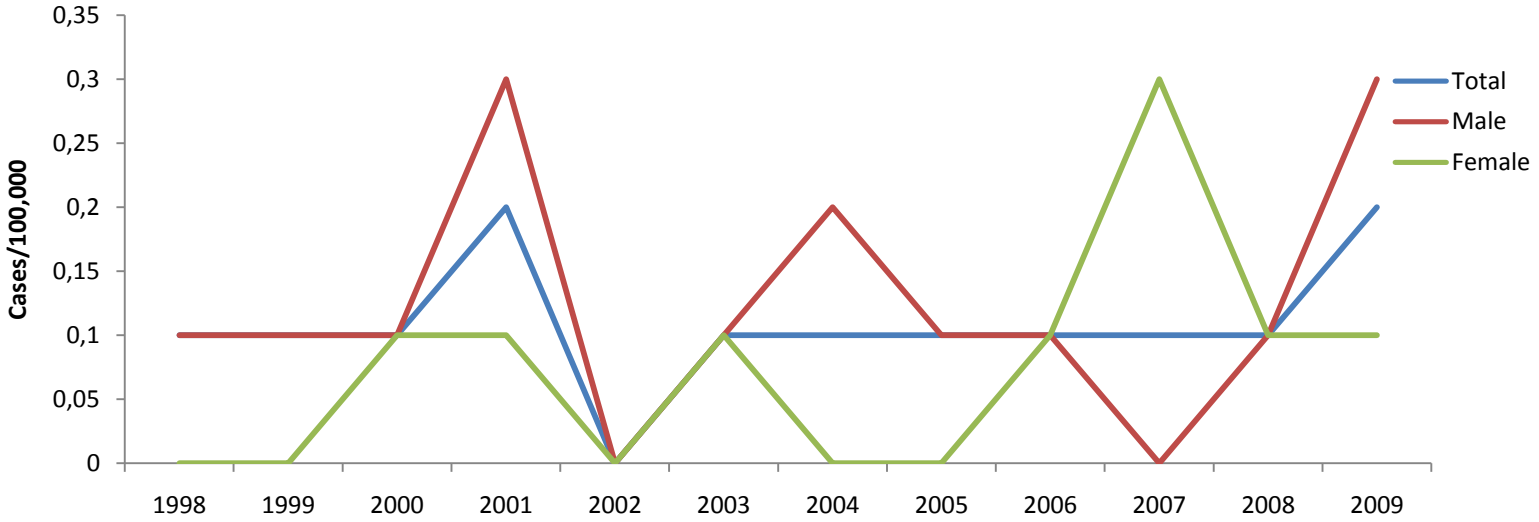
The peaks of the highest incidences of AFP-Unspecified paralyses for the urban area were in the years 2000, 2003, 2007 and 2008.

For rural areas the high peaks of incidence are presented in the years 2003, 2007. The years 2008 and 2009 are characterized by a constant incidence rate.

Table 5.5.14 Number of cases of AFP unspecified paralysis during the years 1998-2009 by gender

Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
AFP - unspecified paralysis	Total	2	2	2	5	0	3	3	2	2	4	3	5
	Male	2	2	1	4	0	1	3	2	1	0	1	4
	Female	0	0	1	1	0	2	0	0	1	4	2	1

Figure 5.5.12 the incidence rate of AFP unspecified paralysis over the period 1998-2009 by gender



The data in *Table 5.5.14 and Figure 5.5.12* show that the most affected by unspecified paralyses are males.

Increasing trend is presented in male after 2007, while in female is presented a constant trend during the years 2008-2009.

5.6 Epidemiological characteristics of "Other infectious diseases" group

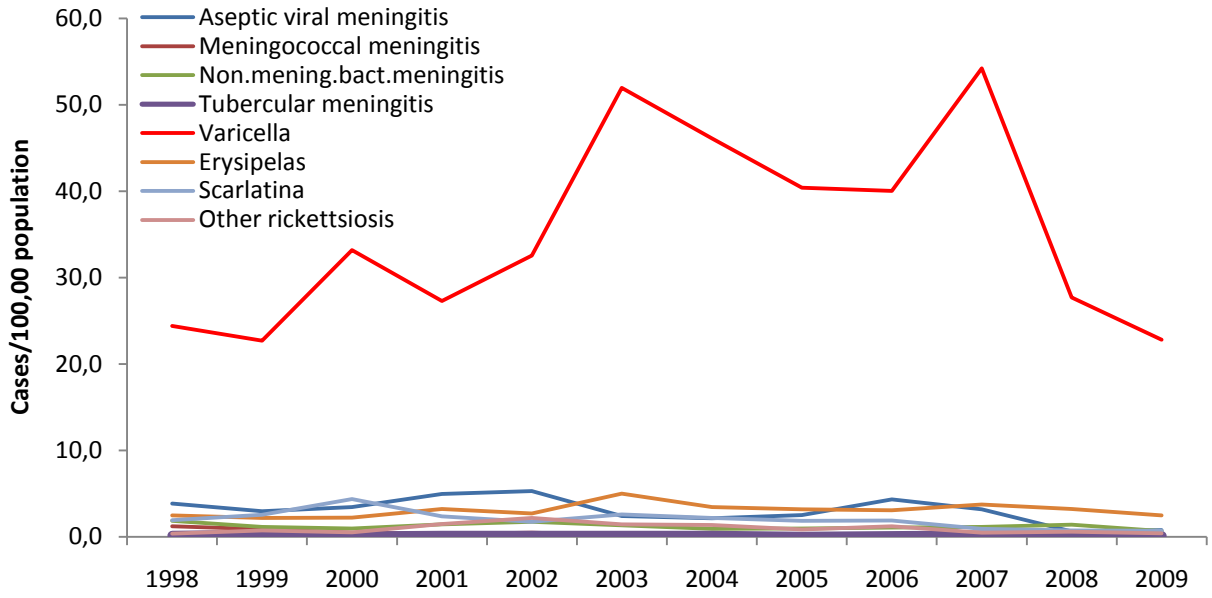
In the group of other infectious diseases are included meningococcal meningitis, other meningitet (aseptic viral meningitis and non meningococcal bacteric meningitis), and varicella, erysipelas, scarlatina and other rickettsiosis.

Reporting of cases is carried out by monthly form and individual form. Individual form of notification is the same as the above mentioned infectious diseases. Comparison of data between them (monthly and individual forms) shows discrepancies in the number of cases.

Table 5.6.1Number of "other infectious diseases" group cases [reported by monthly and individual form ( )]

Disease	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Aseptic viral meningitis	118	91	105	152	162	74	65	77	132	97 (30)	19 (17)	23 (10)
Meningococcal meningitis	38	28	15	10	15	6	7	10	9	3 (4)	8 (3)	7 (4)
Non.mening.bact.meningitis	57	35	29	44	53	41	28	29	33	35(24)	43 (24)	20 (12)
Tuberculosis meningitis	3	7	1	4	3	3	4	0	2	5	2	2
Varicella	748	696	1018	837	998	1594	1414	1239	1228	1663(55)	849 (5)	699 (15)
Erysipelas	76	67	68	99	83	153	106	97	94	115 (16)	99 (13)	76 (7)
Scarlatina	59	79	134	73	54	80	67	57	58	29 (1)	23 (2)	22 (3)
Other rickettsiosis	11	23	16	45	67	44	42	26	37	15 (8)	18 (13)	12 (4)

Figure 5.6.1 The incidence rate of "other infectious diseases" group over the period 1998-2009



The annual frequency (number of reported cases) and incidence rate (cases/100.000 population) of meningococcal meningitis include aseptic viral meningitis and non-meningococcal bacteric meningitis and tubercular meningitis over the our study period presented in table 5.6.1 and figure 5.6.1 show a decreased trend. Also, is a same situation and for erisipelas, scarlatina and other rickettsiosis. Varicella is presented by big oscillations with a decreased trend after 2007.

*Table 5.6.2 Number of cases of "other infectious diseases" group reported by monthly and individual form **( )** by regions during the years 2007-2009*

Regions	Aseptic viral meningitis	Meningococcal meningitis	Non meningococcal bacteric meningitis	Varicella	Erysipelas	Scarlatina	Other rickettsiosis
Berat	7	5 (1)	1 **(5)**	192	8	32	0
Diber	0	0	7	37	1	0	0
Durres	20 (16)	1 (1)	17 **(21)**	139	3	4	0
Elbasan	15 (9)	3	5 **(7)**	190 (87)	41 (21)	6 (4)	3 (3)
Fier	16 (6)	2 (1)	9 (5)	507	71	12	0
Gjirokaster	11 (2)	0	0	67	5	2 (2)	9 (6)
Korce	2	2	6	189	5	2	45
Kukes	2	0	0	31	6	0	0
Lezhe	2 (1)	0 (2)	4	274	26 (8)	3	0
Tirane	17 **(23)**	4 **(6)**	41 (22)	340	115	10	19 (19)
Vlore	41	1	2	651	7 (7)	0	0
Shkoder	6	0	6	594	2	4	14
Total	***139 (57)***	***18 (5)***	***98 (60)***	***3211 (87)***	***290 (36)***	***75 (6)***	***90 (28)***

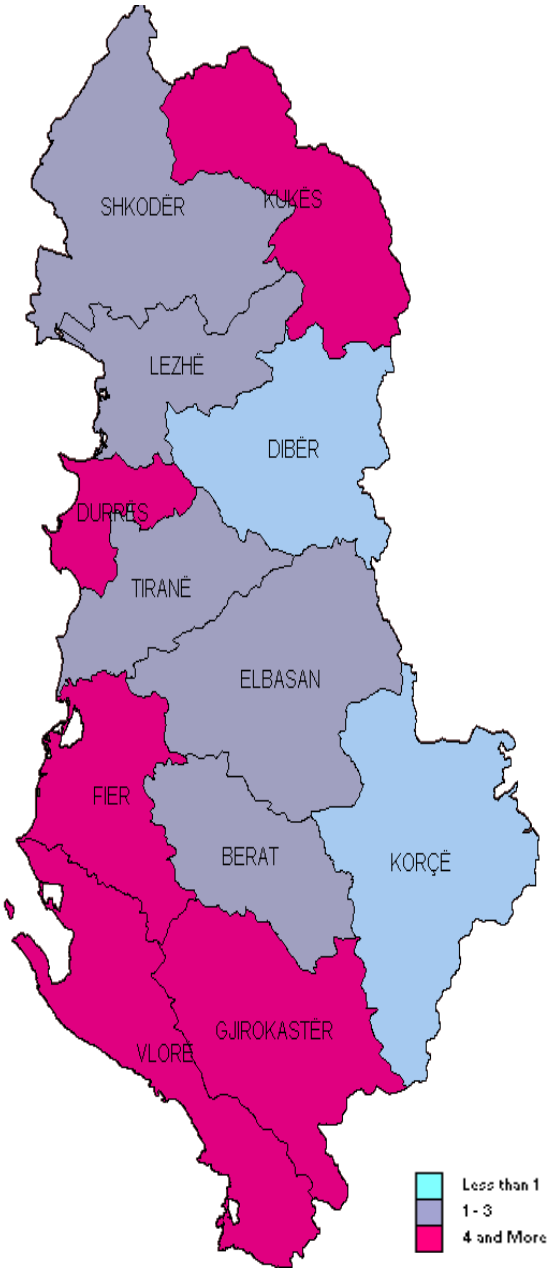
Discordonce in the number of cases reported by the monthly surveillance system and the individual form for the group of "other diseases" is presented in 41.7% of the regions for meningococcal meningitis, meningococcal bacteric non-viral meningitis and aseptic viral meningitis), and in over 50% of regions for varicella, erysipelas, scarlatine and other rickettsiosis. 50% of the regions do not represent individual data for this group of diseases, while 91.7% of the regions have not used individual forms for varicelle cases.

Distribution of Other Diseases over the period 1998 – 2009 by region

Country Mean Incidence (cases/100,000 population) and range

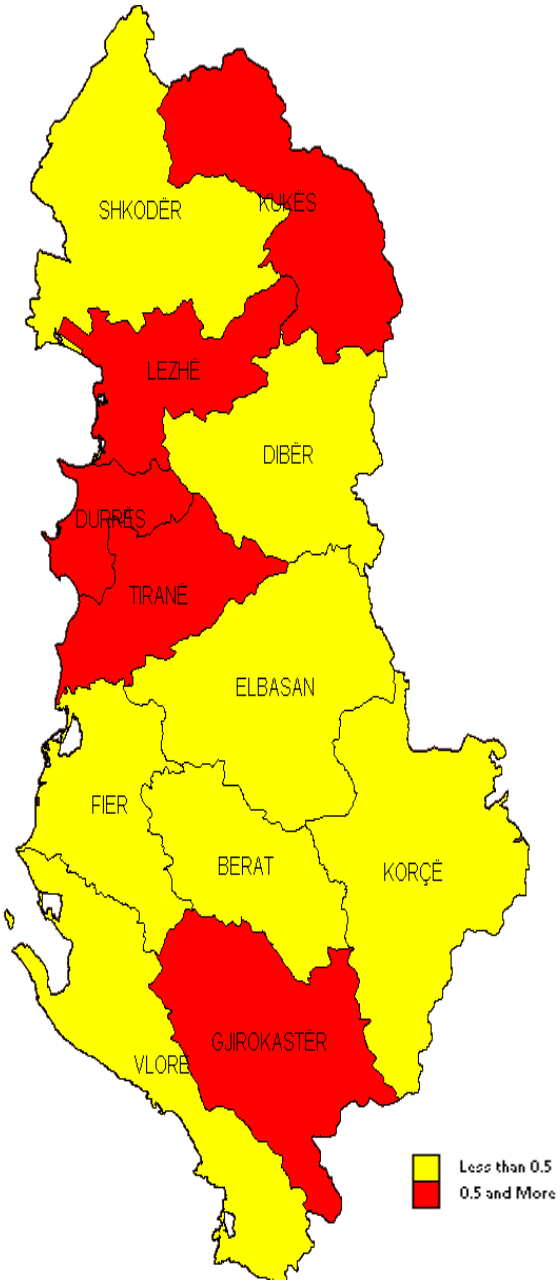
Aseptic viral meningitis

3.7 (0.2 – 12.5)



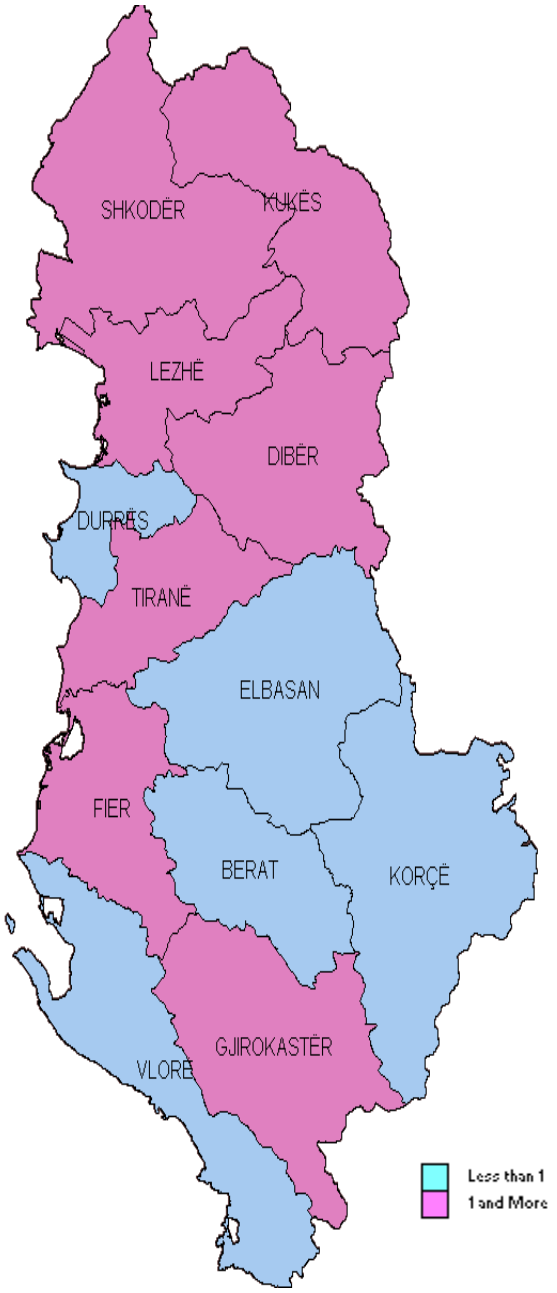
Meningococcal meningitis

0.4 (0.1 – 1.2)



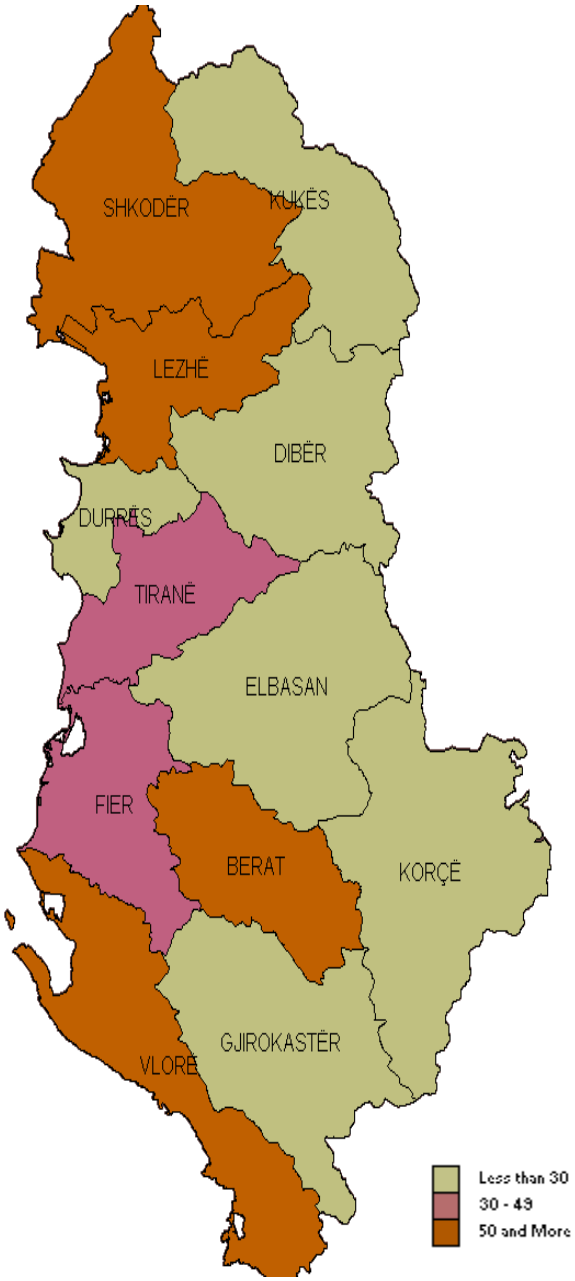
Non meningococcal bacterial Meningitis

1.3 (0.3 – 3.0)



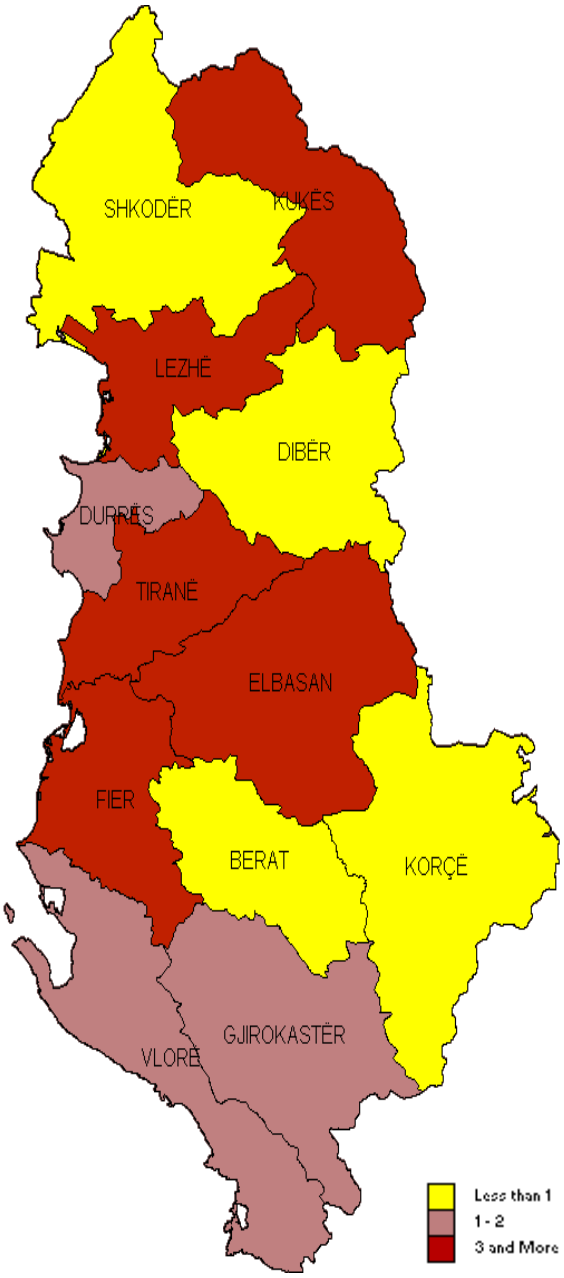
Varicella

36 (4 – 83)



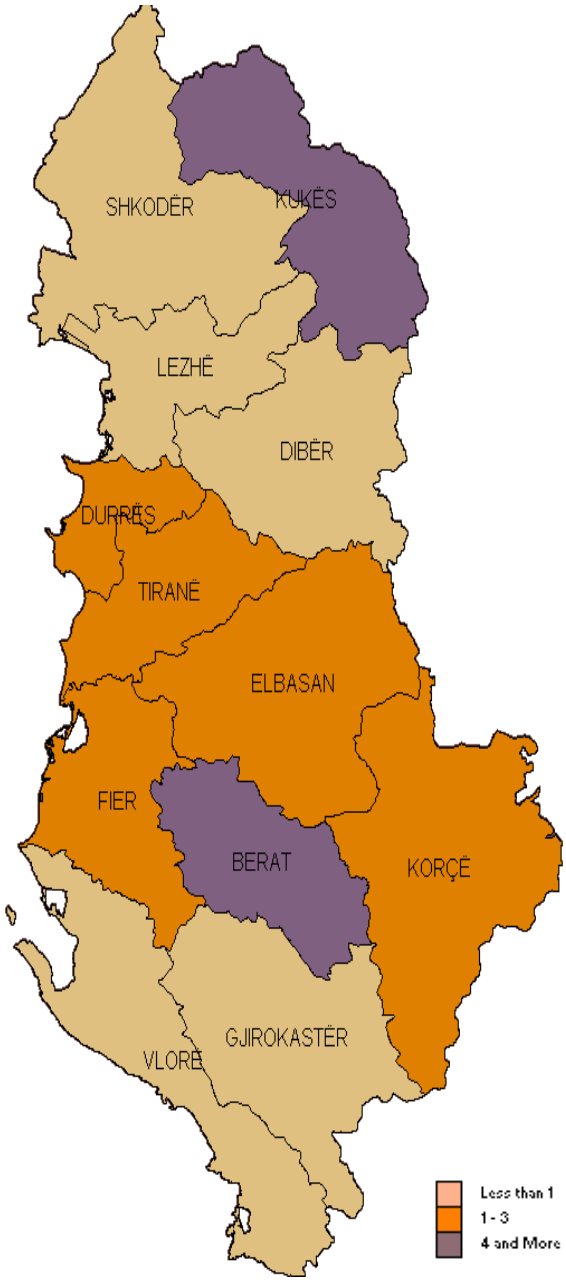
Erysipelas

2.5 (0.4 – 5.3)



Scarlatina

1.9 (0 – 5.8)



Other Rickettsiosis

1.7 (0 – 9.9)

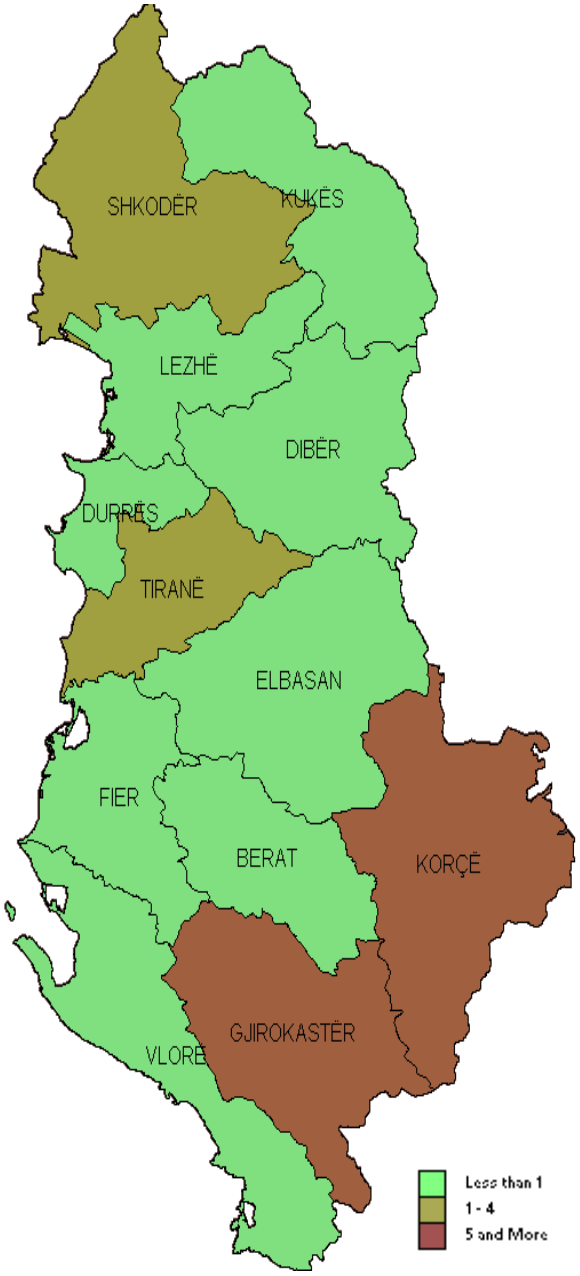
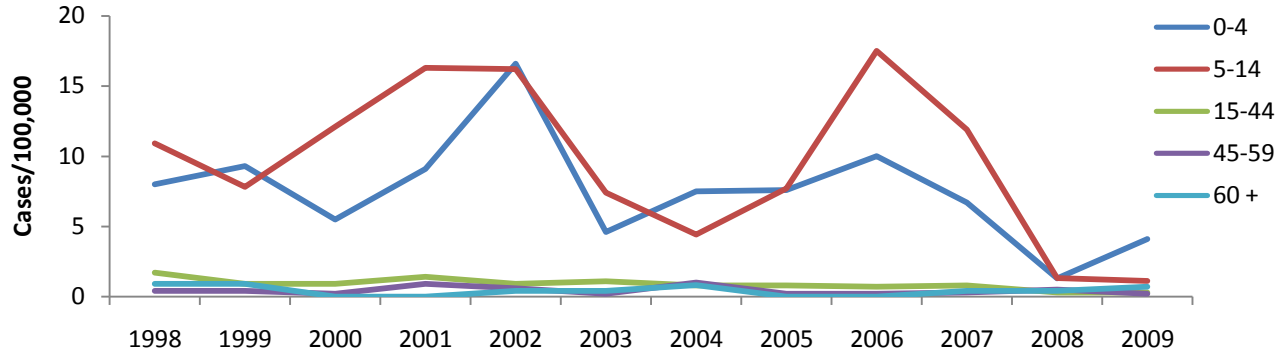


Table 5.6.3 Number of cases of "other infectious diseases" group over the period 1998-2009 by age groups

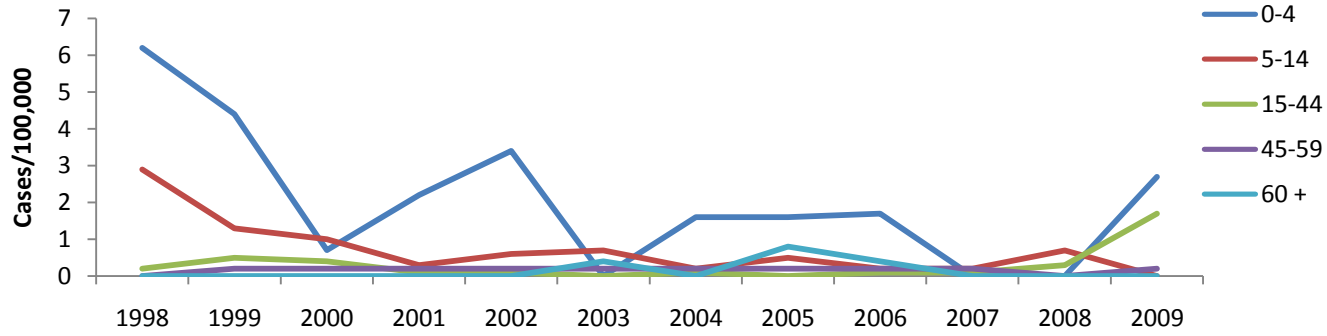
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Aseptic viral meningitis	0-4	22	25	15	25	44	12	19	19	24	16	3	9
	5-14	69	49	76	103	101	45	26	45	97	66	7	6
	15-44	23	13	13	19	13	15	12	12	10	12	5	5
	45-59	2	2	1	5	4	1	6	1	1	2	3	1
	60 +	2	2	0	0	1	1	2	0	0	1	1	2
Meningococcal meningitis	0-4	17	12	2	6	9	0	4	4	4	0	0	6
	5-14	18	8	6	2	4	4	1	3	1	1	4	0
	15-44	3	7	6	1	1	0	1	0	2	1	4	26
	45-59	0	1	1	1	1	1	1	1	1	1	0	1
	60 +	0	0	0	0	0	1		2	1	0	0	0
Non meningococcal bacteria meningitis	0-4	22	9	9	17	15	7	9	9	12	6	15	6
	5-14	17	17	16	17	23	23	8	5	14	19	16	7
	15-44	15	7	3	9	10	8	7	10	7	7	7	3
	45-59	3	1	1	0	3	1	3	4	0	1	4	2
	60 +												
Varicella	0-4	247	206	360	282	287	532	426	326	429	565	280	222
	5-14	417	468	609	530	676	989	942	829	715	1006	527	390
	15-44	83	22	46	22	33	71	43	81	82	91	38	79
	45-59	1	0	0	3	1	2	3	3	2	1	2	4
	60 +	0	0	3	0	1	0	0	0	0	0	2	4
Erysipelas	0-4	2	2	4	1	4	8	2	0	9	3	2	2
	5-14	4	9	1	10	6	33	6	5	5	18	7	3
	15-44	39	23	23	36	27	39	31	28	17	29	21	18
	45-59	22	23	29	36	29	50	45	40	45	42	49	33
	60 +	9	10	11	16	17	23	22	24	18	23	20	20
Scarlatina	0-4	26	33	27	27	21	29	27	25	28	16	8	11
	5-14	33	35	104	43	31	49	37	29	26	12	14	10
	15-44	0	8	3	3	1		3	3	2	1	1	1
	45-59	0	3	0	0	1	2	0	0	2		0	8
	60 +	0	0	0	0	0	0	0	0	0	0	0	0
Other rickettsiosis	0-4	2	5	1	4	7	5	7	2	8	4	0	1
	5-14	0	4	3	11	26	14	8	6	10	4	4	3
	15-44	6	6	3	21	19	14	11	8	12	5	6	6
	45-59	4	5	4	**9**	13	6	12	9	4	1	6	2
	60 +	0	3	5	0	2	5	4	1	3	1	2	0

Figure 5.6.2The incidence rate of "other infectious diseases" group over the period 1998-2009 by age group

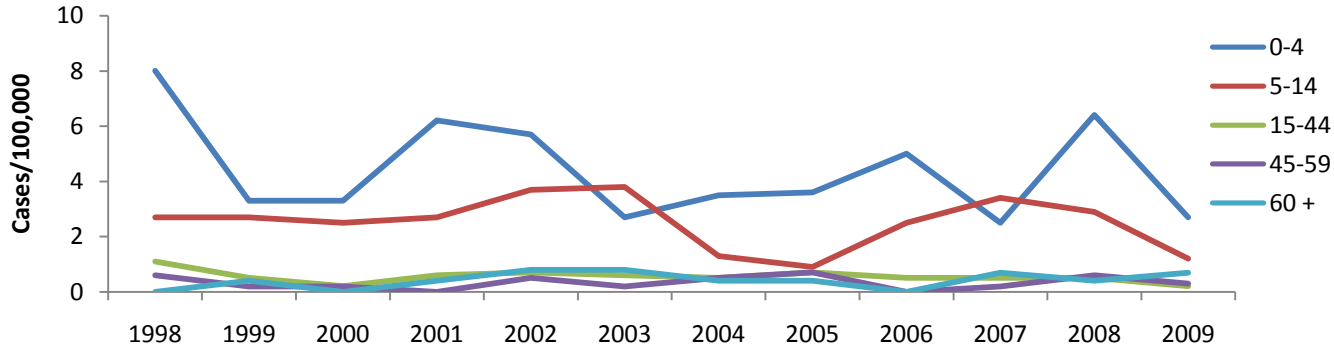
Aseptic viral meningitis



Meningococcal meningitis



Non meningococcal bacteria meningitis

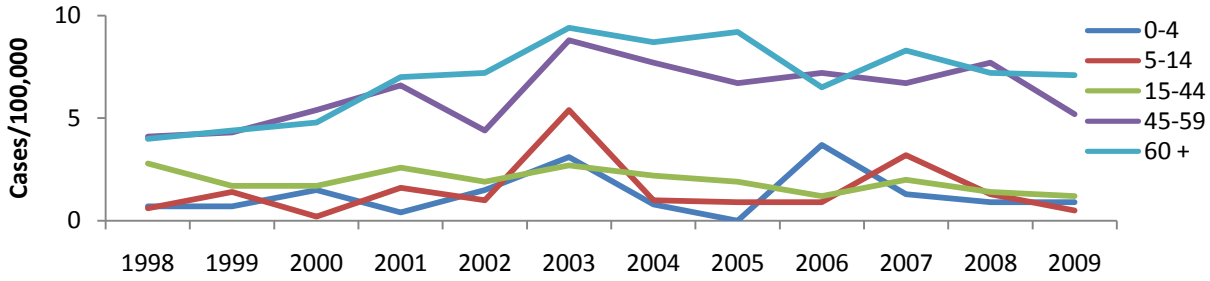


Age group with the highest incidence for meningococcal diseases (meningococcal meningitis, aseptic viral meningitis and non- meningococcal bacteric meningitis) are 0-4 years old with the increasing trend for meningococcal meningitis during 2008-2009 and 5-14 years old with decreasing trend for all meningococcal diseases (see the table 5.6.3 and figure 5.6.2).

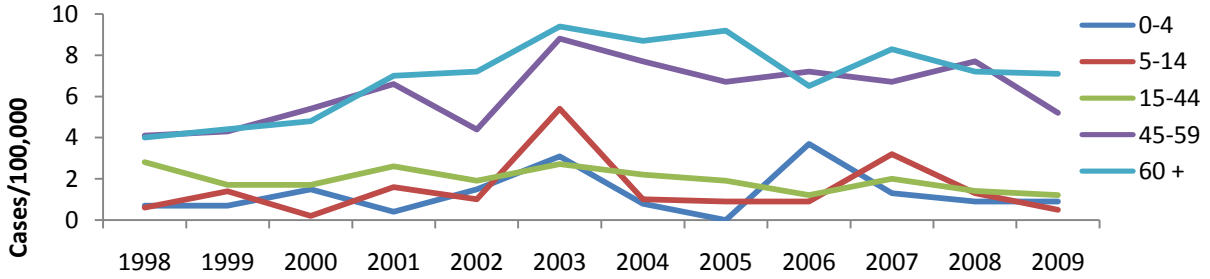
Figure 5.6.3The incidence rate of "other infectious diseases" group over the period 1998-2009 by age group

Varicella

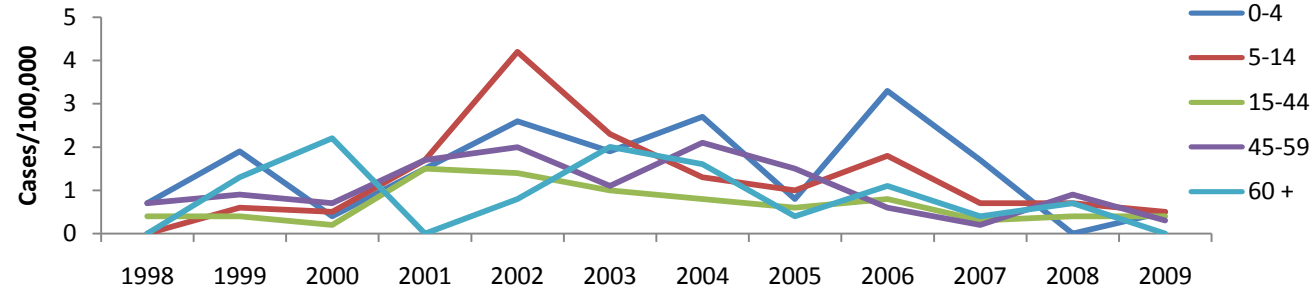
Erysipelas



Scarlatina



Other rickettsiosis



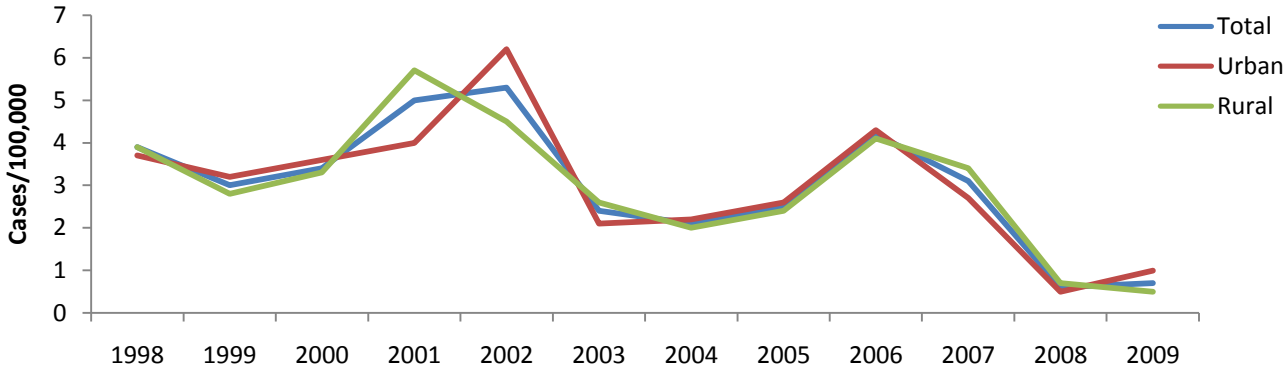
The erysipelas, scarlatina and other rickettsiosis occurrence show an oscillating trend over the period 1998-2009 for all age-grops, with peaks every 2-3 years, except varicelle which shows oscillation with decreasing trend in the pediatric age groups 0-4 and 5-14 years old.

Table 5.6.4 Number of cases of "other infectious diseases" group by residence during the years 1998-2009

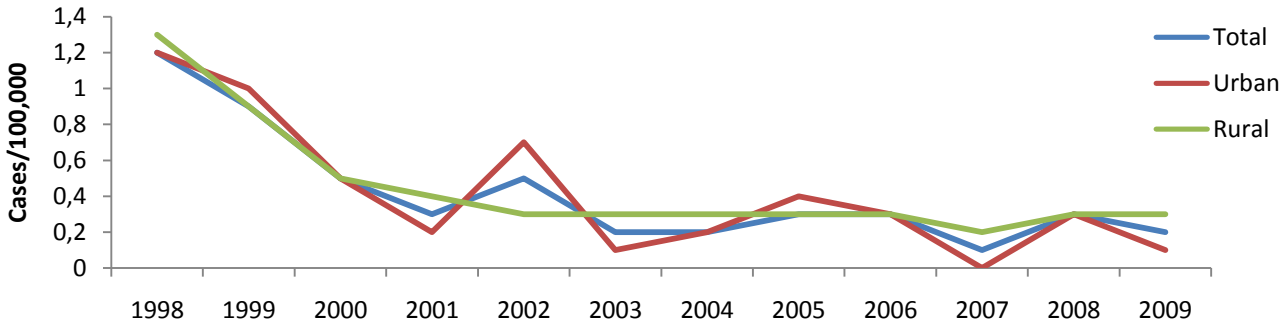
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Aseptic viral meningitis	**Total**	118	91	105	152	162	74	65	77	132	97	19	23
	Urban	46	40	45	51	81	28	30	36	65	42	8	15
	Rural	72	51	60	101	81	46	35	41	67	55	11	8
Meningococcal meningitis	**Total**	38	28	15	10	15	6	7	10	9	3	8	7
	Urban	15	12	6	3	9	1	2	5	5		4	2
	Rural	23	16	9	7	6	5	5	5	4	3	4	5
Non meningococcal bacteria	**Total**	57	35	29	44	53	41	28	29	33	35	43	20
	Urban	19	12	15	19	21	16	12	13	20	18	19	11
	Rural	38	23	14	25	32	25	16	16	13	17	24	9
Varicella	**Total**	748	696	1018	837	998	1594	1414	1239	1228	1663	849	699
	Urban	525	490	718	570	700	1017	812	753	889	1047	583	268
	Rural	223	206	300	267	298	577	602	486	339	616	266	431
Erysipelas	**Total**	76	67	68	99	83	153	106	97	94	115	99	76
	Urban	39	37	42	62	56	98	52	60	56	71	62	21
	Rural	37	30	26	37	27	55	54	37	38	44	37	55
Scarlatina	**Total**	59	79	134	73	54	80	67	57	58	29	23	22
	Urban	46	27	100	54	40	55	39	49	39	23	16	9
	Rural	13	52	34	19	14	25	28	8	19	6	7	13
Other rickettsiosis	**Total**	11	23	16	45	67	44	42	26	37	15	18	12
	Urban	4	16	15	28	39	18	21	13	22	7	9	4
	Rural	7	7	1	17	28	26	21	13	15	8	9	8

Figure 5.6.4The incidence rate of "other infectious diseases" group over the period 1998-2009 by residence

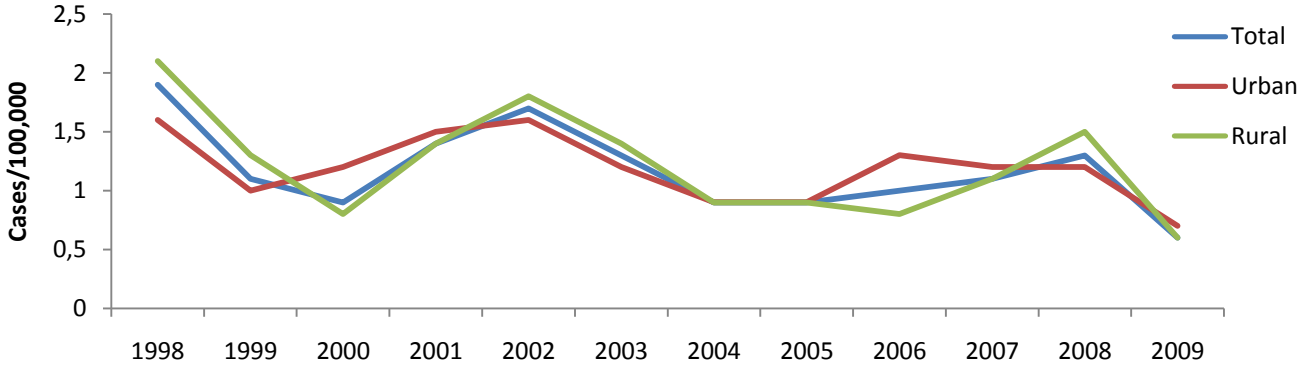
Aseptic viral meningitis



Meningococcal meningitis



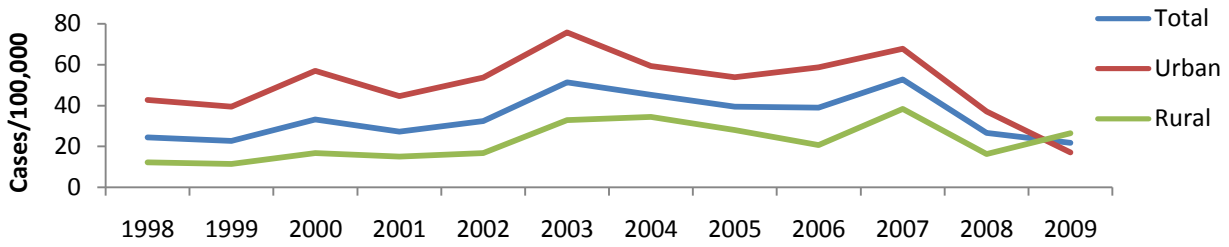
Non meningococcal bacteria meningitis



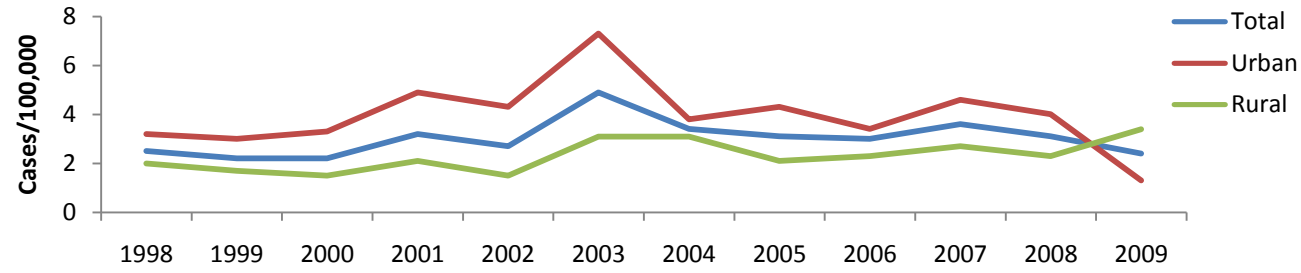
The urban and rural areas have a same situation regarding with the meningococcal meningitis diseases group. The numer cases and incidence rate (cases/100.000 population) show oscillations and decreasing trend.

Figure 5.6.5The incidence rate of "other infectious diseases" group over the period 1998-2009 by residence

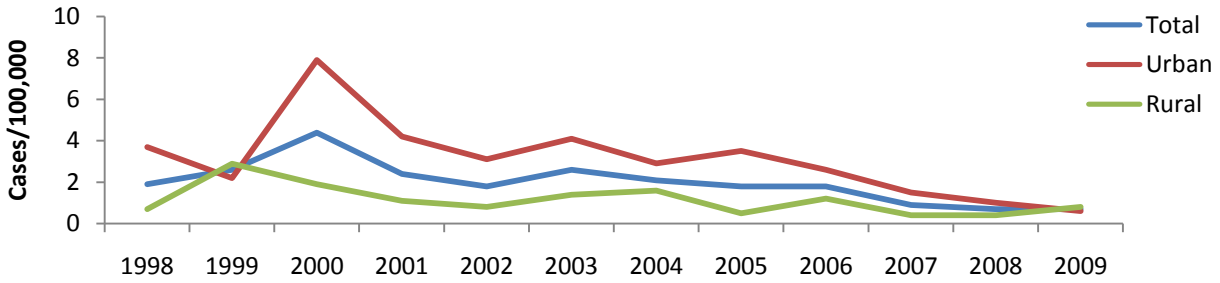
Varicella



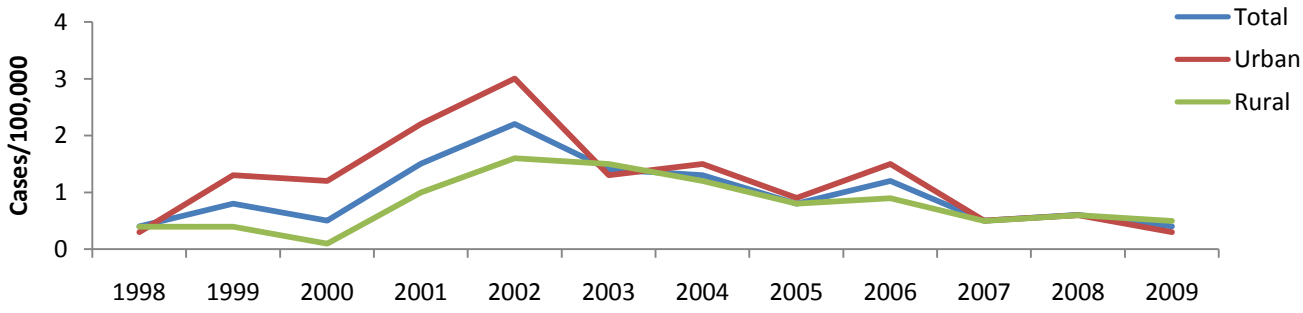
Erysipelas



Scarlatina



Other rickettsiosis



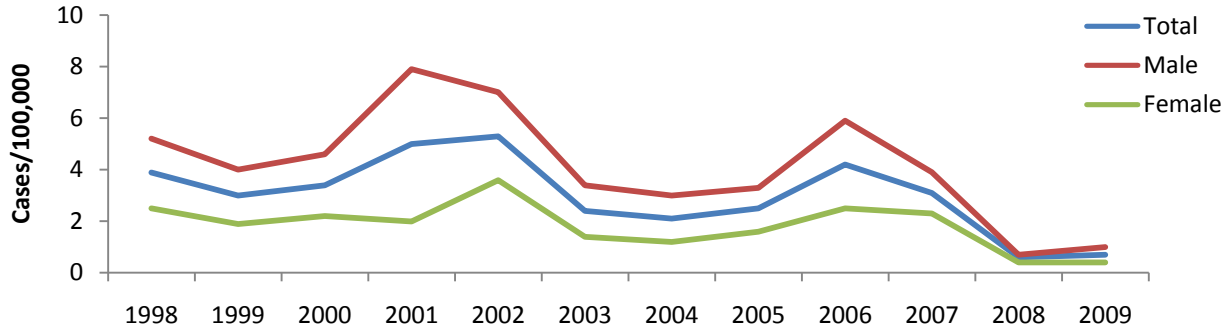
Varicella, erysipelas, scarlatina and other rickettsiosi represent higher incidence in urban areas and decreasing trend in both of areas (urban and rural areas).

Table 5.6.5 Number of cases of "other infectious diseases" group over the period 1998-2009 by gender

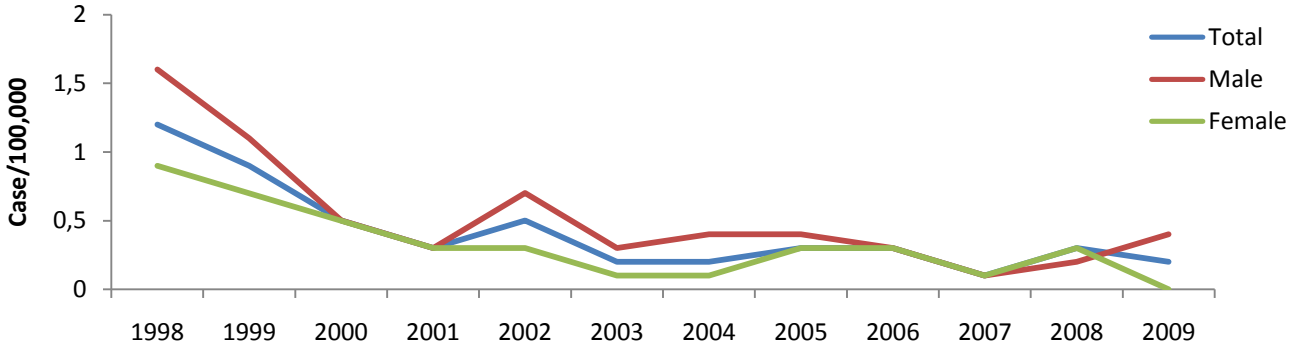
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
		no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases	no. cases
Aseptic viral meningitis	**Total**	118	91	105	152	162	74	65	77	132	97	19	23
	Male	80	62	71	121	107	53	47	52	93	61	12	16
	Female	38	29	34	31	55	21	18	25	39	36	7	7
Meningococcal meningitis	**Total**	38	28	15	10	15	6	7	10	9	3	8	7
	Male	24	17	8	5	11	4	6	6	4	2	4	7
	Female	14	11	7	5	4	2	1	4	5	1	4	0
Non meningococcal bacteria	**Total**	57	35	29	44	53	41	28	29	33	35	43	20
	Urban	30	21	20	33	32	29	23	17	23	23	25	14
	Rural	27	14	9	11	21	12	5	12	10	12	18	6
Varicella	**Total**	748	696	1018	837	998	1594	1414	1239	1228	1663	849	699
	Male	404	356	533	455	540	873	757	670	681	783	411	369
	Female	344	340	485	382	458	721	657	569	547	880	438	330
Erysipelas	**Total**	76	67	68	99	83	153	106	97	94	115	99	76
	Male	34	31	27	45	38	64	53	35	40	45	47	39
	Female	42	36	41	54	45	89	53	62	54	70	52	37
Scarlatina	**Total**	59	79	134	73	54	80	67	57	58	29	23	22
	Male	27	47	58	47	30	44	28	27	36	17	15	14
	Female	32	32	76	26	24	36	39	30	22	12	8	8
Other rickettsiosis	**Total**	11	23	16	45	67	44	42	26	37	15	18	12
	Male	8	12	9	22	38	22	22	17	19	10	8	5
	Female	3	11	7	23	29	22	20	9	18	5	10	7

Figure 5.6.6 The incidence rate of "other infectious diseases" group over the period 1998-2009 by gender

Aseptic viral meningitis



Meningococcal meningitis



Non meningococcal bacteria meningitis

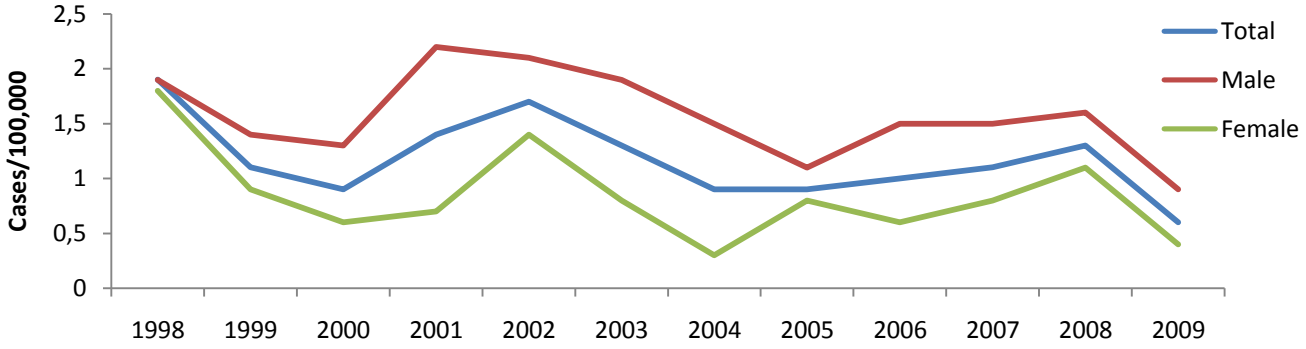
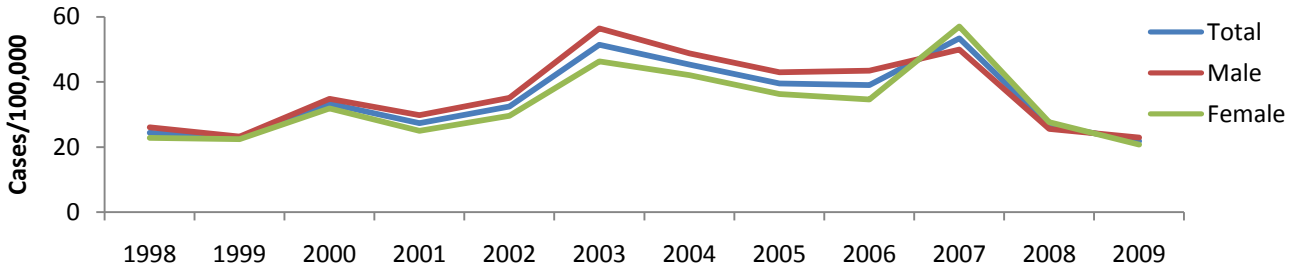


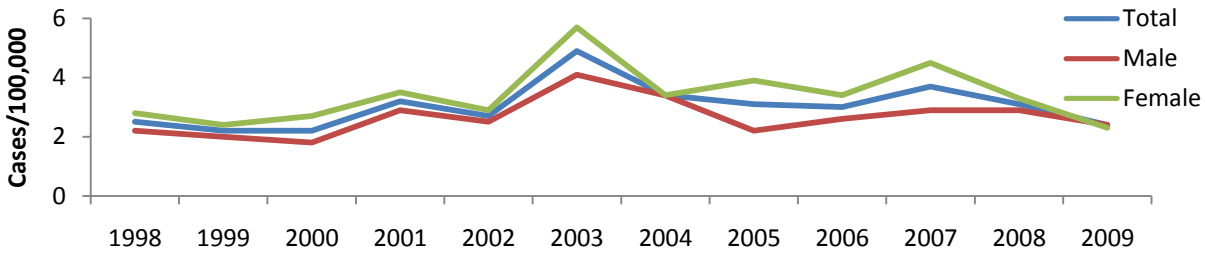
Table 5.6.5 and Figure 5.6.6 represent the annual frequency (number of reported cases) and incidence rate (cases/100.000 population) for meningococcal group distributed by gender for the period 1998-2009. Males constitute 69.5% of meningitis cases.

Figure 5.6.7 The incidence rate of "other infectious diseases" group over the period 1998-2009 by gender

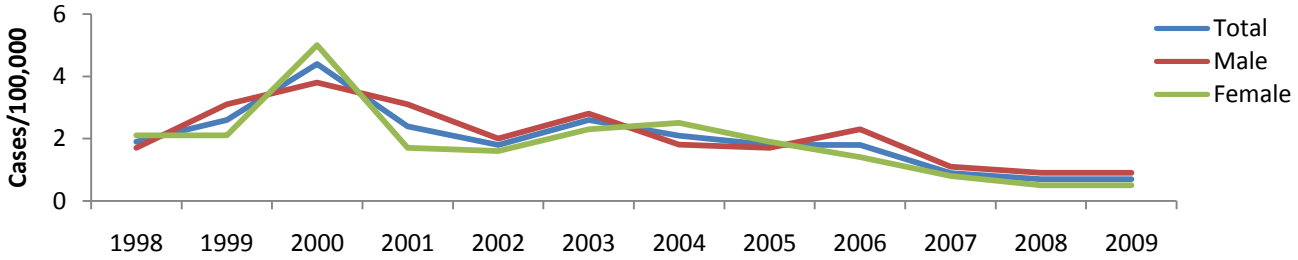
Varicella



Erysipelas



Scarlatina



Other rickettsiosis

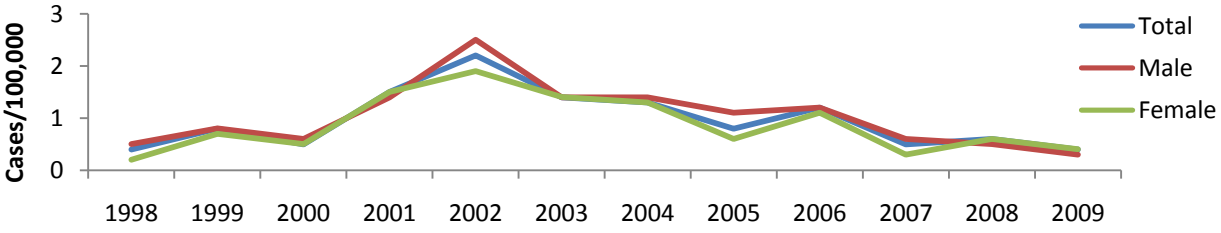


Figure 5.6.7 shows the incidence rate (cases/100.000) for each of the above diseases by gender. Varicella, scarlatina and other rickettsiosi show higher incidence in males, expressed as a percentage the males represent: varicella in 52.6% of cases, scarlatina in 53.1% of them and other rickettsiosis in 53.9% of cases. Regarding to erysipelas, the major number of cases (56.1% of cases) and higher incidence rate is presented to women.This group of diseases represents a decreasing trend.

Individual notification schedul of other diseases.

- ***Part I – "General information"***

Table 5.6.6 represent presence or missing of data on general information of patients for each disease defined as "other infectious diseases". Indicator "father's name" for the group of viral diseases meningiteve is completed in about 80.0% of cases, while for diseases: varicella, erysipelas, scarlatina and other rickettsiosis is presented by"missing" at about 30-60% of cases. Gender, age and profession are completed almost 100% of individual forms, while the address is not compiled in 8.0% to 26.3% of them, except the scarlatine cases in which was completed in 100% of forms (see table 5.6.6).

Table 5.6.6 the general information data on patient's form

Disease		Father's name	Gender	Age	Profession	Address
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Aseptic viral meningitis n = 57	Yes	47 (82.5)	57 (100.0)	57 (100.0)	57 (100.0)	42 (73.7)
	missing	10 **(17.5)**	0	0	0	15 **(26.3)**
Meningococcal meningitis n =11	Yes	9 (81.8)	11 (100.0)	11 (100.0)	11 (100.0)	9 (81.8)
	missing	2 **(18.2)**	0	0	0	2 **(18.2)**
Non meningococcal bacteria meningitis n = 60	Yes	49 (81.7)	60 (100.0)	59 (96.7)	60 (100.0)	53 (88.3)
	missing	11 **(18.3)**	0	1 (3.3)	0	7 **(11.7)**
Varicella n = 87	Yes	18 (20.7)	87 (100.0)	85 (97.7)	87 (100.0)	80 (92)
	missing	69 **(79.3)**	0	2 (2.3)	0	7 (8.0)
Erysipelas n = 36	Yes	16 (44.4)	36 (100.0)	35 (97.2)	36 (100.0)	29 (80.6)
	missing	20 **(54.6)**	0	1 (2.8)		7 **(19.4)**
Scarlatina n = 6	Yes	3 (50)	6 (100.0)	5 (83.3)	6 (100.0)	6 (100.0)
	missing	3 **(50)**	0	1 **(16.7)**	0	0
Other rickettsiosis n = 28	Yes	17 (60.7)	28 (100.0)	28 (100.0)	28 (100.0)	25 (89.3)
	missing	11 **(39.3)**	0			3 (10.7)

- ***Part II –" History of disease"***

Table 5.6.7 and 5.6.8 contain the indicators of the second half of patient information related to the history of disease (date of onset of illness and hospitalization) and the prognose of disease (cured or deceased). In individual form for viral meningiti group is completed date of onset and hospitalization in the highest percentage, while in individual forms of diseases as: varicela, erisipelas, scarlatina and other rickettsiosis there is "missing" for "date of onset" in about 45% of forms.

Table 5.6.7 The data of the disease history

Disease		Date of onset	Hospitalized
		No. (%)	No. (%)
Aseptic viral meningitis n=57	Yes	47 (82.5)	57 (100.0)
	missing	10 (17.5)	0
Meningococcal meningitis n=11	Yes	9 (81.8)	11 (100.0)
	missing	2 (18.2)	0
Non meningococcal bacteria meningitis n=60	Yes	49 (81.7)	60 (100.0)
	missing	11 (18.3)	0
Varicella n=87	Yes	18 (20.7)	87 (100.0)
	missing	69 **(79.3)**	0
Erysipelas n=36	Yes	16 (44.4)	36 (100.0)
	missing	20 **(55.6)**	0
Scarlatina n=6	Yes	3 (50)	6 (100.0)
	missing	3 **(50)**	0
Other rickettsiosis n=28	Yes	17 (60.7)	28 (100.0)
	missing	11 **(39.3)**	0

Indicators cured and deceased are completed almost in all forms of study (see table 5.6.8)

Table 5.6.8 the disease prognosis for each disease

Disease	Cured		Deceased		Missing		Total
	No.	%	No.	%	No.	%	
Aseptic viral meningitis	52	91.2	1	1.8	4	7.0	57
Meningococcal meningitis	9	81.8	1	9.1	1	9.1	11
Non mening. bact. meningitis	53	88.3	4	6.7	3	5.0	60
Varicella	80	92.0	0	0.0	7	8.0	87
Erysipelas	30	83.3	0	0.0	6	16.7	36
Scarlatina	6	100.0	0	0.0	0	0.0	6
Other rickettsiosis	23	82.1	0	0.0	5	17.9	28

- ***Part III- " Laboratory diagnosis"***

Confirmation of the final diagnosis based on laboratory examinations is needed for each disease. Viral Aseptic meningitis is confirmed by clinic, culture and serology; meningococcal meningitis is confirmed by direct examination and culture, and serology; varicela by clinic and serology; erysipelas and scarlatina by clinic, cultur and serology; other rickettsiosi by clinic and serology.

Based on the criteria for laboratory confirmation of the obtained results show that the highest percentage of individual forms for the listed diseases in table 5.6.9 is"missing" for information about laboratory examination.

Table 5.6.9 the laboratory examinations for each disease

Disease		**Direct**	**Culture**	**Serology**
		No. (%)	**No. (%)**	**No. (%)**
Aseptic viral meningitis	Positive	1(1.8) **not applicable**	21 (36.8)	1(1.8)
	negative	0	0	0
	Missing	56 (98.2)	36 **(63.2)**	56 **(98.2)**
n= 57				
Meningococcal meningitis	Positive	2 (18.2)	4 (36.4)	0
	negative	0	0	0
	Missing	9 (81.8)	7 **(63.6)**	11 **(100)**
n = 11				
Non mening. bacterial meningitis	Positive	4 (6.7)	18 (30)	1 (1.7)
	negative	1(1.7)	2 (3.3)	0
	Missing	55 (91.6)	40 **(66.7)**	59 **(98.3)**
n = 60				
Varicella	Positive	0 **not applicable**	0 **not applicable**	0
	negative	0	0	0
N = 87	Missing	87 (100)	87 (100)	87 **(100)**
Erysipelas	Positive	4 (11.1) **not applicable**	0	0
	negative	0	0	0
n = 36	Missing	32 (88.9)	36 **(100)**	36 **(100)**
Scarlatina	Positive	**0 not applicable**	0	0
	negative	0	0	0
n = 6	Missing	6 (100)	6 **(100)**	6 **(100)**
Other rickettsiosis	Positive	7 (25) **not applicable**	0 **not applicable**	9 (32.1)
	negative	0	0	1 (3.6)
	Missing	21 (75)	28 (100)	18 **(64.3)**
n = 28				

Not applicable – means wrong laboratory examination

- ***Part IV – "Epidemiological investigation"***

Part of the epidemiological investigation includes appropriate indicators of the spread and origin of the infection presented in table 5.6.10 and 5.6.11.

Epidemiological investigation in about half of cases for each disease has not identified the spread of disease.

Table 5.6.10 the outbreak nature of disease

Disease		Sporadic	Endemic
		No. (%)	No. (%)
Aseptic viral meningitis N=57	**yes**	34 (59.6)	0
	missing		23 (40.4)
Meningococcal meningitis N=11	**yes**	7 (63.6)	0
	missing		4 (36.4)
Non meningococcal bacteria meningitis N=60	**yes**	28 (46.7)	2 (3.3)
	missing		30 (53.3)
Varicella N=87	**yes**	63 (72.4)	0
	missing		24 (27.6)
Erysipelas N=36	**yes**	20 (55.6)	1(2.8)
	missing		15 (41.6)
Scarlatina N=6	**yes**	5 (83.3)	0
	missing		1(16.7)
Other rickettsiosis N=28	**yes**	17 (60.7)	0
	missing		11(39.3)

Also, regarding the information on the disease origin is "missing" and "unknown" in highest percentage.

Table 5.6.11 Origine of infectious for each disease

Disease	unknown	%	missing	%	Total
Aseptic viral meningitis	21	36.8%	36	63.2%	57
Meningococcal meningitis	5	45.5%	6	54.5%	11
Non meningococcal bact. Meningitis	22	36.7%	38	63.3%	60
Varicella	61	70.1%	26	29.9%	87
Erysipelas	18	50%	18	50%	36
Scarlatina	5	83.3%	1	16.7%	6
Other rickettsiosis	18	64.3%	10	35.7%	28

- ***Part V – "Conclusion"***

Regarding the fifth part of the individual notification form "conclusion part" which is based on clinical data, laboratory and epidemiological investigation is indicated an inconsistency of the data with the appropriate classification (confirmed or suspected case). Table 5.6.12 show that over 50% of cases is completed the conclusion part as "confirmed", while for the necessary laboratory examinations is "missing" in highest percentage of cases.

Table 5.6.12 Case classification for each disease

Disease	Confirmed		Suspected		Missing		Total
	No.	%	No.	%	No.	%	
Aseptic viral meningitis	29	50.9	11	19.3	17	29.8	57
Meningococcal meningitis	8	72.7	1	9.1	2	18.2	11
Non mening. bact. meningitis	32	53.3	8	13.3	20	33.3	60
Varicella	73	83.9	13	14.9	1	1.1	87
Erysipelas	29	80.6	6	16.7	1	2.8	36
Scarlatina	3	50.0	1	16.7	2	33.3	6
Other rickettsiosis	20	71.4	8	28.6	0	0.0	28

5.7 Epidemiological characteristics of infectious diseases without individual schedule

In this group are included the infectious diseases whose evaluation is not based on the assessment of the cases through individual notification form, but only by clinical symptoms and reporting of cases from monthly reporting form.

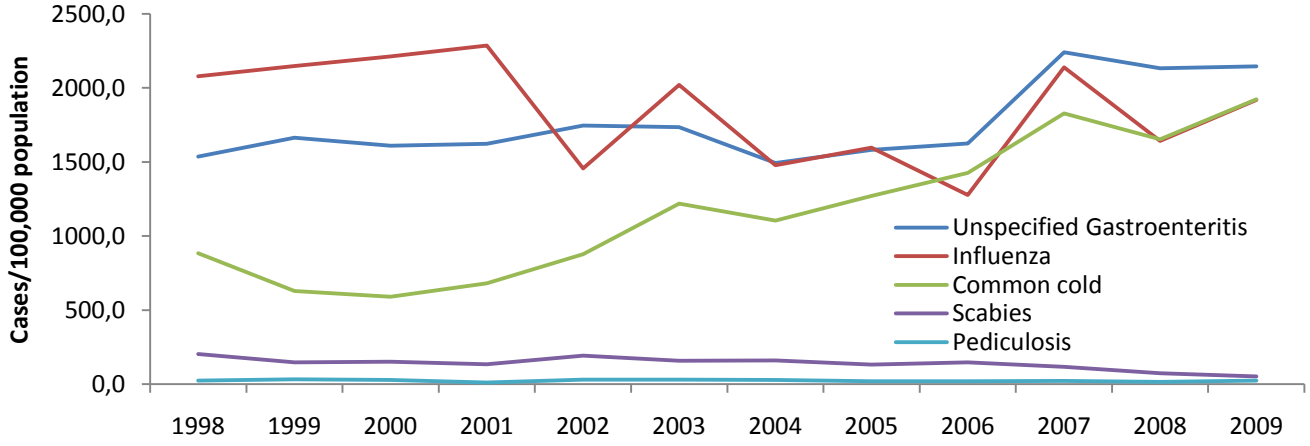
This group includes: unspecified gastroenteritis, influenza, common cold, scabies and pediculossis.

Obtained and presented results in table and figure 5.7.1 show increasing trend for unspecified gastroenteritis, influenza, common cold and the decreasing trend for scabies and pediculossis.

Table 5.7.1 Number of unspecified gastroenteritis, influenza, common cold, scabies and pediculosis cases over the period 1998-2009 in Albania

Disease	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Unspecified gastroenteritis	47149	51073	49410	49820	53575	53221	45811	48514	49868	68740	65440	65810
Influenza	63764	65845	67879	70100	44695	61960	45355	48986	39200	65575	50370	58819
Common cold	27127	19361	18150	20910	26972	37388	33929	39026	43785	56103	50730	58983
Scabies	6238	4481	4665	4147	5905	4819	4899	4052	4502	3567	2244	1596
Pediculosis	735	1003	862	354	961	939	889	628	622	658	494	724

Figure 5.7.1The incidence ratefor unspecified gastroenteritis, influenza, common cold, scabies and pediculosis over the period 1998-2009 in Albania

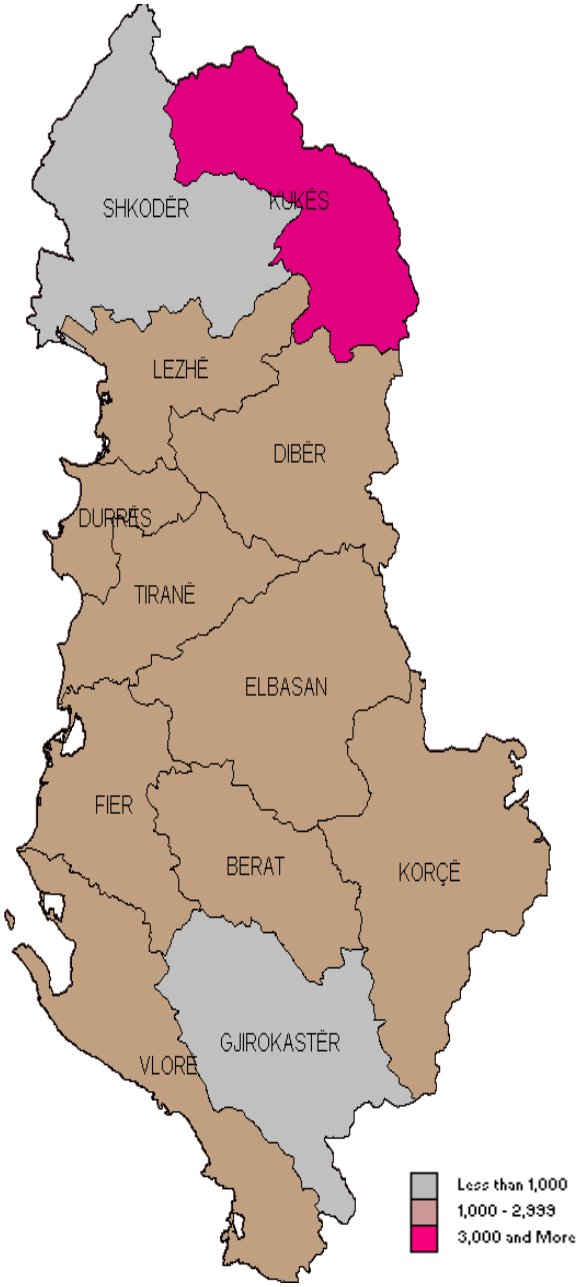


Distribution of Diseases without schedule over the period 1998 – 2009 by region

Country Mean Incidence (cases/100,000 population) and range

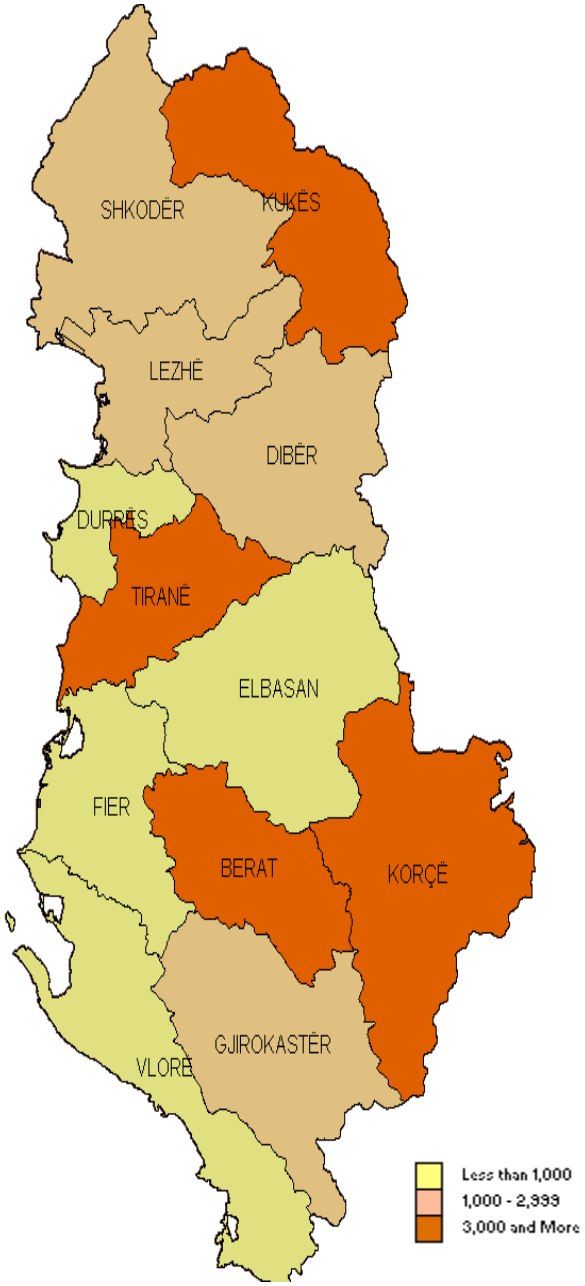
Unspecified gastroenteritis

1838.6 (860 – 3820)



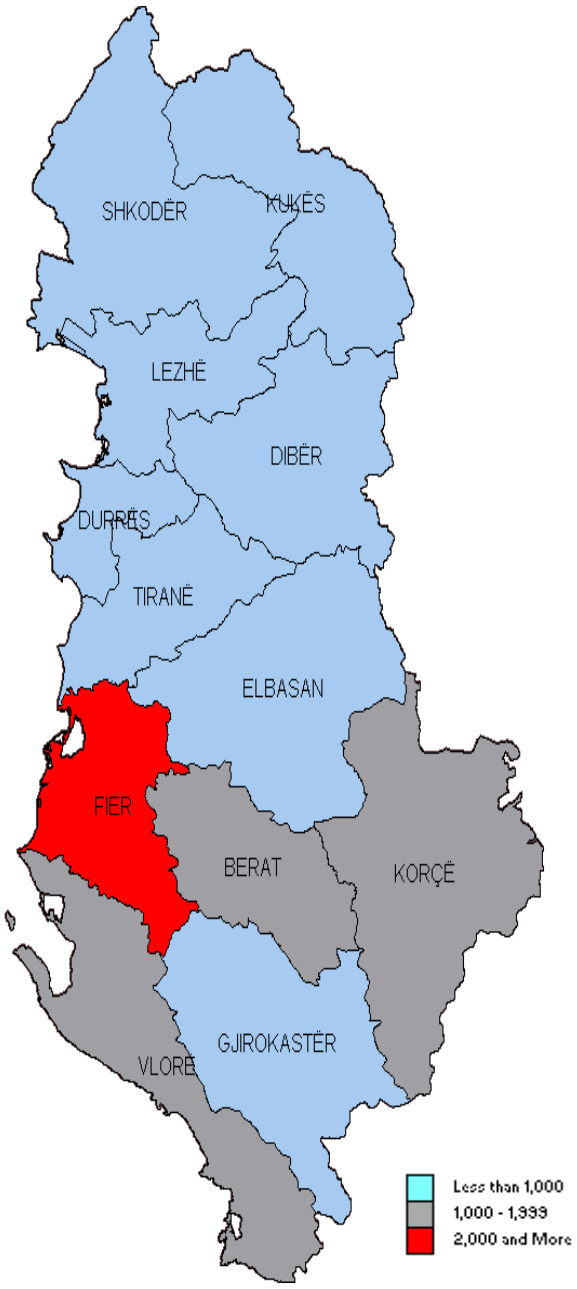
Influenza

1866 (495 – 5676)



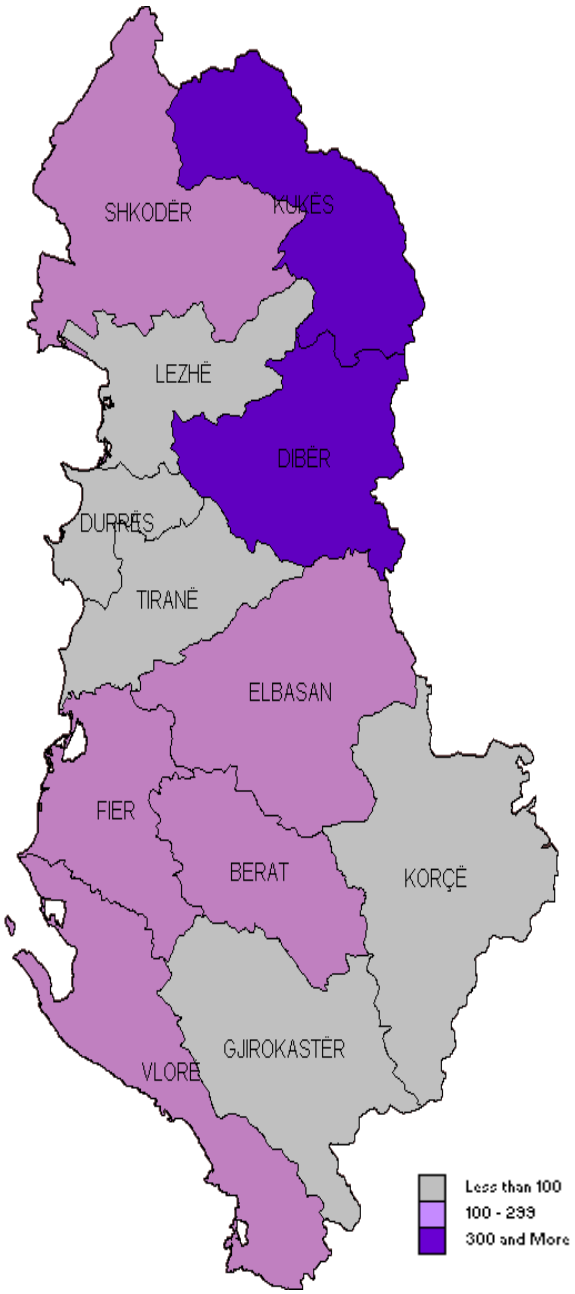
Common cold

972.2 (23 – 4707)



Scabies

170.2 (48 – 464)



Pediculosis

46.7 (0 – 393)

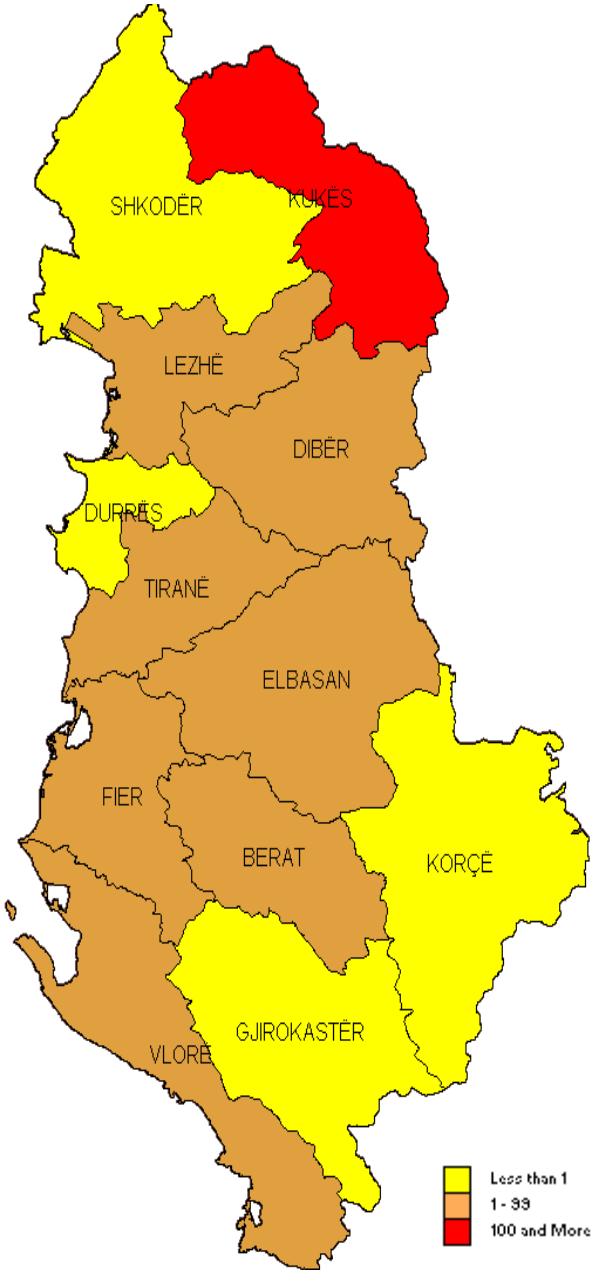
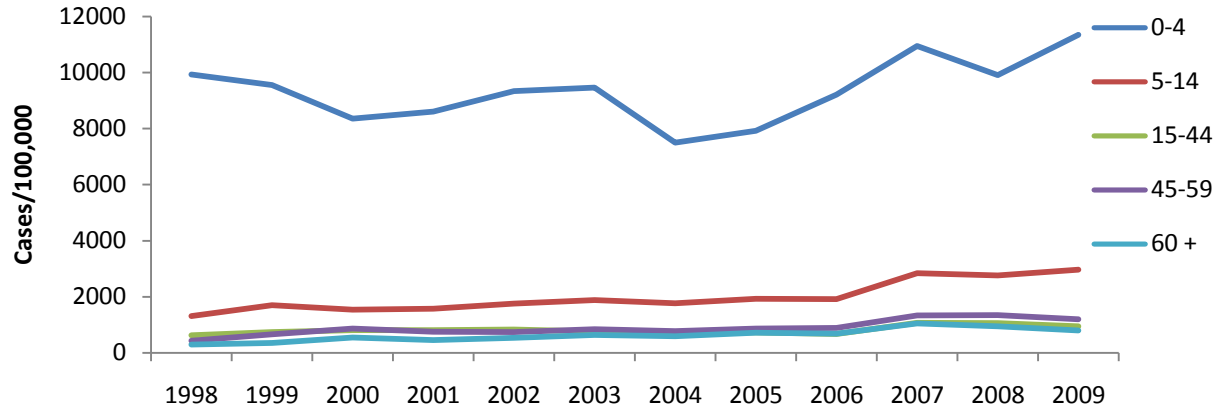


Table 5.7.2 Number of unspecified gastroenteritis, influenza, common cold, scabies and pediculosis cases over the period 1998-2009 by age-group

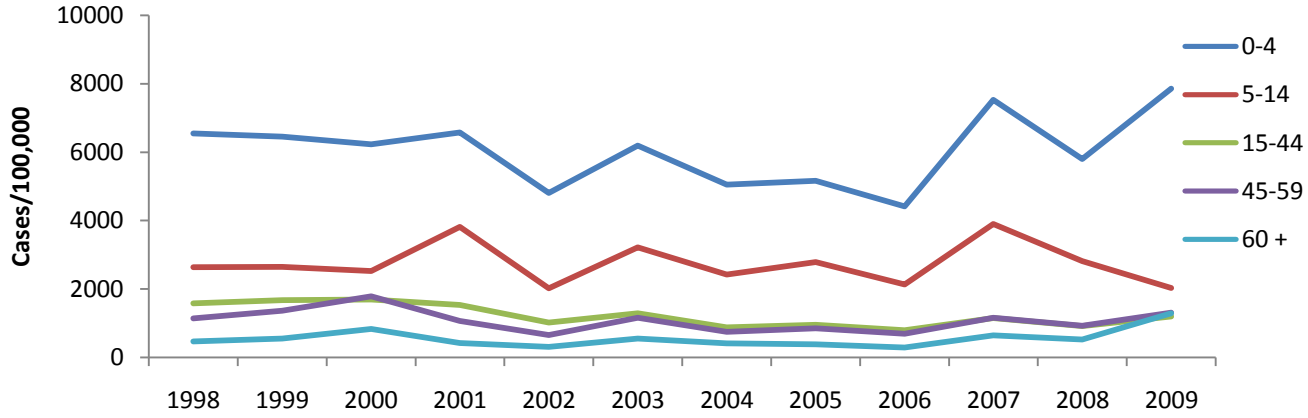
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Unspecified gastroenteritis	0-4	27192	25821	22651	23578	24778	24486	19104	19769	22120	26153	23174	25160
	5-14	8287	10693	9710	9957	10996	11517	10528	11219	10650	15732	15365	16621
	15-44	8675	10218	11111	11163	11672	10846	10175	10471	9695	15631	15765	14184
	45-59	2322	3536	4684	4094	4865	4808	4516	5190	5532	8326	8512	7625
	60 +	673	805	1254	1028	1264	1564	1488	1865	1871	2898	2624	2220
Influenza	0-4	17923	17428	16912	18019	12761	16016	12872	12902	10609	17968	13566	17415
	5-14	16628	16642	15929	24101	12607	19704	14434	16203	11834	21627	15736	11392
	15-44	21928	23171	23454	21234	14259	18287	12602	13749	11591	16922	13696	18025
	45-59	6217	7353	9669	5791	4339	6599	4405	5118	4365	7280	5919	8371
	60 +	1068	1251	1915	955	729	1354	1042	1014	801	1778	1453	3616
Common cold	0-4	11054	7386	6906	7861	10315	14942	14119	14645	17399	20275	18987	20293
	5-14	7035	4668	3991	5897	7822	10690	9682	11910	13595	18607	16022	20621
	15-44	7067	5526	4966	5213	6192	7539	5839	7023	7475	9825	8827	10372
	45-59	1663	1543	1904	1588	2091	3239	3071	3825	3977	5044	4788	5387
	60 +	308	238	383	351	552	978	1218	1623	1339	2352	2106	2310
Scabies	0-4	847	559	521	487	661	629	821	672	666	685	369	235
	5-14	1896	1710	1909	1472	2474	1833	2018	1540	1811	1268	842	542
	15-44	2587	1713	1660	1697	2203	1973	1618	1412	1594	1231	740	605
	45-59	773	435	500	422	499	305	345	335	353	295	203	144
	60 +	135	64	75	69	68	79	97	93	78	88	90	70
Pediculosis	0-4	91	234	192	46	392	597	548	338	408	342	380	545
	5-14	562	644	609	288	482	323	317	246	203	260	114	100
	15-44	78	100	42	19	80	19	17	43	11	56	0	15
	45-59	3	18	15	1	7	0	7	1	0	0	0	52
	60 +	1	7	4	0	0	0	0	0	0	0	0	0

Figure 5.7.2 the incidence rates of unspecified gastroenteritis, influenza, common cold, scabies and pediculosis over the period 1998-2009 by age group

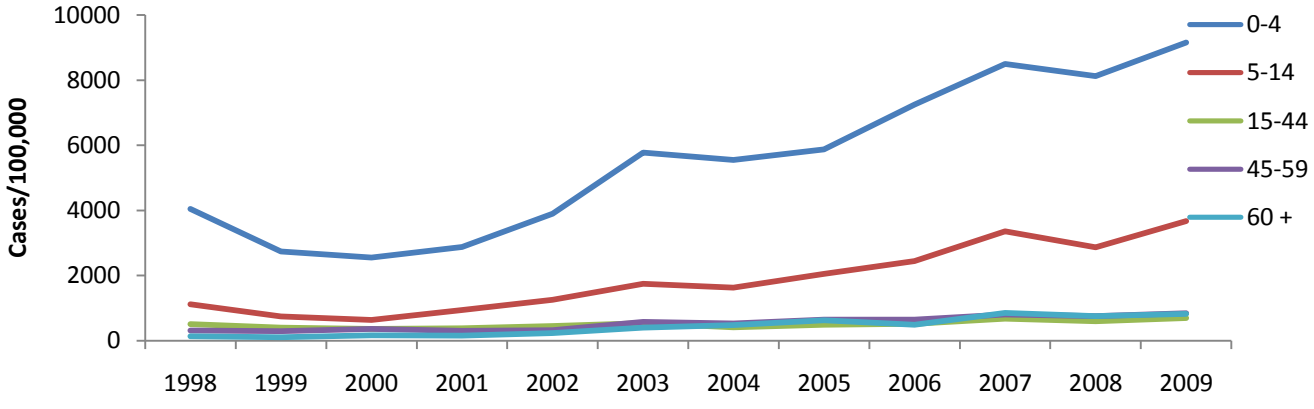
Unspecified gastroenteritis



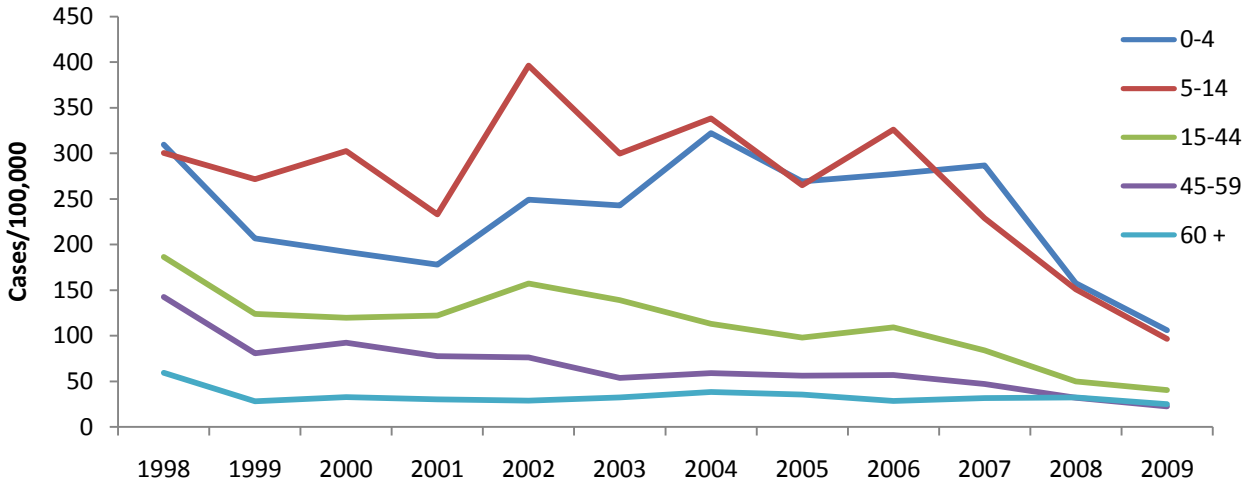
Influenza



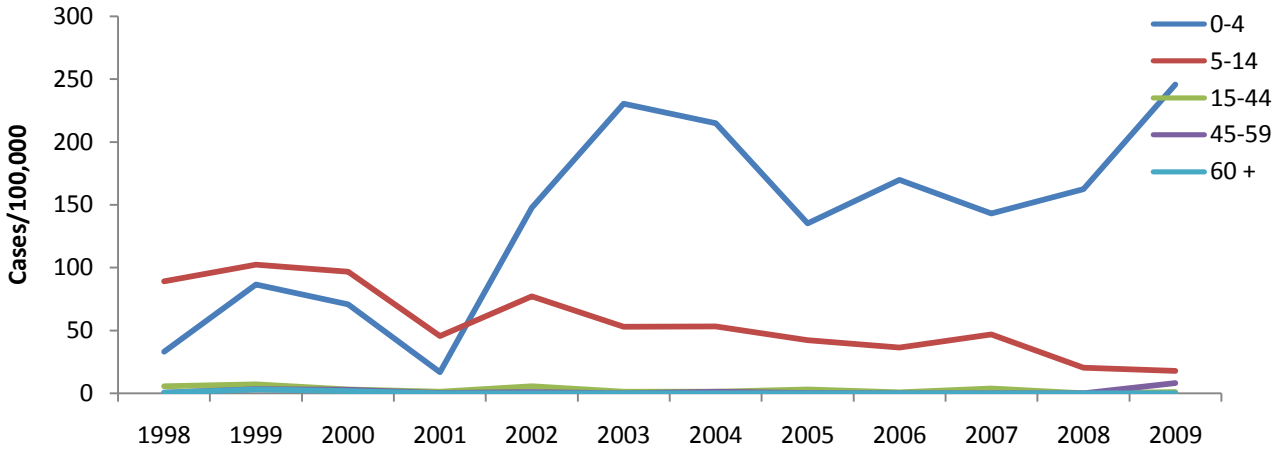
Common cold



Scabies



Pediculosis



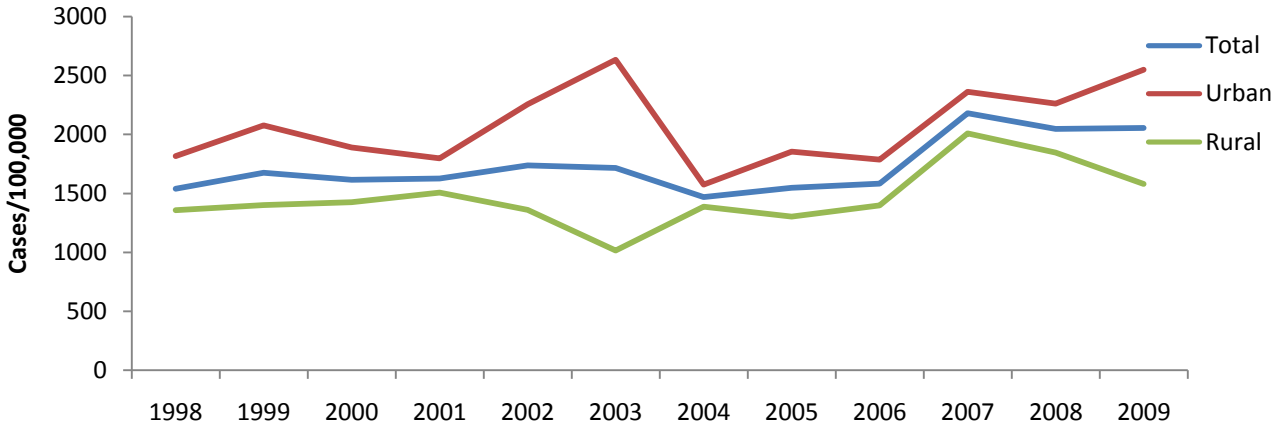
Distribution by age group for each disease shows that more sensitive age group is the pediatric age group (0-4 and 5-14 years old). Number of cases with this infective disease is present in all age groups, but the highest incidence rate is for pediatric age groups (0-4 and 5-14 years).

Table 5.7.3 Number of unspecified gastroenteritis, influenza, common cold, scabies and pediculosis cases over the period 1998-2009 by residence

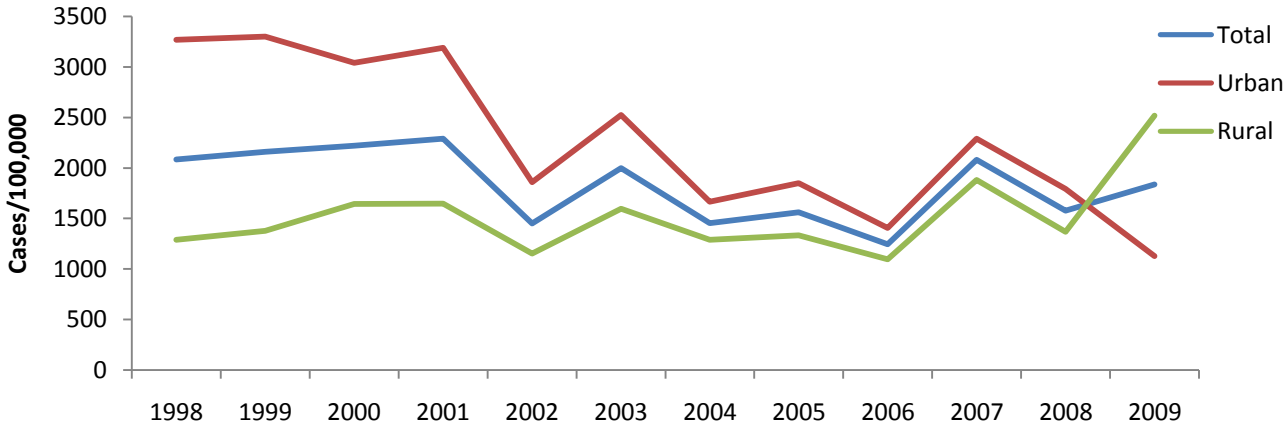
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Unspecified gastroenteritis	Total	47149	51073	49410	49820	53575	53221	45811	48514	49868	68740	65440	65810
	Urban	22312	25750	23794	22932	29336	35344	21533	25851	27005	36467	35379	40034
	Rural	24837	25323	25616	26888	24239	17877	24278	22663	22863	32273	30061	25776
Influenza	Total	63764	65845	67879	70100	44695	61960	45355	48986	39200	65575	50370	58819
	Urban	40193	40919	38307	40714	24167	33886	22794	25816	21290	35342	28074	17695
	Rural	23571	24926	29572	29386	20528	28074	22561	23170	17910	30233	22296	41124
Common cold	Total	27127	19361	18150	20910	26972	37388	33929	39026	43785	56103	50730	58983
	Urban	16265	11907	8996	9233	11385	17339	14443	17172	18575	25261	23579	21530
	Rural	10862	7454	9154	11677	15587	20049	19486	21854	25210	30842	27151	37453
Scabies	Total	6238	4581	4665	4147	5905	4819	4899	4052	4502	3567	2244	1596
	Urban	2650	1773	1633	1481	1641	1701	1326	1322	1572	1387	901	667
	Rural	3588	2808	3032	2666	4264	3118	3573	2730	2930	2180	1343	929
Pediculosis	Total	735	1003	862	454	961	939	889	628	622	658	494	660
	Urban	55	315	148	13	203	300	252	189	222	291	207	367
	Rural	680	688	714	441	758	639	637	439	400	367	287	293

Figure 5.7.3The incidence rates of unspecified gastroenteritis, influenza, common cold, scabies and pediculosis over the period 1998-2009 by residence

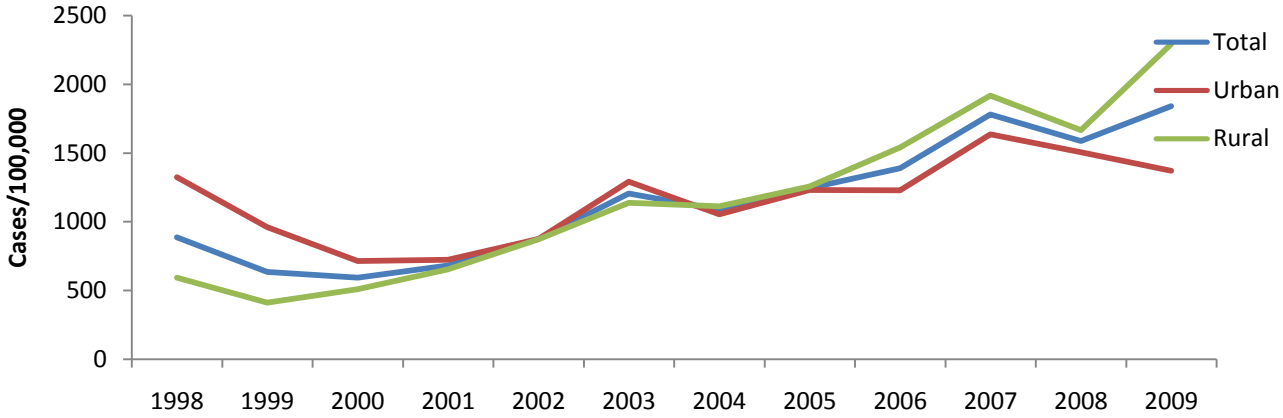
Unspecified gastroenteritis



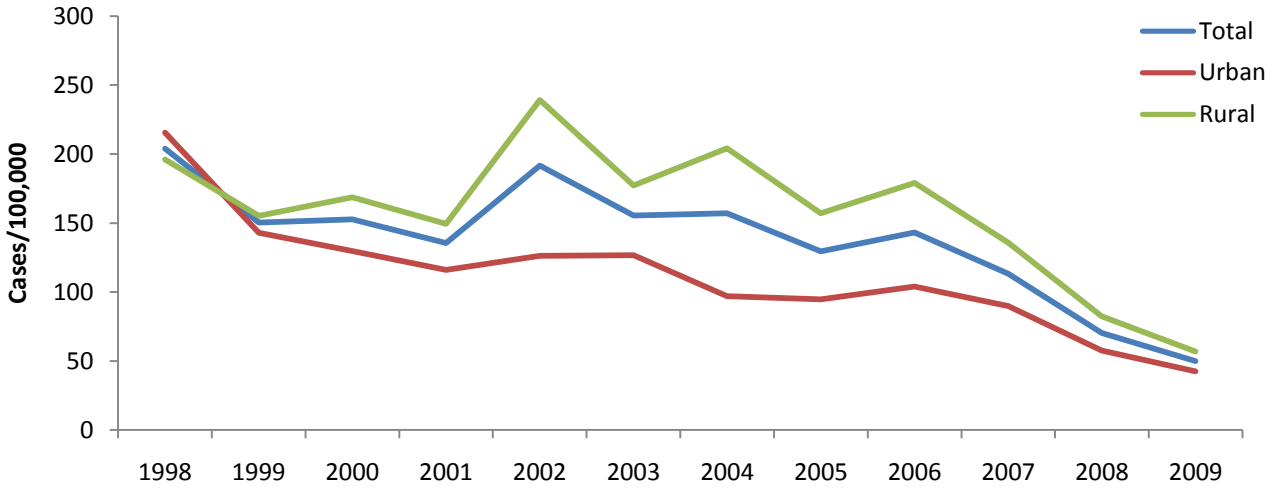
Influenza



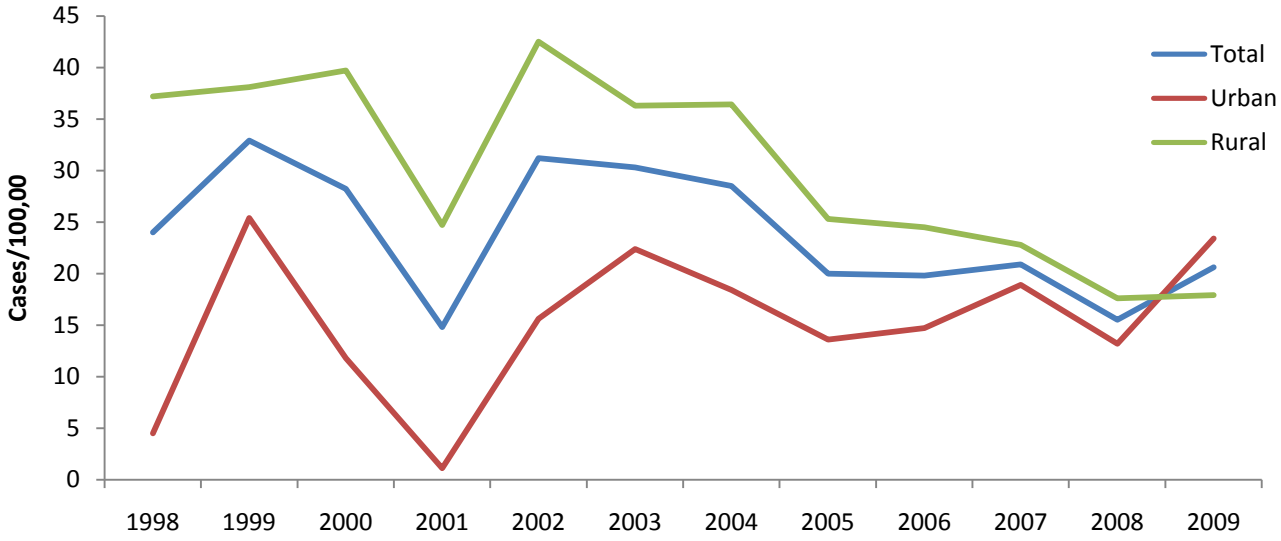
Common cold



Scabies



Pediculosis



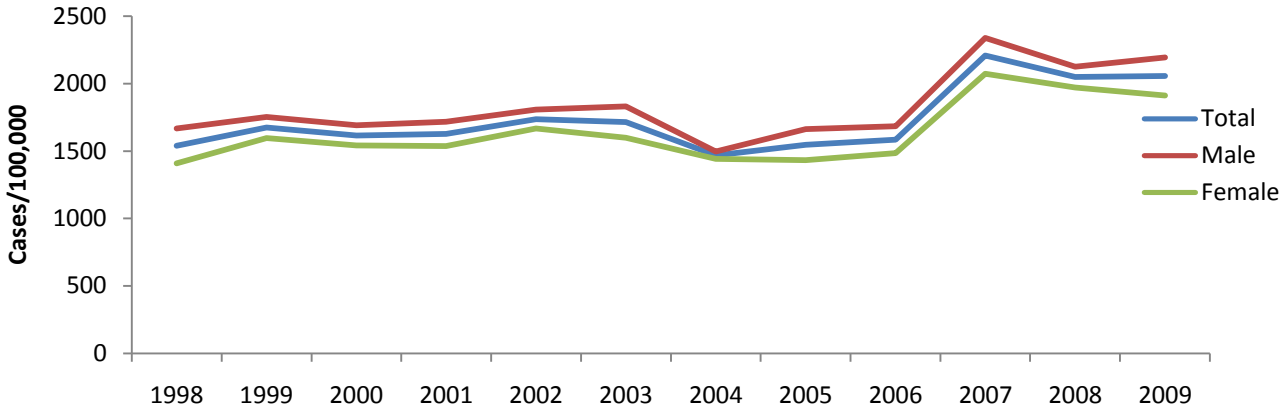
The cases distribution of according areas, Figure 5.7.3 shows that the biggest predominance for unspecified gastroenteritis and influenza (in 53.3% of cases) is in urban areas and an increasing trend in rural area after the year 2008, while common cold, scabies and pediculosis are most frequent in rural areas.

Table 5.7.4 Number of unspecified gastroenteritis, influenza, common cold, scabies and pediculosis cases over the period 1998-2009 by gender

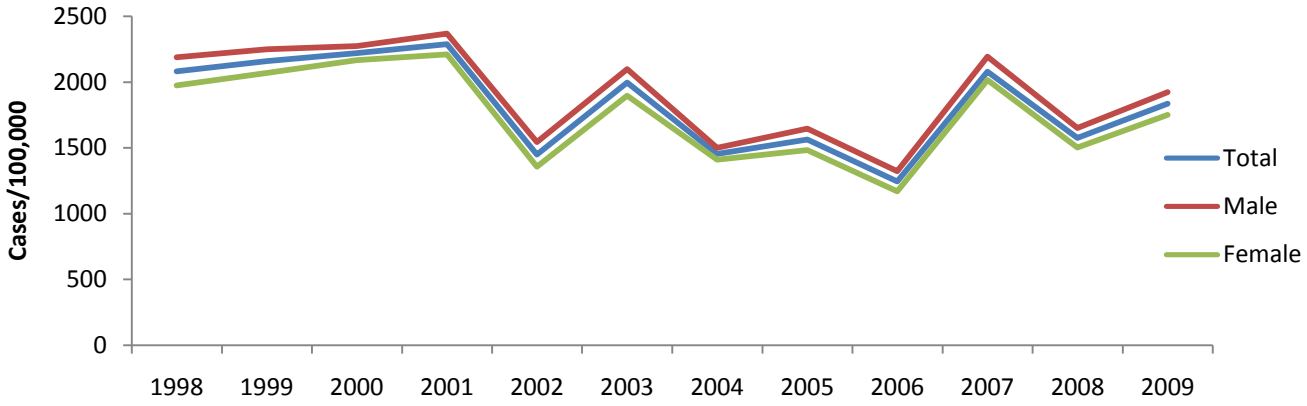
Disease		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Unspecified gastroenteritis	Total	47149	51073	49410	49820	53575	53221	45811	48514	49868	68740	65440	65810
	Male	25876	26871	25872	26219	27773	28323	23247	25961	26415	36720	34135	35341
	Female	21273	24202	23538	23601	25802	24898	22564	22553	23453	32020	31305	30469
Influenza	Total	63764	65845	67879	70100	44695	61960	45355	48986	39200	65575	50370	58819
	Male	33951	34490	34811	36161	23707	32449	23290	25680	20727	34433	26519	30952
	Female	29813	31355	33068	33939	20988	29511	22065	23306	18473	31142	23851	27867
Common cold	Total	27127	19361	18150	20910	26972	37388	33929	39026	43785	56103	50730	58983
	Male	14431	10117	8375	10986	14123	19849	17890	20816	23742	29564	26265	31280
	Female	12696	9244	8775	9924	12849	17539	16039	18210	20043	26539	24465	27703
Scabies	Total	6238	4581	4665	4147	5905	4819	4899	4052	4502	3567	2244	1596
	Male	3294	2364	2433	2084	2951	2641	2509	2175	2463	1899	1102	793
	Female	2944	2117	2232	2063	2954	2178	2390	1879	2039	1668	1142	803
Pediculosis	Total	735	1003	862	454	961	939	889	628	622	658	494	660
	Male	261	377	353	110	423	406	414	236	287	316	259	371
	Female	474	626	509	244	538	533	475	392	335	342	235	353

Figure 5.7.4The incidence rates of unspecified gastroenteritis, influenza, common cold, scabies and pediculosis over the period 1998-2009 by gender

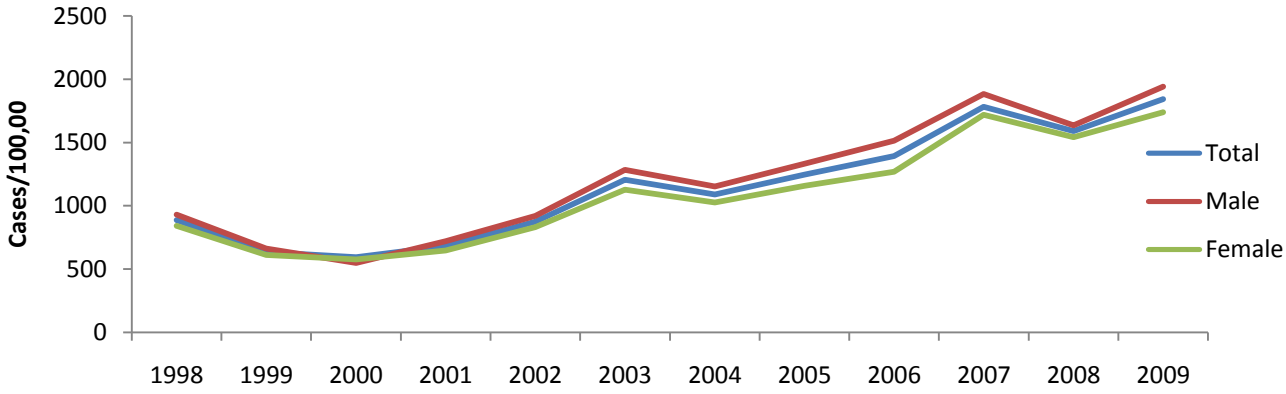
Unspecified gastroenteritis



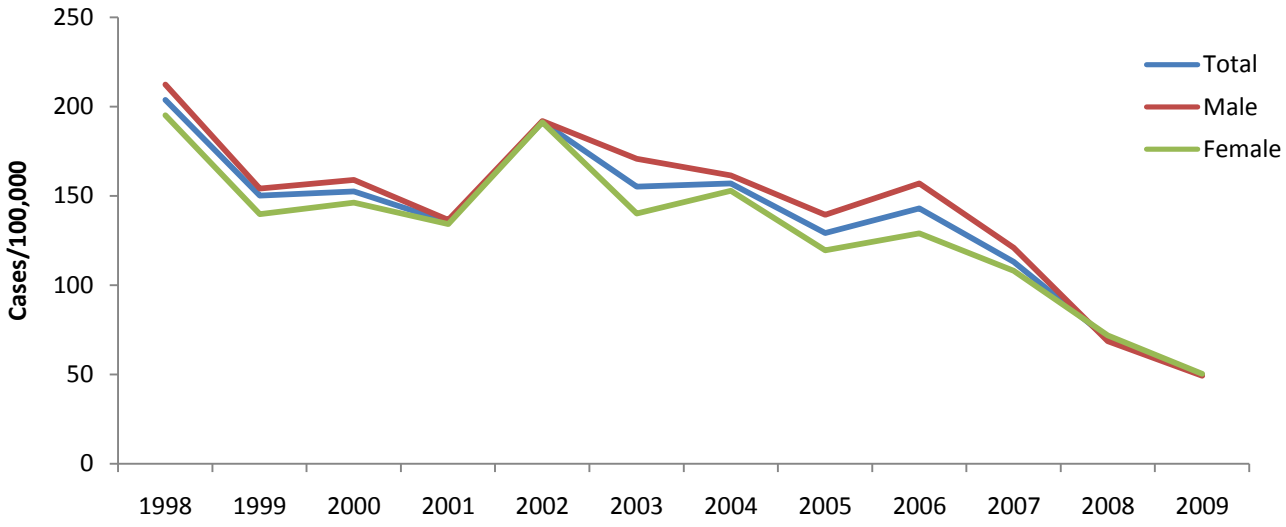
Influenza



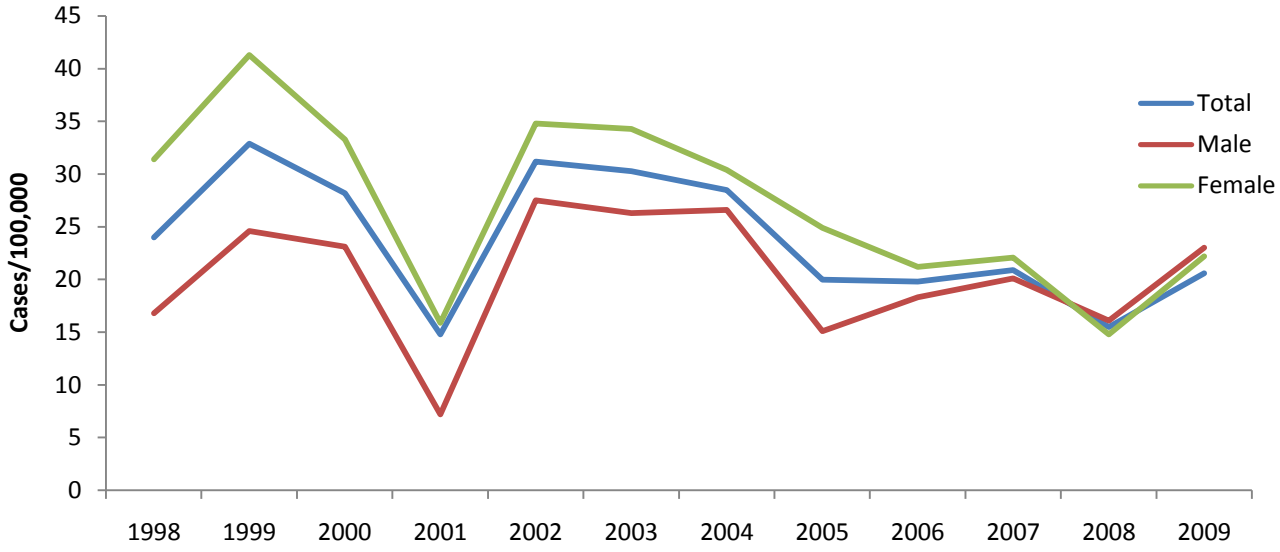
Common cold



Scabies



Pediculosis



Distribution by gender shows that the highest incidence is persent among males except pediculosis where until 2007 were women and after 2007 with a parallel increasing trend for both gender. However, there was no difference between male and female.

6. DISCUSSION

6.1 Epidemiological characteristics of infectious diseases

Since the years 1950s Albania has undertaken a lot of efforts towards infectious diseases because of their great on public health. The permanent application of measures for their control and prevention, regulated by a proper legal framework (numerous legislative laws and governmental decisions, regulations and directives mentioned above in the ***section 2.2).*** Albania actually although the total morbidity rates (diarrhea diseases, viral hepatitis, zoonoses, pulmonary tuberculosis morbidity etc.) are decreased over the time is higher then European developed countries. The incidence of vaccine-preventable infectious diseases results to be quite insignificant, some of them being already eliminated (poliomyelitis since 1997) or in the phase of elimination (measles and rubella). Nevertheless, infectious diseases still represent the major burden of the total morbidity in Albania, thus remaining a permanent threat for the health of the country population.

Such a context requires an enhanced epidemiological surveillance of infectious diseases and enhanced monitoring of environmental hazards (water, air and soil pollutants). Such a context requires on the other hand a careful and scrutinized preparedness planning for any eventual disaster, in order to promptly respond with proper control and preventive measures. Because, a disaster event, despite of its form and infectious diseases involved represents a vicious circle: the former is always accompanied with a considerable increase of infectious diseases occurrence (threat of epidemics), whereas the latter aggravates the disaster disastrous consequences on public health. Then, it is an indispensable requirement to know the actual epidemiological situation of infectious diseases in Albania, always into the respective framework, because such a modus operandi helps to a better preparation for any eventual disaster in the future.

In this thesis we analyzed the epidemiological characteristics regarding to the trend of infectious disease (incidence in total, by region, by age group, by gender and areas) in Albania for the period 1998-2009 based on the aggregated data and compared their incidence rate with the European countries.

In table 6.1 are shown the incidence of common infectious diseases encountered and analyzed for Albania compared with the incidence of these diseases in developed countries of Europe, especially Greece as the nearest border and the greatest immigration of Albanians in this country ***(38).***

1. *Diarrhea Diseases*

The incidences of diarrhea diseases in Albania even though presenting a decreasing trend during the study period were higher than the incidence of these diseases in the countries of Europe and the neighboring country Greece.

Diarrhea diseases, mainly resulting from unsolved problems in Albania regarding to drinking water that uses population in urban and rural areas which is due to infective diseases as a result:

- Drinking water supply non quality safety in both of areas (urban and rural areas).
- Temporary supply of tap-water (1-3 hours/day) at the urban areas. Drinking water supply
- Disinfected drinking water for urban areas and non disinfected drinking water for rural areas.
- Diarrhea diseases persist with a considerable high incidence rate due, first of all, to a still inadequate of problems to potable water and food safety. The drinking water supply infrastructure both in rural and urban areas of Albania still suffers from the inadequacy of the system both by qualitative and quantitative point of view (cross-contamination between sewerage and pipes of drinking water outside technical – sanitary regulations especially, during the interruption time of drinking water). The food safety remains a common problem of a country in transition from the former centralized and limited economy to the current free-market one. The sanitation of human and animal excrements represent another urgent problem in both urban and rural settlements because the development of communal feeding, catering, tourism etc, for which there is not sufficiently strict sanitary inspection. Therefore, there is a permanent threat of outbreaks and epidemics of diarrhea diseases of all kinds of transmission (water-borne like salmoneloses, food-borne like alimentary toxic-infection, person to person like shigelloses) (***39)***. A terrible example of the potential risk posed by water infrastructure was the outbreak of cholera in 1994.
- Another cause of infective diseases is the use of drinking water from individual or collective deposits and do not care to them (cleaning and chlorination).
- Salmonellosis (non typhoid) which is expressed at lower levels of the EU countries but higher than in Greece is due to lack of identification, diagnosis, registration and declaration from all health system (primary and hospital).

2. *Viral hepatitis*

In this report on viral hepatitis group identified only Albania has the form of unspecified hepatitis (including in this group and viral hepatitis A, B and C), as a result of lack of identification of the virus ***(see section 2.7).*** Also, the lack of reporting of cases of viral hepatitis B does not allow us to arrive at the conclusion that as a result of vaccination coverage levels are increased or decreased the cases of this disease (vaccination coverage rate for hepatitis B virus reaches 98.7 %.). Comparison of the incidence for all forms together with the EU countries and Greece shows that our country has the highest incidence. The high incidence of unspecified viral hepatitis is the result of some factors such as:

- Unsafe drinking water which is the cause of viral hepatitis A outbreaks in many urban areas (confirmed by laboratory and not identified in the reports of cases).
- Poorly hygienic-sanitary conditions in both urban and rural areas.
- Lack of knowledge to people regarding the prevention of viral hepatitis B (addition of syringe drug users) who do not achieve to identify as specific forms of viral hepatitis A, B and C.

3. *Zoonosis diseases*

Regarding the incidence zoonoses values for Anthrax and Brucellosis disease although decreasing are higher than those of European countries, especially Greece (see table 6.1), this for the following reasons:

- major development of livestock sector after 90 years;
- migration and emigration of animals in an uncontrolled manner;
- adequate legitimacy but very poor implementation of animal health control and their immunizations;
- poor conditions in the manipulation of livestock on farms and in slaughterhouses
- the current inadequate level of veterinary preventive medicine activity regarding primary prevention (vaccination against anthrax), secondary prevention (brucellinisation) and tertiary prevention (diagnosis and control of leishmaniasis)
- veterinary control structures are not well organized (differentiated structure of central and local governments, who do not cooperate with each other).

Besides the anthrax and brucellosis in my country continues to be present leishmaniasis infection (visceral and coetaneous) in some areas as ingle due to:

- poor sanitary conditions,
- no effective veterinary service
- lack of control of this infection in animals.

The incidence rate for leptospirosis remains at higher values compared to those of EU countries and Greece, this is due to:

- lack of hygiene to the people,
- poor condition of the environmental hygiene,
- the total absence of war against rats.

4. *Pulmonary tuberculosis*

The incidence rate of ***pulmonary tuberculosis*** in Albania is presented in smaller value than that of the EU countries and slightly higher than that of Greece ***(40),*** this is because the organization and implementation of all obligations by the WHO for the fight against pulmonary tuberculosis as implementing the program DOTS.

5. *Vaccine preventable diseases (DTP, MMR)*

Diphtheria, tetanus, pertussis, measles, mumps and rubella in our country show a lower incidence rate than the EU countries and Greece ***(41)***, this is due to the correctly implementation and control of EPI program by the entire health system (from primary to public health institutions) .

Table 6.1 Incidence rate of reported cases of infectious diseases in Albania, European Country especially Greece, (year 2009)

Diseases	Albania	European	Greece
	incidence rate/100.000 population	incidence rate/100.000 population	incidence rate/100.000 population
Typhoid fever	0.3	0.16	0.16
Salmonellosis (non-typhoid)	7.5	34.16	6.3
Shigellosis (bacillary dysentery	9.4	2.08	0.44
Unspecified hepatitis	24.7	not applicable	not applicable
Viral hepatitis A	missing	2.81	2.6
Viral hepatitis B	missing	1.49	0.7
Viral hepatitis nAnB	missing	6.85	0.1
Anthrax	0.9	0.03	< 0.1
Brucellosis	15	0.13	0.9
Coetaneous leishmaniasis	0.03	No data	No data
Visceral leishmaniasis	1.3	No data	No data
Leptospirosis	0.7	0.22	0.12
Pulmonary tuberculosis	7.31	17.1	5.9
Diphtheria	0.03	0.0042	0
Tetanus (non neonatal)	0	0.03	< 0.01
Pertusis	0.3	3.14	< 0.1
Measles	0	0.57	0
Rubella	0	1.17	0
Mumps	0.7	4.33	< 0.1
Meningococcal disease	1.6	1	0.95

6.2 Evaluation of infectious diseases surveillance system (individual notification forms)

Financing of health, economic and policy development have created fluctuations at the prosecution of evaluation and monitoring of the infectious diseases. As every where, even in Albania, infectious diseases have their flow necessarily related to other factors such as economic development, migration and emigration of population seeking their close supervision on a continuous effort to improve the existing system in order to exercise control over the spread of infectious diseases, to overcome the problems of underreporting, which underestimate the true impact of these diseases in the population health. In this thesis also, we are based in assessment of characteristics of our surveillance system of infectious diseases (monthly and individual) for the period 2007-2009 in order to obtain a general evaluation for the reporting system; the advantages and weaknesses of the current system if it has been able to exercise surveillance of these diseases in effectively and conveniently way. Our results obtained show that the data collected by the surveillance system of infectious diseases in Albania are not reliable as a result of incompatibility with the requirements relating to the attributes of a surveillance system, such as simplicity, flexibility, acceptability and quality of data as described in ***section 1.1.4 - Characteristics of Surveillance System.*** Discussion of surveillance system characteristics will be performed based on the results presented in tables 6.2 and 6.3. ***Table 6.2*** shows the monthly number of cases reported and individual cases notified during the period 2007-2009. The table clearly expresses a major discrepancy between the information and dissonance monthly and notified cases and also stated their respective individual form (where the number of cases should be equal). This discrepancy and discordance is because of:

- Lack of qualified personnel in public health services
- No estimation of the laws by public and private health structures
- Lack of periodic analysis of epidemiological service activity (central level – IPH) related to discrepancy between notified and monthly reported data of infectious disease. The epidemiological service at the central level does not take correct measures in order to reduce or eliminate this gap.
- Lack of communication between hospital institutions and public health structures
- Populate migration that makes impossible the individual form compilation
- Reforms in health, health insurance introduction (primary and secondary level) made impossible the full declaration of infectious diseases cases.

Table 6.2 Number of infectious diseases cases reported by monthly and individual form over the period 2007-2009

Diseases	No of cases by monthly reporting (2007-2009)	No of cases by individual form (2007-2009)	Percentage (%)	Range in % (maximum-minimum)
Typhoid fever	48	27	56.3	64.0-50.0
Salmonellosis (non typhoid)	1082	260	24.1	27.0-22.0
Shigellosis (bacillary dysentery)	1342	317	23.6	26.1-20.0
Poisoing	9201	182	2	2.0-1.9
Unspecified hepatitis	3446	400	11.6	12.0-11.0
Viral hepatitis A	**0**	**214**	**0**	
Viral hepatitis B	**0**	**69**	**0**	
Viral hepatitis nAnB	**0**	**335**	**0**	
Anthrax	100	29	29	50.0-7.0
Brucellosis	1945	863	44.4	53.0-35.0
Coetaneous leishmaniasis	134	1	0.8	0.0-3.0
Visceral leishmaniasis	10	76	13.2	16.0-6.0
Leptospirosis	39	13	33.3	50.0-29
Extra-pulmonary tuberculosis	94	23	25.5	33.0-19.0
Pulmonary tuberculosis	706	416	58.9	68.0-50.0
Diphtheria	**1**	**0**	**0**	
Tetanus	**2**	**0**	**0**	
Pertusis	30	3	10	10.0-10.0
Measles	**96**	**0**	**0**	
Rubella	**0**	**0**	**0**	
Mumps	**2858**	**0**	**0**	
Unspecified Paralyses (AFP)	12	7	58.3	80.0-25.0
Aseptic viral meningitis	139	57	41.01	89.0-31.0
Meningococcal meningitis	18	11	61.1	75.0-38.0
Non.mening.bact.meningitis	98	60	61.2	69.0-56.0
Tubercular meningitis	**9**	**0**	**0**	
Varicella	3211	75	2.4	3.0-1.0
Erysipelas	290	36	12.4	14.0-9.0
Scarlatina	74	6	8.11	14.0-3.0
Other rickettsiosis	45	25	55.6	72.0-33.0

The table 6.3 shows the percentage of notified individual form application at the regional level. The results show that in major percentage, the regions do not perform notified individual case (*N/A) or notified cases are greater than monthly reported cases at the central level (**more than monthly). We guess that the reasons of this major gap are:

1. Lack of medical staff (see table 2.3.1 – ***section 2.3 Infrastructure and operation of public health)***
2. Lack of qualification (carried out only the training during the epidemiological situations but no essential training for professionals is organized).
3. There is an inappropriate level of laboratory confirmation of infectious diseases, because of the inadequate level of performance of districts microbiological (public health) laboratories.
4. Lack of accountability from all levels of the health system
5. Developing of an incorrect reform in health system (maninly on health information system and lack of fluid information at the epidemiological services by family doctor, hospital and microbiological laboratories).
6. Political changes in regional and local level associated with frequent changes of leaderships at all health institutions levels (not professional but political leaders).

Table 6.3 Reporting of infectious diseases at the region level by individual form of notification

Diseases	Berat (%)	Diber (%)	Durres (%)	Elbasan (%)	Fier (%)	Gjirokaster (%)	Korce (%)	Lezhe (%)	Tirane (%)	Shkoder (%)	Kukes (%)	Vlore (%)
Typhoid fever	more than monthly	**N/A**	more than monthly	88.9	**N/A**	**N/A**	N/A	**N/A**	39.1	**N/A**	**N/A**	**N/A**
Salmonellosis (non-typhoid)	72.2	80	33.3	1.9	83.3	**N/A**	53.8	85.3	57.1	**N/A**	**N/A**	**N/A**
Shigellosis (bacillary dysentery)	68.2	100	6.25	5	12.5	75	86.7	more than monthly	24.7	**N/A**	**N/A**	**N/A**
Poisoing	**N/A**	**N/A**	**N/A**	95.2	2.9	70	**N/A**	**N/A**	82.9	**N/A**	**N/A**	**N/A**
Unspecified hepatitis	11.4	**N/A**	**N/A**	0.24	**N/A**	**N/A**	**N/A**	68.4	24.9	**N/A**	**N/A**	37.7
Viral hepatitis A	more than monthly	**N/A**	**N/A**	**N/A**	**N/A**	more than monthly	**N/A**	more than monthly	more than monthly	**N/A**	**N/A**	more than monthly
Viral hepatitis B	more than monthly	**N/A**	**N/A**	more than monthly	**N/A**	more than monthly	**N/A**	**N/A**	more than monthly	**N/A**	**N/A**	more than monthly
Viral hepatitis nAnB	more than monthly	more than monthly	**N/A**	more than monthly	**N/A**	more than monthly	**N/A**	**N/A**	more than monthly	**N/A**	**N/A**	more than monthly
Anthrax	**N/A**	**N/A**	**N/A**	more than monthly	**N/A**	34.6	**N/A**	**N/A**	80	**N/A**	**N/A**	25
Brucellosis	29.7	69.1	55	33.5	49.8	46.4	49.9	33.3	38.1	**N/A**	more than monthly	47.1
Coetaneous leishmaniasis	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	100	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Visceral leishmaniasis	94.4	**N/A**	**N/A**	72.7	66.7	50	**N/A**	62.5	more than monthly	**N/A**	**N/A**	57.1
Leptospirosis	**N/A**	**N/A**	**N/A**	66.7	12.5	**N/A**	**N/A**	50	56.3	**N/A**	**N/A**	**N/A**
Pulmonary tuberculosis	**N/A**	**59.3**	more than monthly	**N/A**	1.5	**N/A**	**N/A**	93.3	85.6	**N/A**	**N/A**	more than monthly
Diphtheria	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Tetanus	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Pertussis	**N/A**	**N/A**	11.1	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	100	**N/A**	**N/A**	**N/A**
Measles	more than monthly	**N/A**	50	**N/A**	more than monthly	more than monthly	**N/A**	more than monthly	42.1	33.3	**N/A**	66.7
Rubella	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Mumps	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Aseptic viral meningitis	**N/A**	**N/A**	80	60	37.5	18.2	**N/A**	50	more than monthly	**N/A**	**N/A**	**N/A**
Meningococcal meningitis	20	**N/A**	100	**N/A**	50	**N/A**	**N/A**	more than monthly	more than monthly	**N/A**	**N/A**	**N/A**
Non mening.bact. Meningitis	more than monthly	**N/A**	more than monthly	more than monthly	55.6	**N/A**	**N/A**	**N/A**	53.7	**N/A**	**N/A**	**N/A**
Varricella	**N/A**	**N/A**	**N/A**	46.9	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Erysipelas	**N/A**	**N/A**	**N/A**	51.2	**N/A**	**N/A**	**N/A**	30.8	**N/A**	**N/A**	**N/A**	100
Scarlatina	**N/A**	**N/A**	**N/A**	66.7	**N/A**	100	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Other rickettsiosis	**N/A**	**N/A**	**N/A**	100	**N/A**	66.7	**N/A**	**N/A**	100	**N/A**	**N/A**	**N/A**

***N/A** – the individual form of notification is not applicable by region

****More than monthly** - means that the number of reported cases for the respective infectious diseases is greater by the individual forms of notification.

6.3 Final comments and suggestions for the improvement of surveillance system

Complementarity and integration of the surveillance system as monthly reporting and individual notification form will allow compatibility of the data, which is the only form required avoiding loss of information about infectious diseases. Compliance of the reporting in a short time and finally integration of information is a full description of the epidemiological characteristics of infectious diseases. To improve the system of surveillance of infective diseases is necessary to strengthen the connection between the monthly reporting system and the individual notification, this increasing sensitivity to the registration of disease cases, integration of laboratory and clinical data, enabling recognition of risk factors. Referring to the ***table 2.1*** (***Organization of Diagnostic and Curative Health Services in Albania- page 28)*** is necessary introduction of new organizational structures which will be able to respond to current needs and to help in improving the actual surveillance system through the:

- reorganization of responsibilities at the regional level
- strengthening of local structures, including the training of specialists and operators
- better coordination between regional structures and reference center (IPH).

All opinions above are measures which will be the best solution for the implementation and surveillance system efficiency at regional level ***(42).***

In the preliminary evaluation of surveillance system during 2007-2009 are noticed deficiencies in the information collection, not awareness of specialists related the compilation of the infectious diseases forms, failure of diagnostic laboratories, making the surveillance system not fully reliable. In this sense, it seems important to enable strengthening of the "culture of reporting", explaining the importance of health care professionals for a better completation of reporting forms and the possibly damages that can result from under-reporting at local, regional and national level. Related to the broader practices of notification (see table 2.8) versus three classes of infectious diseases, simplifying of the individual forms notification will allow us to facilitate the collection of significant data.

Another frequently observed problem is the deficiency of feed-back information that should be communicated to the involved persons in surveillance activities.

In fact, there are organizational problems, which generate difficulties in communication between family doctors and polyclinics and hospitals doctors. In general all these specialist doctors do not report in correct form and time to the epidemiologist.

Another weakness of surveillance system is reporting only through post mail. The introduction of electronic procedures of data will also improve communication between doctors and local regional and national health authorities, increasing the distribution of notification practice.

Sensitivity of surveillance system reduction in terms of infectious diseases is associated with absence of the patient to medical care centers, or the refusal to conduct the further investigations. The sensitivity of the system is ultimately influenced by different factors such as living perception cultures and understanding of their health. ***(42).***

One of the concerns raised by experts in the surveillance system is a compilation of individual notification forms for specific groups of infectious diseases and their surveillance based on laboratory diagnosis in order to maintain data quality. The improvement of completion of the data, clarification of the way of infectious diseases transmission and understanding it in context, should orient the interventions for control and prevention of infectious diseases. ***(43).***

The achievement of these points is very helpful to strengthen surveillance system and inter-institutional cooperation too. In terms of food borne diseases, strengthening the current system is very important in order to have a better cooperation between veterinary network and public health institutions. In this way we will have a better management / administration of food (from farms to consumers) and we will be able to control all zoonoses, which can be achieved through an integrated analysis of data, samples of human and animal, according to the interdisciplinary study of food-borne diseases ***(44).***

In cases of passive surveillance is necessary the epidemiological investigation which should be organized by polls and surveys. As is recommended by WHO and the ECDC, is very important the surveillance networks strengthening at local, regional and national levels, in order to consolidate the relationship and coordination between the responsible authorities. This organization will provide the exchange of epidemiological data, in addition to recognition of the epidemics level and the creation of action plans joint, in order to address the national importance events ***(43).***

Surveillance improvement is important to continue with the periodic system, to ensure that are appropriate and possible to carry out its activities in the context of new problems and the development of epidemiological scenarios.

Effective surveillance of infectious diseases can eventually provide guidance for prevention implementation and control of these diseases ***(45).***

7. Appendix

Appendix .1

Monthly reporting form of the infectious diseases Region_____District_____ Months_____/Year_____

Nr	DIIAGNOSI	Cases					SEX	AGE								HOSPITAL	Deaths
		TOTAL	URBAN	RURAL	SUSPECTET	CONFIRMED		0-1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65+	
1	**Plague**						**M**										
							F										
2	**Cholera**						**M**										
							F										
3	**Yellow fever**						**M**										
							F										
4	**Hemorrhagic fever Afrikan (Ebola)**						**M**										
							F										
5	**Exanthematous typhus**						**M**										
							F										
6	**Recurrant fever epidemic**						**M**										
							F										
7	**Viral encephalitis epidemic**						**M**										
							F										
8	**Viral encephalitis beat**						**M**										
							F										
9	**Fever emorragicha viral**						**M**										
							F										
10	**Fever dengue**						**M**										
							F										
11	**Malaria**						**M**										
							F										
12	**Rabies**						**M**										
							F										
13	**Botulism**						**M**										
							F										
14	**Leprosy lebbromatose**						**M**										
							F										
15	**Leprosy tubercoloide**						**M**										
							F										

16	**Diphtheria**	**M**
		F
17	**Tetanus**	**M**
	(nonneonatale)	**F**
18	**Neonatal tetanus**	**M**
		F
19	**PFA-Polio**	**M**
		F
20	**PFA-Paralysis**	**M**
	unspecified	**F**
21	**Abdominal typhus**	**M**
		F
22	**Pre typhus**	**M**
		F
23	**Salmonellosis**	**M**
	non-typhoid	**F**
24	**Shigellosis**	**M**
	(Dizenteri Bacila)	**F**
25	**Alimentary toxicology**	**M**
		F
26	**Disenteria amoebic**	**M**
		F
27	**Anthrax**	**M**
		F
28	**Brucellosis**	**M**
		F
29	**Listeriosis**	**M**
		F
30	**Measles**	**M**
		F
31	**Rubella**	**M**
		F
32	**Mumps**	**M**
		F
33	**Pertussis**	**M**
		F
34	**Pulmonary TB**	**M**
		F
35	**Extra pulmonary TB**	**M**
		F
36	**Milliare tuberculosis**	**M**
		F
37	**Tuberculous meningitis**	**M**
		F
38	**Meningocoxic bacterial meningitis**	**M**
		F
39	**non-meningococcal**	**M**
	bacterial meningitis	**F**
40	**Viral meningitis**	**M**

	(aseptic)	**F**
41	**Encephalitis**	**M**
	unspecified	**F**
42	**Encephalitis**	**M**
	after vaccination	**F**
43	**Hepatitis**	**M**
	unspecified	**F**
44	**Viral hepatitis A**	**M**
		F
45	**Viral hepatitis B**	**M**
		F
46	**Viral hepatitis**	**M**
	nAnB	**F**
47	**Scarlatina**	**M**
		F
48	**Erysipelas**	**M**
		F
49	**varicella**	**M**
		F

50	**Gray endemic typhus**	**M**
		F
51	**Butonose fever**	**M**
		F
52	**Fever Q**	**M**
		F
53	**Other Rickettsiosis**	**M**
		F
54	**Leishmaniasis**	**M**
	visceral	**F**
55	**Leishmaniasis**	**M**
	coetaneous	**F**
56	**Leptospirosis**	**M**
		F
57	**AIDS (SIDA)**	**M**
		F
58	**Primary syphilis**	**M**
		F
59	**Unspecified secondary**	**M**
	syphilisis	**F**
60	**Latent syphilis**	**M**
		F
61	**Gonorrhea**	**M**
		F
62	**Blenorrhagia**	**M**
		F
63	**Tularemia**	**M**

		F
64	**Ankilostomiase**	**M**
		F
65	**Dermatophytosis**	**M**
	endemic	**F**
66	**Ecinococcus**	**M**
		F
67	**Trichinosis**	**M**
		F
68	**Legionellosis**	**M**
		F
69	**Gastroenteritis**	**M**
	nonspecified	**F**
70	**Influenza**	**M**
		F
71	**Common Cold**	**M**
	(Sindrom flulike)	**F**
72	**Scabies**	**M**
		F
73	**Pediculosiss+Infes-**	**M**
	tim me Phthirus	**F**

Appendix.2

SKEDA INDIVIDUALE 14-1/SH

Skeda individuale e raportimit të sëmundjeve infektive të GRUPIT A

Në GRUPIN A përfshihen SËMUNDJET INFEKTIVE PËR TË CILAT KËRKOHET RAPORTIMI I MENJËHERSHËM, SEPSE JANË SUBJEKT I RREGULLORES SANITARE NDËRKOMBËTARE, APO SEPSE PARAQESIN INTERES TË VEÇANTË. Njoftimi njëhërësh në Ministrinë e Shëndetësisë dhe në Institutin e Shëndetit Publik (IShP) bëhet që nga momenti i suspektimit të një rasti të sëmundjes me rrugën më të shkurter (telefon, telegram, fax, etj).

Skeda individuale (fleta e deklarimit) plotësohet deri në fund të pjesës së parë të saj (të dhënat e përgjithshme) dhe dërgohet në IShP (Departamenti i Epidemiologjisë dhe Biostatistikës - DEB) brenda 24 orëve që nga raportimi i rastit. Një kopje tjetër e skedës individuale dërgohet në IShP(DEB) pasi të jenë plotësuar edhe pjesa e dytë (historia e rastit), pjesa e tretë (të dhënat e diagnozës laboratorike mikrobiologjike), dhe pjesa e katërt (hulumtimi epidemiologjik), dmth skeda individuale e plotësuar që nga fillimi deri në fund.

Plotësimi i skedës bëhet vetëm në pjesën e majtë të saj : përgjegja jepet duke vënë kryq në atë kutizë (katror i vogël) i cili përfaqëson përgjegjen e saktë dhe duke plotësuar me shkrim në rastin kur pyetja kërkon përgjegje me shkrim. Kujdes, pjesa e djathtë gri e skedës duhet të mbetet e paprekur, dmth pa asnjë shënim.

Viti ☐☐☐☐ Nr. rendor ..... Nr. Skedës ☐☐☐☐

Rrethi _____
Bashkia / Komuna _____
Qyteti / Fshati _____
Emri, atësia, mbiemri i të sëmurit _____
Rast me _____ Kriteret ☐1 ☐2 ☐3 ☐4 (*)

Të shkruhet emri i plotë i sëmundjes infektive të GRUPIT A dhe të shënohet me kryq kutia përkatëse më poshtë

Kodi sipas ICD-9	*Kodi sipas* ICD-9	*Kodi sipas* ICD-9
☐ **020 Murtajë**	☐ **080 Tifo ekzantematike**	☐ **045 PFA-Poliomielit**
☐ **001 Kolerë**	☐ **087 Ethe rekurrrente epidemike**	☐ **344.9 PFA-paralizë e paspecifikuar**
☐ **060 Ethetë verdha**	☐ **062 Encefalit viral epidemik**	☐ **032 Difteri**
☐ **078 Ethe hemorragjike virale afrikane (Ebola, Marburg, Lassa)**	☐ **063 Encefalit viral këpushor**	☐ **71.3 Tetanoz neonator**
☐ **061 Ethet dengue**	☐ **065 Ethe hemorragjike virale**	☐ **084 Malarje**
☐ **005.1 Botulizëm**		☐ **071 Tërbim (Rabies)**

PJESA I (TË DHËNA TË PËRGJITHSHME)
Emri, atësia, mbiemri i të sëmurit _____
Seksi ☐ M ☐ F
Mosha në muaj, nëse është më i vogël se 1 vjeç ☐☐
në vjeç, nëse është 1 vjeç e lart ☐☐
Shtetësia _____
Profesioni _____
Adresa e banimit të të semurit : Rrethi _____
Bashkia / Komuna _____
Qyteti / Fshati _____
Prej sa kohësh banon në atë vend : ☐☐ *muaj* ☐☐ *vjet*

PJESA II (HISTORIA E RASTIT)
Vendi ku të semurit i filluan simptomat e para të sëmundjes :
Rrethi _____
Bashkia / Komuna _____
Qyteti / Fshati _____
Data e fillimit të simptomave të para të sëmundjes së suspektuar ☐☐ ☐☐ *dita* *muaji*
Data e shtrimit në spital ☐☐ ☐☐ *dita* *muaji* , në Rrethin _____

(*) *Sheno me kryq ate (ato) kuti qe i korespondon (korespondojne) kritereve te paraqitura ne instruksionin shoqerues te skedes individuale (shih).*

Ecuria e sëmundjes : ☐ shërim, data e daljes nga spitali ⌊_⌊_⌊ ⌊_⌊_⌊ (dita, muaji)
☐ vdekje, data e vdekjes ⌊_⌊_⌊ ⌊_⌊_⌊ (dita, muaji)

Nëse ekziston vaksinë kundër sëmundjes, i sëmuri : ☐ ka qenë i pavaksinuar
☐ nuk dihet mbi vaksinimin
☐ ka qenë i vaksinuar, data e dozës së fundit të vaksinës ⌊_⌊_⌊ ⌊_⌊_⌊ (muaji, viti)

Deri 3 muaj para fillimit të sëmundjes, i sëmuri ☐ nuk ka qenë jashtë shtetit
☐ ka qenë jashtë shtetit

Nëse i sëmuri ka qenë jashtë shtetit të shënohen kronologjikisht vendi dhe koha :

vendi (shteti) _____ nga ⌊_⌊_⌊ ⌊_⌊_⌊ deri ⌊_⌊_⌊ ⌊_⌊_⌊
vendi (shteti) _____ nga ⌊_⌊_⌊ ⌊_⌊_⌊ deri ⌊_⌊_⌊ ⌊_⌊_⌊
vendi (shteti) _____ nga ⌊_⌊_⌊ ⌊_⌊_⌊ deri ⌊_⌊_⌊ ⌊_⌊_⌊
(dita, muaji, dita, muaji)

PJESA III (TE DHENAT E DIAGNOZES LABORATORIKE MIKROBIOLOGJIKE)

1. Ekzaminimi direkt : kryer më datë ..... në .....
Rezultati : ☐ negativ ☐ pozitiv
2. Kultura : kryer më datë ..... në .....
Rezultati : ☐ negativ ☐ pozitiv
3. Serologjia : kryer më datë ..... në .....
Tipi i reaksionit serologjik .....
Rezultati : ☐ negativ ☐ pozitiv
Emri Mbiemri dhe firma e mjekut Mikrobiolog .....

PJESA IV (HULUMTIMI EPIDEMIOLOGJIK)

Mendimi i epidemiologut per origjinën e infeksionit :
Eshtë ☐ rast i importuar , apo ☐ rast vendas (i pa importuar)
Eshtë ☐ rast primar, apo ☐ rast sekondar, apo ☐ rast i paekspozuar
Nëse është rast sekondar, të jepen të dhënat mbi rastin primar burim i infeksionit, konkretisht : Emri atësia mbiemri .....
Adresa .....
Data e sëmundjes .....
Data e denoncimit .....
Mendimi i epidemiologut mbi vendin ku mund të jetë marrë infeksioni : .....
.....
Mendimi i epidemiologut mbi vendet ku mund te jetë përhapur infeksioni :
qytet / fshat brenda Rrethit .....
Rrethe të tjerë të vendit .....
Numri i personave që mendohet të jenë infektuar :
personat e kontaktit të ngushtë familjar, numri ⌊_⌊
personat e kontakteve të tjera jashtë familjes, numri ⌊_⌊
personat e kontaktit në institucion nëse i sëmuri ka qenë në institucion, numri ⌊_⌊

KONKLUZION

Bazuar në të dhënat klinike, laboratorike, epidemiologjike, të jepet emërtimi përfundimtar mbi rastin :
☐ **rast i suspektuar** (mbetur i dyshimtë)
(është rasti kur nuk plotësohen të gjitha kriteret e parashikuara për patologjinë në shqyrtim) (shih (*))
☐ **rast i konfirmuar plotësisht dhe përfundimisht**
(është rasti kur plotësohen të gjitha kriteret e parashikuara) (shih (*))

Shënim : ***Përkufizimi për secilin emërtim jepet në instruksionin shoqërues të skedës individuale (shih).***

Emri Mbiemri dhe firma e mjekut Klinicist
.....
Emri Mbiemri dhe firma e mjekut Epidemiolog
.....
Data e plotësimit të skedës .....

(*) ***Sheno me kryq ate (ato) kuti qe i korespondon (korespondojne) kritereve te paraqitura ne instruksionin shoqerues te skedes individuale (shih).***

Appendix.3

SKEDA INDIVIDUALE 14-2/SH

Skeda individuale e raportimit të sëmundjeve infektive të GRUPIT B/1

Në GRUPIN B/1 përfshihen SEMUNDJET INFEKTIVE QE SPIKATIN PER FREKUENCEN (INCIDENCEN) E TYRE TE LARTE DHE PER TE CILAT INTERVENTET E KONTROLLIT JANE SHUME TE MUNDSHME.

Ato deklarohen me fletë deklarimi (skedë individuale) sikurse sëmundjet e grupit A. Skeda individuale e plotësuar që nga fillimi deri në fund dërgohet në Institutin e Shëndetit Publik (IShP) - Departamenti i Epidemiologjisë dhe Biostatistikës (DEB).

Plotësimi i skedës bëhet vetëm në pjesën e majtë të saj : përgjegja jepet duke vënë kryq në atë kutizë (katror i vogel) i cili përfaqëson përgjegjen e saktë dhe duke plotësuar me shkrim në rastin kur pyetja kërkon përgjegje me shkrim. Kujdes, pjesa e djathtë gri e skedës duhet të mbetet e paprekur, dmth pa asnjë shënim.

Viti ⌊_⌊_⌊_⌊_⌋

Nr. rendor .....

Nr. skedës

Rrethi _____

Bashkia / Komuna _____

Qyteti / Fshati _____

Emri, atësia, mbiemri i të sëmurit _____

Rast me _____ Kriteret 1 2 3 4 (*)

Të shkruhet emri i plotë i sëmundjes infektive të GRUPIT B/1 edhe të shënohet me kryq kutia përkatëse më poshtë

Kodi sipas ICD-9	*Kodi sipas* ICD-9
☐ **002.0 Tifo abdominale**	☐ **052 Varicelë**
☐ **002.9 Paratifo**	☐ **055 Fruth**
☐ **003 Salmonelozë jotifoide (≡)**	☐ **056 Rubeolë**
☐ **004 Shigelozë (dizenteri bacilare)**	☐ **487 Grip me izolim të virusit (╫)**
☐ **005 Toksikoinfeksione alimentare bakteriale (të tjera veç atyre që bëjnë pjesë në 003) (≡)**	☐
☐ **006 Dizenteri amebike**	☐ **070.1 Hepatit viral A**
☐ **036 Meningit meningokoksik**	☐ **070.3 Hepatit viral B**
☐ **320 Meningit bakterik jo-meningokok.**	☐ **070.59 Hepatit viral as A as B**
☐ **006 Dizenteri amebike**	☐ **072 Parotit epidemik**
☐ **022 Plasje**	☐ **081.0 Tifo murine endemike**
☐ **023 Brucelozë**	☐ **082.1 Ethe butonoze**
	☐ **83.0 Ethe Q**
☐ **027.0 Listeriozë**	☐ **081-083 Rikecioza të tjera**
☐ **033 Pertussis**	
☐ **034.1 Skarlatinë**	☐ **085.0 Leishmaniazë viscerale**
☐ **035 Erizipelë**	☐ **85.1 Leishmaniazë kutane**
☐ **037 Tetanoz (jo neonatal)**	☐ **100 Leptospirozë**
☐ **047 Meningit viral (aseptik)**	☐ **126 Ankilostomiazë**
☐ **323.9 Encefalit i paspecifikuar**	
☐ **323.5 Encefalit pas vaksinimit**	☐ **136.9 Legionelozë**

(≡) *Kodi **003 i ICD-9** janë infeksione dhe toksikoinfeksione alimentare të shkaktuara nga salmonelat jo-tifike*
*Kodi **005** janë toksikoinfeksione alimentare nga baktere të tjerë (Staphylococcus, etj).*
*Kodi **008 nuk** përmban toksikoinfeksione alimentare, por vetëm infeksione intestinale nga baktere (E.coli, Arizona, Proteus, Staphylococcus, Pseudomonas, Campylobacter, Yersinia, etj) dhe viruse (Rotavirus, Adenovirus, Enterovirus, etj) ; **për këto infeksione intestinale identifikimi laboratorik i shkaktarit mikrobik është i domosdoshëm**. Kur konfirmimi laboratorik mungon, raportimi për këto infeksione intestinale nuk bëhet me **skedën individuale 14-2/SH**, por sipas **pasqyrës 14/SH (në Grupin C të saj)** (shih).*

(╫) *Kodi **487** përfshin vetëm rastet e gripit me konfirmim laboratorik (izolim virusi) nga IShP ; praktikisht ata janë rastet e para të fillimit të një epidemie gripi, për të cilat raportimi në IShP duhet bërë menjëherë ; laboratori i gripit (qendra kombëtare e gripit) në IShP kryen menjëherë prelevimet prej rasteve të suspektuara për izolimin dhe identifikimin e virusit të gripit. Pas këtij konfirmimi laboratorik, rastet e tjera të epidemisë së gripit, si dhe të gjitha rastet e Common cold, dmth sindromi i rrufës i ngjashëm klinikisht me gripin, por i shkaktuar jo nga viruse gripi, raportohen sipas **pasqyrës 14/SH (nëGrupin C të saj)** (shih).*

(*) *Sheno me kryq ate (ato) kuti qe i korespondon (korespondojne) kritereve te paraqitura ne instruksionin shoqerues te skedes individuale (shih).*

PJESA I (TE DHENA TE PERGJITHSHME)

Emri, atësia, mbiemri i të sëmurit _____

Seksi ☐ M ☐ F

Mosha në muaj, nëse është më i vogel se 1 vjeç ⌊_⌊_⌋

në vjeç, nëse është 1 vjeç e lart ⌊_⌊_⌋

Shtetësia _____

Profesioni _____

Adresa e banimit të të sëmurit : Rrethi _____

Bashkia / Komuna _____

Qyteti / Fshati _____

Prej sa kohësh banon në atë vend : ⌊_⌊_⌋ *muaj* ⌊_⌊_⌋ *vjet*

PJESA II (HISTORIA E RASTIT)

Vendi ku të sëmurit i filluan simptomat e para të sëmundjes :

Rrethi _____

Bashkia / Komuna _____

Qyteti / Fshati _____

Data e fillimit të simptomave të para ⌊_⌊_⌋ *dita* ⌊_⌊_⌋ *muaji*

Shtruar në spital ☐ jo ☐ po

Nëse po, data e shtrimit në spital ⌊_⌊_⌋ *dita* ⌊_⌊_⌋ *muaji*, në Rrethin _____

Ecuria e sëmundjes : ☐ shërim

☐ vdekje

Nëse ekziston vaksinë kundër sëmundjes, i sëmuri : ☐ ka qenë i pavaksinuar

☐ nuk dihet mbi vaksinimin

☐ ka qenë i vaksinuar, data e dozës së fundit të vaksinës ⌊_⌊_⌋ *muaji* ⌊_⌊_⌋ *viti*

PJESA III (TE DHENAT E DIAGNOZES LABORATORIKE MIKROBIOLOGJIKE)

1. Ekzaminimi direkt : kryer më datë ..... në .....

Rezultati : ☐ negativ ☐ pozitiv

2. Kultura : kryer më datë ..... në .....

Rezultati : ☐ negativ ☐ pozitiv

3. Serologjia : kryer më datë ..... në .....

Tipi i reaksionit serologjik .....

Rezultati : ☐ negativ ☐ pozitiv

Emri Mbiemri dhe firma e mjekut Mikrobiolog .....

PJESA IV (HULUMTIMI EPIDEMIOLOGJIK)

Është rast sporadik ☐ apo është rast në vatër ☐

Nëse është rast në vatër, numri i rasteve në atë vatër ku pacienti u infektua ⌊_⌊_⌋

Për infeksionet intestinale origjina e infeksionit është :

hidrike ☐ jo-hidrike ☐ e panjohur ☐

Numri i personave që mendohet të jenë infektuar :

personat e kontaktit të ngushtë familjar, numri ⌊_⌊_⌋

personat e kontaktit në institucion nëse i sëmuri ka qenë në institucion, numri ⌊_⌊_⌋

KONKLUZION

Bazuar në të dhënat klinike, laboratorike, epidemiologjike, të jepet emërtimi përfundimtar mbi rastin : ☐ **rast i suspektuar** (mbetur i dyshimtë)

(është rasti kur nuk plotësohen të gjitha kriteret e parashikuara për patologjinë në shqyrtim) (shih (*))

☐ **rast i konfirmuar plotësisht dhe përfundimisht**

(është rasti kur plotësohen të gjitha kriteret e parashikuara) (shih (*))

Shënim : ***Përkufizimi për secilin emërtim jepet në instruksionin shoqërues të skedës individuale (shih).***

Emri Mbiemri dhe firma e mjekut Klinicist .....

Emri Mbiemri dhe firma e mjekut Epidemiolog .....

Data e plotësimit të skedës .....

(*) ***Sheno me kryq ate (ato) kuti qe i korespondon (korespondojne) kritereve te paraqitura ne instruksionin shoqerues te skedes individuale (shih).***

Appendix.4

SKEDA INDIVIDUALE 14-3/SH

Skeda individuale e raportimit të sëmundjeve infektive të GRUPIT B/2
(Tuberkulozi)

Në GRUPIN B/2 përfshihen TUBERKULOZI, LEBRA dhe MYKOBAKTERIOZAT E TJERA JO-TUBERKULARE.

Skeda individuale , plotësohet deri në fund të pjesës së parë të saj (të dhëna jetësore mbi rastin dhe fillimin e sëmundjes) dhe dërgohet në Institutin e Shëndetit Publik - IShP (Departamenti i Epidemiologjisë dhe Biostatistikës - DEB) brenda 3 ditëve që nga raportimi i rastit të suspektuar . Rruga e raportimit është Shërbimi Epidemiologjik + Dispanseri AntiTuberkular i Rrethit Drejtoria e Shëndetit Publik të Rrethit IShP (DEB). Pasi rasti i raportuar të jetë konfirmuar plotësisht nga të dhënat klinike të kualifikuara të shërbimit shëndetësor tretësor dhe nga të dhënat e analizës laboratorike mikrobiologjike, një kopje tjetër e kësaj skede individuale, tanimë e plotësuar që nga fillimi deri në fund, dërgohet në IShP (DEB) nëpërmjet rrugës së mësipërme të raportimit.

Plotësimi i skedës bëhet vetëm në pjesën e majtë të saj : përgjegja jepet duke vënë kryq në atë kutizë (katror i vogël) i cili përfaqëson përgjegjen e saktë dhe duke plotësuar me shkrim në rastin kur pyetja kërkon përgjegjë më shkrim. Kujdes, pjësa e djathtë gri e skedës duhet të mbetet e paprekur, dmth pa asnjë shënim.

Viti ⌊_⌊_⌊_⌊_⌋

Nr. rendor .....

Nr. Skedës ☐☐☐☐

Rrethi _____

Bashkia / Komuna _____

Qyteti / Fshati _____

Emri, atësia, mbiemri i të sëmurit _____

Rast me _____

Të shkruhet emri i plotë i sëmundjes infektive të GRUPIT B/2 dhe të shënohet me kryq kutia përkatëse më poshtë

Kodi sipas ICD-9	*Kodi sipas* ICD-9
Tuberkuloz (TBC)	
☐ **010.1 Kompleks tuberkular primar**	**Lepra**
☐ **011 Tuberkuloz pulmonar**	☐ **030.0 Lepra lepromatoze**
☐ **012.0 Pleurit tuberkular**	☐ **030.1 Lepra tuberkuloide**
☐ **012.1 Adenopati trakeobronkiale tuberkulare joprimare.**	
☐ **013.0 Meningit tuberkular**	☐ **031 Mykobakterioza të tjera veç tuberkulozit dhe lepres**
☐ **014.0 Peritonit tuberkular**	**(infeksione pulmonare nga Mycobacterium avium, bacili i Battey, etj, dhe infeksione kutane nga M. marinum, M. ulcerans, etj)**
☐ **015 Tuberkuloz i kockave**	
☐ **016 Tuberkuloz i sistemit uro-gjenital**	
☐ **017 Tuberkuloz i organeve të tjera**	
☐ **018 Tuberkuloz miliar**	

PJESA I (TE DHENA JETESORE MBI RASTIN DHE FILLIMIN E SEMUNDJES)

Emri, atësia, mbiemri i të sëmurit _____

Seksi ☐ M ☐ F

Mosha në muaj, nëse është më i vogël se 1 vjeç ⌊_⌋⌊_⌋

në vjeç, nëse është 1 vjeç e lart ⌊_⌋⌊_⌋

Shtetësia _____

Profesioni _____

Jeton në kolektiv (institucion) ? ☐ jo ☐ nuk dihet ☐ po

Nëse jo, adresa e banimit të të sëmurit : Rrethi _____

Bashkia / Komuna _____

Qyteti / Fshati _____

Prej sa kohësh banon në atë vend : ⌊_⌋⌊_⌋ *muaj* ⌊_⌋⌊_⌋ *vjet*

Nëse po, lloji i institucionit : ☐ Azil pleqsh ☐ Jetimore ☐ Repart ushtarak ☐ Institucion për handikapatë fizikë ose mendorë ☐ Burg ☐ Tjetër

Prej sa kohësh jeton në atë institucion : ⌊_⌋⌊_⌋ *muaj* ⌊_⌋⌊_⌋ *vjet*

Vendi ku të sëmurit i filluan simptomat e para të sëmundjes :
Në adresën ku ai banon ☐
Në institucionin (kolektivin) ku ai jeton ☐
Në adresë tjetër ☐, specifiko .....
Data e fillimit të simptomave të para të sëmundjes së suspektuar ☐☐ ☐☐ (dita / muaji)
Data e hospitalizimit ☐☐ ☐☐ (dita / muaji), në Rrethin _____
Data e fillimit të terapisë ☐☐ ☐☐ (dita / muaji)
Nëse është tuberkuloz (TBC), i sëmuri : ☐ka qenë i pavaksinuar
☐ nuk dihet mbi vaksinimin
☐ ka qenë i vaksinuar, data e dozës së fundit të vaksinës ☐☐ ☐☐ (muaji / viti)
Emri Mbiemri dhe firma e mjekut të Familjes .....
Emri Mbiemri dhe firma e mjekut Epidemiolog .....

PJESA II (HULUMTIMI KLINIK DHE EPIDEMIOLOGJIK)
Faktorët e riskut (në rastin për TBC) :
Ekspozim ndaj rasteve me TBC : ☐jo ☐nuk dihet ☐po
Alkolizëm : ☐jo ☐nuk dihet ☐o
Përdorim intravenoz i drogës (narkotikëve) : ☐jo ☐nuk dihet ☐o
Klasifikimi anamnestik (në rastin për TBC) :
☐rast i ri (pacienti asnjëherë i trajtuar për TBC në të kaluarën)
☐recidiv (pacienti i trajtuar për TBC në të kaluarën dhe deklaruar i shëruar)
☐dështim (pacienti me BK+ pas katër ose më tepër muajsh trajtimi në të kaluarën ose pas ndërprerjes prej më tepër se dy muaj të trajtimit precedent)
Terapi të mëparëshme (precedente) antituberkulare (në rastin për TBC) :
☐jo ☐nuk dihet ☐po, vetëm një cikël ☐o, më tepër se një cikël
Nëse po, muaji ..... dhe viti ..... i trajtimit (mjekimit) të fundit.
Trajtimi (mjekimi) i fundit anti-TBC ka qenë i plotë ?
☐jo ☐nuk dihet ☐
Ekzaminimi radiografik (në rastin për TBC) :
☐nuk është kryer ☐negativ ☐pozitiv
Intradermorekasioni (në rastin për TBC, në rastin për leprën tuberkuloide) :
☐nuk është kryer ☐negativ ☐pozitiv
Nga hulumtimi epidemiologjik rezulton të jetë :
☐ rast sporadik ☐rast në vatër
Nëse është rast në vatër, numri i rasteve në atë vatër ku pacienti u infektua ☐☐
Numri i personave të kontaktit me të sëmurin, që janë në risk për të marrë infeksionin :
personat e kontaktit të ngushtë familjar, numri ☐☐
personat e kontaktit në institucion nëse i sëmuri ka jetuar në kolektiv, numri ☐☐

PJESA III (TE DHENAT E DIAGNOZES LABORATORIKE MIKROBIOLOGJIKE)
1. Ekzaminimi direkt : kryer më datë ..... në .....
Rezultati : ☐negativ ☐pozitiv
2. Kultura : kryer më datë ..... në .....
Rezultati : ☐negativ ☐pozitiv
3. Serologjia : kryer më datë ..... në .....
Tipi i reaksionit serologjik .....
Rezultati : ☐negativ ☐pozitiv
Në rastin e TBC pulmonar, bazuar në rezultatet e ekzaminimit mikroskopik direkt kemi :
☐TBC pulmonar BK negativ (BK-)
☐rast pulmonar i paklasifikueshëm
☐TBC pulmonar BK pozitiv (BK+)

Emri mbiemri dhe firma e mjekut Mikrobiolog .....

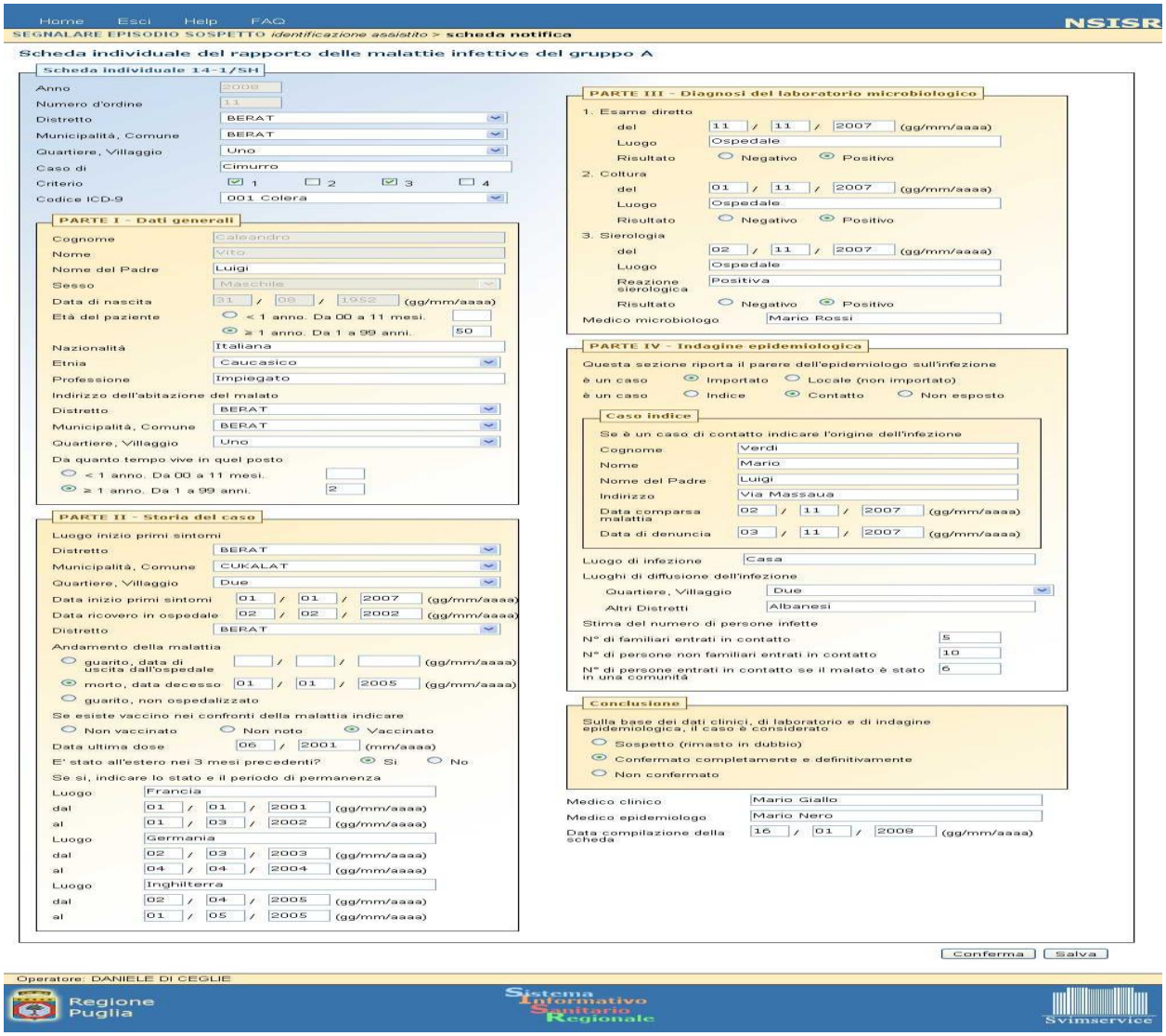
Emri Mbiemri dhe firma e mjekut Ftiziolog .....

Emri Mbiemri dhe firma e mjekut Epidemiolog .....

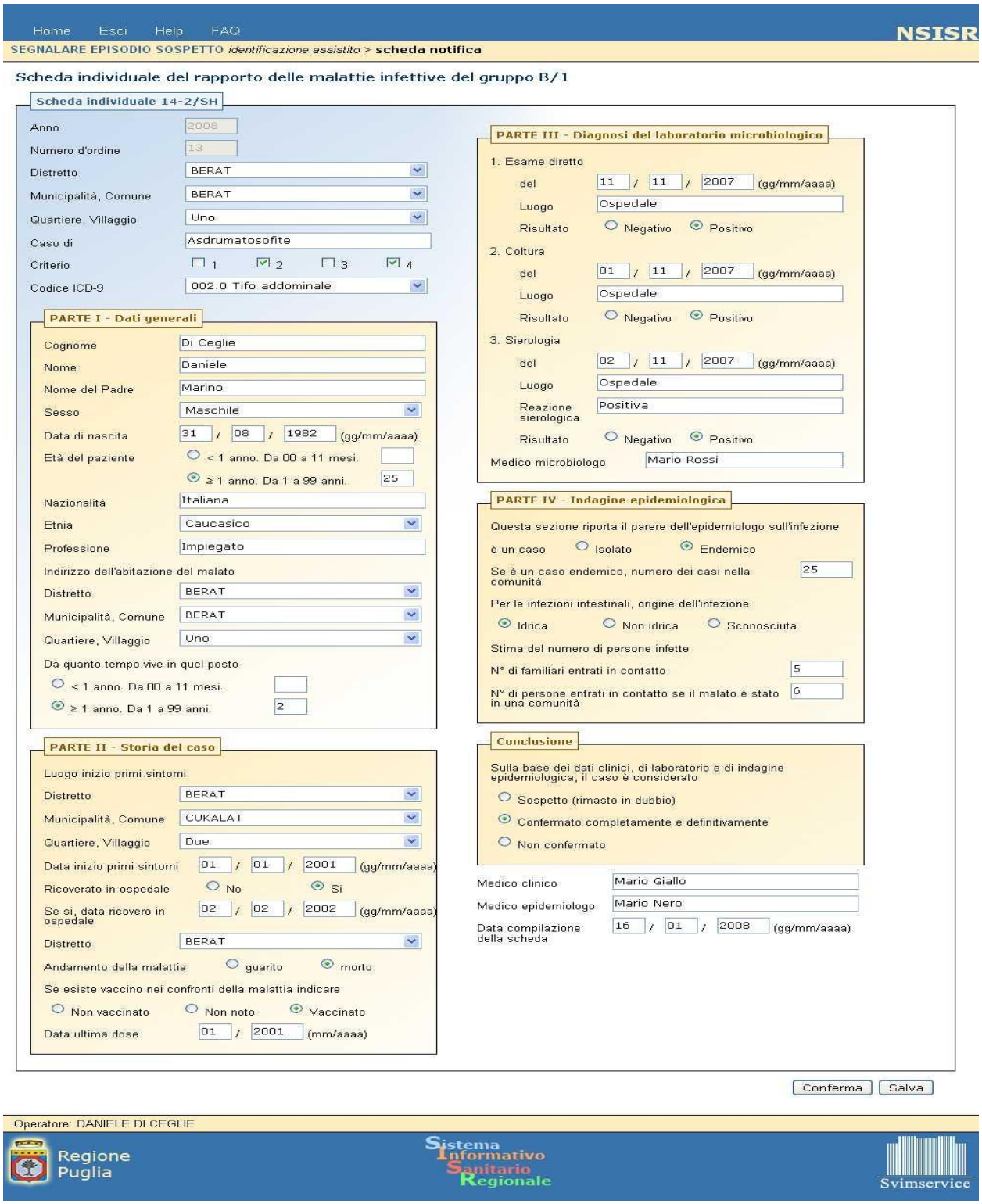
Data e plotësimit të skedës .....

Appendix.5

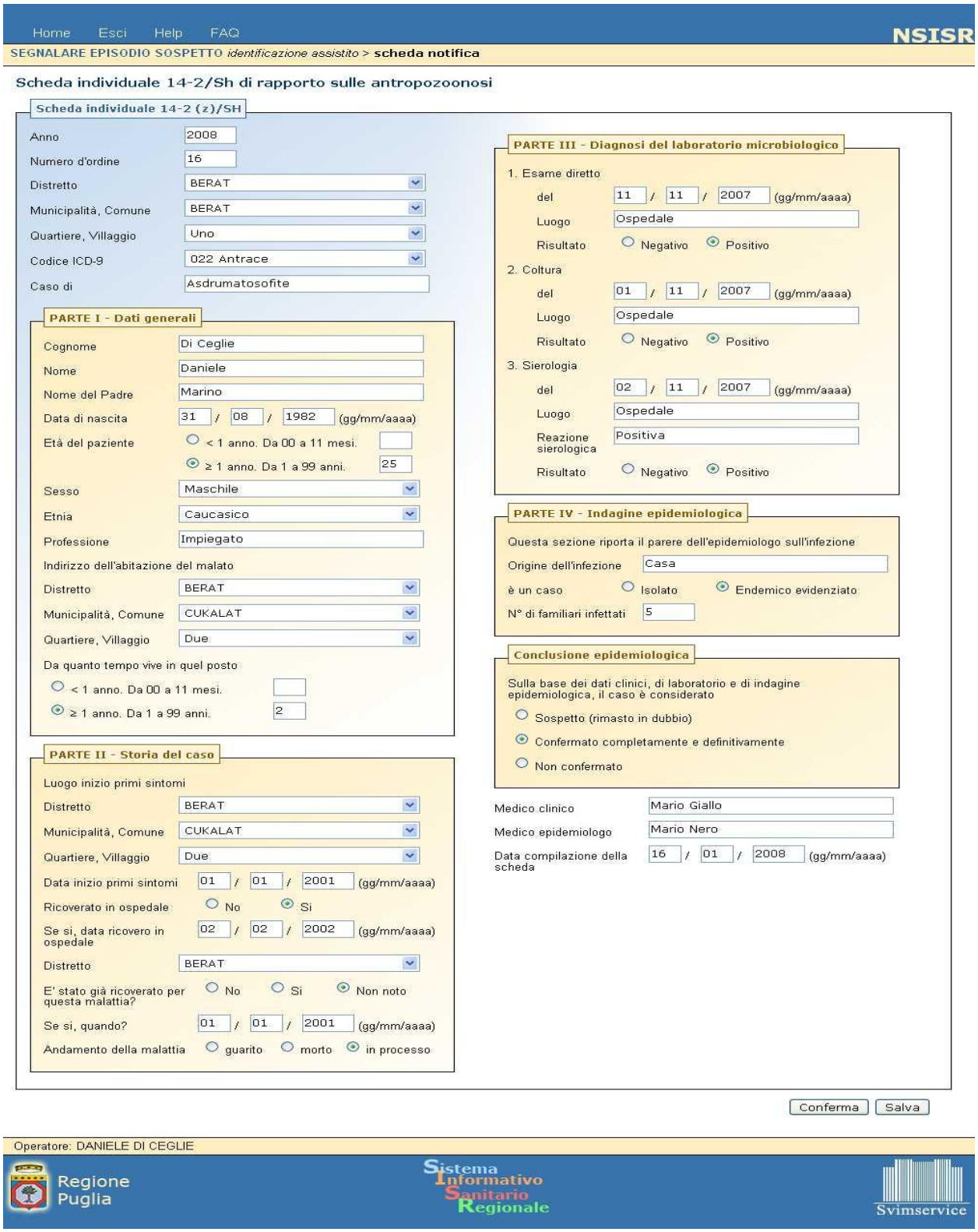

PROGETTO INTERREG IIIA
Albania e Puglia: oltre la Sanità
www.oltrelasanita.org
Login
Password
Entra
Svimservice


Home
Esci
Help
FAQ
NSISR
SEGNALARE EPISODIO SOSPETTO identificazione assistito > scheda notifica
Scheda individuale del rapporto delle malattie infettive del gruppo A
Scheda individuale 14-1/SH
Anno 2008
Numero d'ordine 11
Distretto BERAT
Municipalità, Comune BERAT
Quartiere, Villaggio Uno
Caso di Cimurro
Criterio 1 2 3 4
Codice ICD-9 001 Colera
PARTE I - Dati generali
Cognome Caleandro
Nome Vito
Nome del Padre Luigi
Sesso Maschile
Data di nascita 31 / 08 / 1952 (gg/mm/aaaa)
Età del paziente < 1 anno. Da 00 a 11 mesi.
≥ 1 anno. Da 1 a 99 anni. 50
Nazionalità Italiana
Etnia Caucasico
Professione Impiegato
Indirizzo dell'abitazione del malato
Distretto BERAT
Municipalità, Comune BERAT
Quartiere, Villaggio Uno
Da quanto tempo vive in quel posto
< 1 anno. Da 00 a 11 mesi.
≥ 1 anno. Da 1 a 99 anni. 2
PARTE II - Storia del caso
Luogo inizio primi sintomi
Distretto BERAT
Municipalità, Comune CUKALAT
Quartiere, Villaggio Due
Data inizio primi sintomi 01 / 01 / 2007 (gg/mm/aaaa)
Data ricovero in ospedale 02 / 02 / 2002 (gg/mm/aaaa)
Distretto BERAT
Andamento della malattia
guarito, data di uscita dall'ospedale / / (gg/mm/aaaa)
morto, data decesso 01 / 01 / 2005 (gg/mm/aaaa)
guarito, non ospedalizzato
Se esiste vaccino nei confronti della malattia indicare
Non vaccinato Non noto Vaccinato
Data ultima dose 06 / 2001 (mm/aaaa)
E' stato all'estero nei 3 mesi precedenti? Si No
Se si, indicare lo stato e il periodo di permanenza
Luogo Francia
dal 01 / 01 / 2001 (gg/mm/aaaa)
al 01 / 03 / 2002 (gg/mm/aaaa)
Luogo Germania
dal 02 / 03 / 2003 (gg/mm/aaaa)
al 04 / 04 / 2004 (gg/mm/aaaa)
Luogo Inghilterra
dal 02 / 04 / 2005 (gg/mm/aaaa)
al 01 / 05 / 2005 (gg/mm/aaaa)
PARTE III - Diagnosi del laboratorio microbiologico
1. Esame diretto
del 11 / 11 / 2007 (gg/mm/aaaa)
Luogo Ospedale
Risultato Negativo Positivo
2. Coltura
del 01 / 11 / 2007 (gg/mm/aaaa)
Luogo Ospedale
Risultato Negativo Positivo
3. Sierologia
del 02 / 11 / 2007 (gg/mm/aaaa)
Luogo Ospedale
Reazione sierologica Positiva
Risultato Negativo Positivo
Medico microbiologo Mario Rossi
PARTE IV - Indagine epidemiologica
Questa sezione riporta il parere dell'epidemiologo sull'infezione
è un caso Importato Locale (non importato)
è un caso Indice Contatto Non esposto
Caso indice
Se è un caso di contatto indicare l'origine dell'infezione
Cognome Verdi
Nome Mario
Nome del Padre Luigi
Indirizzo Via Massaua
Data comparsa malattia 02 / 11 / 2007 (gg/mm/aaaa)
Data di denuncia 03 / 11 / 2007 (gg/mm/aaaa)
Luogo di infezione Casa
Luoghi di diffusione dell'infezione
Quartiere, Villaggio Due
Altri Distretti Albanesi
Stima del numero di persone infette
N° di familiari entrati in contatto 5
N° di persone non familiari entrati in contatto 10
N° di persone entrati in contatto se il malato è stato in una comunità 6
Conclusione
Sulla base dei dati clinici, di laboratorio e di indagine epidemiologica, il caso è considerato
Sospetto (rimasto in dubbio)
Confermato completamente e definitivamente
Non confermato
Medico clinico Mario Giallo
Medico epidemiologo Mario Nero
Data compilazione della scheda 16 / 01 / 2008 (gg/mm/aaaa)
Conferma
Salva
Operatore: DANIELE DI CEGLIE
Regione Puglia
Sistema Informativo Sanitario Regionale
Svimservice

Appendix. 6


Home
Esci
Help
FAQ
NSISR
SEGNALARE EPISODIO SOSPETTO identificazione assistito > scheda notifica
Scheda individuale del rapporto delle malattie infettive del gruppo B/1
Scheda individuale 14-2/SH
Anno 2008
Numero d'ordine 13
Distretto BERAT
Municipalità, Comune BERAT
Quartiere, Villaggio Uno
Caso di Asdrumatosofite
Criterio 1 2 3 4
Codice ICD-9 002.0 Tifo addominale
PARTE I - Dati generali
Cognome Di Ceglie
Nome Daniele
Nome del Padre Marino
Sesso Maschile
Data di nascita 31 / 08 / 1982 (gg/mm/aaaa)
Età del paziente < 1 anno. Da 00 a 11 mesi.
≥ 1 anno. Da 1 a 99 anni. 25
Nazionalità Italiana
Etnia Caucasico
Professione Impiegato
Indirizzo dell'abitazione del malato
Distretto BERAT
Municipalità, Comune BERAT
Quartiere, Villaggio Uno
Da quanto tempo vive in quel posto
< 1 anno. Da 00 a 11 mesi.
≥ 1 anno. Da 1 a 99 anni. 2
PARTE II - Storia del caso
Luogo inizio primi sintomi
Distretto BERAT
Municipalità, Comune CUKALAT
Quartiere, Villaggio Due
Data inizio primi sintomi 01 / 01 / 2001 (gg/mm/aaaa)
Ricoverato in ospedale No Si
Se si, data ricovero in ospedale 02 / 02 / 2002 (gg/mm/aaaa)
Distretto BERAT
Andamento della malattia guarito morto
Se esiste vaccino nei confronti della malattia indicare
Non vaccinato Non noto Vaccinato
Data ultima dose 01 / 2001 (mm/aaaa)
PARTE III - Diagnosi del laboratorio microbiologico
1. Esame diretto
del 11 / 11 / 2007 (gg/mm/aaaa)
Luogo Ospedale
Risultato Negativo Positivo
2. Coltura
del 01 / 11 / 2007 (gg/mm/aaaa)
Luogo Ospedale
Risultato Negativo Positivo
3. Sierologia
del 02 / 11 / 2007 (gg/mm/aaaa)
Luogo Ospedale
Reazione sierologica Positiva
Risultato Negativo Positivo
Medico microbiologo Mario Rossi
PARTE IV - Indagine epidemiologica
Questa sezione riporta il parere dell'epidemiologo sull'infezione
è un caso Isolato Endemico
Se è un caso endemico, numero dei casi nella comunità 25
Per le infezioni intestinali, origine dell'infezione
Idrica Non idrica Sconosciuta
Stima del numero di persone infette
N° di familiari entrati in contatto 5
N° di persone entrati in contatto se il malato è stato in una comunità 6
Conclusione
Sulla base dei dati clinici, di laboratorio e di indagine epidemiologica, il caso è considerato
Sospetto (rimasto in dubbio)
Confermato completamente e definitivamente
Non confermato
Medico clinico Mario Giallo
Medico epidemiologo Mario Nero
Data compilazione della scheda 16 / 01 / 2008 (gg/mm/aaaa)
Conferma
Salva
Operatore: DANIELE DI CEGLIE
Regione Puglia
Sistema Informativo Sanitario Regionale
Svimservice

Appendix. 7


Home
Esci
Help
FAQ
NSISR
SEGNALARE EPISODIO SOSPETTO identificazione assistito > scheda notifica
Scheda individuale 14-2/Sh di rapporto sulle antropozoonosi
Scheda individuale 14-2 (z)/SH
Anno 2008
Numero d'ordine 16
Distretto BERAT
Municipalità, Comune BERAT
Quartiere, Villaggio Uno
Codice ICD-9 022 Antrace
Caso di Asdrumatosofite
PARTE I - Dati generali
Cognome Di Ceglie
Nome Daniele
Nome del Padre Marino
Data di nascita 31 / 08 / 1982 (gg/mm/aaaa)
Età del paziente < 1 anno. Da 00 a 11 mesi.
≥ 1 anno. Da 1 a 99 anni. 25
Sesso Maschile
Etnia Caucasico
Professione Impiegato
Indirizzo dell'abitazione del malato
Distretto BERAT
Municipalità, Comune CUKALAT
Quartiere, Villaggio Due
Da quanto tempo vive in quel posto
< 1 anno. Da 00 a 11 mesi.
≥ 1 anno. Da 1 a 99 anni. 2
PARTE II - Storia del caso
Luogo inizio primi sintomi
Distretto BERAT
Municipalità, Comune CUKALAT
Quartiere, Villaggio Due
Data inizio primi sintomi 01 / 01 / 2001 (gg/mm/aaaa)
Ricoverato in ospedale No Si
Se si, data ricovero in ospedale 02 / 02 / 2002 (gg/mm/aaaa)
Distretto BERAT
E' stato già ricoverato per questa malattia? No Si Non noto
Se si, quando? 01 / 01 / 2001 (gg/mm/aaaa)
Andamento della malattia guarito morto in processo
PARTE III - Diagnosi del laboratorio microbiologico
1. Esame diretto
del 11 / 11 / 2007 (gg/mm/aaaa)
Luogo Ospedale
Risultato Negativo Positivo
2. Coltura
del 01 / 11 / 2007 (gg/mm/aaaa)
Luogo Ospedale
Risultato Negativo Positivo
3. Sierologia
del 02 / 11 / 2007 (gg/mm/aaaa)
Luogo Ospedale
Reazione sierologica Positiva
Risultato Negativo Positivo
PARTE IV - Indagine epidemiologica
Questa sezione riporta il parere dell'epidemiologo sull'infezione
Origine dell'infezione Casa
è un caso Isolato Endemico evidenziato
N° di familiari infettati 5
Conclusione epidemiologica
Sulla base dei dati clinici, di laboratorio e di indagine epidemiologica, il caso è considerato
Sospetto (rimasto in dubbio)
Confermato completamente e definitivamente
Non confermato
Medico clinico Mario Giallo
Medico epidemiologo Mario Nero
Data compilazione della scheda 16 / 01 / 2008 (gg/mm/aaaa)
Conferma
Salva
Operatore: DANIELE DI CEGLIE
Regione Puglia
Sistema Informativo Sanitario Regionale
Svimservice

Appendix. 8

REPUBLIC OF ALBANIA
MINISTRY OF HEALTH
INSTITUTE OF PUBLIC HEALTH (IPH)

ALERT FORM
Weekly reporting of infectious Syndromes

Part- I: ***Complemented by District Epidemiologist***

Form number: ____---____---____---____ *(according code provided by IPH)*

Date of receiving data from the reporting entity (dd/mm/yyyy): ___/___/___

Part - II: ***Complemented by IPH***

Date of receipt of the form by IPH (dd/mm/yyyy): ___/___/___

Part - III: ***Complemented by District Reporting Unit***

District _____ Commune _____

Type of reporting units *(put a cross in appropriate box)*:
☐ Health Centre ☐ Polyclinic

Total number of family doctors of the reporting unit: _____

The number of family doctors who have reported on this week: _____

The reporting week (date dd/mm/yyyy):
from Monday ___/___/___ to Sunday ___/___/___

Number of new visits during this week for each of the following infectious syndrome:

INFECTIOUS SYNDROMES	Total cases	Cases by age – group					
		<1	1-4	5-14	15-44	45-59	60+
Diarrohea without blood							
Diarrohea with blood							
Upper respiratory infections							
Lower respiratory infections							
Rash (exanthema) with fever							
Jaundice)							
Haemorrhage with fever							
Suspected Meningitis							
Unexplained fever (>4 days)							

Appendix.9

Routine vaccination Form per 3 month **Trimester** **Years** **District**

Birth children – (BCG, Hep.B-1)

Reporting (3,6,9 monthly/annual)	No. of birth children	Total vaccination with tuberculosis vaccine (BCG)	Percentage of vaccination coverage	Total vaccination with Hep.B-1 vaccine	Percentage of vaccination coverage

***Hep.B-1 means the first vaccination**

Age-group – 2 months (DTP-1, Hep.B-2, OPV-1)

Reporting (3,6,9 monthly/annual)	No. of children for vaccination	Total vaccination with DTP-1	Percentage of vaccination coverage	Total vaccination with Hep.B-2	Percentage of vaccination coverage	Total vaccination with OPV-1	Percentage of vaccination coverage

***Hep.B-2 means re - vaccination**

Age-group -4 month (DTP-2, OPV-2)

Reporting (3,6,9 monthly/annual)	No. of children for vaccination	Total vaccination with DTP-2	Percentage of vaccination coverage	Total vaccination with OPV -2	Percentage of vaccination coverage

Age-group -6 month (DTP-3, Hep.B-3 OPV-3)

Reporting (3,6,9 monthly/annual)	No. of vaccinated children	Total vaccination with DTP -3	Percentage of vaccination coverage	Total vaccination with Hep.B-3	Percentage of vaccination coverage	Total vaccination with OPV OPV-3	Percentage of vaccination coverage

Age-group -1 old year (MMR-1)

Reporting (3,6,9 monthly/annual)	No. of vaccinated children	Total vaccination with MMR-1	Percentage of vaccination coverage

Age-group -2 old years (DTP-R1, OPV-R1)

Reporting (3,6,9 monthly/annual)	No. of vaccinated children	Total vaccination with DTP-R1	Percentage of vaccination coverage	Total vaccination with OPV-R1	Percentage of vaccination coverage

***R1- mean the first revaccination**

Age-group -5 old years (MMR-2)			
Reporting (3,6,9 monthly/annual)	No. of vaccinated children	Total vaccination with MMR2	Percentage of vaccination coverage

Age-group -6 old years (DT, OPV-R2)					
Reporting (3,6,9 monthly/annual)	No. of vaccinated children	Total vaccination with DT	Percentage of vaccination coverage	Total vaccination with OPV-R2	Percentage of vaccination coverage

***R2 – mean the second revaccination**

Age-group -14 old years (dT)			
Reporting (3,6,9 monthly/annual)	No. of vaccinated children	Total vaccination with dT	Percentage of vaccination coverage

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