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EPIDEMIOLOGICAL BACKGROUND OF INFECTIOUS DISEASES IN ALBANIA (1960-2001) AND THEIR PREVENTION AND CONTROL IN THE CONTEXT OF NATURAL DISASTERS AND INFECTIOUS DISEASES

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CONTENT

1. LEGISLATION

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

The Law "On prevention and control of infectious diseases" (No.7761 of 19.10.1993, based on the former Law No.1894 of 05.07.1954, with its recent amendment No.8484 of 10.05.1999), representing the first and at the same time the fundamental Constitutional Law concerning infectious diseases, dictates their mandatory notification and the taking of epidemiological measures of their control and prevention including compulsory vaccination.

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

- Law "On the Sanitary State Inspectorate" (No.7643 of 10.11.1992);
- Law "On Food" (No.7941 of 31.05.1995);
- Law "On regulatory framework of water supply, sewerage and waste water treatment sector" (No.8102 of 28.03.1996), which outlines the setting up of an Autonomous Regulatory Agency for water supply, sewerage and waste water treatment, defining functions, competencies, procedures and standards of this Regulatory Agency;
- Law "On the public removal of wastes" (No.8094 of 31.03.1996), which intends to protect the urban environment from waste pollution and to discipline the public services on removal of urban wastes;
- Law "On environmental protection" (No.8364 of 02.07.1998, amendment to law 7664 of 21.01.1993).

Other Legislative Laws concern specific areas of infectious diseases and health-related problems, such the Law "On prevention and control of HIV infection/AIDS in Republic of Albania" (No.8689 of 16.11.2000), the Law "On promotion and protection of breast feeding" (No.8528 of 23.09.1999), the Law "On Drugs" (No.7815 of 20.04.1994 with its amendment No.8376 of 16.07.1998), etc.

Besides the Constitutional Laws, there are a lot of Decisions of Council of Ministers and Orders, Directives and Regulations of Ministry of Health (MoH) into the legal framework of infectious diseases, aiming at detailing the above mentioned Laws and especially that on infectious diseases reporting and control in sub-legal executive acts, like:

- Council of Ministers' Decision "On health care financing for preventive measures regarding infectious diseases" (No.125, 13.03.1995 and No.674, 26.10.1998); "On food additions (No.147, 03.04.1995);
- MoH's Orders and/or Directives on
- "Guidelines on infectious diseases" (No.189 of 08.08.1995);
- "Control of HIV/AIDS" (No.260 of 15.12.1993, and No.64, 21.05.2001);
- "Epidemiological surveillance of acute flaccid paralyses" (No.104 of 10.11.1997);
- "Control of tuberculosis" (No.105 of 02.12.1998);
- "The new reporting forms on initial notification of infectious diseases (No. 38 of 09.02.1999);
- "Application of Alert system of epidemiological surveillance of infectious diseases (No.493 of 02.11.1999);
- "Control of sexually transmitted infections" (No.9 of 20.01.1999);
- "Prevention and control of reintroduction of malaria in Albania" (No.452 of 18.10.2000);
- "Epidemiological surveillance of zoonoses" (No.532 of 14.12.2000);
- "Epidemiological surveillance of measles and rubella" (No.307 of 15.08.2001);
- MoH's Regulations on Hygiene and State Sanitary Inspectorate;

and others.

It should be stressed that environmental health, the source of considerable pain and suffering in Albania, is an area where responsibilities are divided between many governmental ministries and institutions rather than depending from the MoH only.

2. BRIEFLY ON THE HEALTH STATUS OF THE ALBANIAN POPULATION

2.1. BASIC DEMOGRAPHIC FACTS AND TRENDS

Following a strict natalist policy of the communist regime the Albanian population increased during the last fifty years, but its GROWTH RATE decreased from 2.96 in the 1950s to 2.1 in 1980s. Meanwhile a sharp decrease of the population growth rate (1.5) results to be in the 1990s mainly because of a large population (e)migration.

Albania has a younger population than other European countries (average age 28.6 years). One third (33%) are under 15 years of age, some 40% are under 18 years of age, and almost half (49%) are under 25 years of age. Population of age group more than 65 years old accounts for only 6.1%.

In 1998, the CRUDE BIRTH RATE was 17.6/1,000 and the CRUDE DEATH RATE death rate 5.1/1,000. While statistics for mortality rates have remained stable (except for a large increase in deaths among young adults in 1997 due to civil unrest), the table below demonstrates a gradual decrease in the number of live births in Albania in recent years. There is a significant decrease in the total fertility rate.

DEMOGRAPHIC INDICATORS 1994-1998

INDICATORS	1994	1995	1996	1997	1998
% POPULATION UNDER 18 YEARS	40.3	40.1	39.6	40	40.5
RATIO OF BIRTHS TO DEATHS	6.9	6.5	5.7	4.8	3.49
LIVE BIRTHS PER 1,000 POPULATION (CRUDE BIRTH RATE)	23.1	22.2	20.8	18.6	17.6
DEATHS PER 1,000 POPULATION (CRUDE DEATH RATE)	5.5	5.6	5.7	5.5	5.1

Source: INSTAT and Statistic Sector in MoH

Albanians enjoy a LIFE EXPECTANCY AT BIRTH (LEo) above the average of countries of a similar level of economic development and wealth. LEo in Albania in 1998 was 69.2 years for men and 75.0 years for women, figures quite comparable with those of the European developed countries.

THE HIGH FERTILITY RATES, HIGH NATALITY RATES, STILL HIGH INFANT MORTALITY RATES AND THE POPULATION DEMOGRAPHIC PYRAMID SHAPE ARE DEMOGRAPHIC INDICATORS OF A DEVELOPING COUNTRY. BUT, IN THE MEANWHILE, THE LOW CRUDE

DEATH RATES AND HIGH LIFE EXPECTANCY AT BIRTH ARE DEMOGRAPHIC INDICATORS OF A DEVELOPED COUNTRY.

The free and uncontrolled movement of the population allowed since 1990 has changed the URBAN/RURAL POPULATION RATIO. Around 52.1% of the estimated population of 1999 were living in rural areas compared to around 64.1% according to the 1989 census. Overall population density was around 110.2 inhabitants per square kilometer in 1993 with different density levels in various country's areas. Population pressure was and still is noticeable in the cities and plains whereas the mountain areas are continuously scarcely populated. Therefore A VERY HIGH RATE OF URBANIZATION OR INTERNAL MIGRATION, (beyond any expectation on the respective mathematical simulations), is going on to take place in Albania, especially for the country's capital – Tirana as well as for other main cities. Tirana region has witnessed a population increase of 30% due to internal migration. Population growth is anticipated to be slightly negative (-0.3%) in rural areas because of the significant levels of migration into urban areas; population growth in urban areas is anticipated to be 3.8% because of the ongoing migration in such areas.

On the other hand, the people (especially youth) emigration, virtually non-existent in Albania until 1989, represents during 1990s a very remarkable phenomenon. The emigration rate (either illegal or legal one) remains to be too high: from 1991 onwards the number of Albanians emigrated abroad (mainly in Greece and Italy) and in other European and non-European countries as well might be considered of some 450,000-600,000 people, around 70% out of them being mainly males of age-groups of 16-30 years old.

With respect to the population gender-structure the females account for 48.5% in 1989 and 51.0% in 1999. Such a gender ratio overturning is due to the selective emigration during the'90^{ies}.

Internal migration from the rural areas has resulted in weakened village social structures and chaotic city life, while also putting pressure on social and physical infrastructure at both ends. Health and social services and infrastructure are increasing demands but with little additional capacity, so the quality and delivery of those services throughout Albania is deteriorating (although this is more obvious in rural areas). On the other hand, the impact of new social problems attached to population changes (increased drug trafficking, violence and prostitution) have to be considered.

2.2. BASIC HEALTH INDICATORS: FACTS AND TRENDS

THE HEALTH OF THE ALBANIAN POPULATION SHOWS A SPECIAL PATTERN WHEN COMPARED TO OTHER COUNTRIES OF THE WORLD. ON THE ONE HAND, SOME INDICATORS SUCH AS LONGEVITY, MORTALITY AND CHRONIC MORBIDITY RATES ARE COMPARABLE TO THOSE OF DEVELOPED COUNTRIES WITH HIGHER INCOMES. ON THE OTHER HAND, INDICATORS SUCH AS INFANT MORTALITY, MATERNAL MORTALITY AND ACUTE INFECTIOUS MORBIDITY RATES ARE COMPARABLE WITH THOSE OF DEVELOPING COUNTRIES.

2.2.1. MALNUTRITION STATUS

Current GDP per capita in Albania is US$810 (World Bank World Development Report 1999-2000), making Albania the country with the lowest per capita income in Europe. Thirty percent of rural society and 15% of urban society is considered poor (INSTAT, Living Condition Survey - LCS, 1998). In absolute terms, 46.6% of the Albanians were below the poverty line of 2 USD per capita a day, while 17.4% were below the poverty line of 1 USD per capita a day, (INSTAT, LCS, 1998). THE EMPHASIS OF ABOVE FIGURES RELIES UPON RELATIONSHIP BETWEEN POVERTY AND HEALTH IN THE SENSE THAT NOT ONLY CAN A HEALTHY POPULATION CONTRIBUTE TO THE ECONOMIC GROWTH AND DEVELOPMENT OF A COUNTRY BUT ALSO THAT POOR PEOPLE EXPERIENCE A DISPROPORTIONATE AMOUNT OF ILL-HEALTH.

The available data concerning MALNUTRITION in Albania is scarce. Most studies have been focused on children. A malnutrition study conducted in 1991 by Pediatric Hospital of Tirana and focused on children between the ages 0-3 in 11 districts revealed that about 1/3 of these children were underweight, while 2% suffered from severe malnutrition. A second survey conducted in 1993 using the same age group and methodology revealed a malnutrition figure of 28%. A Multiple Indicator Cluster Survey – MICS conducted in 2000 by UNICEF revealed that one in seven children under age 5 years old in Albania is moderately underweight and 4.3% are classified as severely underweight. THE EMPHASIS OF ABOVE FIGURES IS THAT MALNUTRITION LEVELS AMONG CHILDREN IN ALBANIA ARE OF IMMEDIATE PUBLIC HEALTH CONCERN, TAKING INTRO ACCOUNT THE WELL-KNOWN MUTUAL CAUSE-EFFECT RELATIONSHIP BETWEEN MALNUTRITION AND INFECTION.

2.2.2. INFANT AND CHILD MORTALITY

According to official statistical data, there is a significant decreasing trend both of INFANT MORTALITY RATE and UNDER-FIVE (=CHILD) MORTALITY RATE over the

period 1994 onwards in Albania (see the following table). Nevertheless, the real figures should be higher, because mortality cases are likely to be under-reported or not reported regularly. Underreporting is likely to occur particularly in rural areas where according to official data about 55% of infant deaths occur at home, thus escaping the national health information system, (UNICEF, Situation Analysis 1998, Albania). Therefore, the trend data concerning infant mortality rate and child mortality rate should be treated with caution.

INFANT MORTALITY RATE – IMR (INFANT [<1 YEAR OLD] DEATHS PER 1,000 LIVE BIRTHS) AND UNDER-FIVE MORTALITY RATE – (CHILD [1-4 YEARS OLD] DEATHS PER 1,000 LIVE BIRTHS)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
U-5MR	41.5	44.5	46.9	49.7	44.7	37.0	30.6	22.9	22.2	18.6
IMR	28.3	32.9	30.9	33.2	35.7	34.0	25.8	22.5	20.4	15.1

Source: MOH (Statistic Sector)

The principal causes of infant and child mortality include respiratory diseases in the first place, and then congenital anomalies, diarrhoeal diseases and other infectious diseases. They are often related to poor living conditions characterised by poor access to services, improper treatment by specialists, lack of facilities in emergency cases and low educational level of the mothers in terms of growth and feeding. To put it differently, SUCH HIGH INFANT AND CHILD MORTALITY RATES ARE CLOSELY CORRELATED TO POVERTY INDICATORS AND PROBLEMS FACING HEALTH CARE SERVICES IN GENERAL.

2.2.3. MATERNAL MORTALITY

The average MATERNAL MORTALITY RATE (MMR) for the country is high (around 27.5 per 100,000 live births in 1997), but it is worth emphasizing that in the Northern regions such as Tropoje, Has and Kukes, it is much worse than the national rate, standing at 282, 135 and 105 respectively. The causes of death have been defined as post-partum haemorrhage, eclampsia, infections, hypertensive changes of pregnancy and septic abortion. Poor access to obstetric care in cases of emergency due to the concentration of such services in urban zones, long distances and the poor condition of roads (especially in the very mountainous areas) poor quality of basic services and the very poor hygienic conditions also contribute to these high MMR figures.

MATERNAL MORTALITY RATES - MMR
(MATERNAL DEATHS PER 100,000 LIVE BIRTHS)

	1985		1990	1991	1992	1993	1994	1995	1996	1997	1998
MMR	56.7		37.7	25.1	19.7	22.0	40.6	31.2	24.8	27.5	22.1

Source: MOH (Dep. of Statistics)

FAMILY PLANNING is readily available to only 60% of women in Albania, the majority of those with limited access being those in rural areas. ABORTION was legalised in 1991 and official figures below suggest a decline in numbers but it is suspected that these numbers do not represent the true picture, and that abortion is still a commonly used method of family planning. The number of abortions performed privately and therefore not reported, is believed to be increasing.

2.2.4. CAUSE-SPECIFIC MORTALITY (MORTALITY PATTERNS)

The main groups of diseases causing the highest mortality rates in Albania are circulatory and chronic pulmonary diseases; 32% of deaths are due to cerebral haemorrhage and ischaemia, 20% are due to myocardial infarction and other ischaemic diseases, and 37% are due to cardiac insufficiency and other cardiac disorders. The SDR (standardised death rate) of circulatory and chronic pulmonary diseases is 443.3 deaths for 100,000 population (all ages), according to the 2000 mortality report, which represents 50.5% of the level 877.7 per 100,000 population of SDR, all causes, all ages. Nevertheless, it is a relatively low figure compared with other European countries, reflecting the young population structure in Albania.

Malignant neoplasms occupy the 3^{d} place in the total mortality rate (after diseases of circulatory system and chronic pulmonary diseases). The SDR of malignant is 119.2 deaths per 100,000 population (all ages), according to the 2000 mortality report, which represents 13.6% of the level 877.7 per 100,000 population of SDR, all causes, all ages. According to specific malignant neoplasms, 26% die from cancer of the digestive system, 21% from cancer of the respiratory system, and 7% from cancer of the uro-genital system. Death rates according to gender show that the male/female ratio is 3:2.

Injuries (road accidents, external cause injuries, poison, etc) occupy the 5th place with their SDR of 66.2 deaths per 100,000 population (all ages), or 7.5% of the total SDR (all causes, all ages).

Infectious diseases are ranked in the 6th place on the total mortality, after circulatory diseases, pulmonary diseases, tumours and accidents, giving thus a similar mortality pattern to that of European developed countries.

3. ON THE LEADING ROLE AND POSITION OF THE INSTITUTE OF PUBLIC HEALTH (IPH) – AS THE NATIONAL RESEARCH-SCIENTIFIC-TRAINING-REFERENCE-EXPERTISE-OPERATIVE CENTER IN INFECTIOUS DISEASES EPIDEMIOLOGY, CONTROL AND PREVENTION

The INSTITUTE OF PUBLIC HEALTH (IPH), successor (since 1994) of the ex-Research Institute of Hygiene, Epidemiology, and Immunobiological Products (established in 1969), REPRESENTS THE UNIQUE NATIONAL RESEARCH-SCIENTIFIC-TRAINING-REFERENCE-EXPERTISE-OPERATIVE CENTER IN THE BROAD FIELD OF PUBLIC HEALTH IN GENERAL, AND IN THE FIELD INFECTIOUS DISEASES EPIDEMIOLOGY, CONTROL AND PREVENTION AND ENVIRONMENTAL HEALTH EPIDEMIOLOGY IN PARTICULAR. It goes without saying that THE IPH REPRESENTS THE TECHNICAL AND POLICY-PLANNER ARM OF THE MINISTRY OF HEALTH ON THE MATTER.

The IPH has a key role in the technical and scientific aspect and methodological aspect in all great areas of the public health. Its composition of various scientific units of different structure and object is made to fulfil that requirement. The units are the following:

- Department of Epidemiology,
- Sector of National Programme of HIV/AIDS/STIs,
- Department of Microbiology,
- Department of Sanitary Expertise and Environmental Health (ex Hygiene),
- Department of Statistics and Information on Population Health and Environmental Health,
- Department of Health Education and Promotion,
- Sector of Coordination and Evaluation,
- Sector of Laboratories Quality and Safety Control,
- Sector of the National Authority of Vaccines Control,
- Department of Mental Health for Children and Adolescents.

The IPH is in a moment of some further positive changes and adoptions which are related to its objectives but also with obligations toward the institution on which its depend, that is Ministry of Health. In addition to the long year tradition departments like that of Epidemiology, Microbiology, and Environmental Health (ex Hygiene), others are in the phase of their consolidation, and the new ones (like Department of Health Policies) are projected to be established in a near future.

The main tasks and responsibilities of the IPH concerning infectious diseases control and prevention might be summarized as follows:

- To permanently collect, analyze and feedback/forward data of epidemiological surveillance of infectious diseases, in order to determine their occurrence according to the classical triad person-place-time;

- To permanently collect, analyze and feedback/forward data of monitoring of environmental health hazards, in order to qualitatively and quantitatively identify in space and over time the respective water, air, and soil pollutants;

- To permanently collect, analyze and feedback/forward data of routine mandatory vaccination according to the national programme of immunization, in order to determine the respective vaccination coverage rates both at district and national levels;

- To carry out microbiological-epidemiological studies of infectious diseases in order to precisely determine and map the respective risk determinants;

- To carry out sero-epidemiological studies on vaccine-preventable infectious diseases, in order to determine the specific respective protection levels of the population;

- To carry out studies in the field of medical entomology in order to define the habitats, biocenoses and biotopes of vectors of arthropod-borne infectious diseases;

- To intervene in eventual epidemics/outbreaks of infectious diseases for their control and prevention;

- To permanently improve the specificity and sensitivity of the epidemiological surveillance system of infectious diseases, in order to make it able in timely detecting and reporting of cases and especially outbreaks, what does mean the timely action undertaken for prevention;

- Based on the ongoing acquired scientific evidence, to predict the likelihood of infectious diseases epidemics/outbreaks occurrence or at least the probable size of their spread in space and time, in order to anticipate the proper epidemiological measures of their prevention and control;

- To assess the accessibility and quality rates of health care services in order to forward their adequate programming and planning and, therefore, to map

the country's and people's needs to health care (a dynamic rather a static process).

To fulfil those tasks and responsibilities, IPH uses its subordinate units at district level, namely District Epidemiology, Hygiene and State Sanitary Inspectorate Services.

4. DISTRICT EPIDEMIOLOGY, HYGIENE AND STATE SANITARY INSPECTORATE SERVICES

As it was mentioned above, the Institute of Public Health (IPH) fulfils its tasks and responsibilities in the field of infectious diseases control and prevention using District Epidemiology, Hygiene and State Sanitary Inspectorate Services as its operational structure.

4.1. DISTRICT EPIDEMIOLOGY, HYGIENE AND STATE SANITARY INSPECTORATE SERVICE IN THE HEALTH SYSTEM STRUCTURE OF ALBANIA

Each district (36 in total) has its own Epidemiology, Hygiene and State Sanitary Inspectorate Service, whose size depends on the size of the respective district.

The administrative-executive dependency of District Epidemiology, Hygiene and State Sanitary Inspectorate Service in the top-bottom hierarchical structure of the health system at district level proceeds as follows (i) Directorate of Public Health and (ii) Directorate (or Service) of Primary Health Care. District Directorate of Public Health, the higher state health authority at district level, depends, in its turn, directly on the Ministry of Health (mainly its Primary Health Care Department).

The IPH, in conformity with its attributes as the national scientific-training-reference-expertise center of preventive medicine, plays the role of technical leadership of all District Epidemiology, Hygiene and State Sanitary Inspectorate Services, whose technical dependency from the IPH follows the above top-bottom hierarchical tree through Directorate of Public Health and Directorate (or Service) of Primary Health Care at district level.

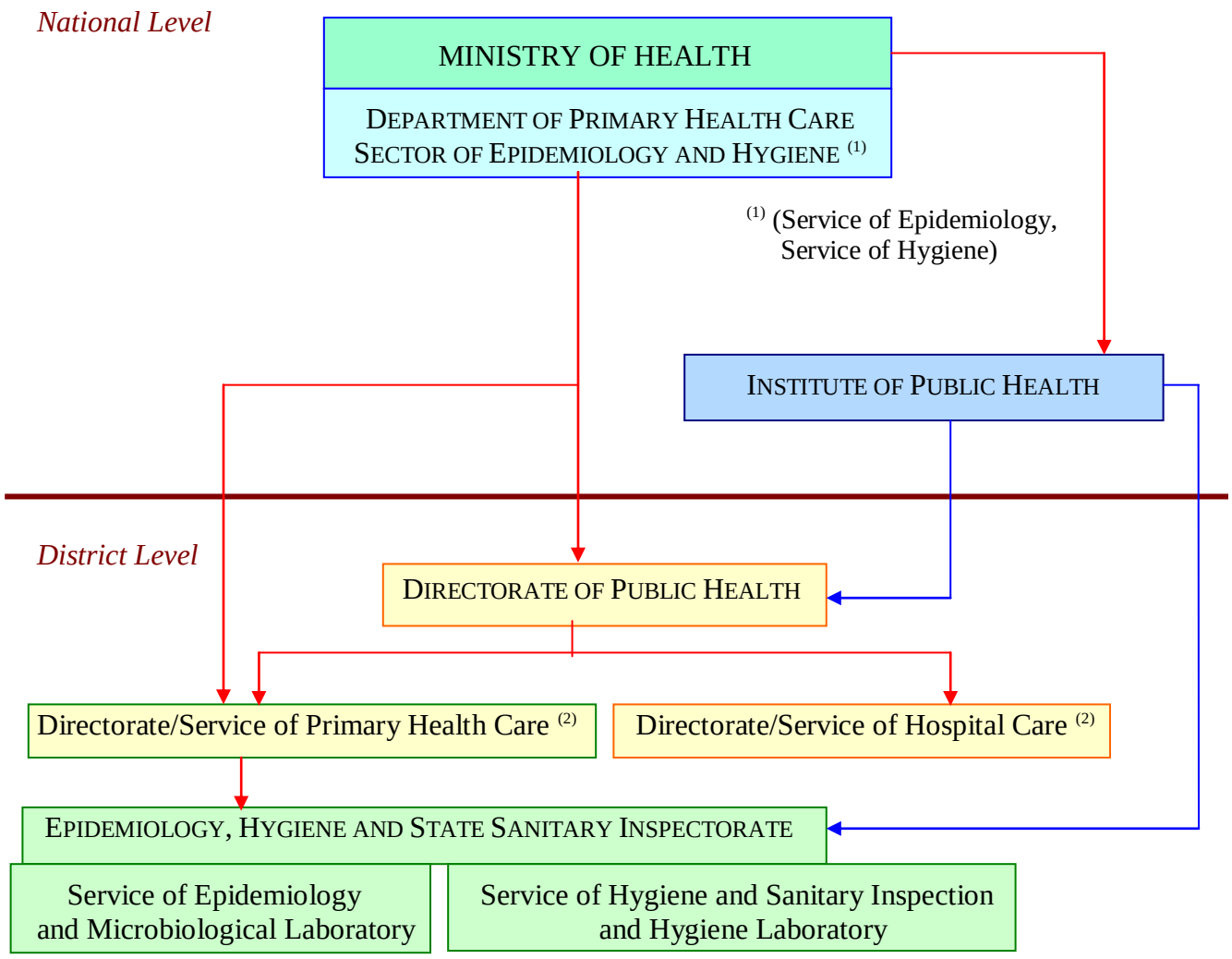
District Epidemiology, Hygiene and State Sanitary Inspectorate Service is composed of two services:

- SERVICE OF EPIDEMIOLOGY, which includes MICROBIOLOGICAL LABORATORY, and
- SERVICE OF HYGIENE AND SANITARY INSPECTION, which includes LABORATORY OF HYGIENE (SANITARY-CHEMICAL LABORATORY).

Whereas Service of Epidemiology (or Epidemiological Service) is technically dependent on Department of Epidemiology of IPH, that of Hygiene and Sanitary Inspection is technically dependent on Department of Sanitary Expertise and

Environmental Health of IPH. Meanwhile, the activity performance level of the above district laboratories (that is District Public Health Laboratory) is technically supervised from Department of Microbiology and Sector of Laboratories Quality and Safety Control of IPH.

NATIONAL ORGANIZATION OF EPIDEMIOLOGY, HYGIENE AND STATE SANITARY INSPECTORATE SERVICE (A SIMPLIFIED FLOWCHART)



(2) "Directorate" in 15 bigger districts (in capital Tirana "Regional Health Authority")
"Service" in other districts

→ Administrative/executive dependency
→ Technical dependency

The position of District Epidemiology, Hygiene and State Sanitary Inspectorate Service in the health system structure of Albania is schematically presented by a simplified flowchart.

4.2. TASKS AND RESPONSIBILITIES OF DISTRICT EPIDEMIOLOGY, HYGIENE AND STATE SANITARY INSPECTORATE SERVICE CONCERNING INFECTIOUS DISEASES CONTROL AND PREVENTION

The District Epidemiological, Hygiene and Sanitary Inspectorate Service tasks and responsibilities regarding infectious diseases control and prevention are performed according to the respective legal framework (see chapter 1 "Legislation").

The tasks and responsibilities of EPIDEMIOLOGICAL SERVICE are:

- To permanently collect epidemiological data of infectious diseases surveillance from all data sources (primary health care service and hospital care service), carrying out active supervision and control towards them as well as data processing;

- To permanently collect vaccination data, actively monitoring and controlling vaccination coverage rates at village level (rural area) and city quarter level (urban area);

- To monitor and investigate the connection between sanitary-hygienic conditions and epidemiological threats;

- To explore and monitor causative agents of infectious diseases;

- To detect and control carriers of certain infectious diseases;

- To promptly carry out epidemiological investigation of any eventual infectious disease outbreak, undertaking the immediate action for control and prevention;

- To monitor and evaluate the epidemiological situation of the district;

- To monitor migration trends of population and possible importing and spreading of infectious diseases;

- To actively supervise and monitor preventive disinfection, anti-vectorial control measures and derattisation in public places, public transport means, facilities for food production and distribution, as well as other facilities;

- To assess the accessibility and quality rates of health care services and to propose measures for improvement of the population health status.

The tasks and responsibilities of the HYGIENE AND SANITARY INSPECTION SERVICE are:

- To permanently carry out monitoring of potable water, sanitary inspection of water supply facilities, springs and their surroundings, controlling potable water by bacteriological and sanitary-chemical laboratory tests;

- To permanently control elimination of solid and liquid waste materials, inspect the facilities and locations of their storage, processing and final disposition;

- To permanently control the hygienic quality of surface and waste waters;

- To monitor air pollution and its effect on the population health;

- To carry out sanitary-hygienic inspection of public transportation facilities, sports and recreation facilities, pre-school and school buildings;

- To control food-products by bacteriological and sanitary-chemical laboratory tests;

- To carry out sanitary-hygienic inspection of facilities for production and distribution of food products and communal feeding facilities as well, sanitary checkups of persons dealing with production and distribution of food products in pre-school, school and health care facilities;

- To monitor hygienic conditions in working environments;

- To propose measures for prevention of environmental degradation and improvement of its quality;

- To participate in reviewing and realization of urban plans of the district.

In the above framework, it is important to underline the necessity of solving problems that can be detected in practice in the District State Inspectorate work, namely:

- ✓ A non effective collaboration with the elected local organs, which are charged with the executive responsibility for the elimination of the problems of the public health, especially those related to the infrastructure;

- ✓ A non rational mechanism for the collection of the imposed fines and the insufficient support to their activities in case of reaction of the subjects to law enforcement imposed by this inspectorate;

- ✓ A not well coordinated collaboration with other inspectorates like Inspectorate of Food and Veterinary Inspectorate (depending on the Ministry of Agriculture and Food) and Inspectorate of Labour (depending on the Ministry of Labour and Social Protection).

5. EPIDEMIOLOGICAL SURVEILLANCE SYSTEM OF INFECTIOUS DISEASES IN ALBANIA

5.1. MAJOR DISEASE-BASED SURVEILLANCE SYSTEM (MDBSS)

The Albanian epidemiological surveillance system on infectious diseases has been and it continues to be a statutory one: the infectious diseases included in that system must be reported by law.

The statutory notification system dates from the years '50. In spite of some small improvements over time the essential features of the system remained all but the same until the year 1998.

In 1997 the Department of Epidemiology (DE) of Institute of Public Health (IPH) initiated and carried out conspicuous quantitative and qualitative modifications of up-to-then statutory notification system thus compiling the new Major Disease-Based Epidemiological Surveillance System (MDBSS). The new highly improved reporting system was officially approved by the Albania's Ministry of Health and put into practice starting from January 1, 1998.

In the compilation of the new statutory reporting system all of the attributes of an epidemiological surveillance system were taken into account, namely its simplicity, flexibility, acceptability, sensitivity, positive predictive value, representativeness, and timeliness. The system in itself aimed thus at an active surveillance rather a passive one, increasing therefore the active case finding and laboratory capabilities for infectious diseases (confirmed case).

The actual notification system contains 73 nosologic entities of infectious diseases (ICD-9 Code) presented in a standard official Form (named 14/Sh). The infectious diseases are divided into three groups (namely A, B, C) in that Form according to the degree of their public health importance, based on the respective measuring parameters such as the magnitude of the problem (occurrence frequency), indices of disease severity (rates of mortality, case-fatality, potential years life lost), socio-economic impact (medical care, lost productivity, hospitalisation rate), and preventability (primary, secondary, tertiary prevention).

The Group A contains the infectious diseases of the highest public health importance like *plague, cholera, yellow fever, arthropod-borne and mosquito-borne haemorrhagic fevers, dengue fever, botulism, exanthematic typhus, relapsing fever, mosquito-borne and tick-borne viral encephalites, acute flaccid*

paralyses, *diphtheria*, *malaria*, *rabies*, etc. Therefore, they are subject of a mandatory urgent (within 24 hours) notification from the basic level (data sources), through the local level (district epidemiological service) to the national one (DE of IPH) of the surveillance system.

All but other infectious diseases, enlisted in the Group B of the 14/Sh Form, are of a rapid notification (within 1-3 days) from data sources to the local level and of a monthly notification from local level to the national one if their occurrence is represented as sporadic cases. In the case of eventual outbreaks, the reporting timeliness is the same as for the Group A diseases (urgent, within 24 hours) from data sources to the IPH.

The notification of the infectious diseases of either Group A or Group B is based on individual (case-patient) level (person characteristics) as well as on specific case definition (suspect case or confirmed one).

This is not a feature for the last 5 infectious diseases of the Group C, namely *unspecified gastro-enteritis*, *influenza* (in the frame of an ongoing epidemics), *common cold or flulike syndrome*, *scabies*, and *pediculosis*, where the monthly notification is not based on specific case definition.

The aggregated data in the monthly 14/Sh Form are presented for each infectious diseases according to place (urban and rural), specific case definition (suspect and confirmed case), age-groups (16 ones in total, that is by a narrow division). Another 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 obligatorily by law to be accompanied by the Individual Forms 14-1/Sh (for each of the Group A diseases), 14-2/Sh (for most of the Group B diseases), 14-3/Sh (for the TBC entities included in the Group B), and 14-4/Sh (for the Sexually Transmitted Infections 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 necessary complementary to the 14/Sh Form's aggregated data.

MANDATORY REPORTING SYSTEM ON ACUTE FLACCID PARALYSES (AFP)
represents in itself an addendum of the statutory reporting system of infectious diseases. In spite of their notification in the statutory general epidemiological surveillance system (Group A of the 14/Sh Form) the AFP reporting system

follows its own way through 5 various standard Forms (Forms 1, 2, 3, 4, 5, including monthly zero case notification).

MANDATORY REPORTING SYSTEM ON MEASLES/RUBELLA CASE-BASED SURVEILLANCE

represents in itself an addendum of the statutory reporting system of infectious diseases. In spite of their notification in the statutory general epidemiological surveillance system (Group B of the 14/Sh Form) this reporting system follows its own way through its standard Forms (Forms 1 and 2, including monthly zero case reporting form as well).

5.2. REPORTING SYSTEM OF DISTRICT MICROBIOLOGICAL (PUBLIC HEALTH) LABORATORIES ACTIVITY

Administratively today's Albania is divided in 36 districts what does mean 36 epidemiological services (district level) and 36 microbiological (public health) laboratories. The size and activity extent of microbiological laboratory depends on the size of the respective district.

The performance level of district microbiological laboratories is regularly, supervised and improved by the IPH (Department of Microbiology and Sector of Laboratories Quality and Safety Control).

The laboratory confirmation of an infectious disease case is one of the mandatory responsibilities of the district microbiological laboratories, actually able to perform only in bacteriological, parasitic, mycological infections-diseases (chiefly concerning diarrhoeal diseases and some of respiratory ones). Into such a frame the IPH duty consists on the expertise. Regarding viral and rickettsial infections/diseases, only the IPH has up-to-now the technical possibilities to carry out the respective laboratory diagnosis; in such a case the duties of district microbiological laboratories rely upon specimens collection in the field and their transportation to the IPH. It should be stressed that the IPH Virological Laboratory is already certified by the WHO as the national reference center of Influenza and Acute Flaccid Paralyses.

The laboratory reporting system is based on regularly (chiefly monthly) mandatory notification (from the local level, i.e. district microbiological laboratories, to the national level, i.e. IPH) of laboratory activity and results through the officially standard form (named 15/Sh Form). This system serves as a complementary one to the epidemiological surveillance system (statutory

notification system) being an inherent part of the later. Furthermore, based on the confirmed cases rates resulted by the monthly 14/Sh Form of the surveillance system the quality level of district public health laboratories performance is thus regularly monitored.

5.3. ALERT SYNDROME-BASED SURVEILLANCE SYSTEM

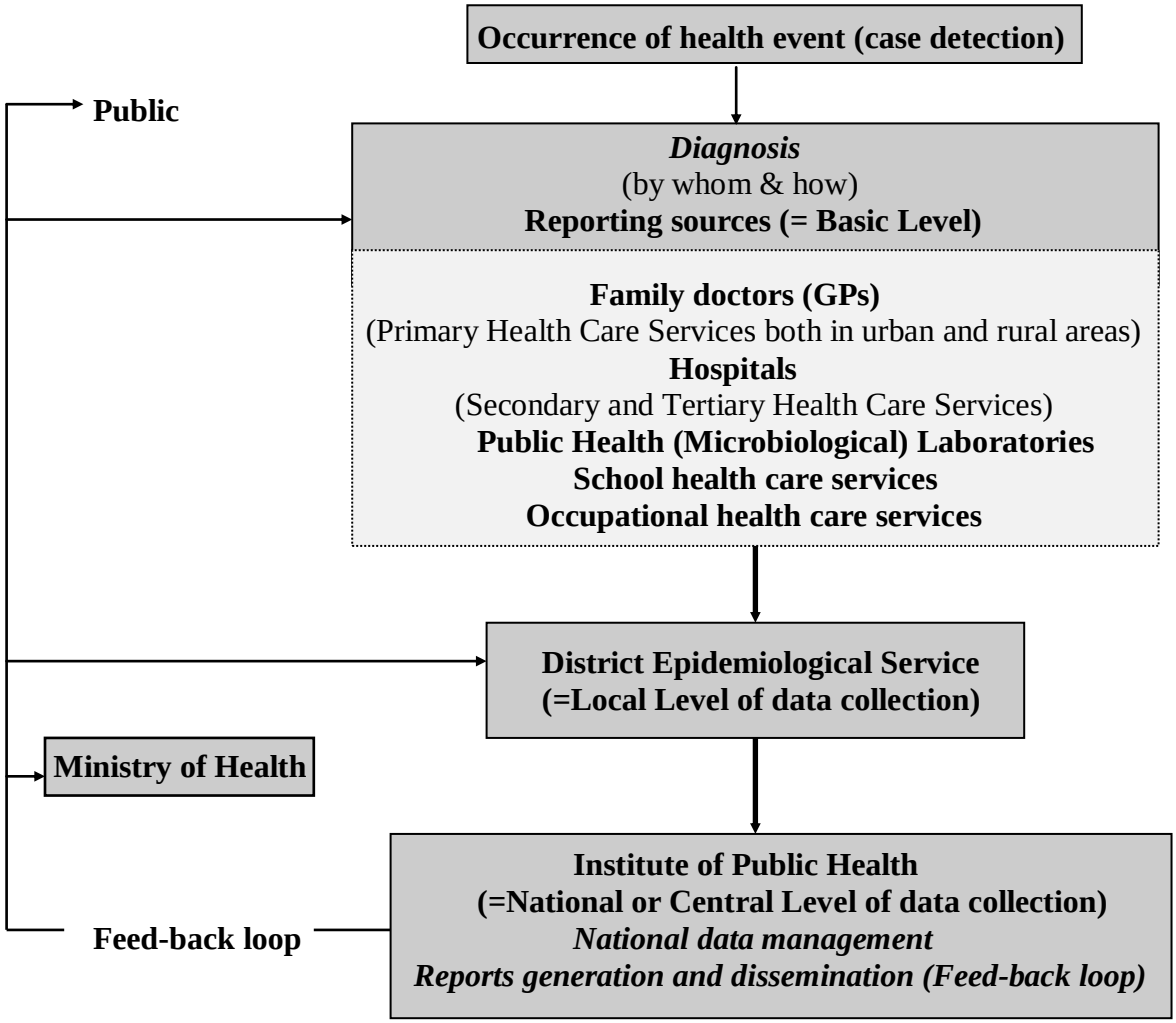
As it was mentioned, the actual reporting system was put into the practice throughout the country starting from January 1, 1998. Investigating that system step-by-step in a detailed way during more than one and a half year of its implementation the DE (IPH) concluded on the degree of its attributes especially concerning sensitivity and specificity. Concretely, the specificity rate resulted to be higher than the sensitivity rate what does mean a considerable level of false-negativity. The specificity versus sensitivity is a common and implicit feature of a disease-based surveillance system like ours. Based on such an important conclusion, it was pointed out the necessity of setting-up and implementing a complementary syndrome-based surveillance system, in order to increase the sensitivity rate of the epidemiological surveillance system as a whole, thus aiming at timely detection and investigation of eventual outbreaks. Such an objective was recently (year 2000) reached by the implementation of the ALERT System, [ALERT meaning "alarm", representing in meantime the acronyms of Albanian Epidemiological Reporting Tool.].

There are 9 syndromes under Alert system, namely *diarrhoea without blood, diarrhoea with blood, upper respiratory infection, lower respiratory infection, rash with fever, jaundice, haemorrhage with fever, suspected meningitis, unexplained fever.*

Data flow structure of the Alert System implies the weekly mandatory notification from the basic level (data sources) the national one (DE of IPH) of the surveillance system through the local level (district epidemiological service). Reported (according to person characteristics and place for each of 9 above-mentioned syndromes) are presented in the Alert weekly Form.

5.4. FLOW CHART OF THE COLLECTED DATA IN EACH STATUTORY NOTIFICATION SYSTEM

The collected data in each statutory reporting system (MDBSS, AFP reporting system, Measles-Rubella reporting system, laboratory reporting system, Alert System) follows the same flow chart (schematically given below):



Actually all but data sources are public ones. Anyhow the private health services are by law under the mandatory notification concerning the epidemiological surveillance of infectious diseases.

5.5. DATA STORAGE AND HANDLING

5.5.1. LOCAL LEVEL: DISTRICT EPIDEMIOLOGICAL SERVICE

Paper form still represents the main form of data storage at local level. Recently by the WHO support in the framework of Alert system implementation (year 2000) throughout Albania, computers are available in all district epidemiological services, what makes possible the computer diskette's and/or CD's of data storage parallel with the paper form storage.

Data handling includes data collection, check, aggregation and analysis in order to produce the weekly Alert Form, the monthly 14/Sh Form, as well as six-monthly and yearly epidemiological report (number of cases and incidence according to person-place-time) which should be sent to the IPH (DEB). The recently computers' availability makes possible data analysis through EPIINFO, ALERT and EXCEL statistical packages and data and reports sending to the IPH through electronic post (e-mail).

5.5.2. CENTRAL (NATIONAL) LEVEL: IPH

Data storage is carried out both in paper form and electronic facilities (diskettes, CDs).

Concerning data handling, the IPH represents the National Database Manager dealing at country (national) level with:

- data collection,
- data check and initial entry,
- data editing,
- data analysis,
- report generation (monthly Epidemiological Bulletin as well as Special Reports),
- reports dissemination (feedback loop).

6. EPIDEMIOLOGY OF INFECTIOUS DISEASES IN ALBANIA: FACTS AND TRENDS

Which is the epidemiological situation of infectious diseases in Albania? Which are the patterns of their occurrence over time (trends) and in space (geographical distribution)?

There are only the data of epidemiological surveillance of infectious diseases, which, answering the above questions are able to form a detailed picture of infectious diseases epidemiology in Albania. Epidemiological transversal studies (surveys), carried out by the Institute of Public Health (IPH), provide further detailed account of such an epidemiological picture.

We are going to develop this long chapter, (essentially representing the core of this material), collecting infectious diseases into various groups according to their nature, namely:

- DIARRHOEAL DISEASES (WATERBORNE, FOODBORNE, ETC);
- 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 (OF VETERINARY CONTROL AND PREVENTION NATURE);
- INFECTIOUS DISEASES WITH NATURAL FOCI;
- PARASITIC INFECTIOUS DISEASES;
- SEXUALLY TRANSMITTED INFECTIONS (STIS) AND HIV/AIDS;
- and others.

Such a structuring of this chapter would help for a better presentation of its content.

It should be underlined that the availability of epidemiological surveillance data dates from the year 1990 for all infectious diseases of existing mandatory reporting system of Albania, what defines the period 1990-2001 for the comparative analysis of their incidence rates over time, though for a lot of them the data availability dates from the year 1960.

It should also be stressed that we have taken two consecutive two-year periods, namely 1995-1996 and 2000-2001, for comparative analysis of incidence rates in space (mapping according to country districts) of infectious diseases.

6.1. INFECTIOUS DISEASES IN GENERAL
(*TABLE 1*, *GRAPH 1*)

Respiratory infections are the most common infectious diseases, followed by diarrhoeal diseases; parasitic infectious diseases occupy the third place in the total morbidity pattern of infectious diseases, (*TABLE 1*, *GRAPH 1*). Those are three main groups of infectious diseases in Albania, often related to poor living conditions and to environmental health as well.

TABLE 1 AND GRAPH 1
TABLE 1

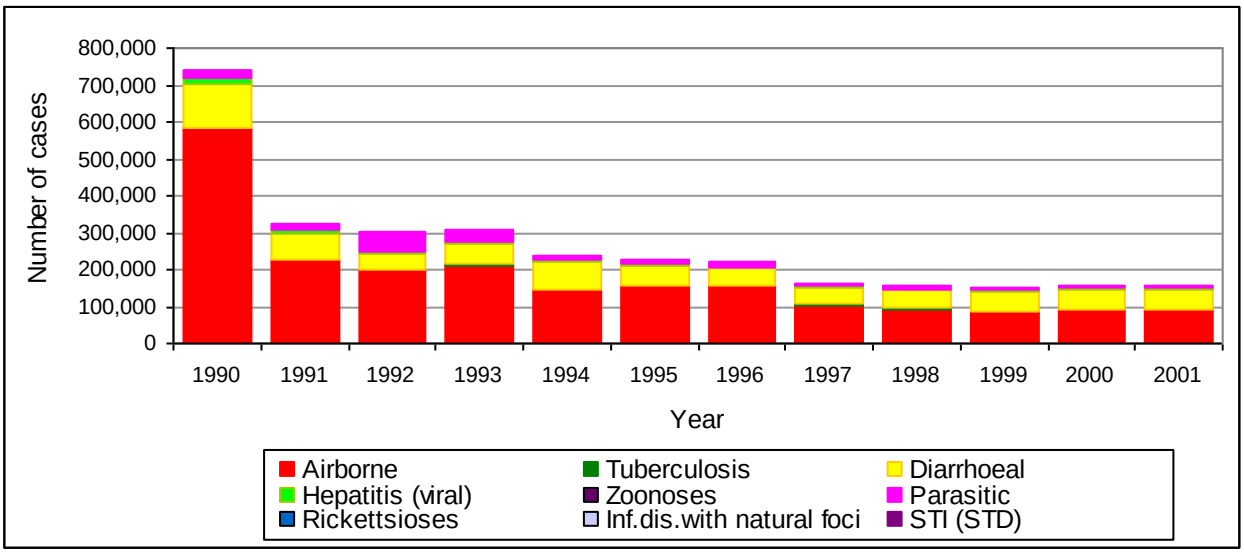
ALBANIA:
INFECTIOUS DISEASES (TOTAL):
ANNUAL FREQUENCY (NUMBER OF REPORTED CASES)
and **RESPECTIVE ANNUAL INCIDENCE (CASES PER 100,000 POPULATION)**
OVER THE PERIOD 1990-2001

YEAR	AIRBORNE	TBC	DIARRHOEAL	HEPATITIS	ZOONOSIS	PARASITIC	RICKETTS.	NAT.FOCI	STI
Number of reported cases									
1990	583,332	653	121,340	11,291	415	24,214	22	18	130
1991	227,450	628	71,222	6,814	232	18,616	16	1	131
1992	198,061	530	44,926	4,576	278	56,593	14	9	98
1993	213,410	636	57,782	5,255	209	30,734	21	17	145
1994	148,072	547	70,764	7,624	374	13,043	23	28	61
1995	154,722	664	54,875	3,973	410	12,906	21	15	35
1996	154,692	707	49,875	2,035	335	14,774	15	18	21
1997	104,887	655	46,713	1,990	328	9,488	6	10	27
1998	94,227	694	48,585	4,061	781	6,508	31	7	49
1999	86,758	765	54,177	5,735	636	4,843	30	4	34
2000	93,016	700	53,129	2,973	728	5,108	20	0	31
2001	93,708	733	53,122	1,760	917	4,447	48	6	43
Incidence (cases/100,000)									
1990	18,197.5	20.4	3,784.9	352.2	12.8	755.3	0.7	0.55	4.1
1991	7,044.2	19.5	2,221.6	208.4	7.1	576.5	0.5	0.03	4.1
1992	6,025.1	16.1	1,366.6	139.2	8.5	1,721.6	0.4	0.29	3.1
1993	6,491.8	19.3	1,757.7	159.9	6.4	934.9	0.6	0.53	4.4
1994	4,504.3	16.6	2,152.7	222.1	11.4	396.8	0.7	0.84	1.8
1995	4,706.6	20.2	1,669.5	120.9	12.4	392.6	0.6	0.42	1.1
1996	4,705.6	21.5	1,517.2	61.9	10.2	449.4	0.5	0.51	0.6
1997	3,190.7	19.9	1,421.1	60.5	9,9	288.6	0.2	0.3	0.8
1998	2,866.7	21.1	1,479.3	123.5	23.7	197.9	1.1	0.23	1.5
1999	2,639.1	23.3	1,649.5	174.5	19.3	147.3	0.9	0.12	1.1
2000	2,829.5	21.3	1,618.8	90.5	22.2	155.4	0.6	0	0.9
2001	2,850.6	22.3	1,616.1	53.5	27.8	135.3	1.5	0.18	1.3

The total occurrence shows a slight decreasing trend during the period 1992-2001; the conspicuously high frequency (number of cases) and incidence rate (cases per 100,000 population) in 1990 is related to influenza epidemic of 1989-1990 in Albania, (*TABLE 1*, *GRAPH 1*). Such a slight decreasing trend might be a real one, though there is room to emphasize the role of a simultaneous increasing trend of underreporting rates (false negativity rates) in the surveillance system.

GRAPH 1

INFECTIOUS DISEASES (TOTAL):
ANNUAL FREQUENCY (NUMBER OF REPORTED CASES)
OVER THE PERIOD 1990-2001



6.2. DIARRHOEAL DISEASES

(*TABLES 2, 3, 4*)
(*GRAPHS 2, 3, 4, 5, 6, 7, 8*)
(*MAPS 1, 2*)

6.2.1. DIARRHOEAL DISEASES IN GENERAL

(*TABLES 2, 3*)
(*GRAPHS 2, 3, 4, 5*)
(*MAP 1*)

In the annual frequency (number of cases) and incidence rate (cases per 100,000 population) of Diarrhoeal Diseases during the period from 1970 till 2001, the UNSPECIFIED GASTROENTERITIS (ICD-9 008/558.9) occupies the first place: most of cases with diarrhoeal infection/disease are reported as unspecified

gastroenteritis in our mandatory surveillance system (MDBSS) of infectious diseases, (*TABLE 2*, *GRAPHS 2*, *3*). This, because it is quite understandable the impossibility of routine laboratory confirmation of a case with diarrhoeal disease where the clinical diagnosis excludes the presence of a typhoid-paratyphoid fever and/or a non-typhoid salmonellosis (in the context of a diarrhoea without blood syndrome) or a shigellosis and/or an amoebiasis (in the context of a diarrhea with blood syndrome).

TABLE 2

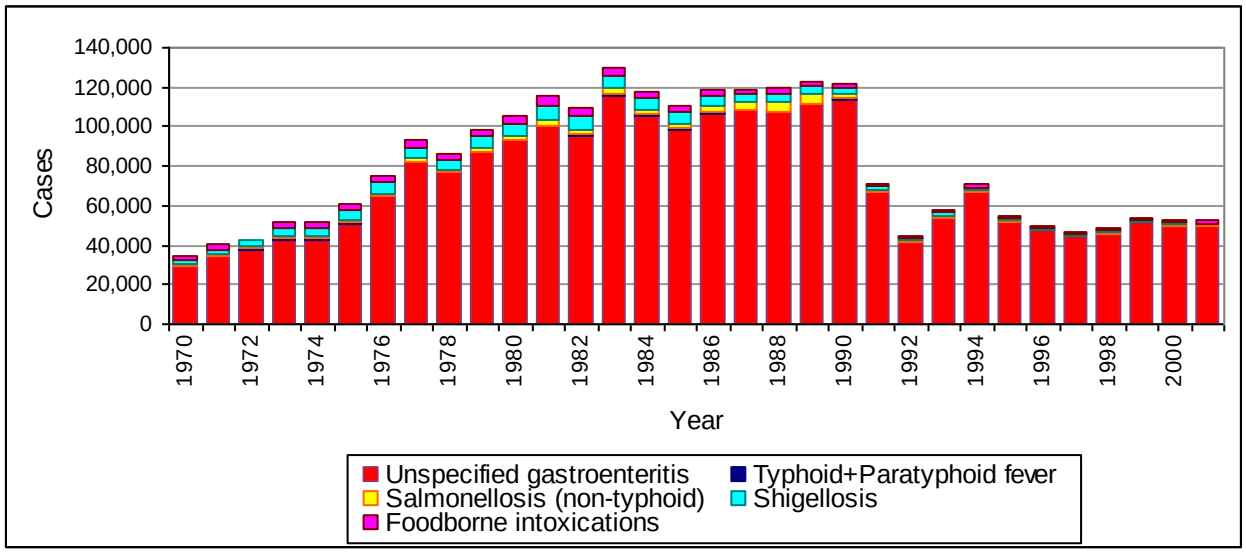
DIARRHOEAL DISEASES OVER THE PERIOD 1970-2001 [EXCEPT CHOLERA EPIDEMIC IN 1994] (ANNUAL FREQUENCY AND INCIDENCE PER 100,000 POPULATION)

YEAR	TYPHOID FEVER + PARATYPHOID FEVER ICD-9 002.0-002.9		SALMONELLOSIS (NON-TYPHOID) ICD-9 003		SHIGELLOSIS (BACILLARY DYSENTERY) ICD-9 004		FOODBORNE INTOXICATIONS ICD-9 005/008		AMOEBIASIS (AMOEBIC DYSENTERY) ICD-9 006		UNSPECIFIED GASTROENTERITIS ICD-9 008/558.9		DIARRHOEAL DISEASES (TOTAL)	
	FREQ.	INCID. /10^5	FREQ.	INCID. /10^5	FREQ.	INCID. /10^5	FREQ.	INCID. /10^5	FREQ.	INCID. /10^5	FREQ.	INCID. /10^5	FREQ.	INCID. /10^5
1970	222	10.4	1,186	55.5	2,445	114.5	1,713	80.2	NA		29,053	1,360.4	34,619	1,621.0
1971	251	11,5	1,095	50.0	2,546	116.4	2,615	119.5	NA		34,150	1,560.8	40,657	1,858.2
1972	269	12.0	1,122	50.0	2,969	132.4	2,390	106.6	NA		38,006	1,695.1	44,756	1,996.1
1973	237	10.3	1,204	52.4	4,142	180.4	3,250	141.5	NA		43,002	1,872.8	51,835	2,257.5
1974	624	26.5	1,023	43.5	4,269	181.6	2,716	115.5	NA		43,063	1,832.4	51,695	2,199.6
1975	271	11.2	1,498	62.3	5,285	219.8	3,100	128.9	NA		51,091	2,124.5	61,245	2,546.7
1976	221	8.9	1,328	53.9	5,435	221.1	3,336	135.6	NA		64,646	2,629.4	74,966	3,049.1
1977	291	11.5	1,331	52.6	5,945	235.1	3,429	135.6	NA		82,120	3,247.6	93,116	3,682.5
1978	218	8.4	1,064	41.3	4,913	190.5	2,915	113.0	NA		76,633	2,971.8	85,743	3,325.1
1979	252	9.6	1,904	72.7	5,958	227.4	3,686	140.7	NA		87,065	3,324.0	98,865	3,773.4
1980	475	17.8	1,260	47.1	6,167	230.8	4,141	155.0	NA		93,280	3,491.3	105,323	3,942.0
1981	307	11.3	2,908	106.7	7,158	262.6	4,806	176.3	NA		100,426	3,684.9	115,605	4,241.9
1982	261	9.4	2,668	95.9	6,731	241.9	3,786	136.1	NA		95,698	3,439.0	109,144	3,922.2
1983	470	16.5	3,615	127.2	6,287	221.3	3,736	131.5	NA		115,803	4,075.7	129,911	4,571.3
1984	326	11.2	2,640	91.0	5,782	199.3	3,264	112.5	NA		105,759	3,645.9	117,771	4,060.1
1985	310	10.4	2,778	91.1	6,019	203.2	2,476	83,6	NA		98,768	3,327.6	110,351	3,725.3
1986	174	5.7	3,638	120.4	5,403	178.8	2,583	85.5	NA		106,876	3,536.7	118,674	3,890.1
1987	425	13.8	3,473	112.7	4,310	139.8	2,345	76.1	NA		108,300	3,513.2	118,853	3,855.5
1988	180	5.7	4,675	148.7	4,617	146.9	2,489	79.2	NA		107,247	3,412.6	119,208	3,793.2
1989	125	3.9	4,831	151.0	4,390	137.2	1,470	48.9	NA		111,456	3,483.0	122,272	3,814.1
1990	97	3.0	2,612	81.5	3,266	101.8	1,309	40.8	NA		114,056	3,558.6	121,340	3,784.9
1991	102	3.1	1,369	41.6	1,789	54.4	1,156	35,8	NA		66,806	2,032.3	71,222	2,221.6
1992	141	4.2	800	24.3	1,188	36.1	1,160	35.2	NA		41,637	1,266.6	44,926	1,366.6
1993	120	3.6	869	26.4	1,564	47.5	1,182	35.9	NA		54,047	1,644.1	57,782	1,757.7
1994	109	3.3	937	28.5	1,939	58.9	1,323	40.2	0	0	66,456	2,021.6	70,764	2,152.7
1995	54	1.6	816	24.8	1,268	38.6	745	22.7	5	0.1	51,992	1,581.6	54,880	1,669.5
1996	67	2.0	853	25.9	1,062	32.3	696	21.2	0	0	47,197	1,435.8	49,875	1,517.2
1997	34	1.0	549	16.7	1,028	31.3	742	22.6	0	0	44,360	1,349.5	46,713	1,421.0
1998	44	1.3	735	22.4	825	25.1	1,169	35.6	45	1.4	45,812	1,393.6	48,630	1,479.3
1999	12	0.4	389	11.8	807	24.5	1,181	35.9	48	1.5	51,788	1,575.4	54,225	1,649.5
2000	31	0.9	388	11.8	734	22.3	1,837	55.9	21	0.6	50,139	1,525.3	53,150	1,618.8
2001	23	0.7	407	12.4	885	26.9	1,987	60.4	4	0.1	49,820	1,515.5	53,126	1,616.1

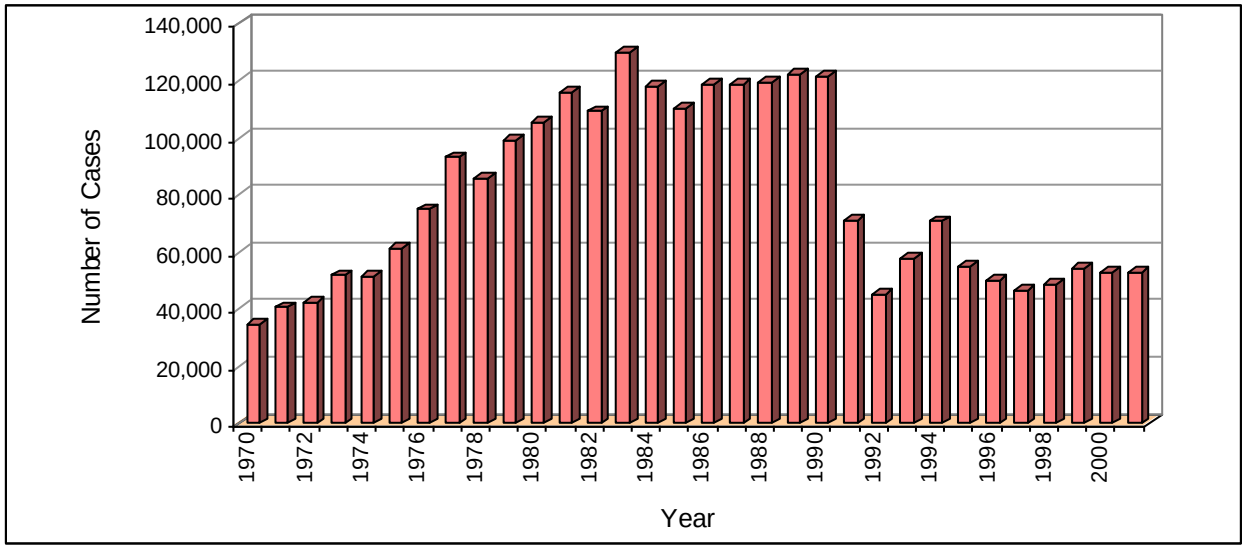
GRAPHS 2 AND 3

GRAPH 2

DIARRHOEAL DISEASES
(EACH OF THEM SEPARATELY [GRAPH 2] AND IN GENERAL [GRAPH 3]):
ANNUAL FREQUENCY (NUMBER OF CASES) OVER THE PERIOD 1970-2001



GRAPH 3

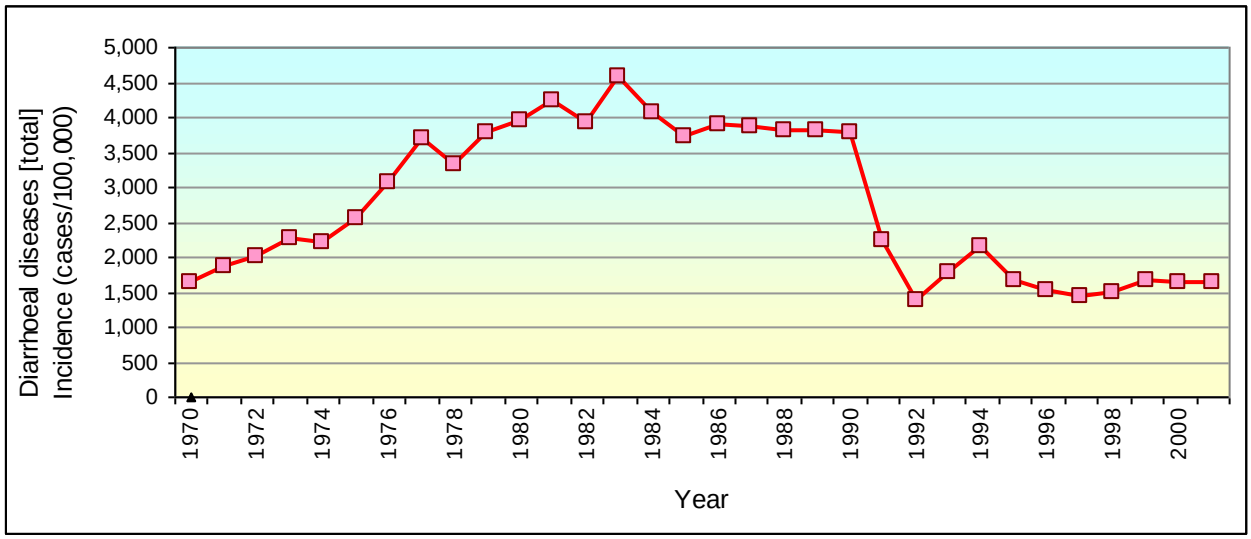


Though the annual incidence rates (cases/10^5) of diarrhoeal diseases over the period 1991-2001 are much lower compared to those of the preceding period 1970-1990, they do not show any decreasing trend: the obtained annual figures

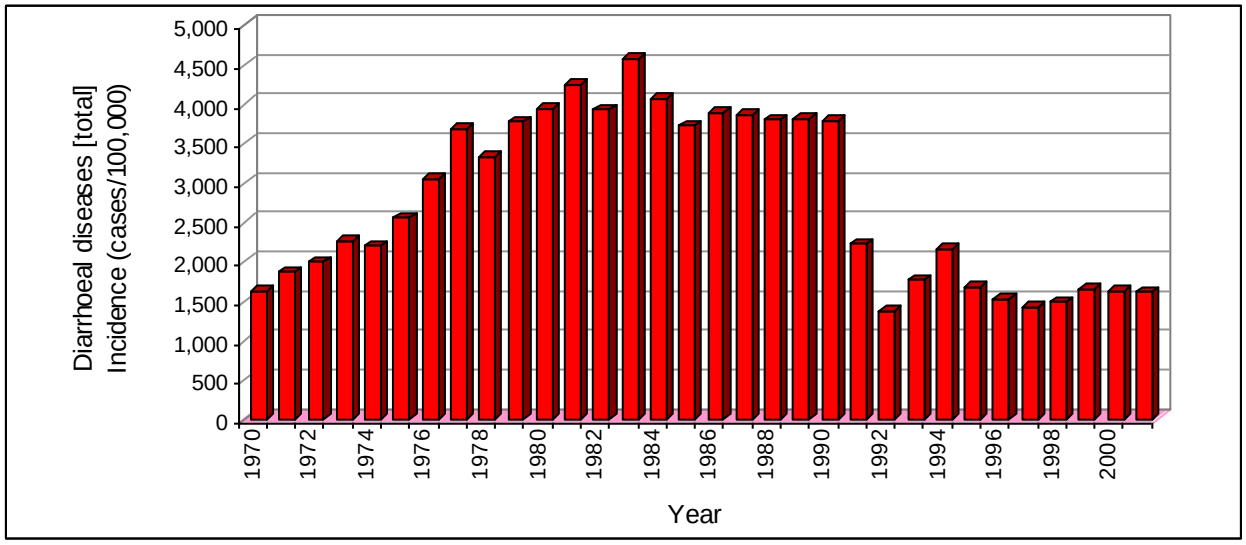
during 1991-2001 oscillate around the rate 1,500-1,600 cases per 100,000 population, (*GRAPHS 4, 5*).

GRAPHS 4 AND 5
GRAPH 4

DIARRHOEAL DISEASES:
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION) OVER THE PERIOD 1970-2001



GRAPH 5



The age-specific morbidity of diarrhoeal diseases shows the highest incidence among age groups <1 and 1-4 years old: they represent respectively 33-34% and 27-28% of the total annual reported cases with diarrhoeal diseases. The age-

group 5-14 years old occupy the third place, representing 12-13% of the total annual reported cases. That is, three out of four reported cases with diarrhoeal diseases belong to the age groups 0-14 years old. The existing highest morbidity rates of diarrhoeal diseases among infants and children demonstrate, along with improper sanitary-hygienic conditions, the crucial role of an inadequate health education level of mothers.

Geographical distribution of diarrhoeal diseases in Albania (*TABLE 3* and *MAP 1*) points out the existence of "hot" zones, that is districts of the highest incidence rates in the two consecutive two-year periods 1995-1996 and 2000-2001, like Berat, Kuçove, Tirane, Durres, Kavaje, Peqin, Elbasan, Librazhd, Pogradec, Korçe, Devoll, Kolonje, Shkoder, Lezhe, Laç, and Mat. Meanwhile, there are districts showing in a more or less steady way low incidence rates of diarrhoeal diseases, like Sarande, Delvine, Gjirokaster, Tepelene, Permet, Fier, Mallakaster, Gramsh, Skrapar, Tropoje, Puke and Mirdite.

TABLE 3 AND MAP 1

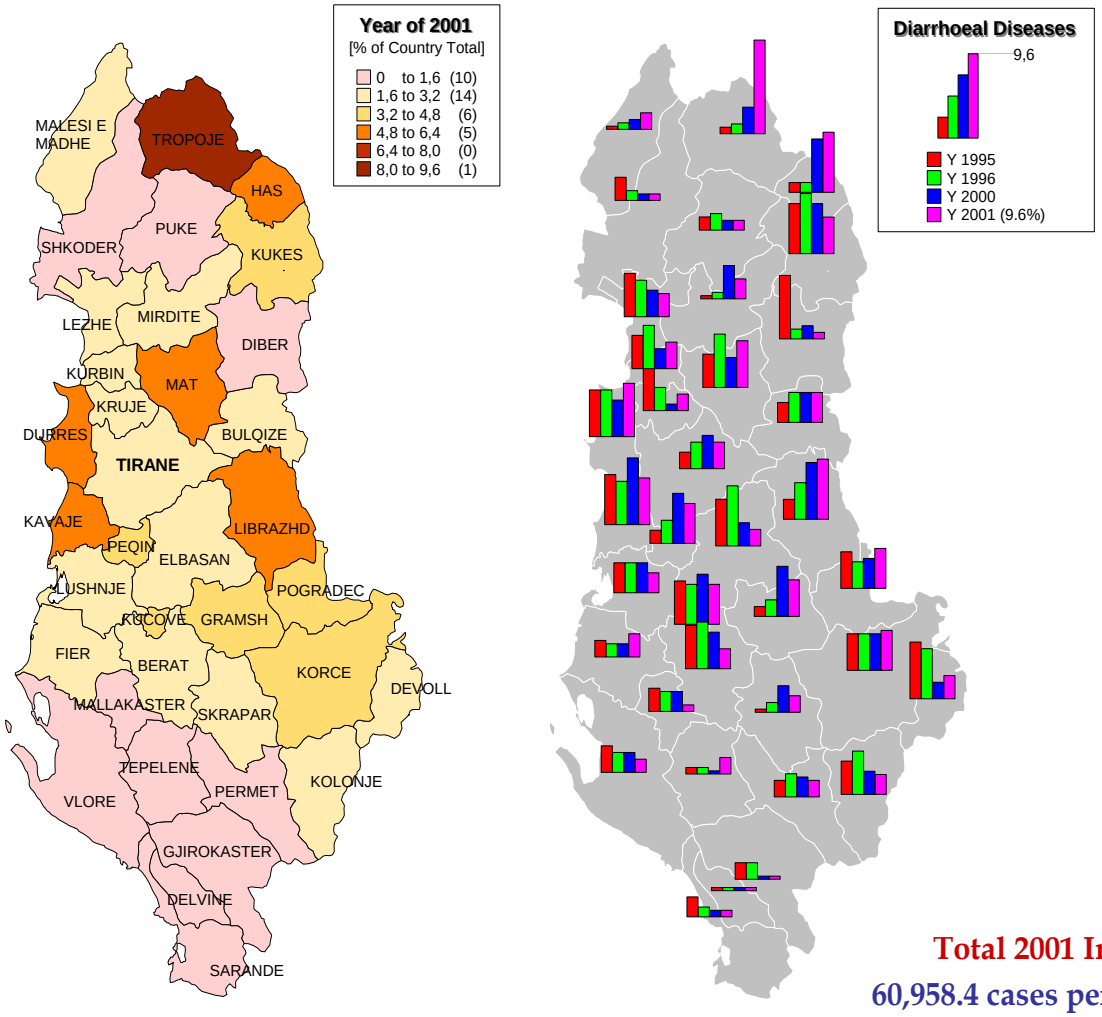
TABLE 3

DIARRHOEAL DISEASES [TOTAL] OCCURRENCE IN SPACE:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 1995-1996 AND 2000-2001

No	DISTRICT	INCIDENCE: CASES PER 100,000 POPULATION			
		1995	1996	2000	2001
1	BERAT	2,419.7	2,719.5	2,238.2	1,179.3
2	BULQIZE	1,139.9	1,681.2	1,897.6	1,915.4
3	DELVINE	170.1	121.7	138.8	162.4
4	DEVOLL	3,048.8	2,809.4	1,051.0	1,449.4
5	DIBER	3,510.1	592.8	706.9	449.9
6	DURRES	2,579.7	2,631.2	2,294.6	3,255.1
7	ELBASAN	2,501.2	3,459.8	1,472.3	1,044.9
8	FIER	943.6	713.7	801.5	1,365.0
9	GRAMSH	537.5	952.4	3,039.5	2,386.0
10	GJIROKASTER	893.4	953.6	122.7	162.1
11	HAS	562.8	621.2	3,288.7	3,825.3
12	KAVAJE	2,681.2	2,420.7	3,954.5	2,928.4
13	KOLONJE	1,839.9	2,478.8	1,337.4	1,316.7
14	KORÇE	1,972.4	2,180.3	2,164.6	2,441.7
15	KRUJE	2,931.7	1,409.6	424.5	1,014.1
16	KUÇOVE	2,368.8	2,241.3	3,004.8	2,510.4
17	KUKES	2,750.3	3,538.7	2,973.9	2,366.8
18	LAÇ	1,918.6	2,521.4	1,297.2	1,729.0
19	LEZHE	2,381.2	2,169.8	1,595.3	1,410.2
20	LIBRAZHD	1,119.6	2,131.3	3,332.2	3,769.3
21	LUSHNJE	1,581.3	1,791.1	1,711.3	1,275.9
22	MALESI E MADHE	242.4	321.3	672.8	999.4
23	MALLAKASTER	1,261.2	1,219.8	1,162.7	354.6
24	MAT	1,911.4	3,060.1	1,884.1	3,007.3
25	MIRDITE	155.8	287.5	1,928.3	1,275.9
26	PEQIN	781.4	1,421.3	3,064.9	2,411.7
27	PERMET	882.7	1,309.8	1,237.7	967.1
28	POGRADEC	2,059.6	1,590.0	1,865.2	2,404.6
29	PUKE	711.7	922.5	675.9	593.6
30	SARANDE	1,021.1	665.4	422.5	378.3
31	SKRAPAR	243.8	642.9	1,524.8	993.6
32	SHKODER	1,229.6	647.3	366.0	315.4
33	TEPELENE	362.5	368.9	263.9	960.1
34	TIRANE	875.2	1,521.1	1,932.2	1,692.5
35	TROPOJE	351.7	532.6	1,623.5	5,802.9
36	VLORE	1,460.3	1,179.8	1,175.1	844.1

MAP 1

DIARRHOEAL DISEASES [TOTAL] OCCURRENCE IN SPACE:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 2001 (LEFT MAP) AND
IN 1995-1996 AND 2000-2001 (RIGHT MAP)



Total 2001 Incidence
60,958.4 cases per 100,000 population

[Interpretation of Map 1:

Left map – The incidence rate of each district is divided by the sum of incidence rates of all country districts for the year 2001 (namely 60,958.4/100,000) and multiplied by 100. The obtained figure (percentage) represents the relative district contribution in respect to the country incidence of diarrhoeal diseases for the year 2001. These district percentages, i.e. relative district contributions to the country incidence are mapped. The brackets in the legend present the number of districts with incidence in the same percentage range.

For example, Tropoja's incidence is 5,802.9 cases/100,000.
100 x 5,802.9/60,958.4 = 9.52 %.
In other words, Tropoja itself counts for 9.52 % of the total (country) incidence for the year 2001.

Right map – Annual (1995, 1996, 2000 and 2001) incidence percentage normalized by the maximum incidence percentage in 2001.

For example, Has has 4-5 times increased incidence in 2000 and 2001 relative to incidences in 1995, 1996.

Size of the bars in one color represents the relation between annual incidences for that particular year, thus the interpretation is the same as for the left map.

The above interpretation of the Map 1 serves for all the following maps in this material.]

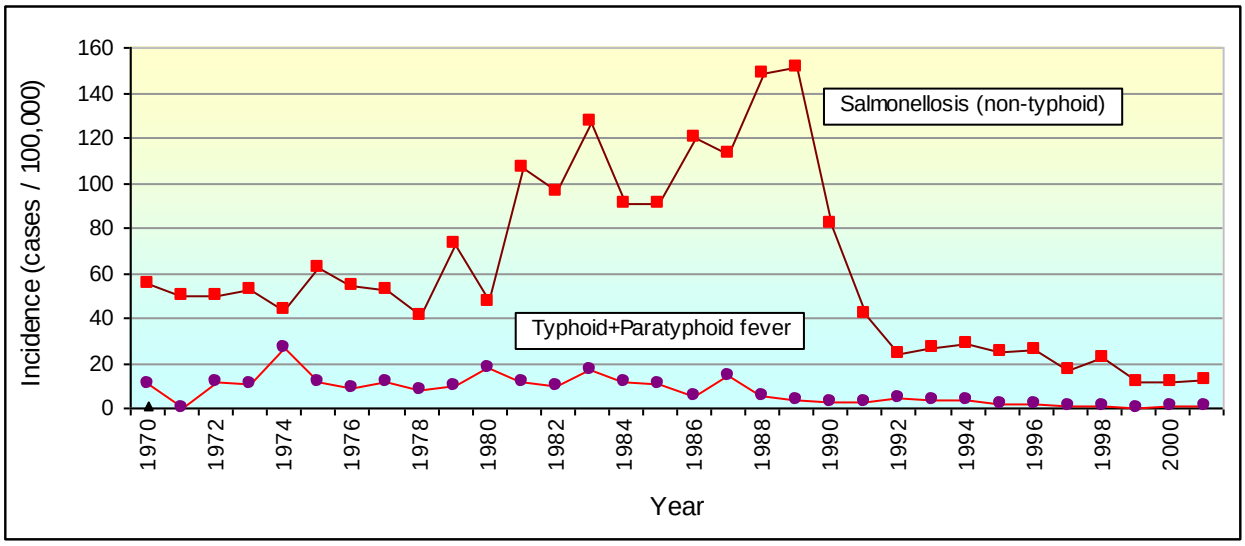
6.2.2. TYPHOID AND PARATYPHOID FEVERS AND NON-TYPHOID SALMONELLOSES (WATER-BORNE DIARRHOEAL DISEASES)

(*TABLES 2, 4*)
(*GRAPH 6*)
(*MAP 2*)

TYPHOID AND PARATYPHOID FEVERS (ICD-9 002.0-002.9) and NON-TYPHOID SALMONELLOSES (ICD-9 003) represent, along with CHOLERA (ICD-9 001), the most important water-borne diarrhoeal diseases from the public health impact point of view. This is the reason why we are going to separate them in our analysis, though a major part of unspecified gastroenteritides (such as those caused by rotaviruses, etc) is of a water-borne nature of transmission and occurrence.

GRAPH 6

TYPHOID AND PARATYPHOID FEVER AND NON-TYPHOID SALMONELLOSIS (WATER-BORNE DIARRHOEAL DISEASES): ANNUAL INCIDENCE (CASES PER 100,000 POPULATION) OVER THE PERIOD 1970-2001



The annual frequency (number of cases) and incidence rates (cases/10^5) of typhoid and paratyphoid fevers occurrence during the period from 1990 onwards are lower and much lower (1995-2001) compared to those of the preceding years (1970-1989). Non-typhoid salmonelloses show a similar decreasing trend, of an exponential nature during the years 1990-1992 (compared to the preceding years), with a further slight decreasing though oscillating trend during the period 1993-2001, (*TABLE 2*, *GRAPH 6*).

TABLE 4 AND MAP 2

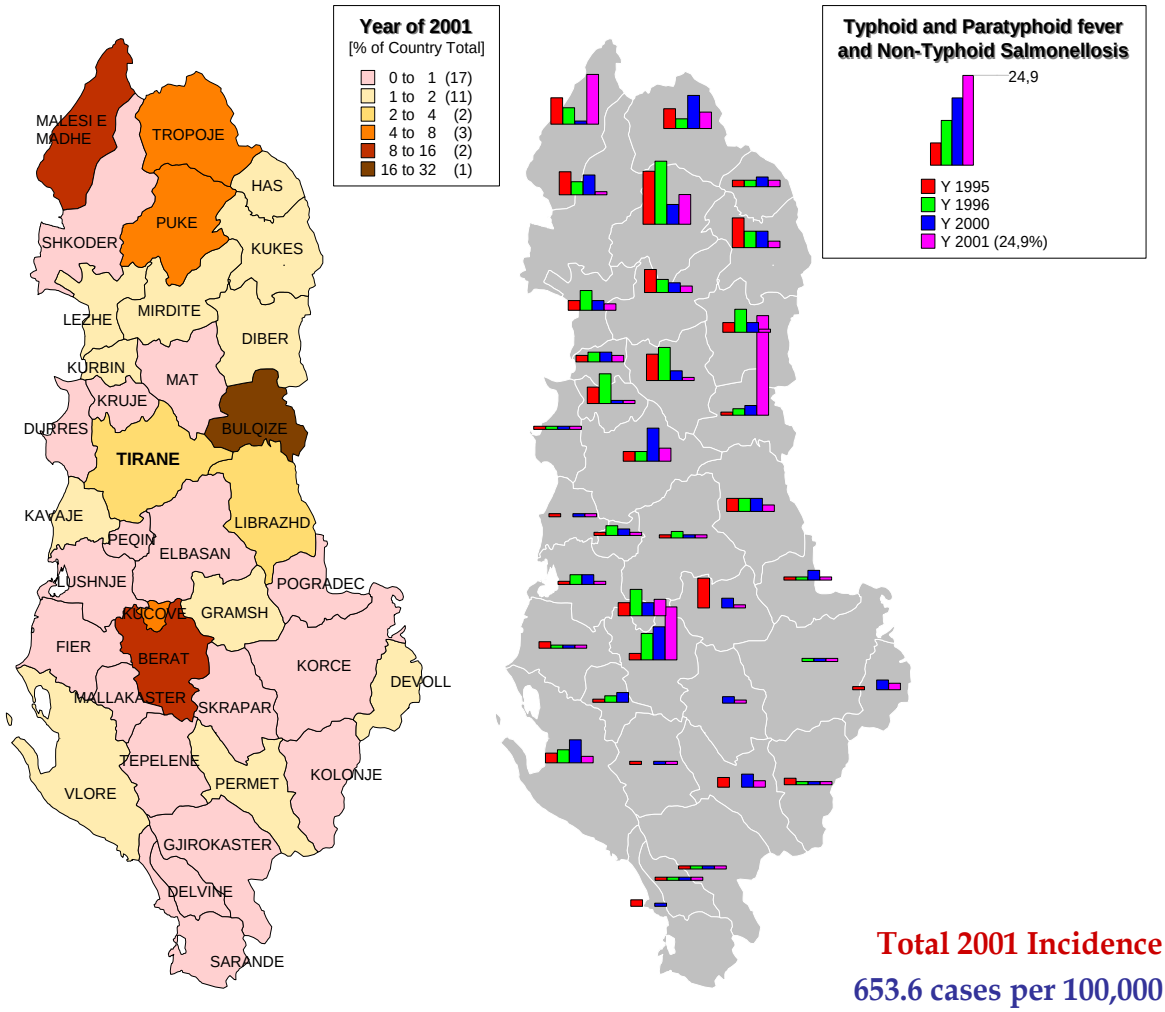
TABLE 4

TYPHOID AND PARATYPHOID FEVER AND NON-TYPHOID SALMONELLOSIS [WATER-BORNE DIARRHOEAL DISEASES]: GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS) IN 1995-1996 AND 2000-2001

No	DISTRICT	INCIDENCE: CASES PER 100,000 POPULATION			
		1995	1996	2000	2001
1	BERAT	15.4	66.9	36.8	87.5
2	BULQIZE	9.9	17.9	12.0	162.9
3	DELVINE	6.9	6.9	4.1	4.8
4	DEVOLL	5.6	2.8	9.8	8.5
5	DIBER	28.6	64.2	9.9	7.9
6	DURRES	7.4	11.1	5.0	5.6
7	ELBASAN	4.6	14.2	4.6	2.8
8	FIER	18.7	11.5	2.4	3.7
9	GRAMSH	82.8	2.3	9.2	7.8
10	GJIROKASTER	4.7	7.8	4.7	4.7
11	HAS	19.7	14.8	9.9	10.7
12	KAVAJE	4.5	3.4	4.1	7.3
13	KOLONJE	16.6	8.3	4.1	4.6
14	KORÇE	3.0	5.4	3.2	3.9
15	KRUJE	42.1	80.8	3.4	3.4
16	KUÇOVE	38.6	66.9	15.4	28.3
17	KUKES	81.0	41.2	17.8	11.0
18	LAÇ	17.7	23.0	8.8	12.8
19	LEZHE	24.3	54.6	12.1	10.4
20	LIBRAZHD	37.7	33.0	14.3	13.2
21	LUSHNJE	12.1	29.3	10.0	5.0
22	MALESI E MADHE	72.5	40.8	4.5	83.8
23	MALLAKASTER	4.7	14.1	10.7	2.3
24	MAT	74.0	90.6	10.5	6.1
25	MIRDITE	59.5	32.1	11.3	9.2
26	PEQIN	6.4	25.5	8.4	6.2
27	PERMET	22.5	2.8	13.6	9.1
28	POGRADEC	11.2	8.4	9.8	2.8
29	PUKE	138.1	167.1	19.4	50.9
30	SARANDE	16.4	1.6	4.3	2.7
31	SKRAPAR	2.3	2.3	6.2	3.8
32	SHKODER	59.6	33.7	22.1	4.8
33	TEPELENE	9.1	2.3	5.2	3.0
34	TIRANE	30.6	27.9	33.5	20.4
35	TROPOJE	54.1	24.6	36.7	28.9
36	VLORE	27.1	31.7	26.0	12.8

MAP 2

TYPHOID AND PARATYPHOID FEVER AND NON-TYPHOID SALMONELLOSIS
[WATER-BORNE DIARRHOEAL DISEASES]:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 2001 (LEFT MAP) AND
IN 1995-1996 AND 2000-2001 (RIGHT MAP)



Total 2001 Incidence
653.6 cases per 100,000 population

Spatial distribution of salmonellosis infections (typhoid-paratyphoid fever and non-typhoid salmonellosis) occurrence (incidence per 100,000 population) follows (*TABLE 4*, *MAP 2*) a more or less the same above-mentioned patterns of diarrhoeal diseases in general. Nevertheless, there are exemptions (few in fact) of an annual low diarrhoeal diseases occurrence in general, accompanied in the meantime with a conspicuous high incidence of the above-mentioned salmonelloses, like districts Gramsh (1995), Malesi e Madhe (1995-1996, 2001),

and Puke (1995-1996, 2000-2001). Such evidence GENERALIZES THE CASUAL POTENTIALITY OF WATER-BORNE DIARRHOEAL DISEASE OUTBREAKS IN ALBANIA BECAUSE OF QUANTITATIVELY AND QUALITATIVELY EVENTUAL IMPROPRIETIES OF POTABLE WATER INFRASTRUCTURE, (developed in details in the subchapter 7.1. "WATER AND SANITATION", see).

CHOLERA EPIDEMIC IN 1994 IN ALBANIA

Cholera epidemic in 1994 in Albania represents the most conspicuous and in the same time terrible example of the potential risk posed by water infrastructure.

The epidemic, consequence of cholera importation, was concentrated in 14 out of 36 country districts, namely Kuçove, Berat, Librazhd, Lushnje, Fier, Mallakaster, Kavaje, Durres, Tirane, Elbasan, Peqin, Pogradec, Korçe and Devoll.

The districts Kuçove, Berat and Librazhd (where the first cases appeared) showed the highest incidence rates.

A total of 1,748 cases was reported; 74.2% (1,297/1,748) of them was belonging to rural areas.

6.2.3. SHIGELLOSES

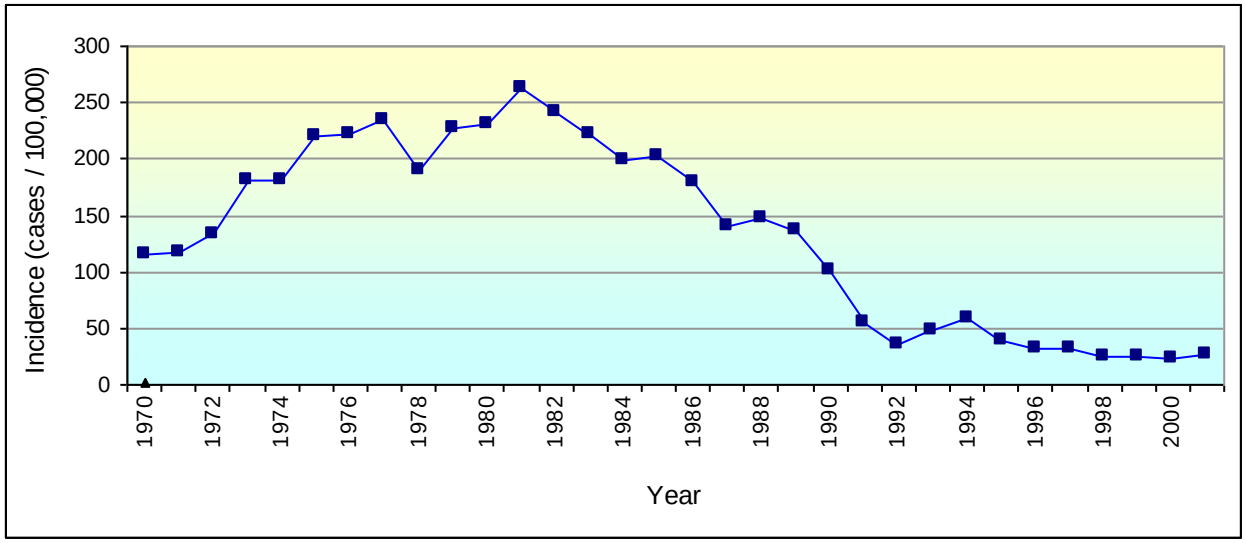
(*TABLE 2*, *GRAPH 7*)

The epidemiological surveillance data on SHIGELLOSES [BACILLARY DYSENTERY] (ICD-9 004) during the period from 1970 till 2001 concerning their annual frequency (number of cases) and incidence rate (cases per 100,000 population) are presented in details in *TABLE 2*. Their occurrence over time demonstrates a steadily decreasing trend from 1983-1984 till 1992, remaining more or less stable around the 1992's level during the next period 1993-2001, (*GRAPH 7*).

With regard to AMOEBIASIS [AMOEBIC DYSENTERY] (ICD-9 006) there are no data till the year 1994, which denotes the beginning of mandatory laboratory diagnosis at district level on *Entamoeba histolytica* (causative agent) as well (along with that routine on *Shigellae*) in each reported case with diarrhoea with blood infectious syndrome. The epidemiological surveillance data during the period 1994-2001 show a low annual number of reported cases (an average of 14-15 cases per year), (*TABLE 2*).

GRAPH 7

SHIGELLOSIS:
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1970-2001

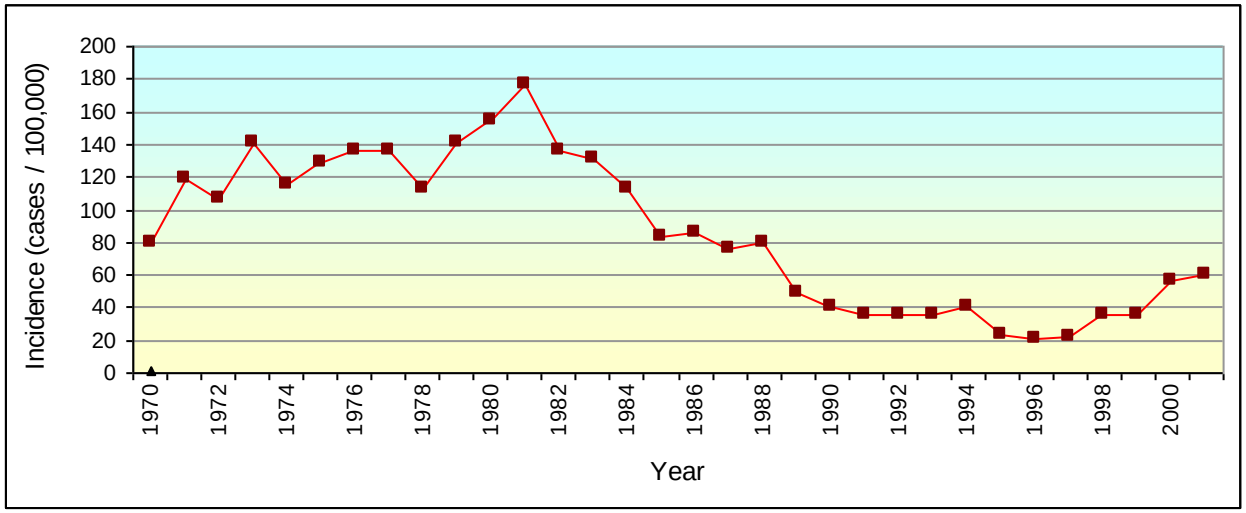


6.2.4. FOODBORNE INTOXICATIONS

(*TABLE 2*, *GRAPH 8*)

GRAPH 8

FOODBORNE INTOXICATIONS:
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1970-2001



The epidemiological surveillance data on FOODBORNE INTOXICATIONS [ALIMENTARY TOXICO-INFECTIONS] (ICD-9 004) during the period from 1970 till 2001 concerning their annual frequency (number of cases) and incidence rate (cases per 100,000 population) are presented in details in *TABLE 2*. Their occurrence over time demonstrates a consistently decreasing trend from 1982 till 1997, followed by a re-increasing one during the next period 1998-2001, (*GRAPH 8*). It should be stressed that most tests carried out by district microbiological laboratories have failed to provide a reliable and efficient monitoring system as regards the etiological agents in each reported outbreak of foodborne intoxications. (The respective data and conclusions on food safety control in Albania are developed in subchapter 7.4. "FOOD SAFETY", see).

6.3. VIRAL HEPATITIS

(*TABLES 5, 6*)
(*GRAPH 9*)
(*MAP 3*)

The 14/Sh Form of the statutory MDBSS (see the above-mentioned subchapter 5.1.) contains, along with the "Unspecified viral hepatitis", the three basic types of viral hepatitis ("Viral hepatitis A", "Viral hepatitis B", "Viral hepatitis C") as well. Nevertheless, the following data belong to the "Unspecified viral hepatitis" only, because of the impossibility (lack of diagnostic test kits) of routine virus type identification by district microbiological laboratories.

The available epidemiological surveillance data on viral hepatitis (acute, unspecified) covering the four-decade period 1960-2001, present a detailed picture on disease occurrence as annual frequency (number of reported cases) and incidence rate (cases/10^5), (*TABLE 5*). After a sharp decrease of disease occurrence during the years 1960-1962, the following three-decade period 1963-1990 demonstrate a stable trend with oscillations around an average annual incidence rate of 300 cases per 100,000 population. The last period 1991-2001 is characterized by a decreasing trend with big oscillations of annual incidence rates around an average level of 100 cases per 100,000 population, (*GRAPH 9*).

Urban areas constantly show a disease occurrence of around 1.5 times higher than rural areas.

The pediatric age groups (0-14 years old) occupy the major burden of disease: they represent 45-58% of the total annual cases, being followed by the age groups 15-34 years old with 27-31% of that total. It is important, however, to separately analyze the disease occurrence trend at the age group 0-4 years old within the groups 0-14 years of age, in relation to the introduction in 1995 of the mandatory

vaccination against viral hepatitis B of each new birth-cohort in our national calendar of immunization. While in 1995 the age group 0-4 years old constituted 22% of the total viral hepatitis reported cases, their "contribution" in the disease burden came constantly down in the following years, accounting for only 7% in 2001, what demonstrates a significant decreasing trend over time of age-specific incidence rates due to the vaccination effectiveness.

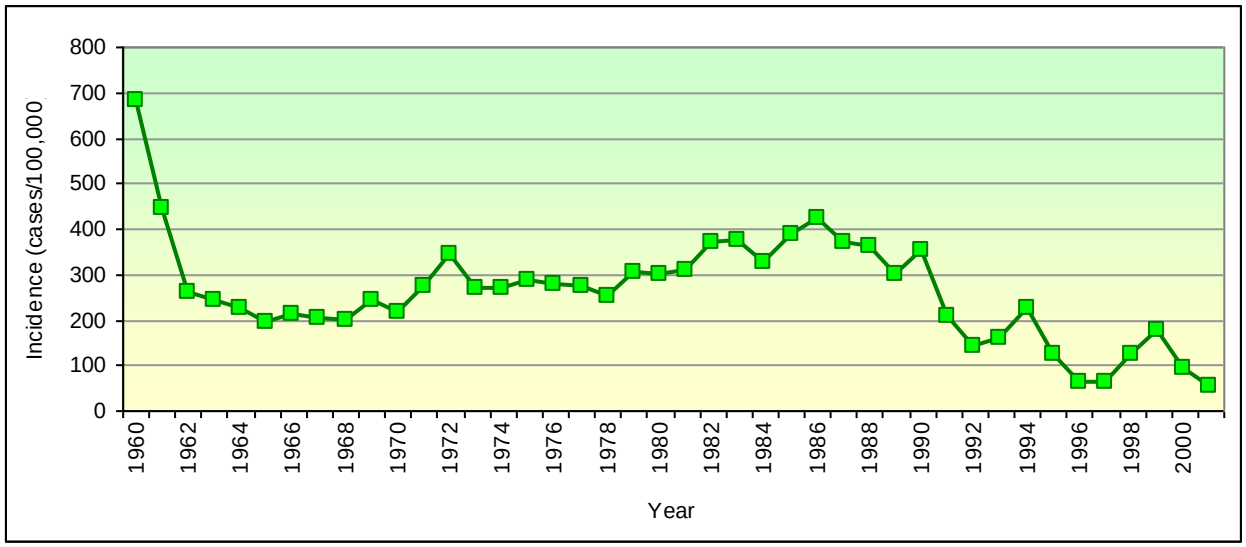
TABLE 5

HEPATITIS (ACUTE VIRAL, UNSPECIFIED):
ANNUAL FREQUENCY (CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001

YEAR	HEPATITIS, ACUTE VIRAL, UNSPECIFIED ICD-9 070	
	FREQUENCY	INCIDENCE (CASES/10^5)
1960	10,967	682.3
1961	7,368	443.7
1962	4,472	261.0
1963	4,290	242.9
1964	4,041	222.1
1965	3,647	194.9
1966	4,096	212.7
1967	3,993	201.8
1968	4,039	198.9
1969	4,998	239.8
1970	4,550	213.3
1971	5,935	271.2
1972	7,667	341.9
1973	6,201	270.0
1974	6,271	266.8
1975	6,890	286.5
1976	6,763	275.1
1977	6,901	272.9
1978	6,485	251.4
1979	7,909	301.8
1980	7,936	297.3
1981	8,422	309.1
1982	10,292	369.8
1983	10,656	375.0
1984	9,507	327.1
1985	11,468	387.1
1986	12,814	422.8
1987	11,387	368.9
1988	11,294	359.3
1989	9,530	297.3
1990	11,291	352.2
1991	6,814	208.4
1992	4,576	139.2
1993	5,255	159.9
1994	7,624	222.1
1995	3,973	120.9
1996	2,035	61.9
1997	1,990	60.5
1998	4,061	123.5
1999	5,735	174.5
2000	2,973	90.5
2001	1,760	53.5

GRAPH 9

HEPATITIS (ACUTE VIRAL, UNSPECIFIED):
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION) OVER THE PERIOD 1960-2001



Analyzing the spatial distribution (according to country districts) of viral hepatitis occurrence (incidence per 100,000 population) in two consecutive two-year periods 1995-1995-1996 and 2000-2001 (*TABLE 6*, *MAP 3*), we might draw the following conclusions:

- The incidence rates in 2000-2001 are generally lower than those in 1996 and especially in 1995.
- Only 7 (out of 36) country districts constantly show low incidence rates (<100 cases/10^5), namely Tirana (the biggest district) and Shkodra (a big one) and 5 small districts (Bulqize, Malesi e Madhe, Laç, Peqin and Delvine). The incidence rates in 1995-1996 and 2000-2001 vary in a range of 25-73 for Tirana, 8-42 for Shkoder, 12-58 for Bulqize, 16-71 for Malesi e Madhe, 25-88 for Laç, 22-63 for Peqin, and 18-88 for Delvine.
- All other districts demonstrate big oscillations of incidence rates in the above-mentioned two consecutive two-year periods. Kolonje district represents the most evident example: the incidence rates oscillate from 443 to 37 in 1996 and 1997 respectively and from 256 to 41 in 2000 and 2001 respectively. The same pattern, though more mitigated, is represented by other districts, showing oscillations of incidence rates from levels >150-200 (generally in 1995) to those <100 cases/10^5.

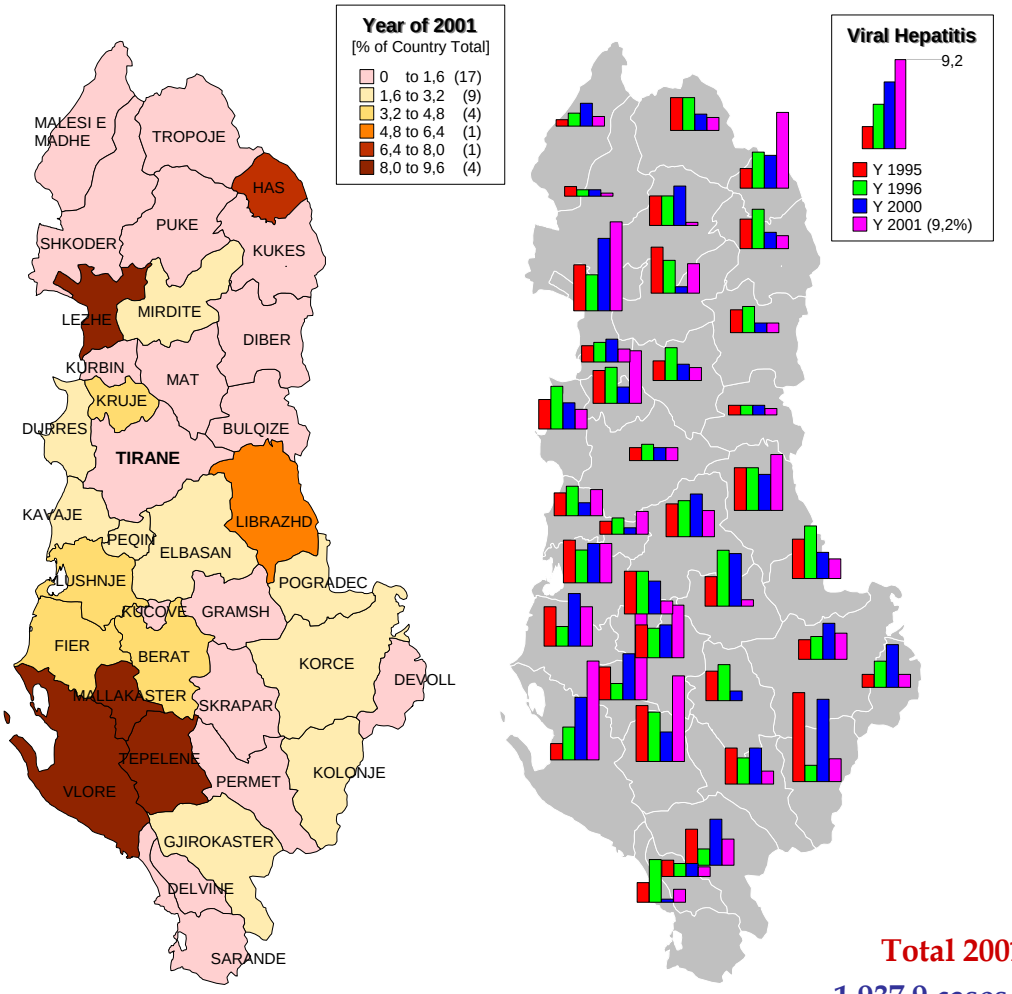
TABLE 6 AND MAP 3
TABLE 6

VIRAL HEPATITIS [TOTAL]:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS) IN 1995-1996 AND 2000-2001

No	DISTRICT	INCIDENCE: CASES PER 100,000 POPULATION			
		1995	1996	2000	2001
1	BERAT	166.1	73.3	102.2	92.6
2	BULQIZE	57.4	22.4	31.8	11.9
3	DELVINE	87.3	33.8	45.1	17.4
4	DEVOLL	65.8	62.1	135.6	22.6
5	DIBER	109.2	68.7	32.6	15.8
6	DURRES	148.7	107.0	79.4	34.4
7	ELBASAN	159.1	89.8	137.6	50.1
8	FIER	192.9	48.4	165.4	74.1
9	GRAMSH	154.5	137.3	163.4	13.8
10	GJIROKASTER	174.3	39.9	140.0	45.6
11	HAS	91.8	91.5	98.5	137.8
12	KAVAJE	113.4	69.4	38.6	45.4
13	KOLONJE	443.3	37.1	256.7	41.4
14	KORÇE	104.9	52.8	115.6	48.2
15	KRUJE	163.0	86.5	53.9	92.6
16	KUÇOVE	216.2	107.0	97.8	23.1
17	KUKES	144.1	99.3	54.9	23.3
18	LAÇ	87.7	45.9	67.2	24.7
19	LEZHE	224.5	86.6	219.9	157.7
20	LIBRAZHD	214.9	108.2	111.8	101.8
21	LUSHNJE	213.4	82.5	120.1	69.3
22	MALESI E MADHE	29.6	36.4	70.2	15.9
23	MALLAKASTER	168.2	44.2	143.3	176.2
24	MAT	103.2	78.7	51.3	25.7
25	MIRDITE	229.4	79.0	20.6	52.7
26	PEQIN	62.8	38.5	22.3	41.4
27	PERMET	181.5	68.2	112.8	25.3
28	POGRADEC	198.0	133.1	82.7	35.1
29	PUKE	153.2	69.8	123.5	4.8
30	SARANDE	105.7	109.1	13.1	24.5
31	SKRAPAR	145.3	93.0	32.6	2.3
32	SHKODER	41.3	16.7	19.0	7.9
33	TEPELENE	283.9	122.5	91.0	157.0
34	TIRANE	72.9	43.4	36.8	25.6
35	TROPOJE	165.2	77.2	46.7	22.1
36	VLORE	78.3	83.8	192.2	177.8

MAP 3

VIRAL HEPATITIS [TOTAL]:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 2001 (LEFT MAP) AND
IN 1995-1996 AND 2000-2001 (RIGHT MAP)



Total 2001 Incidence
1,937.9 cases per 100,000 population

The Institute of Public Health (IPH) has carried out several CROSS-SECTIONAL SERO-EPIDEMIOLOGICAL SURVEYS over the period 1992-2001 in order to define the immunological profiles of Albanian population towards A, B, C, D, and E viruses of viral hepatitis.

The conclusions drawn by those sero-prevalent studies might be summarized as follows:

- The total levels of anti-HAV IgG antibodies among the healthy population result to be over 90%. The levels increase with age from 35% in age-group 0-4 years old, to 72% in age groups 6-14 years old, reaching at >98% in the groups more than 20 years of age. Such results demonstrate an intense circulation of HEPATITIS A VIRUS (HAV) in Albania, what is not at all an unexpected outcome taking into account the faecal-oral route of infection transmission and the existing context of the country water infrastructure, that is the same features as for (water-borne) diarrhoeal diseases.

- Concerning HEPATITIS B VIRUS (HBV) markers, HBsAg shows positivity levels into a range from 8.5% to 13.5%, whereas the anti-HBs levels oscillate from 55% to 72% among the healthy population. Such obtained levels bear witness that Albania represents a European country of a high endemicity concerning HBV infection circulation, (WHO defines the HBV seropositivity levels 8% and more as the threshold indicator of a high endemicity).

  Meanwhile, the high seropositivity levels of anti-HBc (22% in pediatric ages and 47%-52% in healthy adults) and of HBeAg (12%-28% of HBsAg+ cases result to be HBeAg+) demonstrate the serious impact of HBV chronic form on the public health (related to its well-known grave outcomes like haepatic cyrrhosis and primary haepato-carcinoma).

- The prevalence of HEPATITIS C VIRUS (HCV) with anti-HCV levels at 1.0%-1.6% among the healthy population is also high, representing the same public health impact like HBV. Meanwhile, subjects with haemophylia and/or thalassemia show extremely high (63%) levels of HCV (anti-HCV).

- The high HBsAg seropositivity levels of 12-15% among healthy pregnant women (17% out of HBsAg+ resulting to be HBeAg+ also) demonstrate of a high potentiality of HBV vertical (materno-faetal) transmission in Albania.

- HEPATITIS E VIRUS (HEV) has shown levels 8%-10% (anti-HEV) among the healthy population.

- HEPATITIS D (DELTA) VIRUS (HDV) has not been found yet among the healthy population.

- On the basis of epidemiological surveillance data and the above-mentioned sero-survey results, the national policy of mandatory vaccination of infants against hepatitis B was instituted (from 1994 onwards) in Albania, as the most fruitful strategy for long-term control of hepatitis B in a country of a high HBV endemicity.

6.4. AIRBORNE INFECTIOUS DISEASES

(*TABLES 7*, *8*, *9*, *10*, *12*, *13*, *14*, *15*, *16*, *17*)
(*GRAPHS 10*, *11*, *12*, *14*, *15*, *16*, *17*, *18*, *19*, *20*, *21*)
(*MAPS 4*, *5*, *6*, *7*, *8*)

6.4.1. AIRBORNE INFECTIOUS DISEASES IN GENERAL

(*TABLES 7*, *8*)
(*GRAPHS 10*, *11*)

In airborne infectious diseases we are going to consider influenza, streptococcal infections, measles, rubella, mumps, pertussis, diphtheria, chickenpox, and meningitides, on the basis of the respective epidemiological surveillance data from the year:

- 1945 for measles,
- 1960 for diphtheria, pertussis, scarlet fever, and meningococcal meningitis,
- 1964 (starting year of data availability) for rubella,
- 1969 for influenza,
- 1990 (starting year of data availability) for erysipelas, mumps, chickenpox, and other meningitides.

It should be stressed that some of the above-mentioned diseases, namely diphtheria, pertussis, measles, and recently (2001) rubella, represent in themselves infectious diseases preventable-by-vaccination, that is subject of the next subchapter (6.5.) on infectious diseases of the National Programme on Immunization as well. While details on measles and rubella are developed in this subchapter, those of diphtheria and pertussis are presented together with tetanus (three-vaccine diphtheria-pertussis-tetanus, DPT) and poliomyelitis in the subchapter 6.5. (see!).

The epidemiological surveillance data of each above-mentioned airborne infectious diseases on respective annual frequency (number of cases) and incidence rate (cases per 100,000 population) are presented in detail in *TABLE 7*.

TABLE 8 is focused in the period 1990-2001, in which the data are available for all diseases in consideration, thus giving the opportunity for comparisons.

GRAPHS 10 and *11* aim at presenting the trend of frequency and incidence rate respectively, for airborne infectious diseases in total over the period 1990-2001.

There is evident that influenza (together with flu-like syndrome) has the main weight among other airborne infectious diseases for the annual number or reported cases.

TABLE 7

INFECTIOUS AIRBORNE DISEASES
[EACH OF THEM SEPARATELY]:
ANNUAL FREQUENCY (NUMBER OF CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001

YEAR	MEASLES		RUBELLA		MUMPS		PERTUSSIS		DIPHTHERIA	
	cases	/100,000	cases	/100,000	cases	/100,000	cases	/100,000	cases	/100,000
1960	0	0	ND		ND		3,501	217.8	402	25.0
1961	0	0	ND		ND		1,299	78.2	349	21.0
1962	0	0	ND		ND		3,876	226.2	323	18.8
1963	0	0	ND		ND		6,851	387.9	294	16.6
1964	0	0	7	0.4	ND		3,876	213.1	190	10.4
1965	0	0	2	0.1	ND		1,849	98.8	140	7.5
1966	0	0	10	0.5	ND		4,958	257.6	118	6.1
1967	0	0	1	0.05	ND		5,885	297.6	144	7.3
1968	0	0	223	11.0	ND		2,252	110.9	97	4.7
1969	0	0	3,676	176.5	ND		2,328	111.8	39	1.9
1970	48,158	2,293.0	6	0.3	ND		8,230	385.4	52	2.4
1971			2	0.09	ND		6,447	294.6	48	2.2
1972	0	0	37	1.60	ND		2,286	101.9	72	3.2
1973	0	0	4	0.17	ND		9,354	407.4	48	2.1
1974	0	0	12	0.5	ND		9,300	397.5	36	1.5
1975	0	0	4	0.16	ND		2,215	92.1	14	0.6
1976	0	0	1	0.04	ND		4,011	163.1	6	0.2
1977	0	0	2	0.08	ND		6,057	239.5	6	0.2
1978	0	0	1	0.04	ND		4,312	167.2	12	0.5
1979	0	0	1	0.04	ND		3,386	129.2	8	0.3
1980	0	0	0	0	ND		1,370	51.3	5	0.2
1981	0	0	0	0	ND		2,835	104.0	4	0.15
1982	0	0	2	0.1	ND		3,120	112.1	10	0.35
1983	0	0	10	0.4	ND		1,658	58.3	20	0.7
1984	0	0	21	0.7	ND		897	30.9	3	0.1
1985	0	0	78,594	2,653.2	ND		1,459	49.2	8	0.3
1986	0	0	7	0.2	ND		1,257	41.6	7	0.23
1987	0	0	10	0.3	ND		1,124	36.5	9	0.3
1988	0	0	5	0.2	ND		1,049	33.4	8	0.25
1989	168,636	5,301.0	8	0.3	ND		409	12.8	11	0.3
1990			15	0.5	2,598	81.0	329	10.3	17	0.5
1991	0	0	9	0.3	3,102	96.1	275	8.5	23	0.7
1992	0	0	12	0.4	999	30.4	51	1.5	48	1.4
1993	7	0.2	111	3.4	4,128	125.5	124	3.8	18	0.5
1994	29	0.9	3,432	104.4	2,863	87.1	244	7.4	14	0.4
1995	15	0.4	10	0.3	243	7.5	136	4.1	4	0.1
1996	1,204	36.6	180	5.5	1,324	40.2	228	6.9	4	0.1
1997	2,386	72.6	66	2.0	2,969	90.3	78	2.4	0	0
1998	1,901	57.8	721	21.9	1,373	42.1	24	0.7	0	0
1999	797	24.2	15	0.4	1,006	30.6	27	0.8	2	0.06
2000	662	20.1	1,752	53.3	1,651	50.2	89	2.7	4	0.1
2001	18	0.5	10	0.3	1,414	43.0	36	1.1	0	0

TABLE 7 (continues)

YEAR	CHICKENPOX		SCARLET FEVER		ERYSIPELAS		MENINGOCOCCAL		OTHER MENINGITIS		INFLUENZA	
	cases	/100,000	cases	/100,000	cases	/100,000	cases	/100,000	cases	/100,000	cases	/100,000
1960	ND		211	13.1	ND		73	4.5	ND			
1961	ND		242	14.5	ND		37	2.2	ND			
1962	ND		129	7.5	ND		37	2.2	ND			
1963	ND		83	4.7	ND		35	2.0	ND			
1964	ND		88	4.8	ND		31	1.7	ND			
1965	ND		370	19.8	ND		30	1.6	ND			
1966	ND		127	6.6	ND		49	2.5	ND			
1967	ND		83	4.2	ND		67	3.4	ND			
1968	ND		16,419	808.8	ND		93	4.6	ND			
1969	ND		7,780	373.5	ND		68	3.3	ND		845,270	39,583.7
1970	ND		103	4.8	ND		73	3.4	ND			
1971	ND		91	4.1	ND		79	3.6	ND		680,905	31,119.7
1972	ND		186	8.3	ND		241	10.7	ND		482,724	21,530.1
1973	ND		450	19.6	ND		136	5.9	ND			
1974	ND		409	17.4	ND		89	3.8	ND			
1975	ND		312	13.0	ND		85	3.5	ND			
1976	ND		636	25.8	ND		68	2.8	ND			
1977	ND		561	22.2	ND		53	2.1	ND			
1978	ND		470	18.2	ND		56	2.2	ND			
1979	ND		553	21.1	ND		70	2.7	ND			
1980	ND		423	15.8	ND		29	1.1	ND			
1981	ND		275	10.1	ND		30	1.1	ND			
1982	ND		536	19.3	ND		51	1.8	ND			
1983	ND		490	17.2	ND		55	1.9	ND			
1984	ND		192	6.6	ND		51	1.8	ND			
1985	ND		280	9.4	ND		75	2.5	ND			
1986	ND		250	8.3	ND		111	3.7	ND			
1987	ND		355	11.5	ND		73	2.4	ND			
1988	ND		337	10.7	ND		79	2.5	ND			
1989	ND		242	7.6	ND		84	2.6	ND		635,771	19,977.6
1990	4,728	149.1	406	12.7	260	8.1	86	2.7	121	3.7	574,772	17,928.9
1991	1,043	32.3	166	5.1	216	6.7	97	3.0	118	3.6	222,401	6,887.9
1992	191	5.8	39	1.2	138	4.2	57	1.7	186	5.6	196,340	5,972.8
1993	332	10.1	40	1.2	100	3.0	133	4.0	108	3.3	208,309	6,336.8
1994	541	16.4	377	11.5	95	2.8	73	2.2	147	4.5	140,257	4,266.7
1995	1,175	35.7	93	2.8	87	2.6	42	1.3	116	3.5	152,801	4,648.3
1996	1,687	51.3	92	2.8	98	3.0	43	1.3	230	7.0	149,602	4,550.9
1997	843	25.6	49	1.5	85	2.6	115	3.5	263	8.0	98,033	2,982.2
1998	749	22.8	58	1.8	72	2.2	38	1.15	177	5.4	89,114	2,710.9
1999	715	21.7	77	2.3	66	2.0	28	0.85	132	4.0	83,893	2,552.1
2000	1,018	31.0	134	4.1	69	2.1	0	0	136	4.1	87,501	2,661.8
2001	837	25.5	74	2.2	99	3.0	10	0.3	200	6.1	91,010	2,768.6

TABLE 8 AND GRAPHS 10 AND 11

TABLE 8

INFECTIOUS AIRBORNE DISEASES [TOTAL]:
ANNUAL FREQUENCY (NUMBER OF CASES) AND INCIDENCE (CASES/100,000 POPULATION)
OVER THE PERIOD 1990-2001

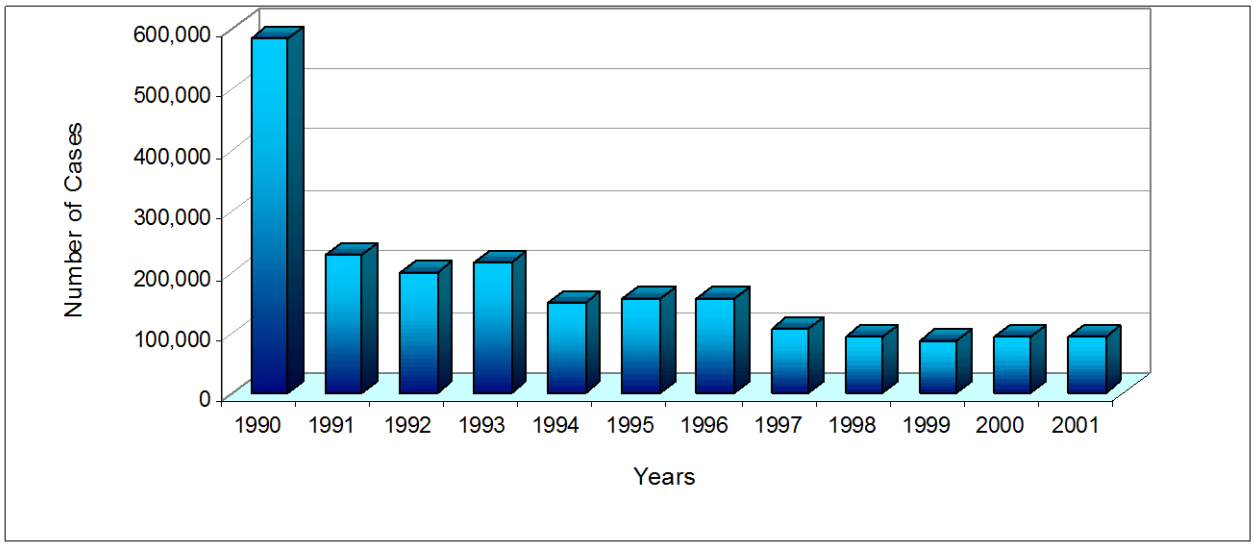
YEAR	MEASLES	RUBELLA	MUMPS	PERTUSSIS	DIPHTHERIA	CHICKENPOX	SCARLET FEVER	ERYSIPELAS	MENINGOCOCCAL	OTHER MENINGITIS	INFLUENZA	TOTAL
CASES												
1990		15	2,598	329	17	4,728	406	260	86	121	574,772	**583,332**
1991	0	9	3,102	275	23	1,043	166	216	97	118	222,401	**227,450**
1992	0	12	999	51	48	191	39	138	57	186	196,340	**198,061**
1993	7	111	4,128	124	18	332	40	100	133	108	208,309	**213,403**
1994	29	3,432	2,863	244	14	541	377	95	73	147	140,257	**148,043**
1995	15	10	243	136	4	1,175	93	87	42	116	152,801	**154,707**
1996	1,204	180	1,324	228	4	1,687	92	98	43	230	149,602	**153,488**
1997	2,386	66	2,969	78	0	843	49	85	115	263	98,033	**102,501**
1998	1,901	721	1,373	24	0	749	58	72	38	177	89,114	**92,326**
1999	797	15	1,006	27	2	715	77	66	28	132	83,893	**85,961**
2000	662	1,752	1,651	89	4	1,018	134	69	0	136	87,501	**92,354**
2001	18	10	1,414	36	0	837	74	99	10	200	91,010	**93,690**
INCIDENCE (CASES PER 100,000 POPULATION)												
1990		0.5	81.0	10.3	0.5	149.1	12.7	8.1	2.7	3.7	17,928.9	**18,197.5**
1991	0.0	0.3	96.1	8.5	0.7	32.3	5.1	6.7	3.0	3.6	6,887.9	**7,044.2**
1992	0.0	0.4	30.4	1.5	1.4	5.8	1.2	4.2	1.7	5.6	5,972.8	**6,025.0**
1993	0.2	3.4	125.5	3.8	0.5	10.1	1.2	3.0	4.0	3.3	6,336.8	**6,491.6**
1994	0.9	104.4	87.1	7.4	0.4	16.4	11.5	2.8	2.2	4.5	4,266.7	**4,503.4**
1995	0.4	0.3	7.5	4.1	0.1	35.7	2.8	2.6	1.3	3.5	4,648.3	**4,706.2**
1996	36.6	5.5	40.2	6.9	0.1	51.3	2.8	3.0	1.3	7.0	4,550.9	**4,669.0**
1997	72.6	2.0	90.3	2.4	0.0	25.6	1.5	2.6	3.5	8.0	2,982.2	**3,118.1**
1998	57.8	21.9	42.1	0.7	0.0	22.8	1.8	2.2	1.2	5.4	2,710.9	**2,809.0**
1999	24.2	0.4	30.6	0.8	0.1	21.7	2.3	2.0	0.9	4.0	2,552.1	**2,614.8**
2000	20.1	53.3	50.2	2.7	0.1	31.0	4.1	2.1	0.0	4.1	2,661.8	**2,809.4**
2001	0.5	0.3	43.0	1.1	0.0	25.5	2.2	3.0	0.3	6.1	2,768.6	**2,850.1**

A decreasing trend of airborne infectious diseases occurrence is evidenced over the period 1990-2001, (the conspicuous high level in 1990 being explained due to influenza epidemic of 1989-1990), (*GRAPHS 10* and *11*). It might be a real one. Nevertheless, a certain level of non-reported cases over that time-period should

be taken into account, (a common negative phenomenon of infectious disease reporting system especially evident from 1993-1994 onwards).

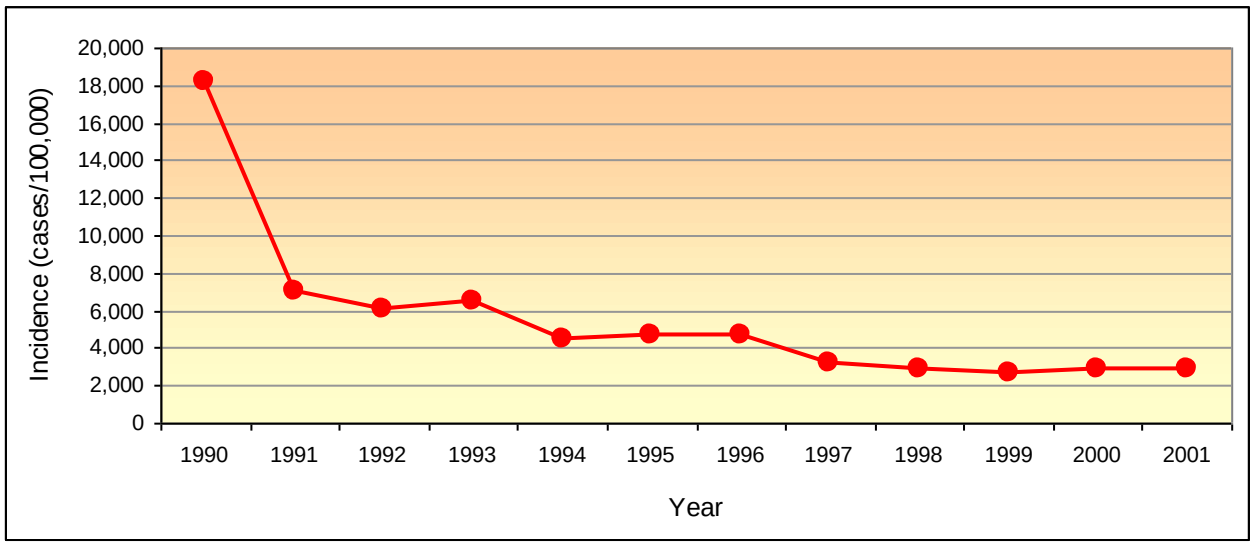
GRAPH 10

INFECTIOUS AIRBORNE DISEASES [TOTAL]:
ANNUAL FREQUENCY (NUMBER OF CASES)
OVER THE PERIOD 1990-2001



GRAPH 11

INFECTIOUS AIRBORNE DISEASES [TOTAL]:
ANNUAL INCIDENCE (CASES/100,000 POPULATION)
OVER THE PERIOD 1990-2001



6.4.2. INFLUENZA

(*TABLES 7*, *8*, and *9*, *10*)
(*GRAPH 12*)
(*MAP 4*)

There are two epidemic peaks during the period 1969-2001. The first and the largest one is the epidemic of 1969-1970 caused by influenza virus A (H3N2) A/HongKong/1/68 strain-like, with 845,270 reported cases (or 39,583.7 cases /10^5), followed in 1971-1972 by outbreaks especially in closed collectivities. The second epidemic belongs to the years 1989 and 1990, caused by the type A influenza virus of the same antigenic structure (H3N2), namely A/Shanghai/11/87 strain-like, with 635,771 and 574,772 reported cases respectively (or 19,977.6 cases/10^5 and 17,928.9 cases/10^5 respectively). Meanwhile, in inter-epidemic periods influenza has shown its usual endemic circulation especially during influenza season (November-March), (*TABLE 9*).

There is a more or less stable trend of influenza occurrence during the period 1991-2001, with an average of approx. 120,000 reported cases (or 6,500 cases per 100,000 population) per year, (*GRAPH 12*).

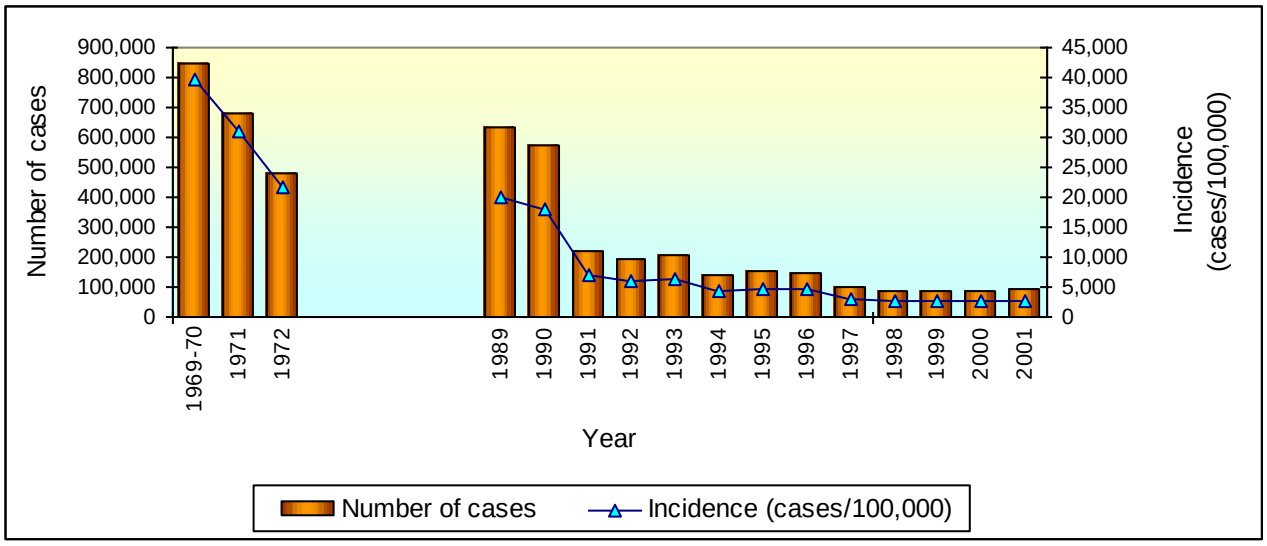
TABLE 9 AND GRAPH 12
TABLE 9

INFLUENZA:
ANNUAL FREQUENCY (NUMBER OF CASES) AND INCIDENCE RATE (CASES/100,000 POPULATION) OVER THE PERIODS 1969-1972 AND 1989-2001
[EPIDEMIC PEAKS IN 1969-70 AND 1989-90]

YEAR	INFLUENZA			
	EPIDEMIOLOGICAL SITUATION	IDENTIFIED VIRUS	CASES	INCIDENCE
1969-70	Epidemic	A/HongKong/1/68 (H3N2)	845,270	39,583.7
1971	Outbreaks (in closed collectivities)	A/England/5/72 (H3N2) and B/HongKong/5/72	680,905	31,119.7
1972			482,724	21,530.1
1989	Epidemic	A/Shanghai/11/87 (H3N2)	635,771	19,977.6
1990			574,772	17,928.9
1991	Annual endemic circulation	B/Victoria/1/87	222,401	6,887.9
1992		B/Victoria/2/87	196,340	5,972.8
1993		A/Beijing/33/92 (H3N2)	208,309	6,336.7
1994		B/Panama/45/90	140,257	4,266.8
1995		B/Beijing/184/93	152,801	4,648.3
1996		A (H3N2)	149,602	4,550.9
1997		A (H3N2)	98,033	2,928.2
1998		A (H3N2)	89,114	2,710.9
1999		A (H3N2)	83,893	2,552.1
2000		A/Singapor/5/97 (H3N2)	87,501	2,661.8
2001		A (H3N2)	91,010	2,768.6

GRAPH 12

INFLUENZA:
ANNUAL FREQUENCY (NUMBER OF CASES)
AND INCIDENCE RATE (CASES/100,000 POPULATION)
OVER THE PERIODS 1969-1972 AND 1989-2001
[EPIDEMIC PEAKS IN 1969-70 AND 1989-90]



The age-specific influenza morbidity shows the highest incidence among the pediatric age groups (0-14 years old): they represent around 50% of total annual influenza reported cases. Meanwhile, the age-group less than one year old represents around 10% of the total annual influenza reported cases, what is an important evidence taking into account that respiratory infections are the main cause of infant mortality in Albania (see 2.2.2.).

It should be stressed the presence of a discordance between the occurrence levels of upper and lower respiratory infections, reported by the Alert Syndrome-Based Surveillance System (see 5.3.) and those of influenza (and flu-like coryza or common cold as well) reported by MDBSS (see 5.1.). The annual average ratio results to be 7/1-8/1 in the favor of upper and lower respiratory infections, (that is only 1 out of 7-8 cases with such infectious syndromes is clinically diagnosed and reported as influenza or flu-like common cold). This is a reasonable outcome taking into account that upper and lower respiratory infections (like tonsillitis, otitis, pharyngitis, laryngitis, bronchitis, bronchopneuomia) are not subject of the MDBSS unless they occur into the context of an influenza or flu-like coryza.

Geographical distribution of influenza in Albania (*TABLE 10* and *MAP 4*) generally points out annual oscillations of disease occurrence (low incidence rate in one year, high incidence rate in another year) for almost all country districts. Nevertheless, the districts of higher population density (like capital Tirana,

Shkoder, Lezhe, Laç, Durres, Elbasan, Berat, Lushnje, Fier, Vlore, Korçe, Kukes, Diber) show, as a rule, higher influenza incidence rates in the two consecutive two-year periods 1996-1996 and 2000-2001.

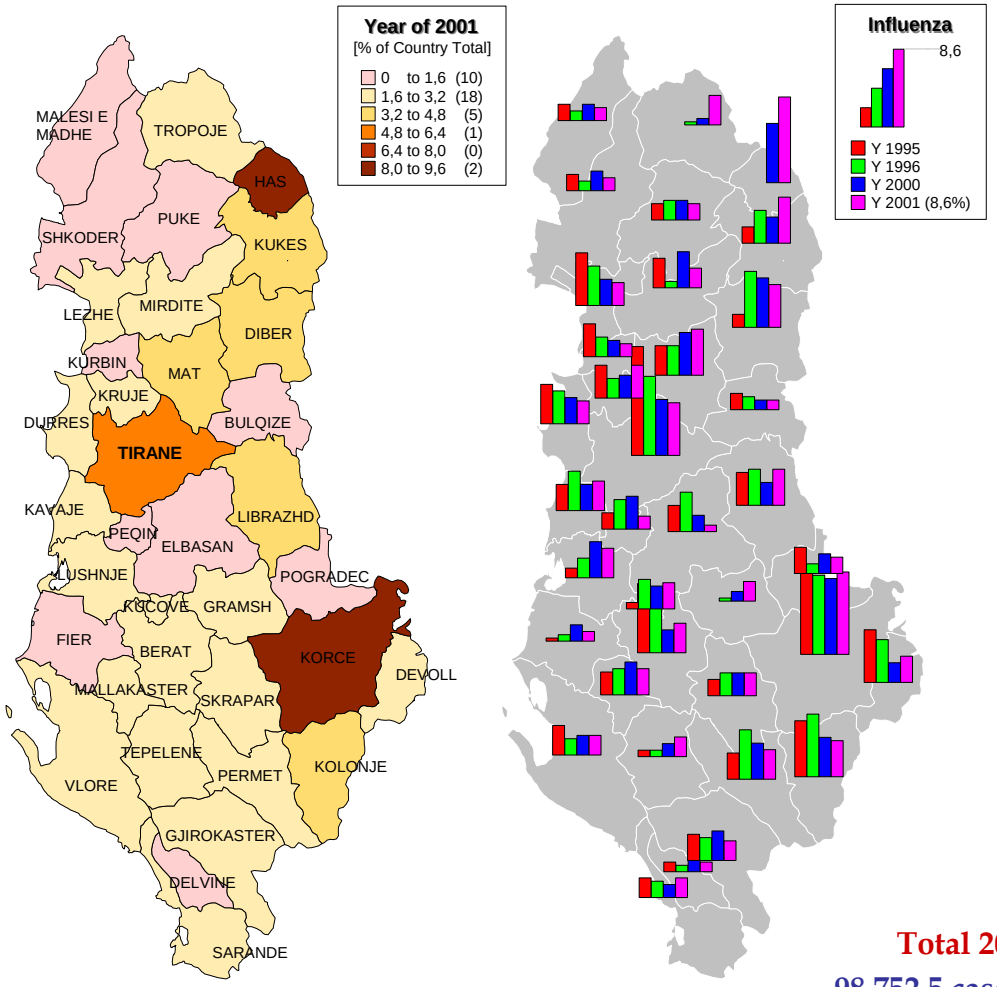
TABLE 10 AND MAP 4
TABLE 10

INFLUENZA:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 1995-1996 AND 2000-2001

No	DISTRICT	INCIDENCE: CASES PER 100,000 POPULATION			
		1995	1996	2000	2001
1	BERAT	9,898.5	7,782.2	2,205.6	2,797.5
2	BULQIZE	2,328.2	1,670.5	751.1	892.2
3	DELVINE	1,361.1	1,129.9	2,869.1	1,085.9
4	DEVOLL	7,418.8	5,680.4	1,819.5	2,667.1
5	DIBER	2,062.2	7,827.1	4,415.7	4,397.9
6	DURRES	5,729.5	4,569.5	2,326.9	2,430.6
7	ELBASAN	3,521.7	5,338.8	1,372.9	555.3
8	FIER	587.4	1,042.6	1,354.0	857.8
9	GRAMSH	194.7	373.4	901.7	1,866.1
10	GJIROKASTER	3,570.6	3,322.3	2,542.4	2,063.4
11	HAS	225.3	134.5	5,371.2	8,463.0
12	KAVAJE	3,628.4	5,360.0	2,343.9	2,816.1
13	KOLONJE	8,037.9	8,517.7	3,598.1	3,585.6
14	KORÇE	11,536.2	10,788.3	6,884.1	8,190.5
15	KRUJE	4,732.7	2,839.5	2,016.4	3,146.8
16	KUÇOVE	1,079.8	4,121.2	2,137.1	2,582.5
17	KUKES	2,421.5	4,442.6	2,442.3	4,532.9
18	LAÇ	4,577.9	2,757.2	1,458.2	1,380.3
19	LEZHE	7,319.2	5,359.5	2,452.1	2,379.2
20	LIBRAZHD	4,737.4	4,851.3	2,009.3	3,717.8
21	LUSHNJE	1,162.1	2,817.8	3,136.6	2,973.1
22	MALESI E MADHE	2,340.0	1,288.4	1,591.4	1,213.1
23	MALLAKASTER	3,322.2	3,481.2	2,856.2	2,723.5
24	MAT	4,119.9	3,949.5	3,822.6	4,569.9
25	MIRDITE	4,041.5	1,071.2	3,336.7	2,108.7
26	PEQIN	2,257.7	3,982.1	3,023.4	1,446.4
27	PERMET	3,671.3	6,828.8	3,346.6	2,949.1
28	POGRADEC	3,528.8	1,369.7	1,861.8	1,549.3
29	PUKE	2,522.1	2,781.3	1,828.9	1,499.5
30	SARANDE	2,739.7	2,348.8	1,337.3	1,833.5
31	SKRAPAR	2,340.5	3,262.2	2,105.9	2,315.3
32	SHKODER	2,508.3	1,321.5	1,654.5	1,383.4
33	TEPELENE	788.6	1,110.7	1,201.2	1,801.8
34	TIRANE	15,116.3	10,687.4	5,167.9	5,132.6
35	TROPOJE	126.8	412.1	482.1	2,890.4
36	VLORE	4,360.1	2,268.6	1,847.5	1,954.4

MAP 4

INFLUENZA:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 2001 (LEFT MAP) AND
IN 1995-1996 AND 2000-2001 (RIGHT MAP)



Total 2001 Incidence
98,752.5 cases per 100,000 population

6.4.3. STREPTOCOCCAL INFECTIONS (SCARLET FEVER AND ERYSIPELAS)

(*TABLES 7, 8, 12, 13*)
(*GRAPHS 14, 15, 16*)
(*MAPS 5, 6*)

Among streptococcal diseases caused by Group A (Beta hemolytic) streptococci, only Scarlet fever (since the year 1960) and Erysipelas (since the year 1990) are subject of our MDBSS (see 5.1.), because they are characterized by a well-defined case definition compared to others.

The epidemiological surveillance data of scarlet fever (period 1960-2001) and erysipelas (period 1990-2001) as annual frequency (number of reported cases) and incidence (cases per 100,000 population) are presented in detail in *TABLES 7*, *8*, and *12*.

Whereas *GRAPH 14* shows the trend of incidence rates of scarlet fever over the four-decade period 1960-2001, *GRAPHS 15* and *16* aim at illustrating the annual incidence rates of scarlet fever and erysipelas and their trends over the period 1990-2001, respectively, thus giving the opportunity for comparisons.

SCARLET FEVER represents an endemic circulation among Albanian population, with little epidemic peaks every 3-5 years, except the large-scale epidemic in 1968 and 1969 with 808.8 cases/10^5 and 373.5 cases/10^5 respectively. The annual incidence rates vary in a range from 1.2 to 21.5 cases/10^5, with an annual average of 9.8 cases/10^5. Urban areas constantly represent the highest incidence rates: 75%-95% of annual reported cases with scarlet fever belongs to them.

The pediatric age groups (0-14 years old) have the major weight for scarlet fever occurrence: they represent 81%-92% of the total annual reported cases. In such a context, we should bear in mind the importance of scarlet fever from the public health point of view, related to its eventual impact on cardiac system (rheumatic heart disease) and renal system (chronic glomerulo-nephritis).

Unlike scarlet fever, ERYSIPELAS does not result to be characterized by any epidemic periodicity of its endemic circulation. The annual incidence rates of erysipelas (period 1990-2001) vary in a range 2.1-8.1 cases/10^5, with an annual average of 3.5 cases/10^5. On the other hand, the urban areas do not show any predominance of disease occurrence compared to the rural ones.

Also, unlike scarlet fever, there are adult age groups that represent the highest incidence rates of erysipelas: over 80% of the total annual reported cases belong to them.

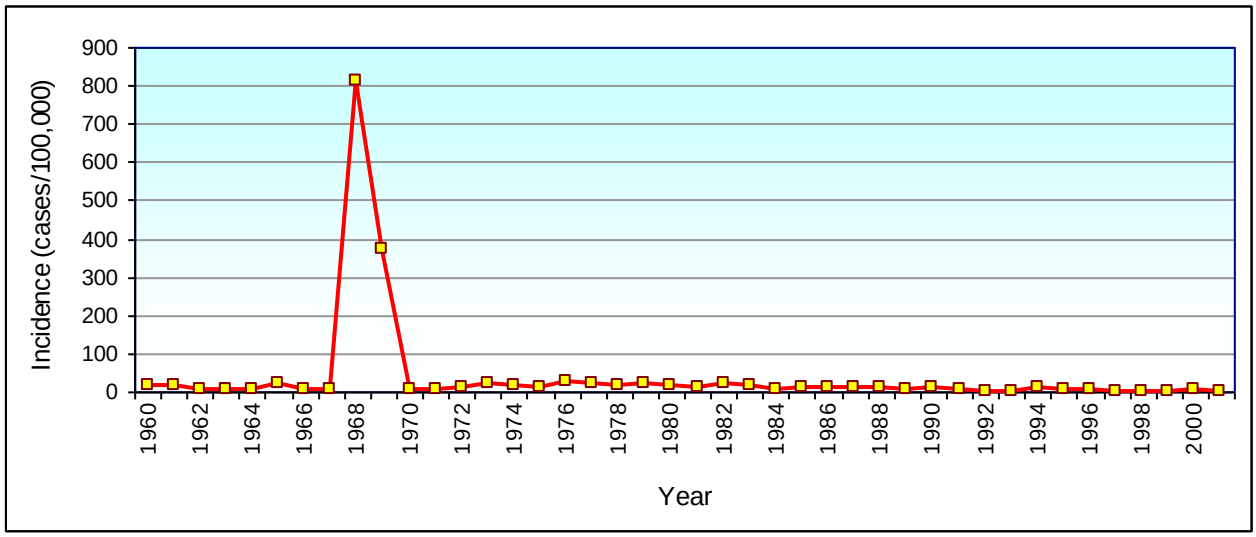
TABLE 12

STREPTOCOCCAL INFECTIONS (SCARLET FEVER AND ERYSIPELAS): ANNUAL INCIDENCE (CASES PER 100,000 POPULATION) OVER THE PERIOD 1960-2001

YEAR	SCARLET /100,000	ERYSIPELA /100,000
1960	13.1	ND
1961	14.5	ND
1962	7.5	ND
1963	4.7	ND
1964	4.8	ND
1965	19.8	ND
1966	6.6	ND
1967	4.2	ND
1968	808.8	ND
1969	373.5	ND
1970	4.8	ND
1971	4.1	ND
1972	8.3	ND
1973	19.6	ND
1974	17.4	ND
1975	13.0	ND
1976	25.8	ND
1977	22.2	ND
1978	18.2	ND
1979	21.1	ND
1980	15.8	ND
1981	10.1	ND
1982	19.3	ND
1983	17.2	ND
1984	6.6	ND
1985	9.4	ND
1986	8.3	ND
1987	11.5	ND
1988	10.7	ND
1989	7.6	ND
1990	12.7	8.1
1991	5.1	6.7
1992	1.2	4.2
1993	1.2	3.1
1994	11.5	2.8
1995	2.8	2.6
1996	2.8	3.0
1997	1.5	2.6
1998	1.8	2.2
1999	2.3	2.1
2000	4.1	2.1
2001	2.2	3.1

GRAPH 14

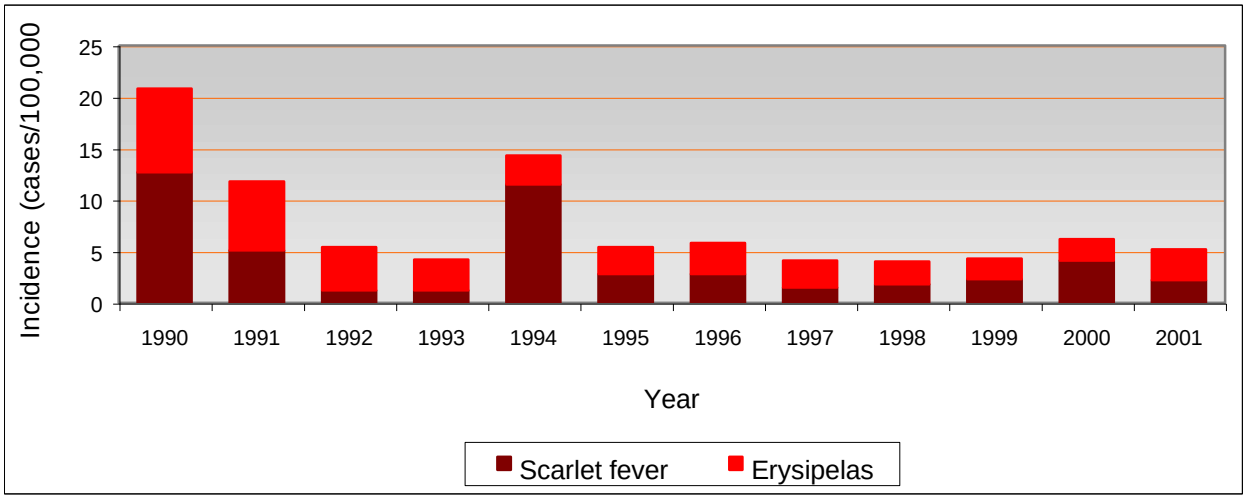
SCARLET FEVER:
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001
(OUTBREAK IN 1968-1969)



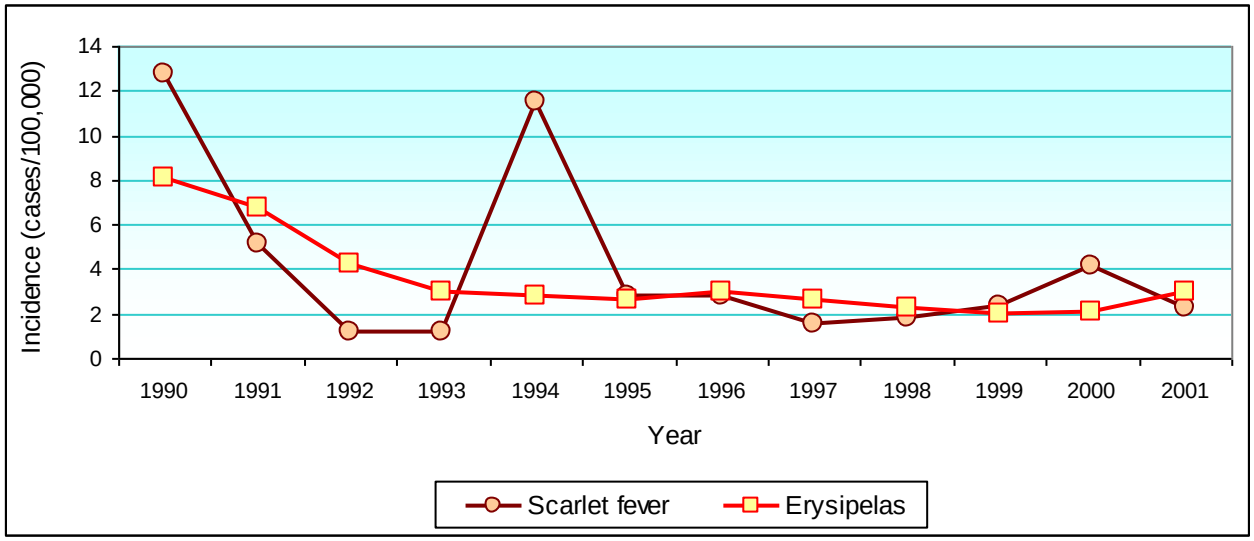
GRAPHS 15 AND 16

GRAPH 15

SCARLET FEVER AND ERYSIPELAS (STREPTOCOCCAL INFECTIONS):
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1990-2001



GRAPH 16



Geographical distribution of Scarlet fever and Erysipelas (*TABLE 13* and *MAPS 5, 6*) points out districts of higher incidence rates and districts of low (even zero) incidence rates.

However, generally there are not districts of consistently high or consistently low incidence rates either for scarlet fever or for erysipelas in the two consecutive two-year periods 1995-1996 and 2000-2001.

TABLE 13 AND MAPS 5 AND 6

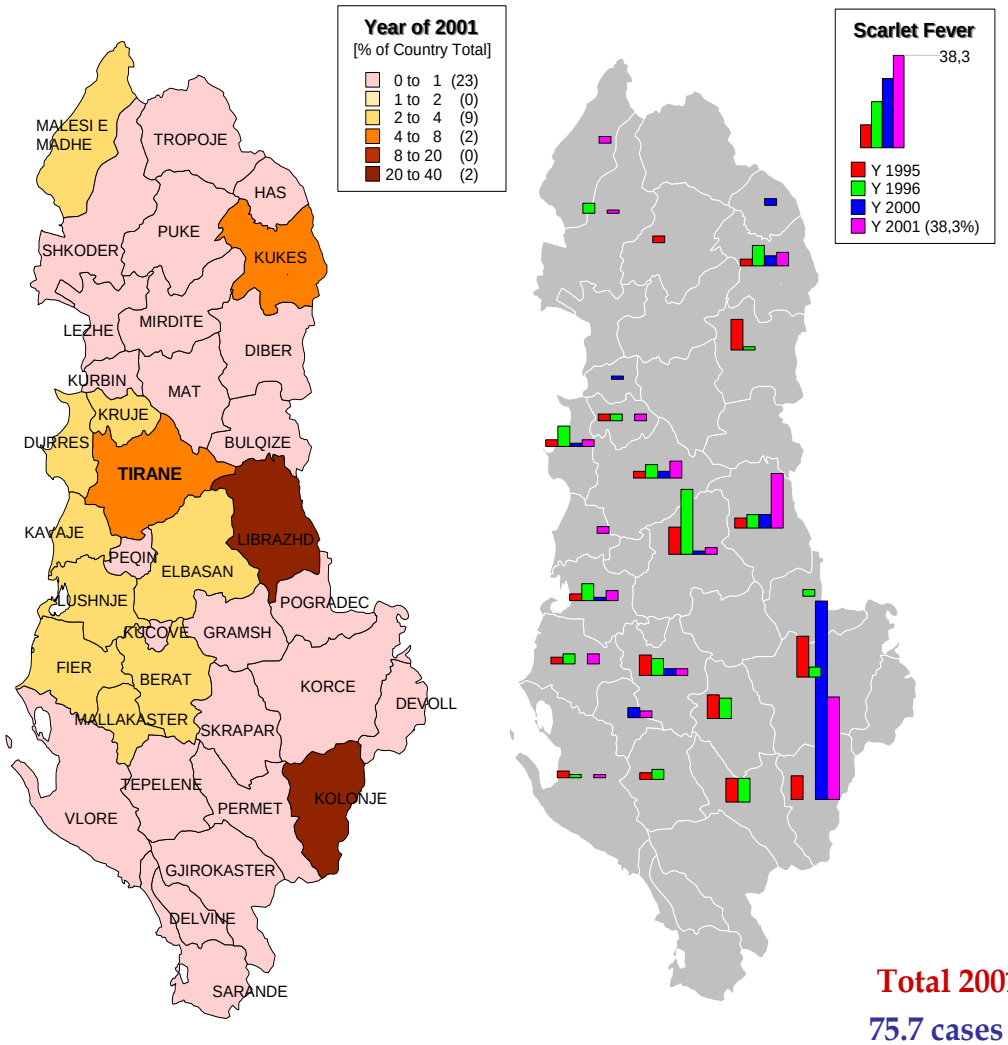
TABLE 13

SCARLET FEVER AND ERYSIPELAS (STREPTOCOCCAL INFECTIONS): GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS) IN 1995-1996 AND 2000-2001

No	District	Scarlet fever Incidence (cases per 100,000 pop.)				Erysipelas Incidence (cases per 100,000 pop.)			
		1995	1996	2000	2001	1995	1996	2000	2001
1	Berat	6.4	4.0	5.1	2.2	0.8	1.3	0	0
2	Bulqize	0	0	0	0	2.5	0	0	6.0
3	Delvine	0	0	0	0	0	0	0	0
4	Devoll	0	0	0	0	0	2.8	0	0
5	Diber	10.4	1.2	0	0	1.2	5.7	0	0
6	Durres	2.1	4.8	4.2	1.6	2.4	2.2	3.7	7.9
7	Elbasan	9.5	16.6	3.2	2.3	1.6	1.2	3.7	2.8
8	Fier	2.8	2.8	1.0	2.9	5.6	6.0	1.0	5.8
9	Gramsh	0	0	0	0	7.5	12.3	2.3	2.3
10	Gjirokaster	0	0	0	0	5.3	0	3.1	0
11	Has	0	0	4.9	0	0	0	4.9	0
12	Kavaje	0	0	0	2.3	1.2	1.3	1.1	0
13	Kolonje	8.3	0	186.3	29.0	0	0	4.1	4.1
14	Korçe	13.3	2.4	1.2	0	0	0	0	0
15	Kruje	1.9	1.7	0	1.7	5.5	12.4	0	0
16	Kuçove	0	0	0	0	0	2.8	0	0
17	Kukes	2.7	5.3	9.6	4.1	4.0	13.1	5.5	6.9
18	Laç	0	0	3.5	0	0	0	1.8	0
19	Lezhe	0	0	0	0	8.8	7.2	7.6	6.1
20	Librazhd	3.2	3.1	12.9	15.8	4.4	19.3	1.4	7.2
21	Lushnje	2.5	4.2	2.1	2.9	6.7	5.9	1.4	0.7
22	Malesi e madhe	0	0	0	2.3	0	4.8	2.3	0
23	Mallakaster	0	0	9.4	2.3	0	2.6	0	4.7
24	Mat	0	0	0	0	0	0	0	0
25	Mirdite	0	0	0	0	0	0	0	2.3
26	Peqin	0	0	0	0	0	0	0	0
27	Permet	8.5	5.6	0	0	14.5	8.5	0	5.6
28	Pogradec	0	1.7	0	0	7.3	4.4	2.8	2.8
29	Puke	2.2	0	0	0	0	2.2	0	0
30	Sarande	0	0	0	0	0	0	1.6	1.6
31	Skrapar	7.8	5.2	0	0	0	0	0	0
32	Shkoder	0	2.3	0	0.5	2.9	2.3	0	0
33	Tepelene	2.3	2.4	0	0	4.5	0	9.1	0
34	Tirane	2.8	3.1	7.5	5.2	6.8	2.5	5.0	7.5
35	Tropoje	0	0	0	0	0	0	0	0
36	Vlore	2.4	0.6	0.6	0.6	0	0	0	1.1

MAP 5

SCARLET FEVER:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 2001 (LEFT MAP) AND
IN 1995-1996 AND 2000-2001 (RIGHT MAP)

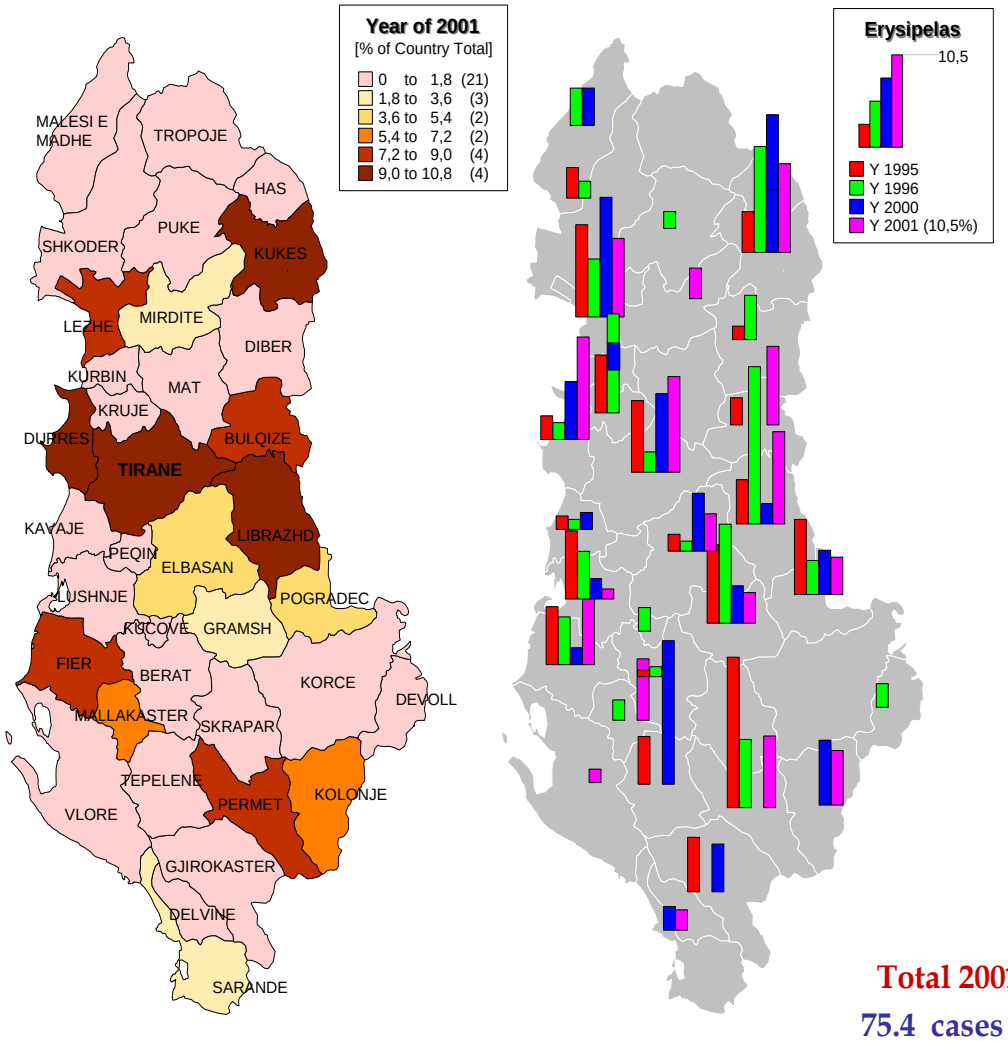


Total 2001 Incidence

75.7 cases per 100,000 population

MAP 6

ERYSIPELAS:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 2001 (LEFT MAP) AND
IN 1995-1996 AND 2000-2001 (RIGHT MAP)



Total 2001 Incidence

75.4 cases per 100,000 population

6.4.4. MEASLES

(*TABLES 7, 8, 14*)
(*GRAPH 17*)

6.4.4.1. Historical milestones showing specific features of measles epidemiology in Albania

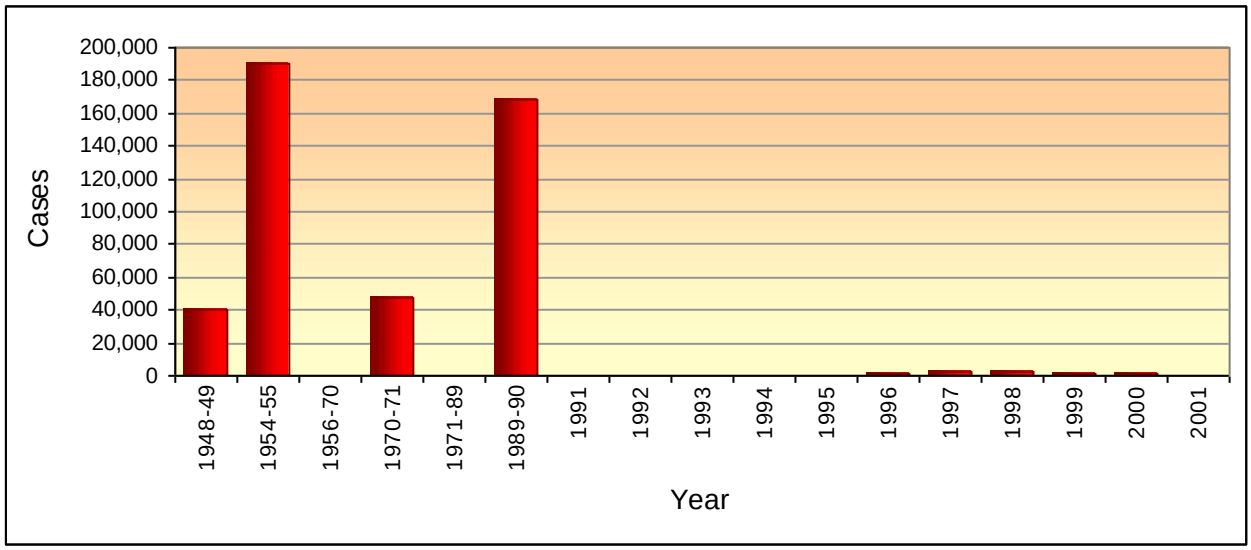
TABLE 14

MEASLES:
HISTORICAL MILESTONES SHOWING SPECIFIC FEATURES OF MEASLES EPIDEMIOLOGY IN ALBANIA

YEAR	MEASLES		
		cases	Incidence (/100.000)
1948-49	Epidemic	40,106	3,380.1
1954-55	Epidemic	190020	13,650.3
1956-70	15 years of annual zero measles cases due to country's quarantine towards each eventual imported measles case	0	0
1970-71	Epidemic due to broken quarantine	48,156	2,293.4
1971-89	18 years of indigenous measles elimination due to measles vaccine-prophylaxis	0	0
1989-90	Measles epidemic (cummulation of receptive pockets due to vaccine failure over 18 years period of measles elimination)	168,636	5,301.6
1991		0	0
1992		0	0
1993		7	0.2
1994		29	0.9
1995		15	0.4
1996		1204	36.6
1997		2386	72.6
1998		1901	57.8
1999		797	24.2
2000	Mass vaccination (children 1-14 years old)	662	20.1
2001	Beginning of measles elimination through 2007	18	0.5

GRAPH 17

MEASLES:
ANNUAL FREQUENCY (NUMBER OF CASES)
OVER THE PERIOD FROM 1948 TILL 2001



Measles epidemiology in Albania (*TABLE 14* and *GRAPH 17*) shows some quite specific features compared to all other countries, being summarized by the following historical milestones:

- From 1945 till 1955 measles has had its usual continuous endemic circulation among the country population, with two epidemic peaks:
  - epidemic of 1947-48 with 40,106 cases (or an attack rate of 3,380 cases per 100,000 population) and a considerable case-fatality rate, and
  - epidemic of 1954-55, spread all over the country, with 190,020 cases (or an attack rate of 13,650 cases per 100,000 population) and a high case-fatality rate.

- In 1956, immediately after epidemic of 1954-55, A STRATEGY OF A TOTAL AND RIGOROUS QUARANTINE TOWARD EACH EVENTUAL IMPORTED MEASLES CASE WAS ESTABLISHED THROUGHOUT ALBANIA. As a result of such a unique strategy A TOTAL ELIMINATION OF INDIGENOUS MEASLES CIRCULATION OVER A 15-YEAR PERIOD (1956-1970) WAS ACHIEVED. In the meantime, 15 age cohorts (birth cohorts 1956-1970), fully susceptible towards measles were accumulated.

- Measles epidemic of 1970-71 started in November 1970 when the above-mentioned 15-year quarantine was accidentally interrupted. The expected number of measles cases would account for all but 1,000,000 ones (susceptible birth cohorts 1956-1970 as well as susceptible persons of birth cohorts up to 1955 not contracted measles during its endemic-epidemic circulation up to 1955). An URGENT MASS (CATCH-UP) VACCINATION OF ALL BIRTH COHORTS 1956-1970 (AROUND 900,000 SUBJECTS) was carried out within three weeks (November-December 1970) throughout the country with the imported B55 attenuated live measles vaccine (based on the Chinese Beijing 55 strain). It was just the mass vaccination with its coverage level of 99.2% and its effectiveness of 95.4%, which extremely weakened the epidemic attack. So the epidemic ended by June 1971 with a total of only 48,156 observed cases (versus 1,000,000 expected ones) or an attack rate of 2,293 cases per 100,000 population, that is 20 times less the expected one. On the other hand, what's more important, the effectiveness of 95.4% of mass vaccination of all but receptive population (birth cohorts 1956-1070) fulfilled a level of 94.7% of the total herd immunity, thus attaining 1971's measles elimination in Albania.

- In 1971 THE ROUTINE MANDATORY VACCINATION AGAINST MEASLES WAS INTRODUCED IN THE NATIONAL IMMUNIZATION CALENDAR FOR ALL NEW BIRTH COHORTS. Measles routine vaccination was based on the above-mentioned B55 attenuated live measles vaccine, firstly with the imported one, and starting from 1977 with locally produced B55 measles vaccine.

- July 1971 marked the beginning of an 18-YEAR PERIOD (1971-1989) OF INDIGENOUS MEASLES ELIMINATION IN ALBANIA, already DUE ONLY TO THE PRIMARY PREVENTION THROUGH THE SPECIFIC VACCINE-PROPHYLAXIS.

- Total and age-specific immunological profiles of country population towards measles during the period 1972-1982, determined through each year (1976-1982) epidemiological sero-surveys carried out by the Institute of Public Health (IPH) resulted continuously to be at levels over 90%. Episodes of imported measles cases (1981-1984) were not able to support the survival of measles circulation among the population because of such levels of the total herd immunity. But, in the meantime, the epidemiological sero-surveys revealed the presence of susceptible pockets heterogeneously spread among the country population and of an increasing weight over time. A large epidemiological sero-survey carried out in 1988 demonstrated a total level of herd immunity already decreased at 83%, thus concluding of the obvious possibility of measles circulation in Albania in the first eventuality of its importation.

- Following the 18-year period of measles elimination, a nation-wide measles epidemic took place (April 1989-March 1990), being distributed in all country districts, with a very high frequency (168,636 cases) and attack rate (5,374 cases per 100,000 population), but an extremely low case-fatality rate (only 11 deaths).

- In 1992, the local production of B55 measles vaccine was interrupted, being substituted by the imported Schwarz measles vaccine in the routine mandatory vaccination.

- The period 1992-2000 was characterized by measles circulation at sporadic levels with small and limited outbreaks, with an annual average of 700-800 reported cases, and always zeros deaths. The pediatric age groups (1-14 years old) showed the highest incidence rates: they represented more than 80-85% of the total annual reported cases.

6.4.4.2. Strategy of measles elimination in Albania by the year 2007

The year 2000 denotes the beginning of the implementation of the national strategy on measles elimination by 2007 in Albania, set up according to WHO respective target for the European Region.

Into the context of such a strategy, A MASS (CATCH-UP) VACCINATION AGAINST BOTH MEASLES AND RUBELLA (WITH MEASLES-RUBELLA BI-VACCINE) OF THE AGE GROUPS 1-14 YEARS OLD WAS SUCCESSFULLY CARRIED OUT THROUGHOUT ALBANIA IN NOVEMBER (1-15) 2000.

Into the context of such a strategy, THE 2ND DOSE (BOOSTER DOSE) OF MEASLES CONTAINING VACCINE (WITH MEASLES-RUBELLA BI-VACCINE) AT 5 YEARS OF AGE was introduced in the routine mandatory vaccination starting from January 1, 2001.

As result, a sharp decrease of measles occurrence was evidenced in 2001: the total number of measles reported cases was only 18 ones.

On the other hand, MEASLES (AND RUBELLA) CASE-BASED EPIDEMIOLOGICAL SURVEILLANCE was established throughout the country from January 1, 2002.

6.4.5. RUBELLA

(*TABLES 7, 8, 15*)
(*GRAPH 18*)

The epidemiological surveillance data, available from 1964, present a detailed picture of rubella epidemiology in Albania over the period 1964-2001, (*TABLES 7*, *8*, *15* and *GRAPH 18*). Cross-sectional sero-epidemiological surveys, carried out by the Institute of Public Health in 1981, 1983, 1989 and 1995-96 give further details on the total and age-specific immunological profiles of the country population towards rubella.

The average annual number of reported rubella cases over the period 1964-2001 (except years 1968, 1969, 1985, 1993, 1994, 1996, 1998 and 2000) is 9.6 cases; there are years (1965, 1967, 1971, 1976-1979, 1982) with only 1-2 reported cases and even with …zero cases (1980, 1981). Such extremely low figures of reported rubella cases are chiefly explained by the well-known feature of rubella, namely the conspicuous predomination of sub-clinical infection versus clinical disease (infection/disease ratio varying from 2/1 to 20/1).

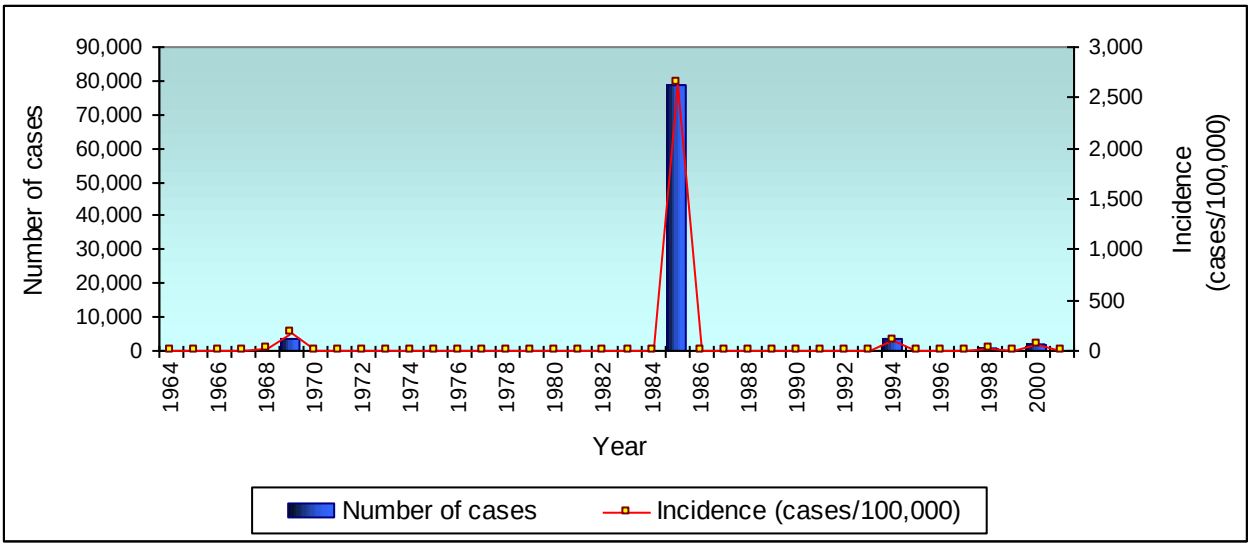
TABLE 15 AND GRAPH 18
TABLE 15

RUBELLA:
ANNUAL FREQUENCE (CASES) AND INCIDENCE (CASES PER 100,000)
OVER THE PERIOD 1964-2001

YEAR	RUBELLA	
	cases	/100,000
1960	ND	
1961	ND	
1962	ND	
1963	ND	
1964	7	0.4
1965	2	0.1
1966	10	0.5
1967	1	0.05
1968	223	11.1
1969	3,676	176.5
1970	6	0.3
1971	2	0.09
1972	37	1.6
1973	4	0.17
1974	12	0.5
1975	4	0.16
1976	1	0.04
1977	2	0.08
1978	1	0.04
1979	1	0.04
1980	0	0
1981	0	0
1982	2	0.07
1983	10	0.35
1984	21	0.7
1985	78,594	2,653.2
1986	7	0.2
1987	10	0.3
1988	5	0.15
1989	8	0.25
1990	15	0.46
1991	9	0.3
1992	12	0.4
1993	111	3.4
1994	3,432	104.4
1995	10	0.3
1996	180	5.5
1997	66	2
1998	721	21.9
1999	15	0.4
2000	1,752	53.3
2001	10	0.3

GRAPH 18

RUBELLA:
ANNUAL FREQUENCE (CASES) AND INCIDENCE (CASES PER 100,000)



OVER THE PERIOD 1964-2001

Three epidemic peaks were recorded over that period:

- epidemic of 1969 with 3,676 reported cases (or an incidence of 180 cases per 100,000 population);
- epidemic of 1985, the largest one, with 78,594 reported cases (or an incidence of 3,080 cases per 100,000 population);
- and epidemic of 1994 with 3,432 reported cases (or an incidence of 110 cases per 100,000 population).

The inter-epidemic intervals result to be of 10-15 years, a specific feature of rubella epidemiology compared to most of European countries characterized by shorter-time periods (3-7 years) during the pre-vaccine era.

Age groups of 5-14 years old represent 60-70% of rubella cases both in each epidemic peak (1969, 1985, 1994) and in inter-epidemic periods of rubella circulation. The age groups of 1-4 and 15-24 years old are ranked in the second and third order respectively. Meanwhile, older age groups (25-44 years old) are not exempted from rubella virus infection: they represent 1-2% of the total annual rubella reported cases over the period 1964-2001.

There are not statistically significant differences of rubella incidence among country districts. There are not statistically significant differences of rubella incidence between urban and rural areas.

The real weight of rubella infection in Albania is given by cross-sectional sero-epidemiological surveys, conducted in 1981, 1983, 1989, and 1995-96 by the Institute of Public Health (IPH):

- The total (all age groups) rubella seroprevalence rate varies from 48% to 58% in inter-epidemic intervals, being increased up to 86-87% immediately after rubella epidemic circulation.

- Meanwhile, there are significant differences in age-specific immune profiles, resulting to be
    - generally low (from 10% to 30%) at pre-puberty age groups (0-12 years old),
    - of a significant increase (30-70%) at puberty age groups (11-17 years old),
    - of another significant increase (over 90%) at post-puberty age groups (older than 18 years old).

SUCH A STRONG RELATIONSHIP OF RUBELLA SEROPOSITIVITY LEVELS WITH AGE ESSENTIALLY REPRESENTS THE SPECIFIC FEATURE OF RUBELLA EPIDEMIOLOGY IN ALBANIA, QUITE CONTRARY TO OTHER EUROPEAN COUNTRIES DURING THE PRE-VACCINE ERA, (CHARACTERIZED BY THE MOST INTENSE CIRCULATION OF RUBELLA INFECTION AMONG THE PEDIATRIC AGE GROUPS).

Though there is not yet any evidence on CONGENITAL RUBELLA SYNDROME (CRS) occurrence in Albania, it might be evaluated as an annual expected number of approx. 70 CRS cases (based on the rate of 1 CRS case per 1,000 live births experienced by other countries in the pre-vaccine era). Furthermore, there is a significant pool of susceptibles in puberty and post-puberty age groups just because of the above age specificity of rubella incidence, what overemphasizes the high risk of CRS in Albania.

It goes without saying that CRS, essentially the main consequence of rubella infection, represents an important public health problem, of an indispensable necessity and requirement to be prevented in Albania. Establishing adequate strategy on CRS prevention does essentially mean establishing adequate strategy on rubella prevention through the specific vaccine-prophylaxis in Albania.

- In the context of such a strategy, A MASS (CATCH-UP) VACCINATION (WITH MEASLES-RUBELLA BI-VACCINE) OF PEDIATRIC-AGE-GROUPS (1-14 YEARS OLD) WAS

SUCCESSFULLY CARRIED OUT IN NOVEMBER (1-15) 2000 THROUGHOUT ALBANIA, (mentioned in 6.4.4. above).

- In the context of such a strategy, RUBELLA VACCINATION (WITH MEASLES-RUBELLA BI-VACCINE) OF ALL NEW BIRTH COHORTS WAS RECENTLY (JANUARY 1, 2001) INTRODUCED IN ALBANIAN CALENDAR OF MANDATORY IMMUNIZATION, BOTH AS BASAL DOSE (12-15 MONTHS OF AGE) AND BOOSTER DOSE (5 YEARS OF AGE).

- In the context of such a strategy, A MASS (CATCH-UP) VACCINATION (WITH MEASLES-RUBELLA BI-VACCINE) PROGRAMME OF ALL FEMALES OF REPRODUCTIVE AGES (15-44 YEARS OLD), STARTED IN OCTOBER 15, 2001 THROUGHOUT ALBANIA, WHICH WILL BE SUCCESSFULLY ENDED BY DECEMBER 31, 2002.

6.4.6. MENINGOCOCCAL MENINGITIS AND OTHER MENINGITIDES

(*TABLES 7*, *8*, *16*, *17*)
(*GRAPH 19*, *20*, *21*)
(*MAPS 7*, *8*)

While the epidemiological surveillance data availability of meningococcal meningitis dates from the year 1960, other meningitides became subject of mandatory reporting in the MDBSS (see 5.1.) only from the year 1990.

The annual frequency (number of reported cases) and incidence rate (cases per 100,000 population) of MENINGOCOCCAL MENINGITIS (ICD-9 036) over the four-decade period 1960-2001 are presented in detail in *TABLES 7*, *8*, *16*. They show an endemic circulation of the disease among the country population, accompanied with epidemic peaks in 1968, 1972-73 (the largest one), 1986, 1993, and 1997, (illustrated in *GRAPH 19*). The annual incidence rates vary in a range from $0.3/10^5$ (the lowest figure) to $10.7/10^5$ (the highest one) with an annual average rate of $2.7/10^5$.

The age-specific morbidity of meningococcal meningitis shows the highest incidence among pediatric age groups (0-14 years old): they represent 80% and more of the total annual reported cases. The most affected are groups 0-1 and 1-4 years of age.

The rubric "OTHER MENINGITIDES" include VIRAL MENINGITIS (ICD-9 047), NON-MENINGOCOCCAL BACTERIC MENINGITIS (ICD-9 320) and TUBERCULAR MENINGITIS

(ICD-9 013.0) as well. Viral meningitis (aseptic meningitis) results to have more weight among other ones of this group.

The annual frequency (number of reported cases) and incidence rate (cases per 100,000 population) of OTHER MENINGITIDES over the period 1990-2001 are presented in detail in *TABLES 7*, *8*, *16*. They show an endemic circulation of the diseases among the country population, accompanied with epidemic peaks in 1966 (due to 1996's poliomyelitis epidemic), and in 1997 and 2001 (due to mumps epidemics in these two years), (*GRAPHS 20* and *21*). Their annual incidence rates vary in a range from $3.3/10^5$ to $8.0/10^5$, with an annual average level of 4.9 reported cases per 100,000 population, that is almost two times higher than meningococcal meningitis respective figure of 2.7 reported cases per 100,000 population, (*GRAPHS 20* and *21*).

TABLE 16

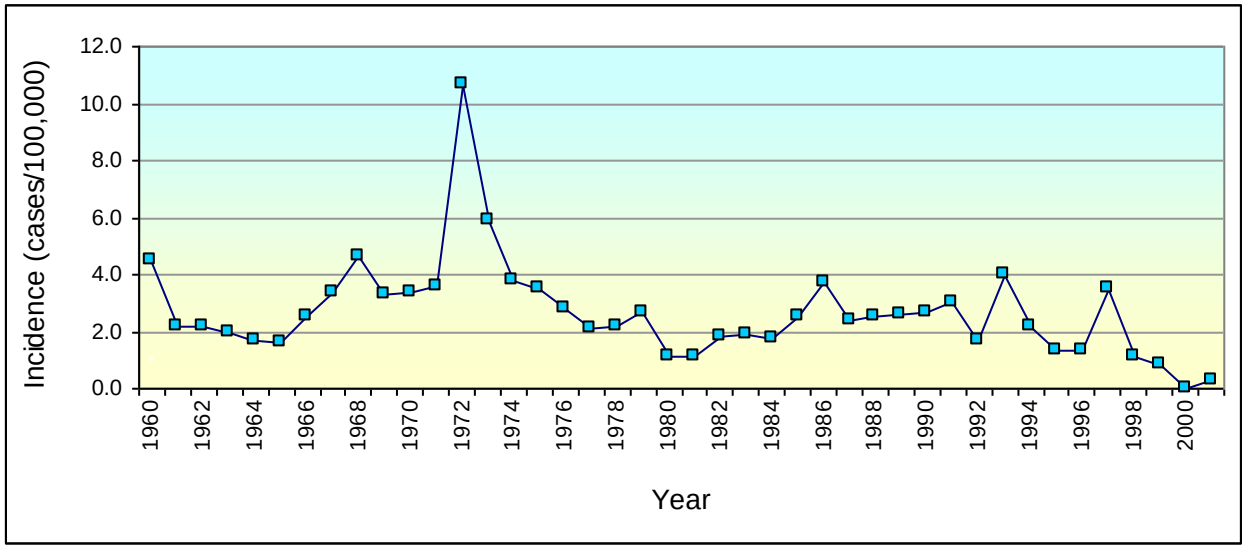
MENINGOCOCCAL MENINGITIS AND OTHER MENINGITIDES: ANNUAL INCIDENCE (CASES PER 100,000 POPULATION) OVER THE PERIOD 1960-2001

YEAR	MENINGOCCOCCAL /100,000	OTHER MENINGITIS /100,000
1960	4.5	ND
1961	2.2	ND
1962	2.2	ND
1963	2.0	ND
1964	1.7	ND
1965	1.6	ND
1966	2.5	ND
1967	3.4	ND
1968	4.6	ND
1969	3.3	ND
1970	3.4	ND
1971	3.6	ND
1972	10.7	ND
1973	5.9	ND
1974	3.8	ND
1975	3.5	ND
1976	2.8	ND
1977	2.1	ND
1978	2.2	ND
1979	2.7	ND
1980	1.1	ND
1981	1.1	ND
1982	1.8	ND
1983	1.9	ND
1984	1.8	ND
1985	2.5	ND
1986	3.7	ND
1987	2.4	ND
1988	2.5	ND
1989	2.6	ND
1990	2.7	3.7
1991	3.0	3.6
1992	1.7	5.6
1993	4.0	3.3
1994	2.2	4.5
1995	1.3	3.5
1996	1.3	7.0
1997	3.5	8.0
1998	1.2	5.4
1999	0.9	4.0
2000	0.0	4.1
2001	0.3	6.1

The age-specific morbidity of other meningitides is the same as that above-mentioned of meningococcal meningitis: the pediatric age groups (0-14 years old) constantly show the highest incidence, representing 80% and more of the total annual reported cases.

GRAPH 19

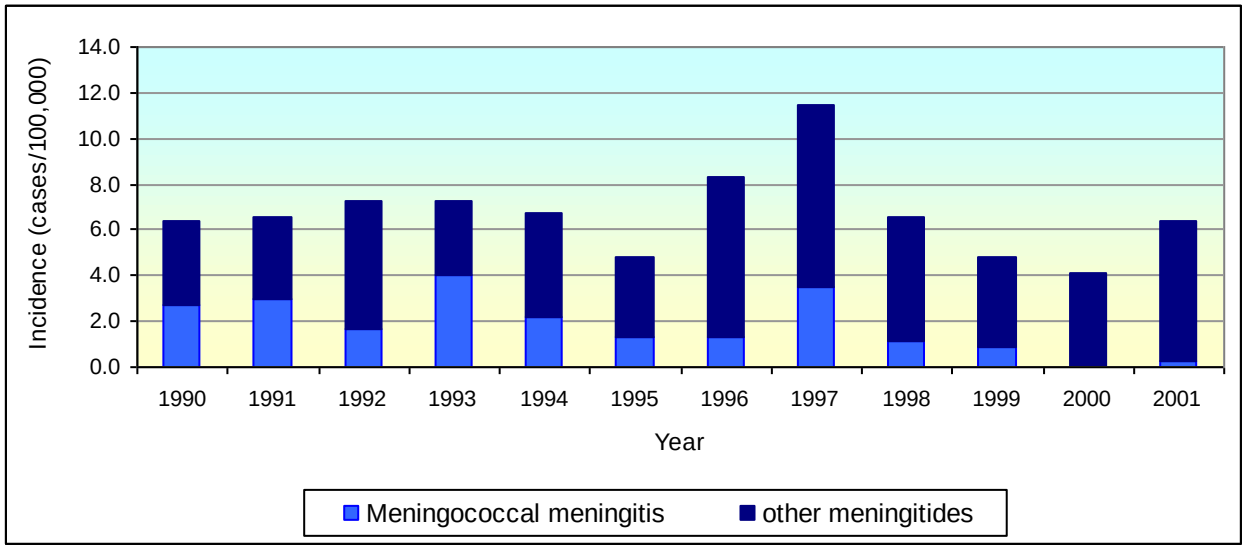
MENINGOCOCCAL MENINGITIS:
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001



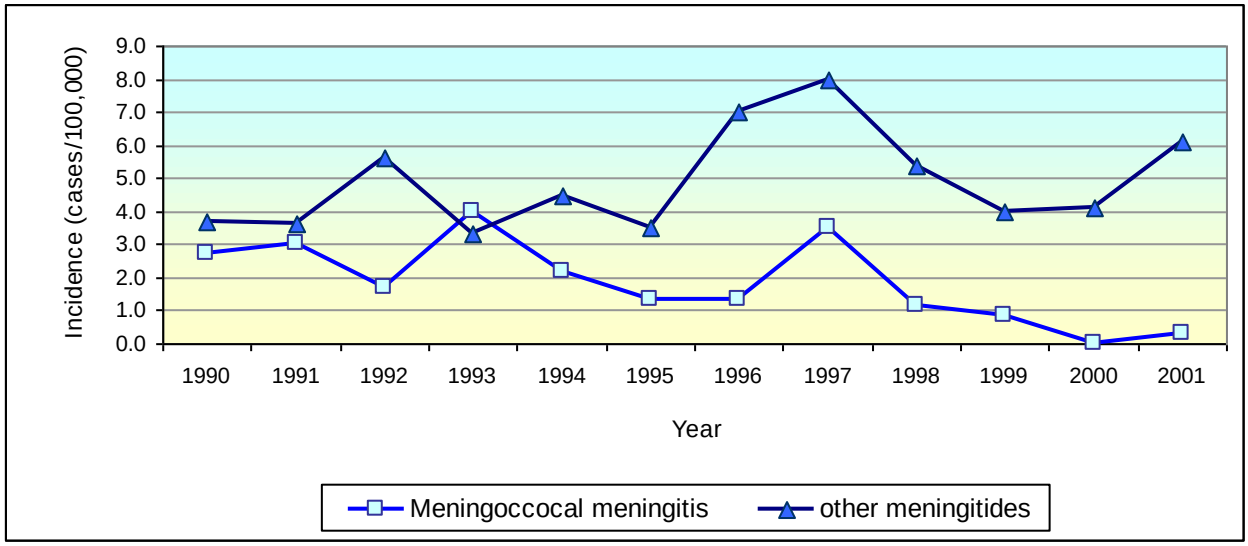
GRAPHS 20 AND 21

GRAPH 20

MENINGOCOCCAL MENINGITIS AND OTHER MENINGITIDES:
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1990-2001



GRAPH 21



Geographical distribution of meningococcal meningitis in Albania (*TABLE 17* and *MAP 7*) points out conspicuous oscillations of disease occurrence in the two consecutive two-year periods 1995-1996 and 2000-2001:

- There is not any district to constantly showing the presence of disease occurrence in each year of the above two consecutive two-year periods.
- In some districts, namely Fier, Gramsh, Kruje, Kukes, Lezhe, Puke, Tepelene, and Tirane, the disease occurrence is present in only two or three years of those two-year periods. Tepelene shows the highest incidence rates among all country ditricts: 27.2 and 36.3 cases per 100,000 population in 1995 and 1996 respectively.
- Districts like Diber, Elbasan, Gjirokaster, Kavaje, Kuçove, Laç, Lushnje, Malesi e madhe, Peqin, Permet, Pogradec and Tropoje show the presence of disease occurrence in only one year of the above two consecutive two-year periods.
- Meanwhile, the other districts, namely Berat, Bulqize, Delvine, Devoll, Durres, Has, Kolonje, Korçe, Librazhd, Mallakaster, Mat, Mirdite, Sarande, Skrapar, Shkoder and Vlore present …zero incidence rate of meningococcal meningitis in 1995-1996 and 2000-2001.

It should be stressed that rural areas always show higher incidence rates than urban ones: they represent 60-90% of the total annual reported cases with meningococcal meningitis.

Geographical distribution of other meningitides in Albania (*TABLE 17* and *MAP 8*) does not correspond with that of meningococcal meningitis. Only five districts, namely Bulqize, Delvine, Gramsh, Lezhe and Mirdite present zero incidence rate of other meningitides in 1995-1996 and 2000-2001, whereas all other districts show the presence of diseases occurrence either in one, two or three years or in all four years of the two consecutive two-year periods 1995-1996 and 2000-2001.

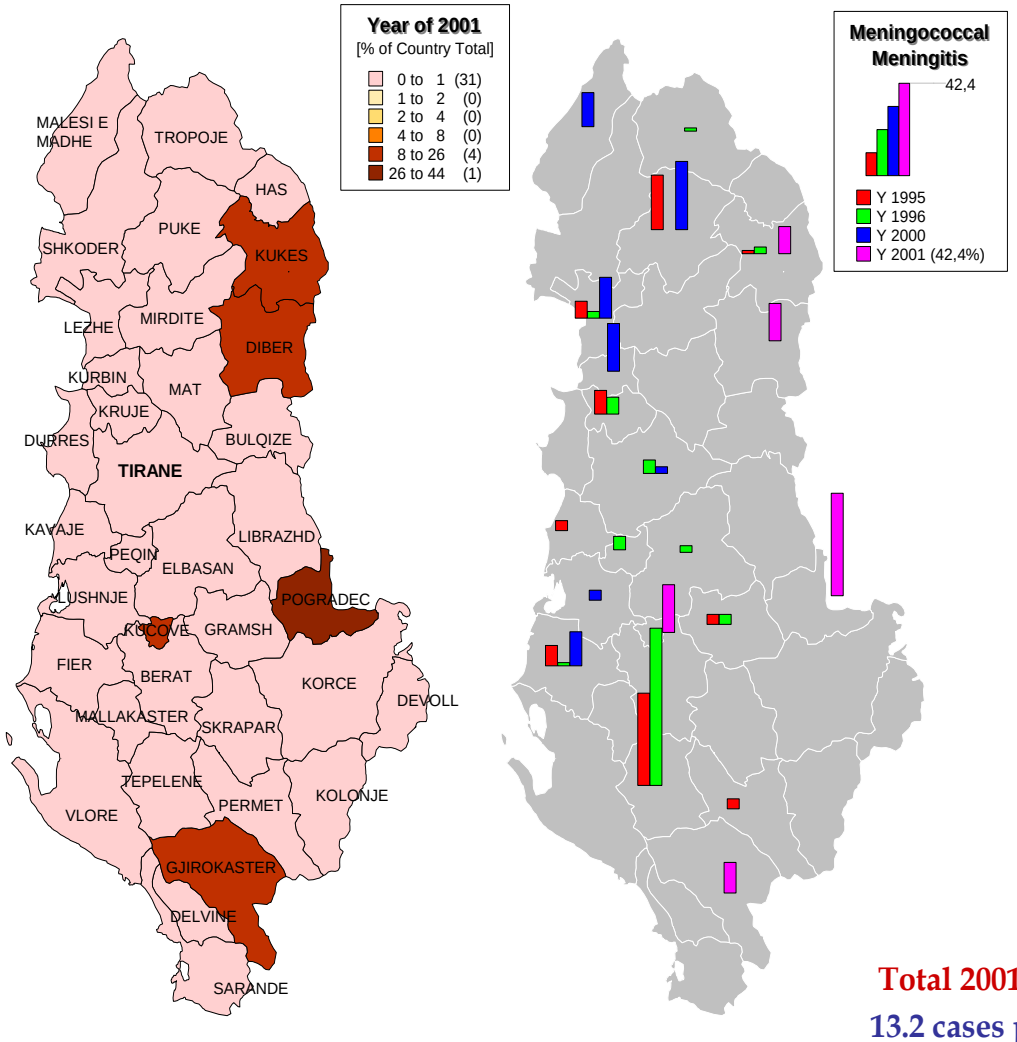
TABLE 17 AND MAPS 7 AND 8
TABLE 17

MENINGOCOCCAL MENINGITIS AND OTHER MENIGITIDES: GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS) IN 1995-1996 AND 2000-2001

No	District	Meningococcal Meningitis Incidence (cases per 100,000 pop.)				other Meningitides Incidence (cases per 100,000 pop.)			
		1995	1996	2000	2001	1995	1996	2000	2001
1	Berat	0	0	0	0	1.6	3.2	1.5	4.4
2	Bulqize	0	0	0	0	0	0	0	0
3	Delvine	0	0	0	0	0	0	0	0
4	Devoll	0	0	0	0	0	11.3	0	0
5	Diber	0	0	0	2.0	10.2	12.5	1.9	3.0
6	Durres	0	0	0	0	9.2	14.4	11.1	7.4
7	Elbasan	0	1.6	0	0	0	2.6	0	0
8	Fier	5.6	1.1	2.4	0	0	37.1	13.4	32.2
9	Gramsh	2.5	2.5	0	0	0	0	0	0
10	Gjirokaster	0	0	0	1.6	23.2	8.9	0	14.2
11	Has	0	0	0	0	24.7	0	0	0
12	Kavaje	2.5	0	0	0	1.3	0	0	0
13	Kolonje	0	0	0	0	0	12.5	0	0
14	Korçe	0	0	0	0	0	0.6	1.2	0.6
15	Kruje	7.4	3.7	0	0	0	3.6	5.0	3.4
16	Kuçove	0	0	0	2.6	0	0	2.6	2.6
17	Kukes	1.4	1.3	0	1.4	4.3	10.7	20.6	15.1
18	Laç	0	0	3.5	0	4.3	14.9	7.1	7.1
19	Lezhe	5.3	1.8	3.0	0	0	0	0	0
20	Librazhd	0	0	0	0	13.3	7.4	11.5	11.5
21	Lushnje	0	0	0.7	0	8.4	2.6	9.3	4.3
22	Malesi e madhe	0	0	2.3	0	4.8	0	0	4.5
23	Mallakaster	0	0	0	0	12.9	7.8	2.3	39.9
24	Mat	0	0	0	0	0	0	0	1.5
25	Mirdite	0	0	0	0	0	0	0	0
26	Peqin	0	3.4	0	0	6.9	3.5	0	0
27	Permet	2.9	0	0	0	0	5.7	0	2.8
28	Pogradec	0	0	0	5.6	11.7	16.1	1.4	4.2
29	Puke	15.6	0	4.8	0	2.3	2.3	0	0
30	Sarande	0	0	0	0	0	3.4	0	0
31	Skrapar	0	0	0	0	2.6	0	0	0
32	Shkoder	0	0	0	0	0	0	3.2	1.1
33	Tepelene	27.2	36.3	0	0	2.3	0	11.4	29.6
34	Tirane	0.3	3.3	0.4	0	9.2	7.3	3.9	3.5
35	Tropoje	0	0.6	0	0	0	0	7.4	0
36	Vlore	0	0	0	0	0	0	0.6	6.9

MAP 7

MENINGOCOCCAL MENINGITIS:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 2001 (LEFT MAP) AND
IN 1995-1996 AND 2000-2001 (RIGHT MAP)

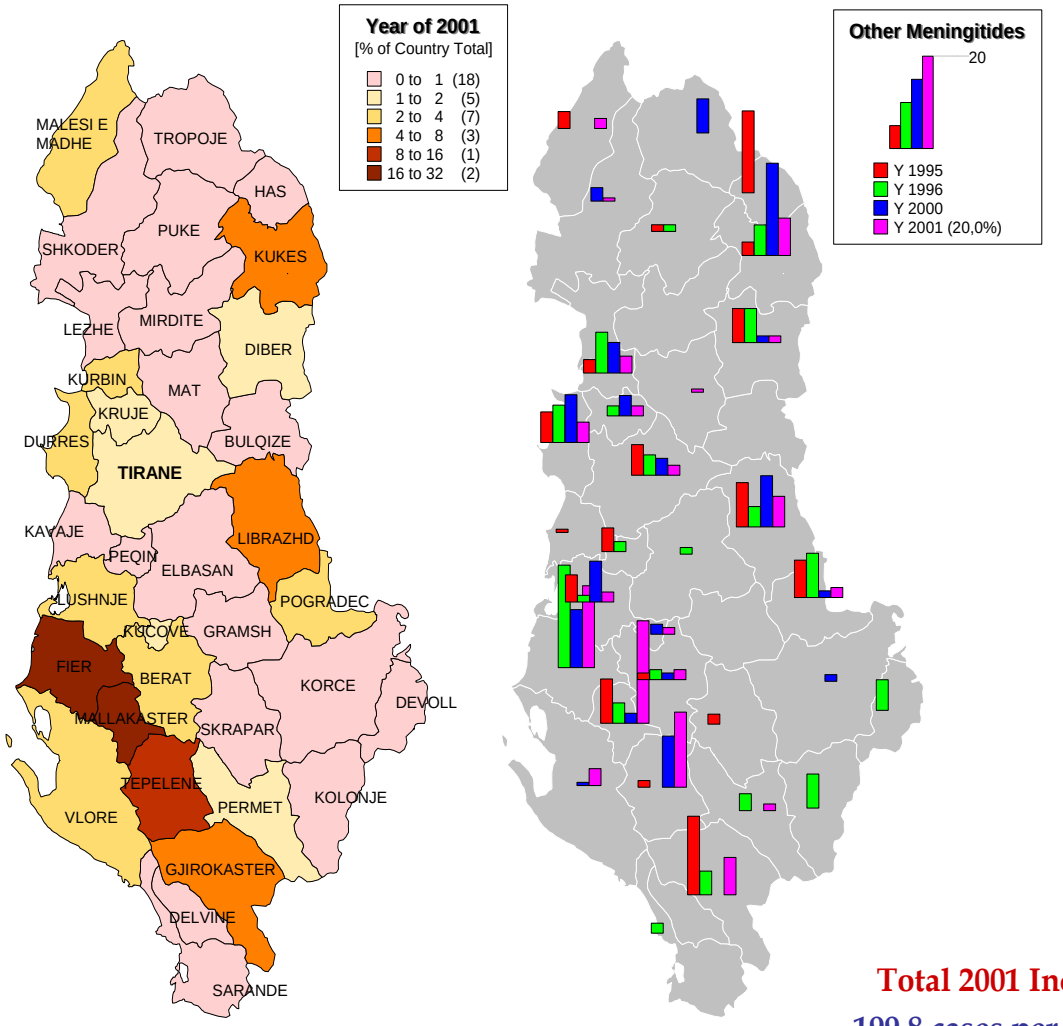


Total 2001 Incidence

13.2 cases per 100,000 population

MAP 8

OTHER MENIGITIDES:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 2001 (LEFT MAP) AND
IN 1995-1996 AND 2000-2001 (RIGHT MAP)



Total 2001 Incidence

199.8 cases per 100,000 population

6.5. INFECTIOUS DISEASES OF THE NATIONAL PROGRAMME ON IMMUNIZATION

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 of transmission, namely diphtheria, pertussis, measles, rubella. Therefore, their epidemiological surveillance data were presented in summarized *TABLES 7* and *8* of the respective subchapter 6.4 (see), meanwhile measles and rubella were detailed in the respective items 6.4.4 and 6.4.5 (see) of that subchapter.

DIPHTHERIA and PERTUSSIS are closely linked with TETANUS concerning their primary prevention by DPT (diftheria-pertussis-tetanus) tri-vaccine and DT and dT (diphtheria-tetanus) bi-vaccines. This is the reason why we are going to consider in detail diptheria and pertussis (airborne infectious diseases) together with tetanus in this subchapter on EPI diseases.

POLIOMYELITIS represents the second subject of this subchapter on EPI diseases.

As regards TUBERCULOSIS, essentially an airborne infectious disease and an EPI disease as well, because of its peculiarities will be considered apart (see the following subchapter 6.6.).

6.5.1. DIPHTHERIA, PERTUSSIS, TETANUS

(*TABLES 7*, *8* and *18*)
(*GRAPHS 22*, *23*, *24*)

The epidemiological surveillance data of annual frequency (number of reported cases) and incidence (cases per 100,000 population) of diphtheria, pertussis and tetanus during the four-decade period 1960-2001, present a stable decrease of their occurrence, especially from 1980s onwards, as a common trend over time, (*TABLES 7*, *8*, *18*).

The years 1960 denote the introduction of mandatory vaccination against Diphtheria, Pertussis and Tetanus in Albanian calendar of immunization, with locally produced DPT tri-vaccine. Big improvements during 1970s-1980s both on DPT (and DT, dT, TT) production biotechnology (vaccine efficiency) and immunization schemes (vaccine effectiveness) resulted in a further decrease of the occurrence of respective diseases, reaching the lowest rates of their incidence by the end of 1980s onwards, (*GRAPHS 22*, *23*, *24*).

DIPHTHERIA (*GRAPH 22*) shows an initial sharp decrease of its occurrence (period 1960-1975), followed by low annual incidence rates over the period from 1975 onwards, (except the period 1990-1994 with a little increase of annual incidence rates). Actually (from 1995 onwards), the annual diphtheria cases are zero to at maximum 3 or 4 ones, reported as suspected (not laboratory confirmed) cases.

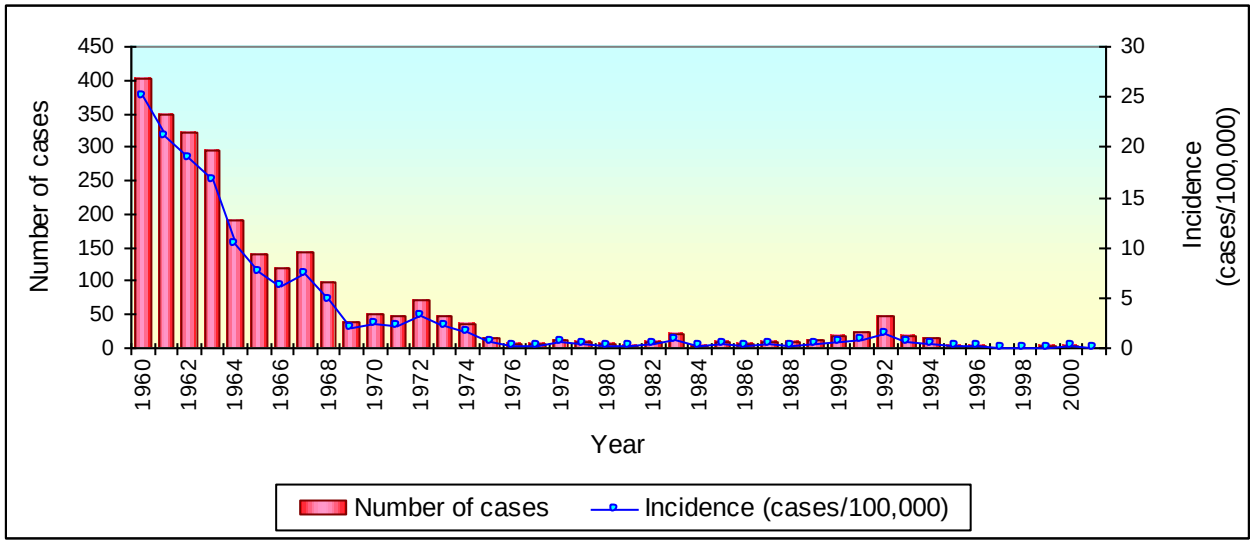
TABLE 18

DIPHTHERIA, PERTUSSIS, TETANUS (D.P.T.):
ANNUAL FREQUENCY (CASES) AND INCIDENCE (CASES PER 100,000 POPULATION) OVER THE PERIOD 1960-2001

YEAR	DIPHTHERIA		PERTUSSIS		TETANUS	
	cases	/100,000	cases	/100,000	cases	/100,000
1960	402	25	3,501	217.8	66	4.1
1961	349	21	1,299	78.2	80	4.8
1962	323	18.8	3,876	226.2	63	3.7
1963	294	16.6	6,851	387.9	59	3.3
1964	190	10.4	3,876	213.1	78	4.3
1965	140	7.5	1,849	98.8	65	3.5
1966	118	6.1	4,958	257.6	68	3.5
1967	144	7.3	5,885	297.6	82	4.1
1968	97	4.7	2,252	110.9	79	3.9
1969	39	1.9	2,328	111.8	81	3.9
1970	52	2.4	8,230	385.4	59	2.8
1971	48	2.2	6,447	294.6	36	1.6
1972	72	3.2	2,286	101.9	46	2.1
1973	48	2.1	9,354	407.4	53	2.3
1974	36	1.5	9,300	397.5	45	1.9
1975	14	0.6	2,215	92.1	38	1.6
1976	6	0.2	4,011	163.1	37	1.5
1977	6	0.2	6,057	239.5	32	1.3
1978	12	0.5	4,312	167.2	26	1
1979	8	0.3	3,386	129.2	34	1.3
1980	5	0.2	1,370	51.3	30	1.1
1981	4	0.15	2,835	104	23	0.8
1982	10	0.35	3,120	112.1	15	0.5
1983	20	0.7	1,658	58.3	6	0.2
1984	3	0.1	897	30.9	10	0.3
1985	8	0.3	1,459	49.2	10	0.3
1986	7	0.23	1,257	41.6	11	0.3
1987	9	0.3	1,124	36.5	14	0.4
1988	8	0.25	1,049	33.4	11	0.3
1989	11	0.3	409	12.8	12	0.3
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
1998	0	0	24	0.7	4	0.12
1999	2	0.06	27	0.8	3	0.09
2000	4	0.1	89	2.7	2	0.06
2001	0	0	36	1.1	2	0.06

GRAPH 22

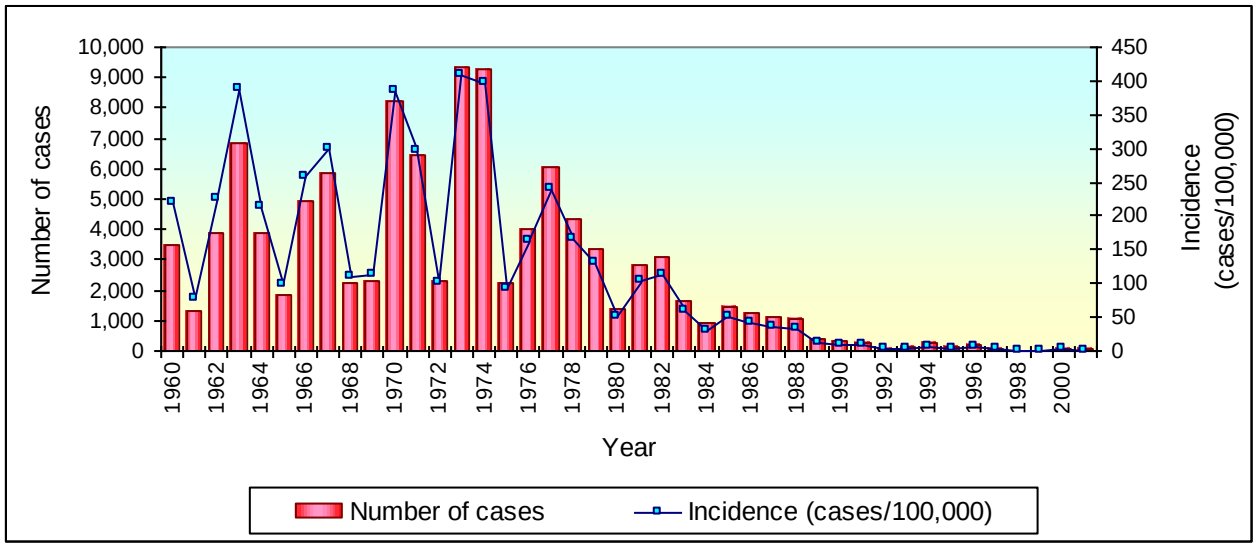
DIPHTHERIA:
ANNUAL FREQUENCY (CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001



PERTUSSIS occurrence (*GRAPH 23*) is characterized by noticeable annual oscillations over the period 1960-1988, followed by low annual incidence rates from 1989-1990 onwards.

GRAPH 23

PERTUSSIS:
ANNUAL FREQUENCY (CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001

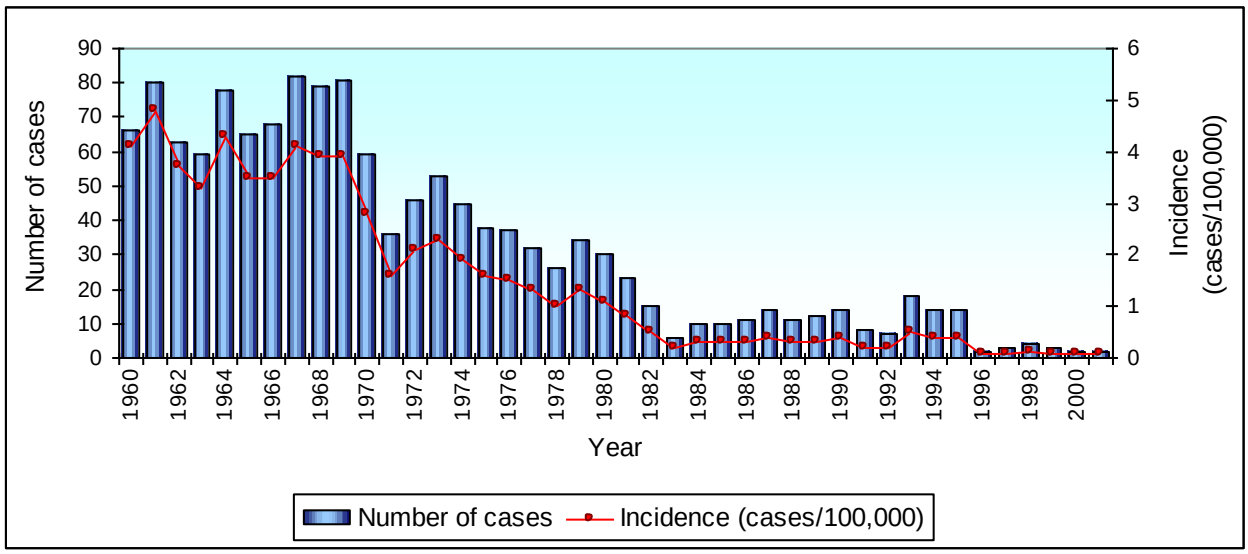


The annual reported cases of pertussis during the period 1990-2001 vary in range 100-300 cases, 98-99% of them belonging to pediatric age groups 0-14 years old.

TETANUS occurrence (*GRAPH 24*) shows an initial stable trend (1960-1973), followed by a steady decreasing trend during years 1974-1982. The next period 1983-1995 presents another stable trend, already of low annual incidence rates (around a level of 3-4 cases per 1 million people). Very low levels of disease occurrence characterize the last period (1996-2001): the annual frequency is only 2-4 reported cases.

GRAPH 24

TETANUS:
ANNUAL FREQUENCY (CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001



6.5.2. POLIOMYELITIS

(*TABLE 19*)
(*GRAPHS 25, 26*)

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 REGION.

IN JUNE 21, 2002, WHO CERTIFIED ALL COUNTRIES OF THE EUROPEAN REGION AS POLIO-FREE ONES.

Nevertheless, it is of value to consider the main features of poliomyelitis epidemiology in Albania on the basis of epidemiological surveillance data, available from the year 1960, (*TABLE 19, GRAPHS 25* and *26*).

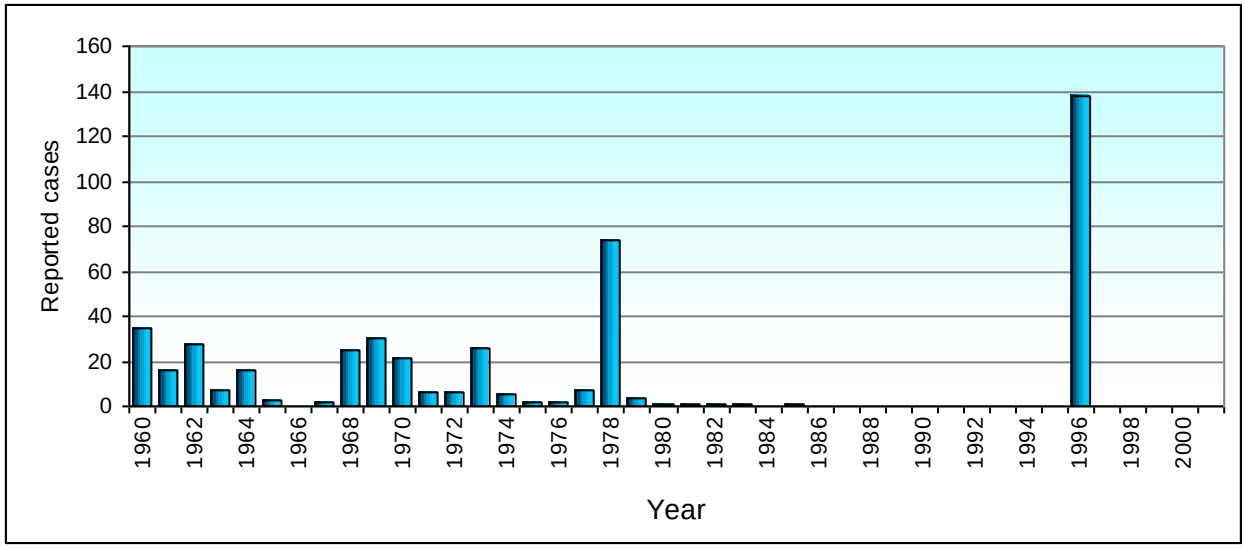
TABLE 19 AND GRAPHS 25 AND 26
TABLE 19

POLIOMYELITIS:
ANNUAL NUMBER OF CASES AND VACCINATION COVERAGE
(PERIOD 1960-2001)

YEAR	POLIOMYELITIS	
	CASES	VACCINATION COVERAGE
1960	35	
1961	16	
1962	28	
1963	7	
1964	16	
1965	3	
1966	0	
1967	2	
1968	25	
1969	30	
1970	21	
1971	6	86%
1972	6	98%
1973	26	97%
1974	5	98%
1975	2	98%
1976	2	88%
1977	7	38%
1978	74	98%
1979	4	92%
1980	1	94%
1981	1	90%
1982	1	90%
1983	1	91%
1984	0	90%
1985	1	93%
1986	0	93%
1987	0	94%
1988	0	96%
1989	0	96%
1990	0	96%
1991	0	82%
1992	0	97%
1993	0	98%
1994	0	96%
1995	0	98%
1996	138	99%
1997	0	99%
1998	0	97%
1999	0	97%
2000	0	98%
2001	0	99%

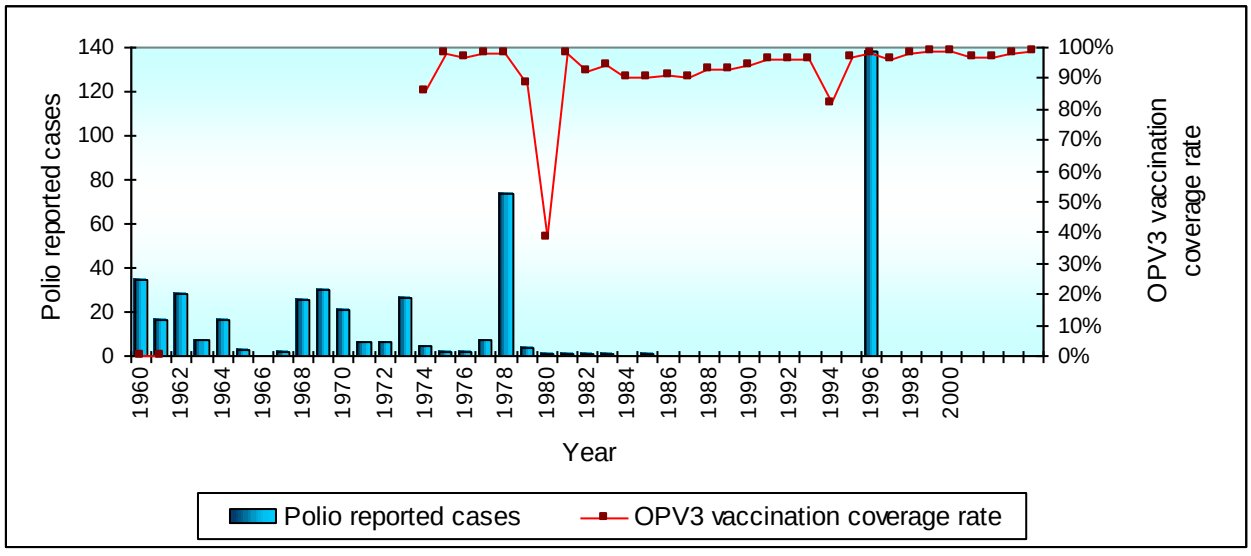
GRAPH 25

POLIOMYELITIS:
ANNUAL NUMBER OF CASES OVER THE PERIOD 1960-2001
(EPIDEMICS IN 1978 AND 1996, POLIO ELIMINATION SINCE 1997)



GRAPH 26

POLIOMYELITIS:
ANNUAL NUMBER OF CASES AND VACCINATION COVERAGE
(PERIOD 1960-2001)



The routine polio immunization with OPV – Oral Poliovirus Vaccine Sabin (concretely MOPV – Monovalent Oral Poliovirus Vaccine) begin in Albania in 1960 as a mandatory one.

MOPV is used till 1977 at 2 doses in total for each (1, 2, 3) vaccine poliovirus type and is substituted by the TOPV (Trivalent Oral Poliovirus Vaccine) in 1978. Polio immunization by TOPV over the period 1978-1981 contains 4 doses in total for each vaccine poliovirus type (OPV3 as basic immunization and a booster dose at 18-24 months of age); a second booster dose at 5-6 years of age is added in 1982 in the routine OPV immunization schedule. The period 1982 onwards, which actually represents the current immunization scheme, contains therefore 5 doses in total for each vaccine poliovirus type.

The period from 1960 till 1985 is characterized by wild poliovirus endemic circulation with an epidemic peak in 1978.

In 1978, a polio outbreak (wild poliovirus type 3) takes place, with a total of 74 paralytic poliomyelitis cases mainly infants and children aged less than 5 years. The reason was a sharp fall of OPV3 coverage (at a level of 38%) in 1977 due to OPV lack in 1977.

During the period 1980-1985, one paralytic poliomyelitis case (wild poliovirus 2) is reported each year.

The consecutive ten-year period 1986-1995 is characterized by the total absence of wild poliovirus circulation among the country population. There was quite reliable evidence (each year cross-sectional surveys carried out by the Institute of Public Health - IPH) of such an epidemiological polio-free situation.

Meanwhile, each year cross-sectional sero-epidemiological studies, carried out by the IPH, demonstrate the presence of conspicuous susceptible pockets towards poliomyelitis, heterogeneously spread among the country population, mainly because of inadequate vaccination cold chain conditions among other reasons, (despite total OPV3 coverage levels over than 90% each year). Such immunological situation dictated the necessity of National Days of Immunization (NIDs).

The year 1996 marks a large-scale poliomyelitis epidemic (wild poliovirus type 1) in Albania, with a total of 138 paralytic poliomyelitis cases (16 deaths out of them). It should be underlined the strange coincidence of epidemic occurrence and NID: the first polio cases are detected during the first (April 1996) and second (May 1996) of NID implementation.

The mass vaccination (all country subjects 0-50 years old), successfully carried out in October (first round) and November (second round) extremely weakened the epidemic attack, totally interrupted it in December 1996.

January 1, 1997 denotes the official beginning of the actual polio-free epidemiological situation in Albania.

January 1, 1997 denotes also the implementation of AFP (ACUTE FLACCID PARALYSES) SURVEILLANCE SYSTEM THROUGHOUT THE COUNTRY, as a statutory case-based epidemiological surveillance system on poliomyelitis, (see 5.1.).

Last but not least, Albania has actually a quite APPROPRIATE EPI COLD CHAIN for vaccine storage, transportation and administration at all levels, that is from national (IPH) and district (epidemiological service) levels to peripheral capillary ones (child consultancies in towns/cities, health centers in communes, health posts or ambulantsias in villages).

6.6. TUBERCULOSIS (TB)

(*TABLE 11*)
(*GRAPH 13*)

The occurrence levels of TUBERCULOSIS – TB (ICD-9 010.1/011/012.0/012.1/015-018) in Albania have remained nearly constant over the past ten years (period 1990-2001). The annual number of incident cases vary in a range from 530 to 765 ones, with an annual average of 660 cases, or 20.1 new cases per 100,000 population as incidence rate, (*TABLE 11*, *GRAPH 13*). The considerable weight of extrapulmonary TB (ICD-9 015-017) in the total annual TB occurrence should draw veterinary service's attention to cattle TB control and prevention.

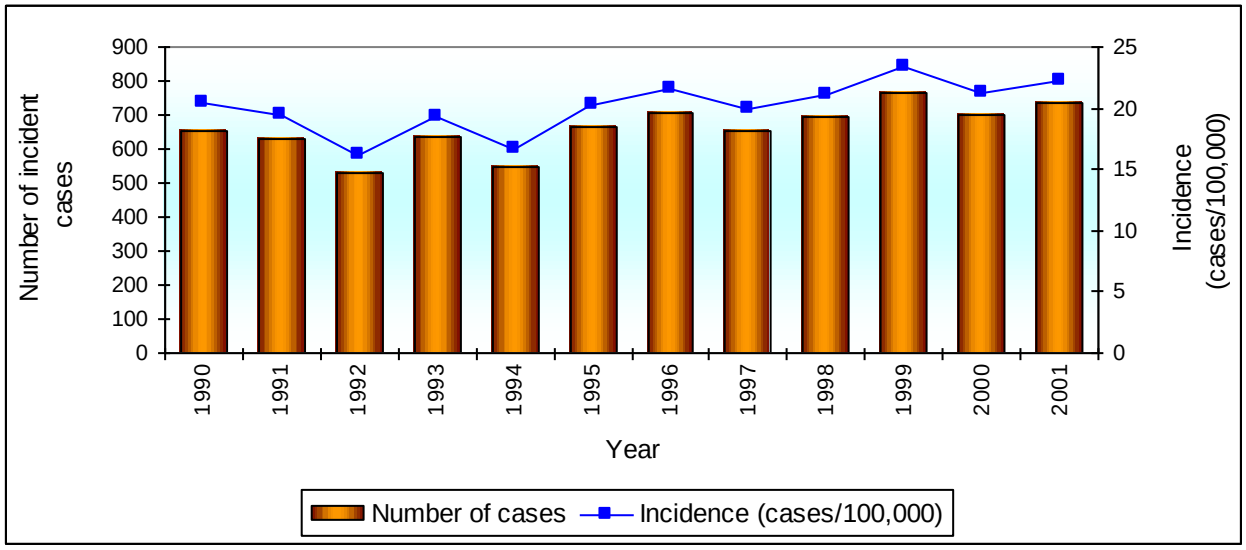
TABLE 11 AND GRAPH 13
TABLE 11

TUBERCULOSIS:
ANNUAL FREQUENCY (CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1990-2001

YEAR	TBC	
	cases	/100,000
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
1998	694	21.1
1999	765	23.3
2000	700	21.3
2001	733	22.3

GRAPH 13

TUBERCULOSIS:
ANNUAL FREQUENCY (CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1990-2001



TB represents a growing global health threat, particularly due to its link with HIV/AIDS.

Despite measures taken by the Ministry of Health, TB prevention systems are poor. There is a lack of proper method for diagnosis, lack of information about patient treatment, and poor communication between responsible medical centers namely TB dispensaries and epidemiological services at district level.

6.7. ZOONOSES (OF VETERINARY CONTROL AND PREVENTION NATURE): ANTHRAX, BRUCELLOSIS, LEISHMANIASIS, LEPTOSPIROSIS

(*TABLES 20*, *21*, *22*)
(*GRAPHS 27*, *28*, *29*, *30*, *31*)
(*MAPS 9*, *10*, *11*, *12*)

Though the generic term "zoonosis" includes a very large number of infectious diseases, (even influenza is essentially a zoonotic disease), this subchapter is going to consider the zoonoses which are subject of the veterinary medicine control and prevention and of a public health importance, namely ANTHRAX, BRUCELLOSIS, LEISHMANIASIS and LEPTOSPIROSIS.

The epidemiological surveillance data of annual frequency (number of reported cases) and incidence (cases per 100,000 population) of anthrax, brucellosis and leptospirosis in Albania are available from 1960, (*TABLE 20*). The availability of such data on leishmaniasis (both visceral and cutaneous) dates from the year 1990, (*TABLE 20*).

TABLE 20

ZOONOSIS: ANTHRAX, BRUCELLOSIS, LEISHMANIASIS, LEPTOSPIROSIS
ANNUAL FREQUENCY (CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001

YEAR	ANTHRAX		BRUCELLOSIS		LEISHMANIASIS VISCERALIS		LEISHMANIASIS CUTIS		LEPTOSPIROSIS	
	cases	/100,000	cases	/100,000	cases	/100,000	cases	/100,000	cases	/100,000
1960	240	14.9	614	38.2	ND		ND		22	1.4
1961	286	17.2	400	24	ND		ND		11	0.6
1962	342	19.9	382	22.2	ND		ND		10	0.5
1963	244	13.8	354	20	ND		ND		4	0.2
1964	150	8.2	360	19.7	ND		ND		15	0.8
1965	220	11.7	320	17.1	ND		ND		20	1
1966	264	13.7	244	12.7	ND		ND		5	0.2
1967	203	10.3	192	9.7	ND		ND		10	0.5
1968	161	7.9	170	8.4	ND		ND		9	0.4
1969	173	8.3	158	7.6	ND		ND		15	0.7
1970	142	6.6	82	3.8	ND		ND		24	1.1
1971	118	5.4	91	4.1	ND		ND		12	0.5
1972	155	6.9	54	2.4	ND		ND		11	0.5
1973	177	7.7	64	2.8	ND		ND		30	1.3
1974	156	6.6	43	1.8	ND		ND		48	2
1975	185	7.7	50	2.1	ND		ND		213	8.8
1976	136	5.5	51	2.1	ND		ND		59	2.4
1977	232	9.2	32	1.3	ND		ND		30	1.2
1978	169	6.5	37	1.4	ND		ND		33	1.3
1979	88	3.3	29	1.1	ND		ND		68	2.6
1980	109	4.1	27	1	ND		ND		43	1.6
1981	105	3.8	28	1	ND		ND		50	1.8
1982	87	3.1	22	0.8	ND		ND		48	1.7
1983	74	2.6	15	0.5	ND		ND		59	2.1
1984	77	2.6	15	0.5	ND		ND		56	1.9
1985	77	2.6	3	0.1	ND		ND		64	2.16
1986	76	2.5	17	0.56	ND		ND		35	1.15
1987	68	2.2	21	0.7	ND		ND		60	1.9
1988	82	2.6	30	0.95	ND		ND		87	2.8
1989	76	2.4	34	1.07	ND		ND		93	2.9
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
1998	95	2.9	523	15.9	146	4.4	10	0.3	7	0.2
1999	64	1.9	458	13.9	88	2.7	17	0.5	9	0.3
2000	62	1.9	553	16.8	95	2.9	12	0.4	6	0.2
2001	56	1.7	695	21.1	142	4.3	20	0.6	4	0.1

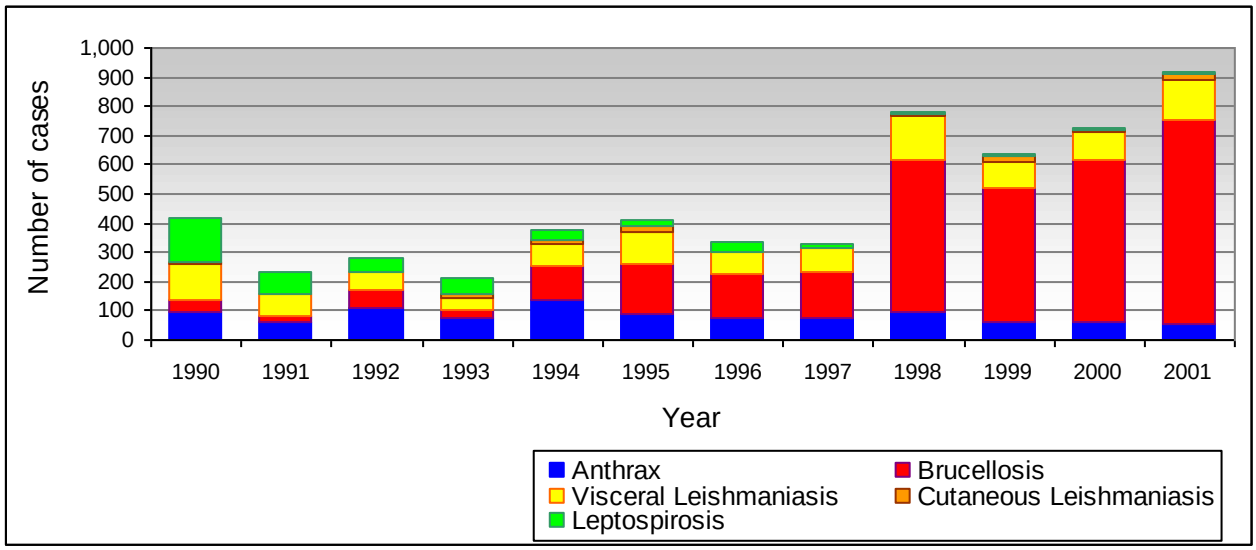
6.7.1. ZOONOSES IN GENERAL (PERIOD 1990-2001)

(Table 20)
(Graph 27)

The occurrence of all zoonoses (anthrax, brucellosis, leishmaniasis, leptospirosis) during the period 1990-2001 shows a common increasing trend, more expressed from 1997 onwards, mainly because of a conspicuous increase of brucellosis frequency.

GRAPH 27

ZOONOSIS: ANTHRAX, BRUCELLOSIS, LEISHMANIASIS, LEPTOSPIROSIS:
ANNUAL FREQUENCY (NUMBER OF CASES) OVER THE PERIOD 1990-2001



6.7.2. ANTHRAX

(*TABLES 20, 21*)
(*GRAPH 28*)
(*MAP 9*)

The epidemiological surveillance data of ANTHRAX in Albania during the four-decade period from 1960 till 2001 on its annual frequency (number of reported cases) and incidence rate (cases per 100,000 population) are presented in detail in *TABLE 20*.

The four-decade period 1960-2001 might be divided in two sub-periods as regards disease occurrence patterns. The first sub-period, 1960-1979, is characterized by a more or less stable decreasing trend of disease occurrence, with big or little annual oscillations; the annual number of reported cases

decrease from 250-300 ones in 1960-1967 to 100-150 ones in 1968-1979. The second sub-period, 1980-2001 presents a more or less stable trend of disease occurrence around an annual average level of 75-84 cases (or 2.7 cases per 100,000 population as incidence rate), (*TABLE 20*, *GRAPH 28*).

The most affected age groups result to be that of 25-34 and 45-64 years old; males represent more than 60% of cases. Such age-specific and gender-specific feature of disease occurrence is chiefly related to its occupational nature among human population.

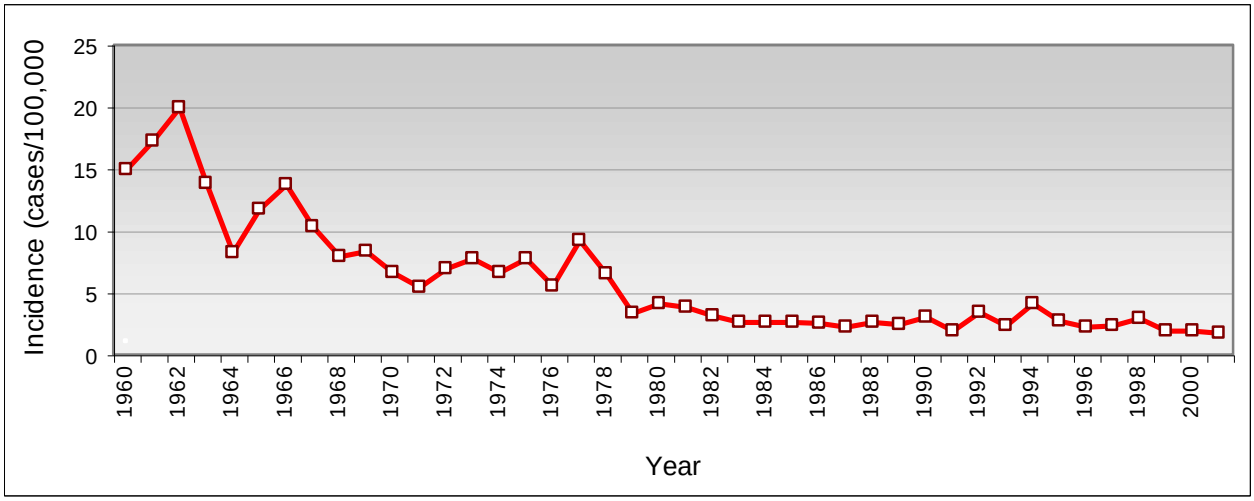
The most affected animals are small livestock followed by cattle. An increase in the number of affected animal and positive testing foci has been observed especially during the recent years, bearing relation to veterinary vaccination problems.

Anthrax 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.

Geographical distribution of Anthrax in Albania (*TABLE 21*, *MAP 9*) points out that the most affected districts are constantly those of the Southern Albania, namely Tepelene, Gjirokaster, Delvine, Sarande, Vlore. After the years 1993-1994, due to veterinary system malfunctioning and internal massive population migration, there exists a tendency of anthrax occurrence even in previously unaffected districts of the country, (like Berat, Durres, Elbasan, Peqin, Kukes, Laç, Pogradec, etc).

GRAPH 28

ANTHRAX:
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION) OVER THE PERIOD 1960-2001



6.7.3. BRUCELLOSIS

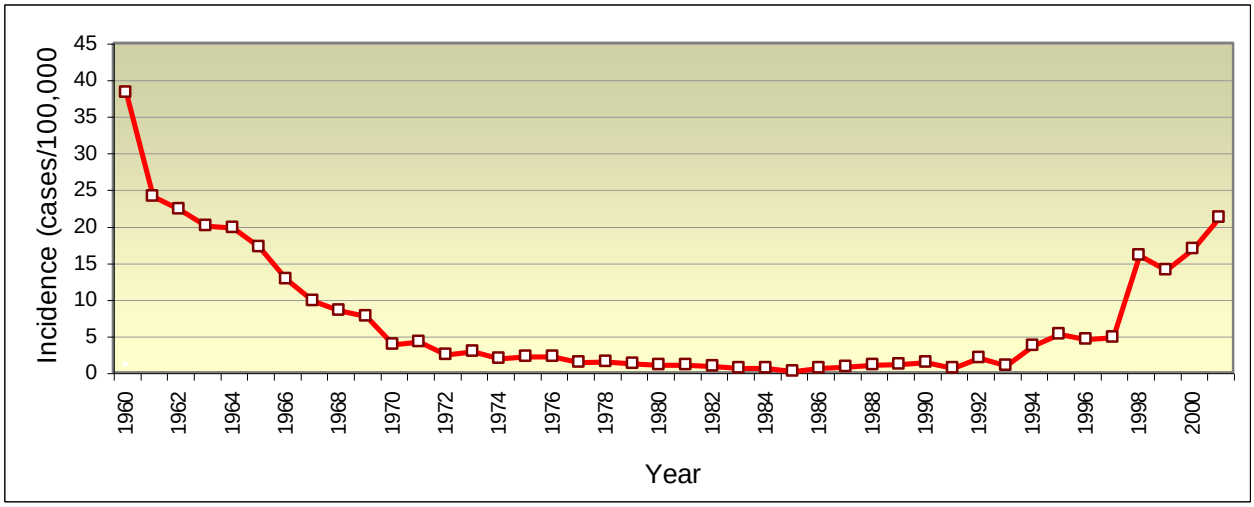
(*TABLES 20, 21*)
(*GRAPH 29*)
(*MAP 10*)

The epidemiological surveillance data of BRUCELLOSIS in Albania during the four-decade period from 1960 till 2001 on its annual frequency (number of reported cases) and incidence rate (cases per 100,000 population) are presented in detail in *TABLE 20*.

The disease occurrence over the four-decade period 1960-2001 present a trend of a U-shape (*GRAPH 29*): a significant decrease of disease occurrence from 1960 till 1976, a stable trend of low frequency levels from 1977 till 1993, and a significant increase of disease occurrence from 1994 onwards. The initial decrease of brucellosis occurrence during the first sub-period 1960-1976 and its maintaining at low frequency levels (annual incidence rate around one case per 100,000 population) during the second sub-period 1977-1993 were due to well-performed veterinary measures of disease control and prevention. Meanwhile, a noticeable weakening of veterinary activities from 1994 onwards in controlling and preventing the disease in animals represents the main cause of brucellosis occurrence increase among human population.

GRAPH 29

BRUCELLOSIS:
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION) OVER THE PERIOD 1960-2001



The most affected age groups result to be that of 25-34 and 45-64 years old; males represent more than 65% of cases. Such age-specific and gender-specific feature of brucellosis occurrence is chiefly related to its occupational nature among human population.

Brucellosis is reported throughout the year, independently of the seasonal fluctuations related to the animal lactation period.

The most affected animals are ruminants. A significant increase in the number of affected animal and positive testing foci from 1994 onwards is related to increasingly insufficient levels of veterinary activity on both primary prevention (vaccination) and secondary prevention (brucellinisation) of disease in animals.

Brucellosis cases have been recorded not only in rural areas, but also in urban ones. Still, the vast majority of reported cases (>85%) pertain to rural areas and, recently to suburban ones as well.

Geographical distribution of Brucellosis in Albania (*TABLE 21*, *MAP 10*) points out that the most affected districts are constantly those of the Southern-Southeastern Albania, namely Pogradec, Devoll, Korçe, Kolonje, Tepelene, Gjirokaster, Delvine, Sarande, Vlore, Fier, Mallakaster. After the years 1993-1994, due to veterinary system malfunctioning, brucellosis shows a trend to extend in districts not previously reported (like Berat, Bulqize, Diber, Elbasan, Durres, Elbasan, Peqin, Kukes, Tropoje, etc).

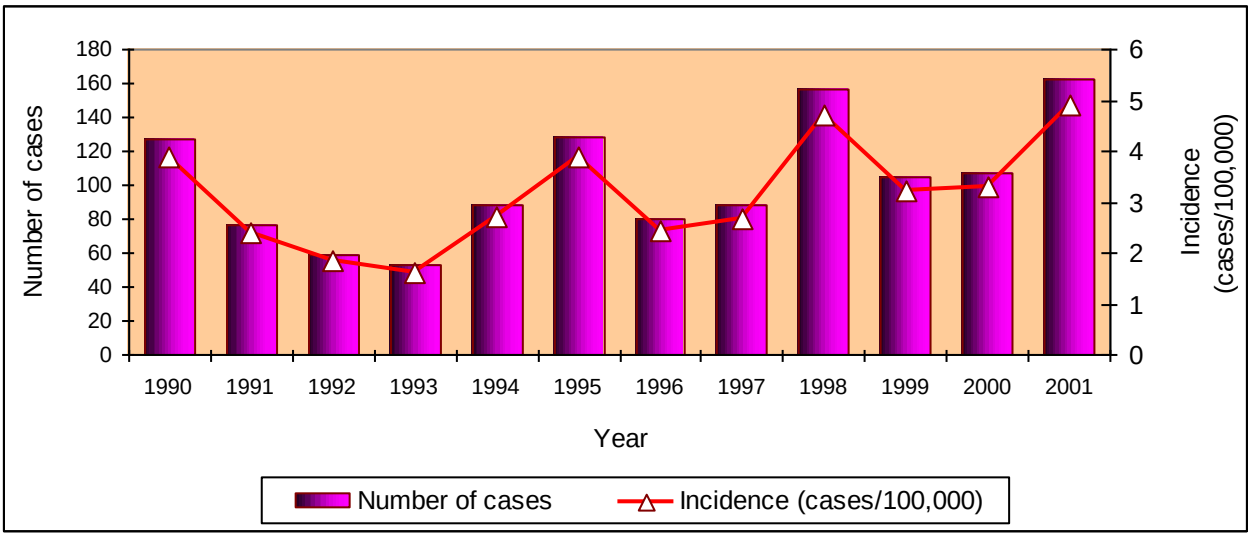
6.7.4. LEISHMANIASIS (VISCERAL AND CUTANEOUS)

(*TABLES 20, 22*)
(*GRAPH 30*)
(*MAP 11*)

The epidemiological surveillance data of LEISHMANIASIS in Albania during the period from 1990 till 2001 on its annual frequency (number of reported cases) and incidence rate (cases per 100,000 population) show an oscillating trend with increases every 3-5 years of the disease occurrence, (*TABLE 20, GRAPH 30*).

GRAPH 30

LEISHMANIASIS (VISCERAL AND CUTANEOUS):
ANNUAL FREQUENCY (NUMBER OF CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1990-2001



The annual frequency levels of visceral leishmaniasis vary in a range from 58 to 146 reported cases, with an annual average of 92 cases (or 2.8 cases per 100,000 population as incidence rate).

The pediatric age groups (0-14 years old) show the highest incidence rates both of visceral leishmaniasis and cutaneous leishmaniasis: they represent 87-92% of the total annual reported cases. The age group 0-4 years old has more weight among other pediatric ages, representing 60-65% of the total annual reported cases.

Most of the cases (70-90%) belong to rural areas. Anyhow, the actual ongoing overpopulation of uncontrolled street dogs in cities should be taken into consideration for a possible further increase of disease occurrence in urban areas.

Geographical distribution of Leishmaniasis in Albania (*TABLE 22*, *MAP 11*) illustrates features of a disease with natural foci: the most affected areas essentially represent the habitats, biocenoses, biotopes of phlebotomines (sand flies) – vector of disease transmission. Districts with higher incidence rates in the two consecutive two-years period 1995-1996 and 2000-2001 result to be Elbasan, Gramsh, Gjirokaster, Kruje, Kukes, Lezhe, Librazhd, Malesi e madhe, Shkoder, Mat, Tropoje.

6.7.5. LEPTOSPIROSIS

(*TABLES 20*, *22*)
(*GRAPH 31*)
(*MAP 12*)

The epidemiological surveillance data of LEPTOSPIROSIS in Albania during the four-decade period from 1960 till 2001 on its annual frequency (number of reported cases) and incidence rate (cases per 100,000 population) are presented in detail in *TABLE 20*.

The disease occurrence over the four-decade period 1960-2001 present an endemic circulation with epidemic peaks every 15 years (namely in 1975 and 1990), (*GRAPH 31*). The annual frequency levels in inter-epidemic periods vary in a range from 4-10 to 80-90 reported cases. Epidemic peaks in 1975 and 1990 showed a frequence of 213 and 148 cases respectively, or incidence rates of $8.8/10^5$ and $4.6/10^5$ respectively.

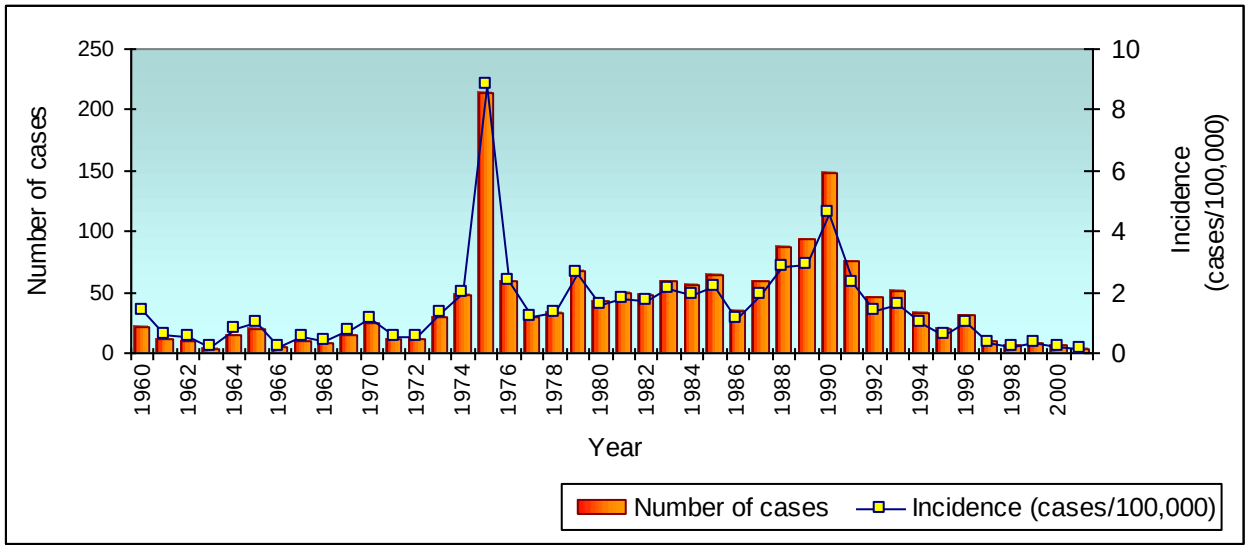
The most affected age groups result to be that of 25-54 years old; males show 3-4 times higher incidence rates than females. Such age-specific and gender-specific feature of leptospirosis occurrence is chiefly related to its occupational nature among human population.

The vast majority (>70%) of reported cases belong to rural areas.

Cross-sectional sero-epidemiological surveys, carried out by the Institute of Public Health (IPH) in years 1980-1990 have demonstrated a predominant circulation of *Leptospira pomona* and *Leptospira icterhaemorrhagiae* in Albania, and the cattle as the main natural host of infection.

GRAPH 31

LEPTOSPIROSIS:
ANNUAL FREQUENCY (NUMBER OF CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001



Geographical distribution of Leptospirosis in Albania (*TABLE 22*, *MAP 12*) points out districts with higher incidence rates in the two consecutive two-years period 1995-1996 and 2000-2001, like Skrapar, Lushnje, Fier, Mallakaster, Lezhe, Shkoder, Malesi e madhe, Tropoje, Kavaje, Tirane, Pogradec, Delvine. Nevertheless, it must be emphasized the instability over time of spatial distribution of disease occurrence. Because, as a rule, districts with a certain level of disease frequency in one year, show zero level in another year. Therefore, there are not districts being constantly over years affected by leptospirosis.

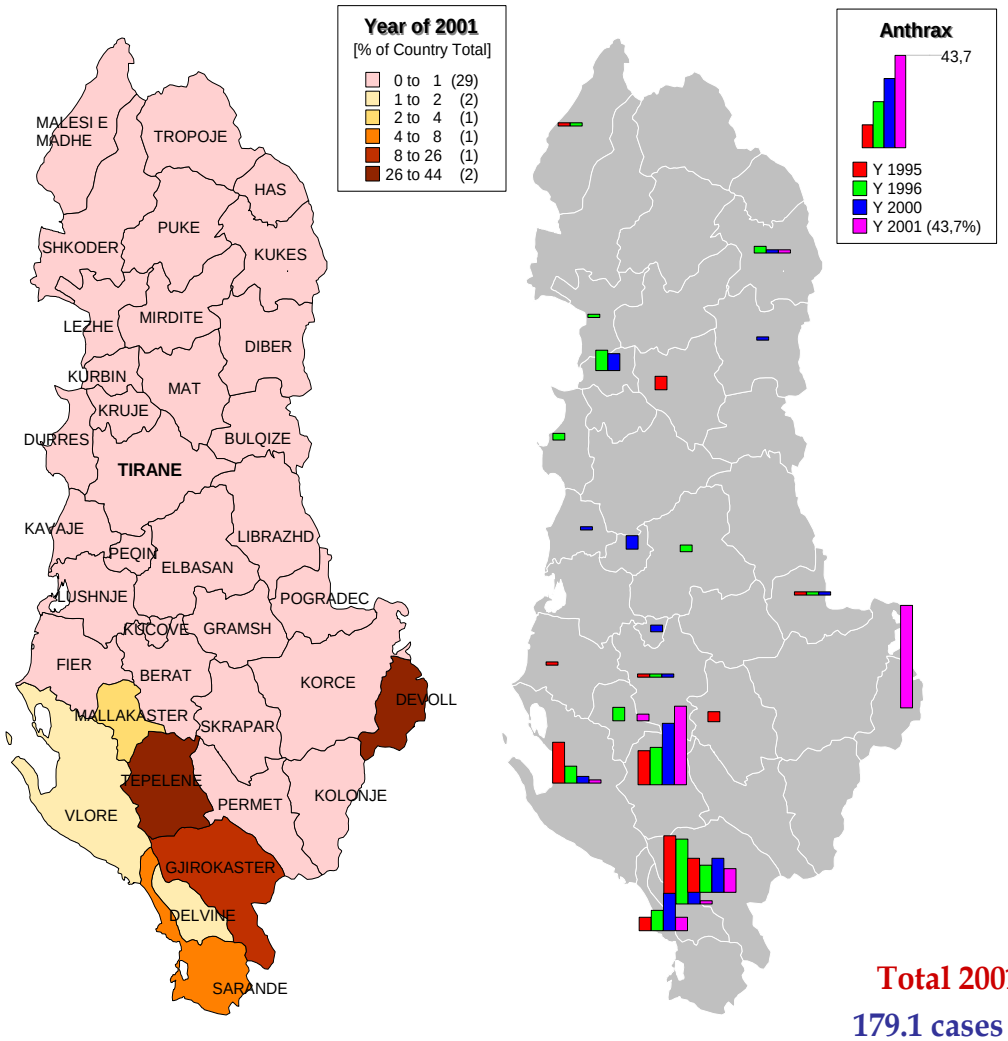
TABLE 21 AND MAPS 9 AND 10
TABLE 21

ANTHRAX AND BRUCELLOSIS:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 1995-1996 AND 2000-2001

No	District	Anthrax Incidence (cases per 100,000 pop.)				Brucellosis Incidence (cases per 100,000 pop.)			
		1995	1996	2000	2001	1995	1996	2000	2001
1	Berat	2.5	2.4	2.2	0.8	0	0.8	7.3	5.2
2	Bulqize	0	0	0	0	0	0	76.3	0
3	Delvine	57.8	33.5	17.3	3.5	39.7	0	0	135.3
4	Devoll	0	0	0	78.3	0	8.4	110.2	0
5	Diber	0	0	1.0	0	10.4	9.7	0	0
6	Durres	0	2.7	0	0.5	0	0	6.3	2.7
7	Elbasan	1.4	3.7	0.5	0.9	0	0.5	6.4	2.8
8	Fier	3.3	0	0.5	0.5	10.3	5.5	10.1	12.1
9	Gramsh	0	0	0	0	2.5	0	0	0
10	Gjirokaster	28.3	14.2	15.7	17.3	121.3	90.4	97.6	121.2
11	Has	0	0	0	0	0	0	0	0
12	Kavaje	1.1	0	1.1	0	0	0	3.4	3.4
13	Kolonje	0	0	0	0	0	20.1	45.5	70.4
14	Korçe	0	0	0	0	1.2	3.1	75.3	135.5
15	Kruje	0	0	0	0	0	0	0	0
16	Kuçove	0	0	2.6	0	0	0	0	2.6
17	Kukes	0	2.7	1.4	1.4	5.3	0	22.0	13.7
18	Laç	0	10.2	8.8	0	0	0	0	3.5
19	Lezhe	0	1.1	0	0	0	0	0	0
20	Librazhd	0	0	0	0	6.5	9.4	27.2	20.1
21	Lushnje	0.8	0	0	0	1.2	1.3	8.6	7.8
22	Malesi e madhe	4.2	2.4	0	0	2.4	0	0	0
23	Mallakaster	0	7.8	0	4.7	10.7	2.6	18.8	16.4
24	Mat	10.1	0	0	0	0	0	0	0
25	Mirdite	0	0	0	0	0	0	0	0
26	Peqin	1.2	0	6.4	0	0	0	0	3.2
27	Permet	0	0	0	0	0	5.6	25.4	28.2
28	Pogradec	1.8	1.2	1.4	0	3.0	6.2	37.8	47.6
29	Puke	0	0	0	0	0	0	0	0
30	Sarande	12.7	10.1	18.0	9.8	11.8	45.7	95.0	167.1
31	Skrapar	7.7	0	0	0	0	0	2.3	2.3
32	Shkoder	0	0.6	0	0	0	0	1.0	0
33	Tepelene	29.5	20.2	29.6	59.1	0	0	66.0	22.8
34	Tirane	0	0.6	0	0	0	1.1	1.5	1.9
35	Tropoje	0	0	0	0	0.6	0.6	2.5	0
36	Vlore	33.6	8.7	3.5	2.3	57.6	8.7	6.3	30.0

MAP 9

ANTHRAX:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 2001 (LEFT MAP) AND
IN 1995-1996 AND 2000-2001 (RIGHT MAP)

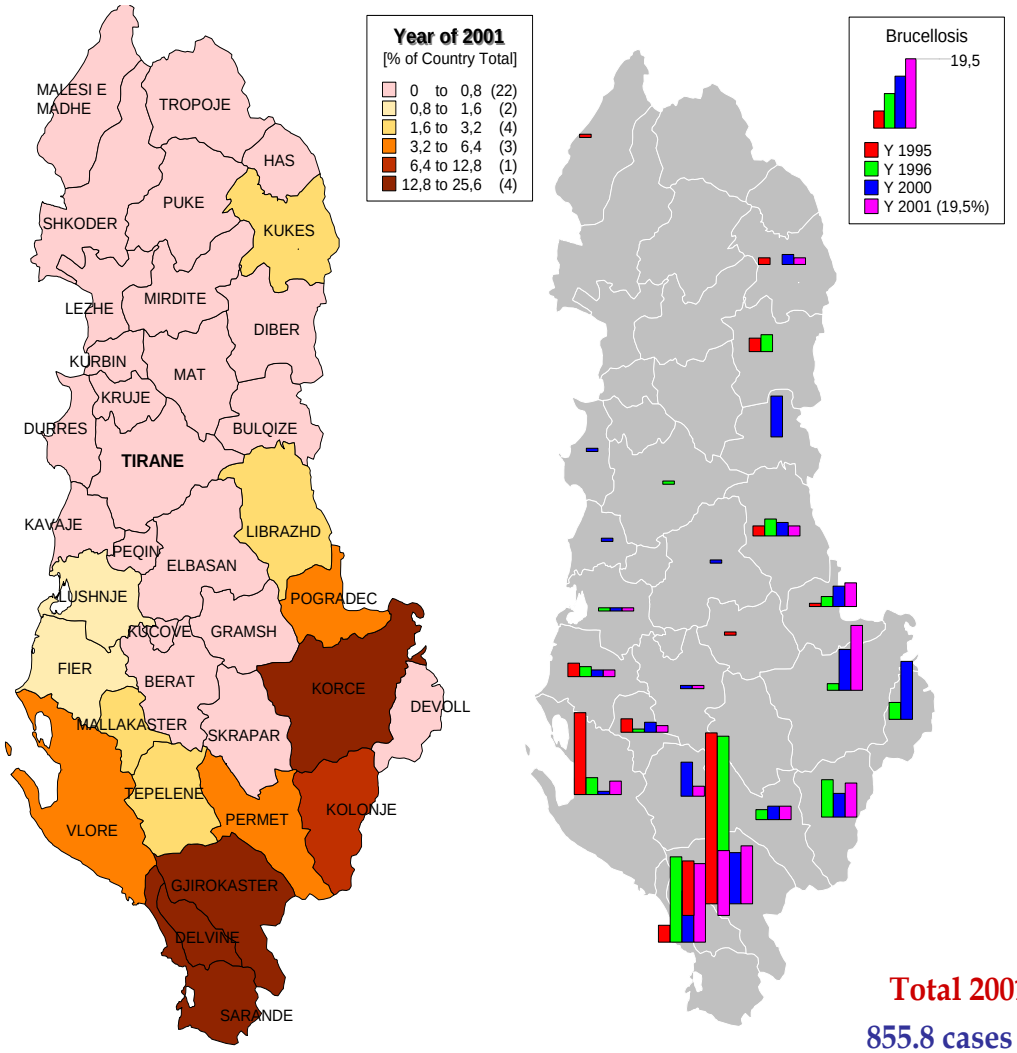


Total 2001 Incidence

179.1 cases per 100,000 population

MAP 10

BRUCELLOSIS:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 2001 (LEFT MAP) AND
IN 1995-1996 AND 2000-2001 (RIGHT MAP)



Total 2001 Incidence

855.8 cases per 100,000 population

TABLE 22 AND MAPS 11 AND 12

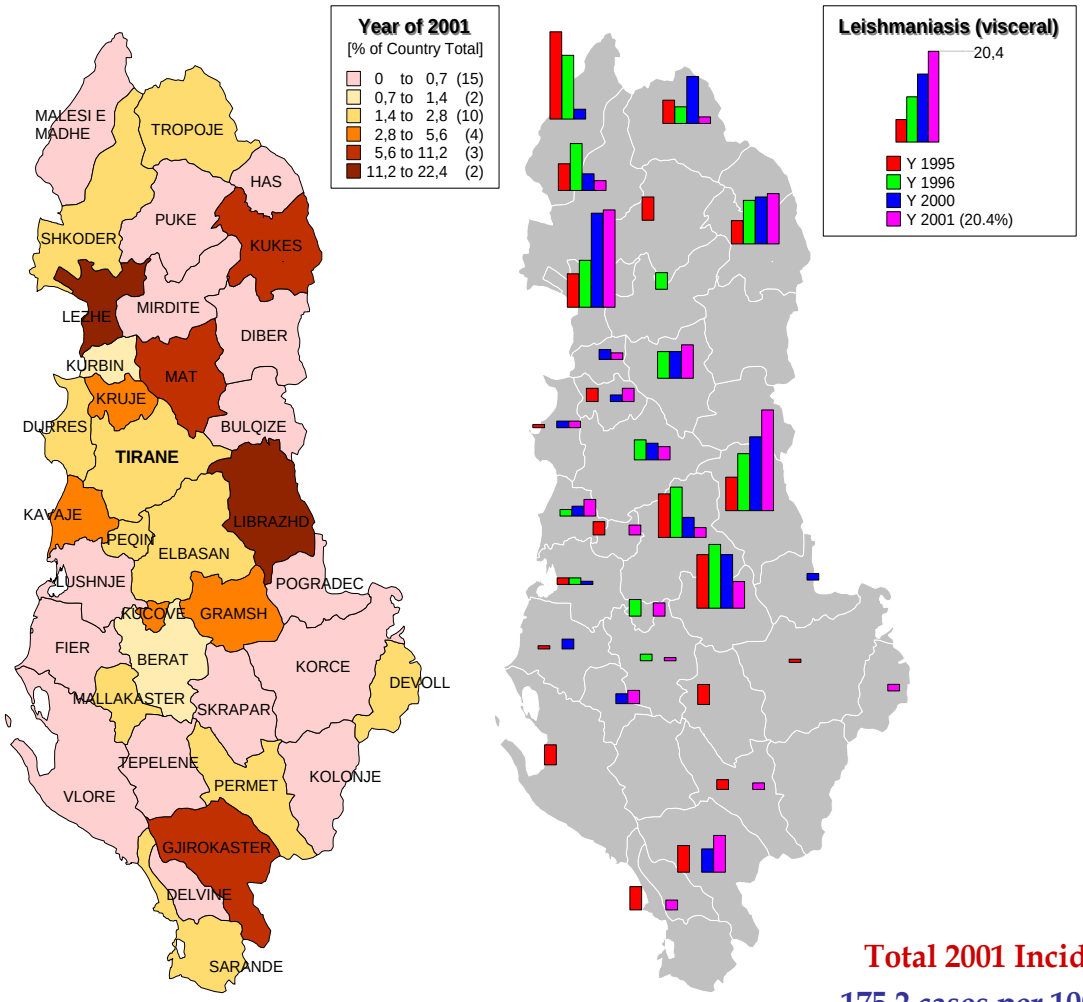
TABLE 22

LEISHMANIASIS (VISCERAL) AND LEPTOSPIROSIS: GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS) IN 1995-1996 AND 2000-2001

No	District	Leishmaniasis (visceral) Incidence (cases per 100,000 pop.)				Leptospirosis Incidence (cases per 100,000 pop.)			
		1995	1996	2000	2001	1995	1996	2000	2001
1	Berat	0	0.8	0	1.5	0	0	0.7	0
2	Bulqize	0	0	0	0	0	0	0	0
3	Delvine	0	0	0	0	3.6	0	3.5	0
4	Devoll	0	0	0	2.8	0	0	0	0
5	Diber	0	0	0	0	0	0	0	0
6	Durres	0.7	0	1.1	2.6	0	0	0	0
7	Elbasan	11.8	7.9	4.6	3.7	0.5	0	0	0
8	Fier	1.3	0	2.4	0.5	6.1	0	0	0.5
9	Gramsh	15.1	10.0	11.5	9.2	0	0	0	0
10	Gjirokaster	7.2	0	4.7	12.6	0	0	0	0
11	Has	0	0	0	0	0	0	0	0
12	Kavaje	0	1.2	2.3	5.7	1.7	0	0	0
13	Kolonje	0	0	0	0	0	0	0	0
14	Korçe	0.6	0	0	0	0	0	0.6	0
15	Kruje	3.6	0	1.7	5.1	0	0	0	0
16	Kuçove	0	2.8	0	5.1	0	0	0	0
17	Kukes	6.7	6.7	9.6	17.9	0	0	0	0
18	Laç	0	0	1.8	1.8	0	0	0	0
19	Lezhe	9.5	7.1	19.7	34.9	0	1.8	0	0
20	Librazhd	9.2	8.9	15.8	35.8	0	0	0	0
21	Lushnje	1.9	0.8	0.7	0	1.5	0	0.7	0
22	Malesi e madhe	24.2	9.5	2.3	0	2.4	2.4	0	2.3
23	Mallakaster	0	0	2.3	4.7	0	5.4	0	0
24	Mat	0	4.3	6.0	12.1	0	0	0	0
25	Mirdite	0	2.4	0	0	0	0	0	0
26	Peqin	3.4	0	0	3.2	0	0	0	0
27	Permet	2.8	0	0	2.8	0	0	0	0
28	Pogradec	0	0	1.4	0	0	1.8	0	0
29	Puke	6.7	0	0	0	0	0	0	0
30	Sarande	6.3	0	0	3.3	0	0	0	0
31	Skrapar	5.2	0	0	0	0	8.9	0	0
32	Shkoder	7.4	7.4	3.2	3.2	0.6	1.1	0	0
33	Tepelene	0	0	0	0	0	0	0	0
34	Tirane	0	3.3	3.3	4.2	0	1.6	0.4	0.4
35	Tropoje	6.2	2.4	9.8	2.5	0.9	1.9	0	0
36	Vlore	5.1	0	0	0	0	0.6	0	0

MAP 11

LEISHMANIASIS (VISCERAL):
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 2001 (LEFT MAP) AND
IN 1995-1996 AND 2000-2001 (RIGHT MAP)

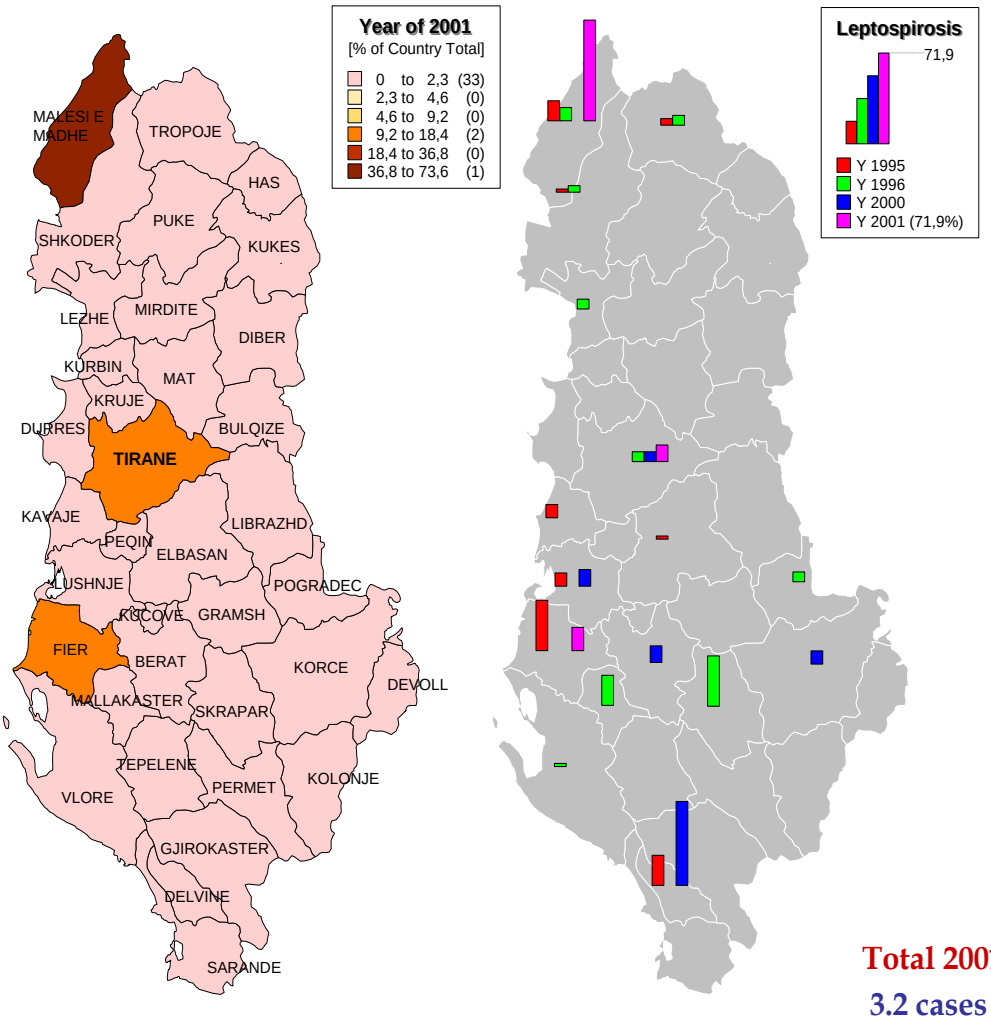


Total 2001 Incidence

175.2 cases per 100,000 population

MAP 12

LEPTOSPIROSIS:
GEOGRAPHICAL DISTRIBUTION (ACCORDING TO COUNTRY DISTRICTS)
IN 2001 (LEFT MAP) AND
IN 1995-1996 AND 2000-2001 (RIGHT MAP)



Total 2001 Incidence
3.2 cases per 100,000 population

6.8. RICKETTSIOSES

(*TABLE 23*)
(*GRAPH 32*)

We are going to consider rickettsioses as a group, without any specifications with regard to distinct nosologies.

The rickettsial diseases, subject of mandatory reporting of Albanian MDBSS of infectious diseases (see 5.1.), constituting the rickettsioses group, are:

- EPIDEMIC LOUSE-BORNE TYPHUS FEVER (ICD-9 080),
- MURINE TYPHUS (ENDEMIC FLEA-BORNE TYPHUS FEVER) (ICD-9 081.0),
- BOUTONNEUSE FEVER (MEDITERRANEAN TICK-BORNE SPOTTED FEVER) (ICD-0 082.1),
- Q FEVER (ICD-9 083.0),
- OTHER RICKETTSIOSES, UNSPECIFIED (ICD-9 081-083).

The annual frequency (number of reported cases) and incidence rate (cases per 100,000 population) of RICKETTSIOSES in Albania (RICKETTSIOSES IN-GROUP) over the four-decade period 1960-2001 are presented in *TABLE 23* and *GRAPH 32*.

It ought to be noted that epidemic louse-borne typhus occurrence was never reported over the period 1960-2001, whilst the unspecified riskettsiosis represents the majority of annual rickettsioses reported cases.

Rickettsioses occurrence shows an oscillating trend over the period 1960-2001, with peaks every 3-5 years. The number of annual reported cases varies in a range from 6-9 to 84-90 cases, with an annual average of 33 ones or 1.4 cases per 100,000 population as the incidence rate. Such low figures do not represent the real levels of rickettsioses occurrence; a certain number of cases remain undiagnosed, and therefore unreported for a rickettsial disease, because of a not well defined clinical picture development.

The urban areas generally show higher incidence rates than the rural ones.

There is not any specificity with regard to age and gender distribution of rickettsioses occurrence.

The same inference might be drawn for the spatial distribution of rickettsioses frequency: affected districts in one year show zero rickettsioses cases in another year over the period 1960-2001.

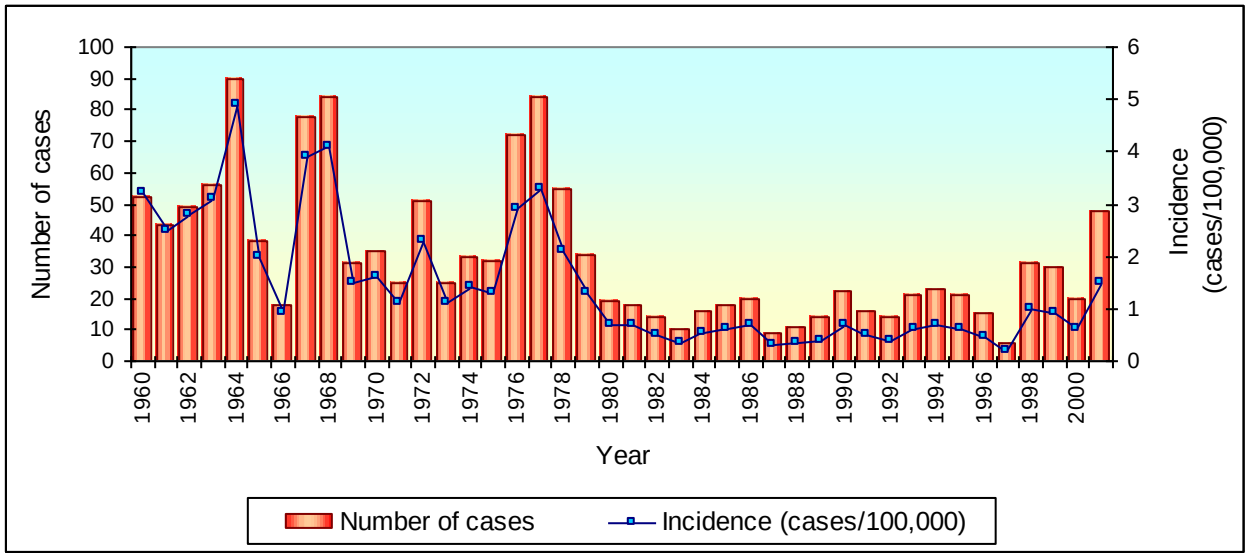
TABLE 23 AND GRAPH 32
TABLE 23

RICKETTSIAL INFECTIOUS DISEASES (RICKETTSIOSES):
ANNUAL FREQUENCY (CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001

YEAR	RICKETTSIOSES	
	cases	/100,000
1960	52	3.2
1961	43	2.5
1962	49	2.8
1963	56	3.1
1964	90	4.9
1965	38	2.0
1966	18	0.9
1967	78	3.9
1968	84	4.1
1969	31	1.5
1970	35	1.6
1971	25	1.1
1972	51	2.3
1973	25	1.1
1974	33	1.4
1975	32	1.3
1976	72	2.9
1977	84	3.3
1978	55	2.1
1979	34	1.3
1980	19	0.7
1981	18	0.7
1982	14	0.5
1983	10	0.35
1984	16	0.55
1985	18	0.6
1986	20	0.7
1987	9	0.3
1988	11	0.35
1989	14	0.4
1990	22	0.7
1991	16	0.5
1992	14	0.4
1993	21	0.6
1994	23	0.7
1995	21	0.6
1996	15	0.45
1997	6	0.18
1998	31	1.0
1999	30	0.9
2000	20	0.6
2001	48	1.5

GRAPH 32

RICKETTSIAL INFECTIOUS DISEASES (RICKETSSIOSES):
ANNUAL FREQUENCY (CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001



6.9. INFECTIOUS DISEASES WITH NATURAL FOCI

(*TABLE 24*)
(*GRAPHS 33, 34*)

Most of arthropod-borne and rodent-borne infectious diseases essentially represent infectious diseases with natural foci. The complement "natural focus", a generic term rather than a proper scientific one, is used to define their spatial (geographical) occurrence according to natural habitats, biocenoses, and biotopes of the respective arthropod-vectors and/or rodent-vectors. Such eco-bio-systems are dynamic ones, that is depending on physical-chemical-climatic conditions of ecological environment (biodiversities alpha, beta and gamma), what dictates their mapping as an ongoing process over time.

Though the number of infectious diseases with natural foci is very large, this subchapter is going to be focused in only three of them, whose occurrence, though at sporadic cases, has been reported in Albania, namely

- VIRAL MOSQUITO-BORNE ENCEPHALITIS (ICD-9 062),
- VIRAL TICK-BORNE ENCEPHALITIS (ICD-9 063),
- CRIMEAN-CONGO HAEMORRHAGIC FEVER (065.0).

It should be underlined that plague, yellow fever, dengue fever and relapsing fever, infectious diseases with natural foci, though never being occurred in

Albania, are subject of our MDBSS (see 5.1.) because of the potentiality of their occurrence (bio-topical presence of the respective arthropod-vectors) in case of an eventual importation. It should also be underlined that other infectious diseases with natural foci like leishmaniasis, most of rickettsioses, and malaria, are developed elsewhere in this material (see 6.7. on zoonoses, 6.8. on rickettsioses, and 6.11. on parasitic infectious diseases respectively).

The epidemiological surveillance data of annual frequence (number of reported cases) and incidence rate (cases per 100,000 population) of VIRAL MOSQUITO-BORNE ENCEPHALITIS, VIRAL TICK-BORNE ENCEPHALITIS, and CRIMEAN-CONGO HAEMORRHAGIC FEVER in Albania are available from 1990 onwards (*TABLE 24*).

TABLE 24

INFECTIOUS DISEASES WITH NATURAL FOCI:
ANNUAL FREQUENCY (CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1990-2001

Year	VE (M-b)		VE (T-b)		Haemorrhagic fever	
	cases	/100,000	cases	/100,000	cases	/100,000
1990	8	0.24	1	0.03	9	0.28
1991	1	0.03	0	0	0	0
1992	0	0	3	0.09	6	0.2
1993	16	0.5	0	0	1	0.03
1994	20	0.6	0	0	8	0.24
1995	11	0.3	1	0.03	3	0.09
1996	11	0.3	2	0.06	5	0.15
1997	10	0.3	0	0	0	0
1998	6	0.2	0	0	1	0.03
1999	3	0.09	1	0.03	0	0
2000	0	0	0	0	0	0
2001	1	0.03	0	0	5	0.15

Viral Encephalitis (mosquito-borne) - VE (M-b)
Viral Encephalitis (tick-borne) - VE (T-b)
Haemorrhagic fever (Crimean-Congo) - HF-CC

The occurrence at very low levels results to be the common epidemiological feature of these three diseases over the period 1990-2001.

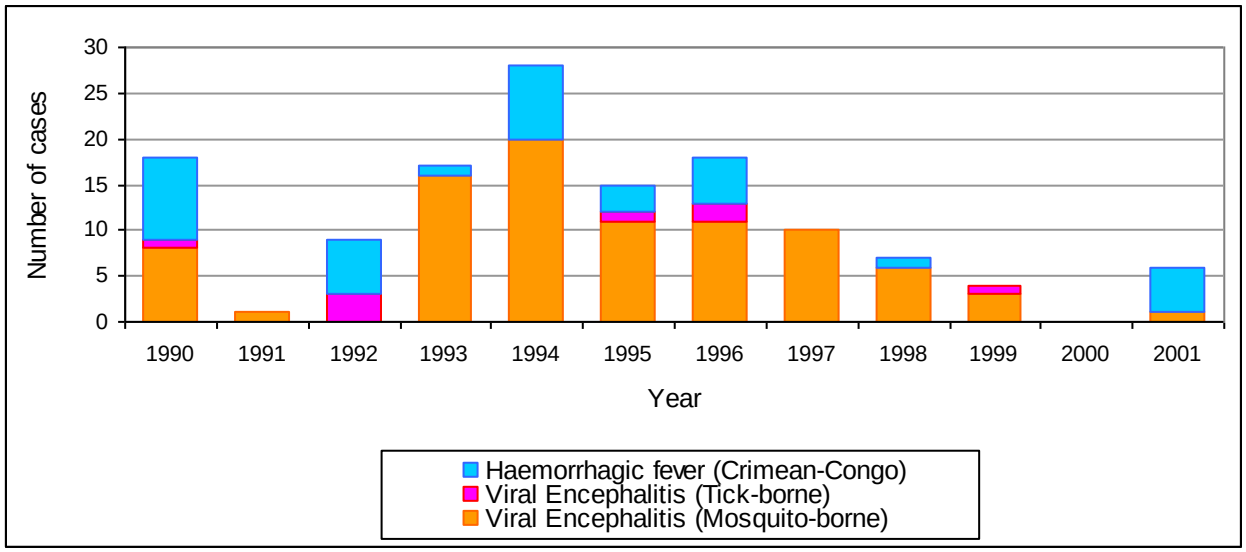
Viral mosquito-borne encephalitis shows higher frequency than viral tick-borne encephalitis and Crimean-Congo haemorrhagic fever, (*GRAPH 33*). The annual number of reported cases varies in a range from zero cases (in 1992 and 2000) to 20 ones (in 1994), with an annual average of 7.2 cases (or 2 cases per 1 million people as the incidence rate).

The annual number of reported cases with viral tick-borne encephalitis is extremely low: 0-3 cases (that is, less than one case per year).

The annual number of reported cases with Crimean-Congo haemorrhagic fever varies in a range from zero cases (in 1991, 1997, 1999 and 2000) to 8 ones (in 1994), with an annual average of one case per 1 million people as the incidence rate.

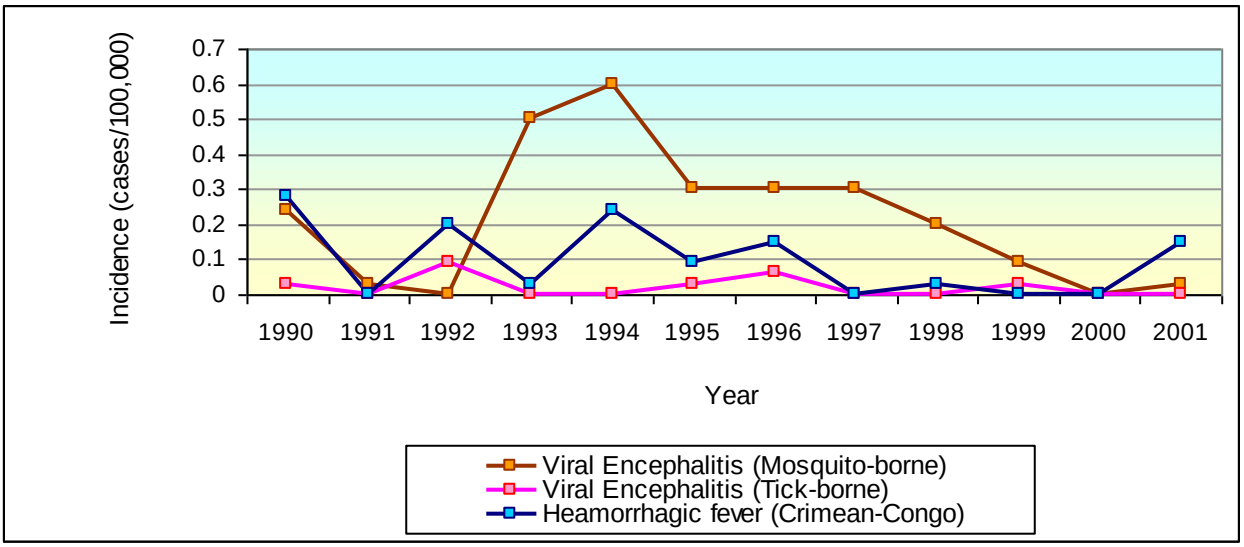
GRAPH 33

INFECTIOUS DISEASES WITH NATURAL FOCI:
ANNUAL FREQUENCY (NUMBER OF REPORTED CASES) OVER THE PERIOD 1990-2001



GRAPH 34

INFECTIOUS DISEASES WITH NATURAL FOCI:
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION) OVER THE PERIOD 1990-2001



The trend of viral mosquito-borne encephalitis frequency over the period 1990-2001 presents a peak in 1993-1995, while the trends of viral tick-borne encephalitis and Crimean-Congo haemorrhagic fever occurrence are characterized by insignificant peaks every 2-4 years over that period, (*GRAPH 34*).

The pediatric age groups (0-14 years old) show the highest incidence rates: they represent 75-90% of the total annual reported cases for each of three above mentioned diseases.

The rural areas constantly present higher incidence rates than the urban ones; such epidemiological evidence is explained by more appropriate living conditions of vectorial fauna in rural environment.

The geographical map of spatial distribution (according to country districts) of Viral mosquito-borne and tick-borne encephalitides occurrence slightly differs from that of Crimean-Congo heamorrhagic fever occurrence.

Viral mosquito-borne and tick-borne encephalitides has occurred in districts Kukes, Has, Diber, Bulqize, Malesi e madhe, Shkoder, Puke, Lezhe, Kruje, Librazhd, Lushnje, Fier, Mallakaster, Vlore, Sarande, Permet.

Crimean-Congo heamorrhagic fever has occurred in districts Kukes, Tropoje, Has, Malesi e madhe, Berat, Skrapar.

However, the infectious diseases with natural foci have a spatial distribution according to natural foci rather than to country districts because the biocenoses-biotopes of their arthropod-vectors are ecological notions rather than administrative ones. In such a context, the main natural foci of the three above mentioned infectious diseases result to be in the north-eastern, north-western and central-southern zones of Albania.

6.10. SEXUALLY TRANSMITTED INFECTIONS (STIs) AND HIV/AIDS

(*TABLES 25, 26*)
(*GRAPHS 35, 36, 37, 38, 39, 40*)

Though Sexually Transmitted Infections – STIs (formerly denominating as Sexually Transmitted Diseases – STDs) include numerous infections/diseases, only SYPHILIS (ICD-9 091), GONORRHEA (ICD-9 098), and HIV (ICD-9 044) and AIDS (ICD-9 042-043) are subject of our MDBSS (see 5.1.), therefore subject to be considered in this subchapter. All other STIs like Chlamydiases, Tricomoniasis, herpesvirus infections, etc, are subjects of epidemiological studies (cross-sectional surveys).

Though the availability of epidemiological surveillance data of syphilis and gonorrhea in Albania dates from the years 1940, we will take in consideration the period from 1960 onwards. The data of their annual frequency (number of reported cases) and incidence rate (cases per 100,000 population) are presented in *TABLE 25* and *GRAPHS 35* and *36*.

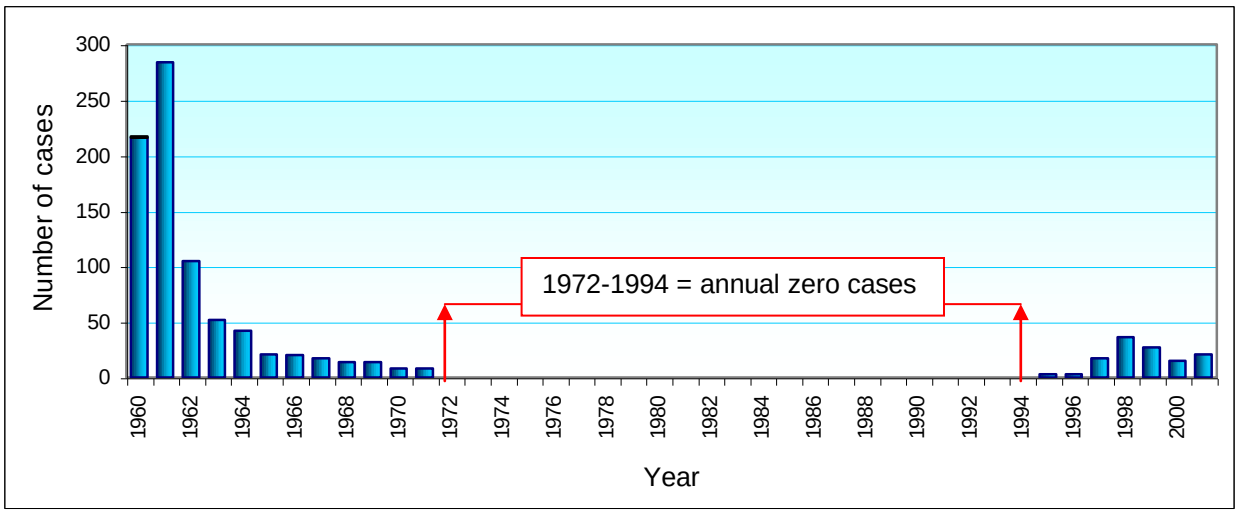
TABLE 25

SYPHILIS, GONORRHEA, HIV Infection
(STI - SEXUALLY TRANSMITTED INFECTIONS):
ANNUAL FREQUENCY (REPORTED CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001

YEAR	SYPHILIS		GONORRHEA		HIV
	cases	/100,000	cases	/100,000	cases
1960	**216**	13.4	**92**	5.7	
1961	**284**	17.1	**82**	4.9	
1962	**105**	6.1	**91**	5.3	
1963	**52**	2.9	**105**	5.9	
1964	**42**	2.3	**95**	5.2	
1965	**21**	1.1	**115**	6.1	
1966	**20**	1.0	**107**	5.6	
1967	**17**	0.8	**75**	3.8	
1968	**14**	0.7	**93**	4.6	
1969	**14**	0.7	**88**	4.2	
1970	**8**	0.4	**87**	4.1	
1971	**8**	0.4	**74**	3.4	
1972	**0**	0	**177**	7.9	
1973	**0**	0	**224**	9.7	
1974	**0**	0	**203**	8.6	
1975	**0**	0	**195**	8.1	
1976	**0**	0	**148**	6.0	
1977	**0**	0	**131**	5.2	
1978	**0**	0	**146**	5.7	
1979	**0**	0	**260**	9.9	
1980	**0**	0	**220**	8.2	
1981	**0**	0	**195**	7.1	
1982	**0**	0	**232**	8.3	
1983	**0**	0	**217**	7.6	
1984	**0**	0	**166**	5.7	
1985	**0**	0	**176**	5.9	
1986	**0**	0	**213**	7.0	
1987	**0**	0	**209**	6.8	
1988	**0**	0	**188**	6.0	
1989	**0**	0	**152**	4.8	
1990	**0**	0	**130**	4.0	
1991	**0**	0	**131**	4.0	
1992	**0**	0	**98**	3.0	
1993	**0**	0	**143**	4.35	**2**
1994	**0**	0	**52**	1.6	**9**
1995	**3**	0.09	**20**	0.6	**12**
1996	**3**	0.09	**11**	0.33	**7**
1997	**17**	0.5	**7**	0.2	**3**
1998	**36**	1.1	**8**	0.24	**5**
1999	**27**	0.8	**3**	0.09	**4**
2000	**15**	0.45	**6**	0.18	**10**
2001	**21**	0.6	**2**	0.06	**20**

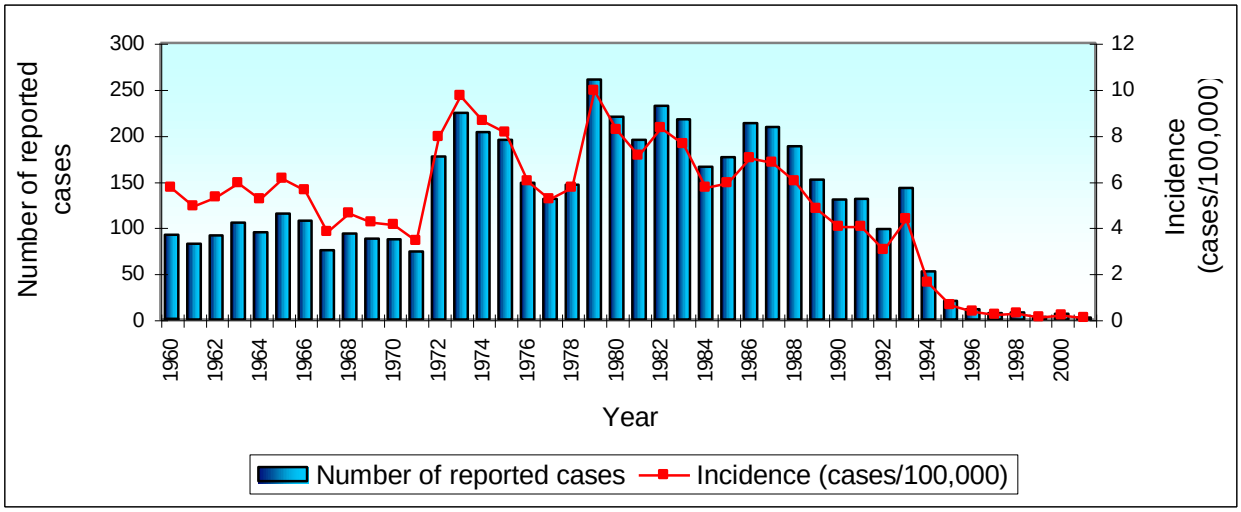
GRAPH 35

SYPHILIS:
ANNUAL FREQUENCY (REPORTED CASES) OVER THE PERIOD 1960-2001
(ANNUAL ZERO CASES OF INDIGENEOUS SYPHILIS OVER THE PERIOD 1972-1994)



GRAPH 36

GONORRHEA:
ANNUAL FREQUENCY (REPORTED CASES) AND INCIDENCE (CASES PER 100,000 POPULATION)
OVER THE PERIOD 1960-2001



6.10.1. SYPHILIS

(*TABLE 25*)
(*GRAPH 35, 37, 38, 40*)

Before the 1950s, Albania, like the surrounding region countries, has been characterized by a hyper-endemic-circulation of syphilis. A complex strategy on

syphilis control and prevention, aiming at its elimination in Albania, was implemented from 1950s onwards throughout the country. As a result, a sharp decrease of disease occurrence was reported during 1960s. While 216 and 284 cases were reported in 1960 and 1961 respectively, 20-40 was the annual number of reported cases in 1964-1967 and only 7 ones in 1971. The year 1972 marked the beginning of the epidemiological situation of syphilis already eliminated as indigenous infection in Albania: from 1972 till 1994, that is, over a 23-years-period, the annual frequency of disease resulted to be zero cases.

The year 1995 marked the re-emergence of syphilis in Albania and the period from 1997 onwards a steady increasing trend of its occurrence: while 3 cases were reported in 1995 and 1996 respectively, the average annual number of reported cases during 1997-2001 results to be 23 ones. This increase may be attributed in part to the collapse of STI systems for the tracking, notification and treatment of infected persons and their partners.

6.10.2. GONORRHEA

(*TABLE 25)*
(*GRAPHS 36*, *37*, *38*, *40*)

The four-decade period 1960-2001 of epidemiological surveillance data of gonorrhea points out two sub-periods as regards its frequency levels. The first and the longest one, from 1960 till 1993, shows a range of the annual reported cases from 74 to 260 ones, with an annual average of 149 reported cases (or 6 cases per 100,000 population as incidence rate).

Meanwhile, from 1994 onwards (the second sub-period) the annual number of reported cases results to be much lower compared to the preceding period: the number of reported cases decreases from 52 in 1995 to 2-8 ones per year in 1997-2001. Such very low figures of gonorrhea occurrence do not at all represent the reality. It is quite impossible to have only 2-8 gonorrhea cases per year during 1997-2001 because:

- firstly, such a figure (namely 6) has been the annual average incidence rate per 100,000 population of gonorrhea during 1960-1993;
- secondly, the same period, that is from 1995 onwards marks the above mentioned fast re-emergence of syphilis with a steady increasing trend of its occurrence;
- and, thirdly, the year 1993 marks the first HIV case in Albania and the period 1994 onwards a steady increase of HIV occurrence among the country population.

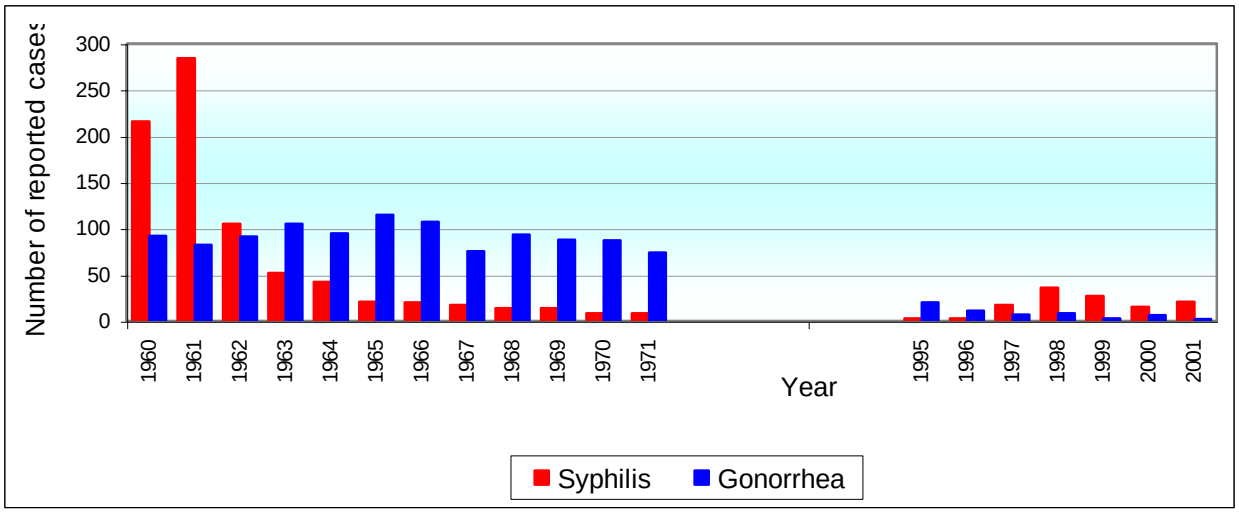
Therefore, there is a high under-reporting rate of gonorrhea infection (*GRAPHS 37*, *38*, *40*) because most of gonorrhea cases are not registered and reported due to a

lack of a proper sentinel surveillance for STIs. Such a phenomenon belongs not to gonorrhea only but to all other STIs as well, (see below 6.10.4.).

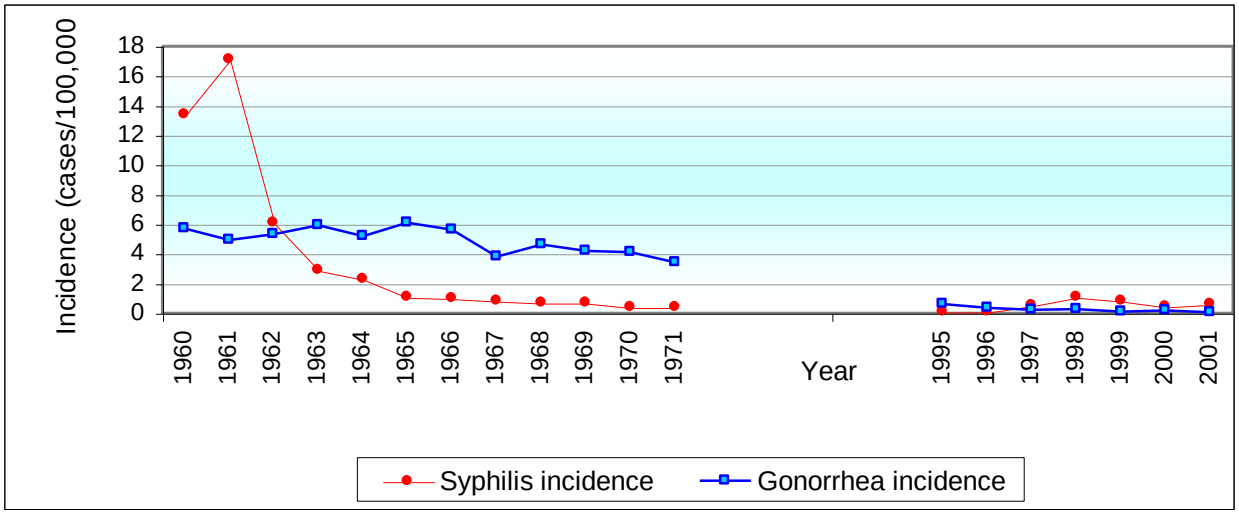
GRAPH 37 AND 38

Graph 37

GONORRHEA VERSUS SYPHILIS
RELATED TO RESPECTIVE ANNUAL FREQUENCY (NUMBER OF REPORTED CASES) [GRAPH 37]
AND TO RESPECTIVE ANNUAL INCIDENCE (CASES PER 100,000 POPULATION) [GRAPH 38]:
A REAL REPORTING RATE OF GONORRHEA OVER THE PERIOD 1960-1971
(YEAR 1971 = ELIMINATION OF INDIGENOUS SYPHILIS IN ALBANIA)
AND
A HIGH UNDERREPORTING RATE OF GONORRHEA OVER THE PERIOD 1995-2001
(YEAR 1995 = REINTRODUCTION OF SYPHILIS IN ALBANIA)



GRAPH 38



6.10.3. HIV/AIDS

(*TABLE 26*)
(*GRAPHS 39, 40*)

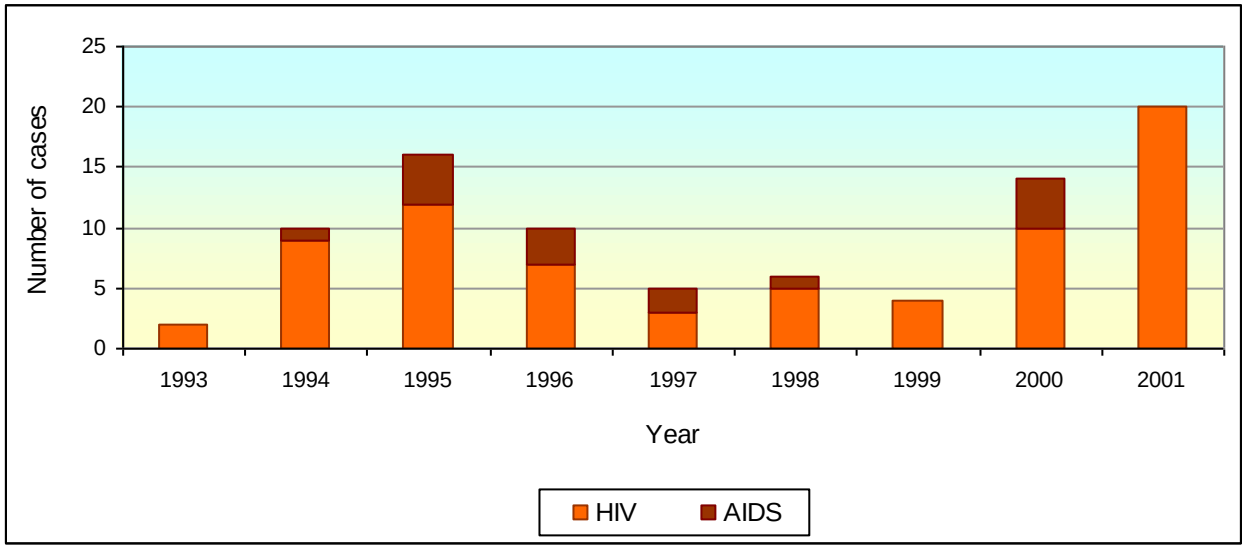
TABLE 26

HIV AND AIDS CASES
(the 1st HIV CASE in 1993)

Year	HIV	AIDS
1993	2	0
1994	9	1
1995	12	4
1996	7	3
1997	3	2
1998	5	1
1999	4	0
2000	10	4
2001	20	0
	72	15

GRAPH 39

AIDS CASES OUT OF HIV+ ONES
FROM 1993 (THE 1ST HIV+ CASE IN ALBANIA) TILL 2001



Efforts to prevent HIV/AIDS in Albania started prior to 1990 with the establishment of the first HIV/AIDS diagnostic laboratory in the Institute of public Health (IPH) in Tirana. Surveys over the years 1988-1992 showed no diagnosed cases of HIV. The first HIV infection case in Albania was diagnosed in

1993, but the assumed starting year of the epidemic is 1991-1992. After the first case was diagnosed, a counseling unit was established in the IPH.

There are in total (year 2001) 72 officially diagnosed HIV sero-positive cases (cumulative number from the first case in 1993), 15 out of them being developed AIDS. As a result, Albania is currently ranked among countries with a low prevalence rate of HIV/AIDS, i.e. a percentage of infected population less than 0.1%. Increasing rates of infection, however, are disturbing, taking into account the presence of a steadily increasing trend of an exponential shape over time (the number of infected persons in 2001 was five times more than figures reported in 1999).

About 80% of infected persons belonging to the 20-40 age group are men. The predominant mode of transmission to date, up to 90% of all documented cases, has been sexual, including heterosexual and homo-bisexual transmission. HIV has been transmitted through infected blood only in three cases, the last of which was reported in 1996. The HIV prevalence rate among 15-24 year-old pregnant women is less than 0.0001%, with only one case reported in 1996. Four children have been orphaned by HIV/AIDS. HIV/AIDS is developing fastest among the mobile population, mainly Albanian emigrants working abroad: about 80% of cases have contracted the virus outside the country. Available treatment opportunities for people with HIV/AIDS are limited.

HIV testing, as well Syphilis one is done on a voluntary basis.

In order to monitor the HIV/AIDS situation a sentinel surveillance system was established in 1998-1999, headed by HIV/AIDS National Programme (Institute of Public Health). Monitored groups include drug users, sexual workers, and blood donors.

In all district blood banks, laboratories have been established for testing donated blood for the presence of antibodies to HIV, Hepatitis B and C and Syphilis.

6.10.4. STATUS AND TRENDS OF STIS IN ALBANIA AND EXISTING PROBLEMS OF THEIR NOTIFICATION

Documented cases of (STIs) are limited in Albania. There is a noticeable under-reporting rate (false-negativity rate) of all STIs, though much more expressed for gonorrhea (*GRAPH 40*).

Nevertheless, Albania is considered a country at high risk for STIs due to
- the relatively young age of its population,

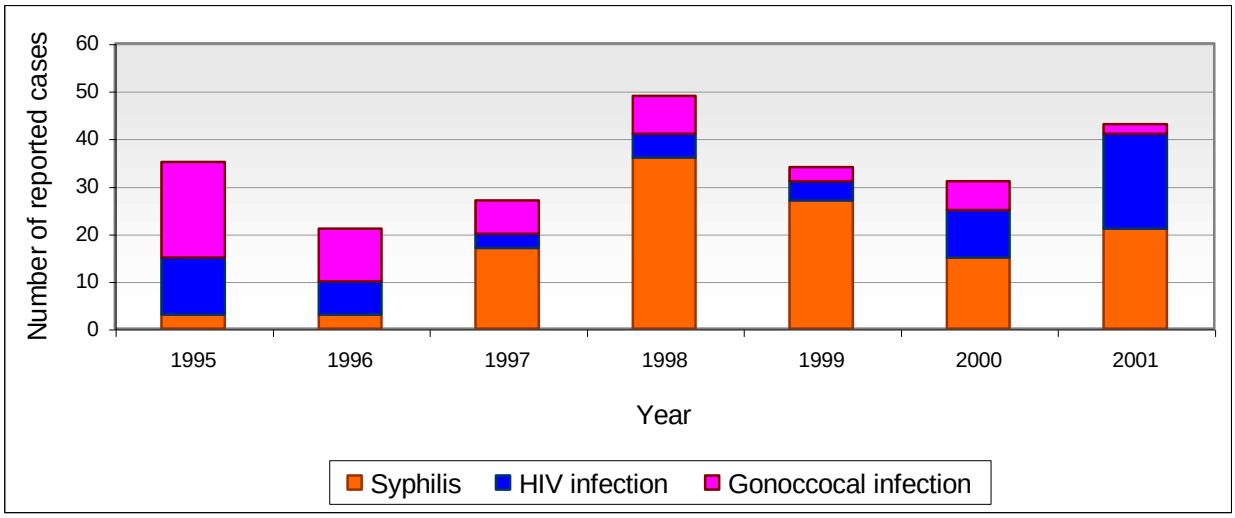
- an increase in internal and external migration,
- and a related increase in prostitution.

Other factors that must be addressed in dealing with STIs in Albania include:

- lack of an adequate legal and regulatory framework, especially relating to legislation and guidelines on the prevention, treatment and reporting of STI cases;
- lack of adequate information and education about STIs among the population, especially at risk groups;
- and an inefficient health service that lacks the technical resources to deal with STIs, such as care management protocols and referral systems.

GRAPH 40

COMPARISON OF GONORRHEA REPORTED CASES
WITH IDENTIFIED SYPHILIS CASES AND HIV INFECTION CASES
(PERIOD 1995-2001, YEAR 1995 = REINTRODUCTION OF SYPHILIS IN ALBANIA)
IN ORDER TO DEMONSTRATE THE ACTUAL HIGH UNDERREPORTING RATE OF GONORRHEA



6.11. PARASITIC INFECTIOUS DISEASES

(*TABLE 27*)
(*GRAPHS 41, 42, 43, 44*)

MALARIA (ICD-9 084), DERMATOPHYTOSES (ICD-9 110), SCABIES (ICD-9 133.0) and ANCYLOSTOMIASIS (ICD-9 126) represent the subject of this chapter on parasitic infectious diseases.

The epidemiological surveillance data concerning the annual frequency (number of reported cases) and incidence (cases per 100,000 population) of malaria,

dermatophytoses and scabies in Albania belong to the four-decade period 1960-2001 (*TABLE 27*, *GRAPHS 41*, *42*, *43*). The respective data of ancylostomiasis are available from 1990 onwards, (*TABLE 27*, *GRAPH 44*).

6.11.1. MALARIA

(*TABLE 27*)
(*GRAPH 41*)

Before the 1950s, Albania has been characterized by a hyper-endemic-circulation of malaria. A complex strategy on malaria control and prevention, being especially focused on the transmission link (anopheles control) and infection source link (patient treatment) of the epidemiological chain was implemented from 1950s onwards throughout the country. As a result, a sharp decrease of disease occurrence was reported from 1960 till 1966 (a range of 14-71 cases per year) reaching zero cases in 1967. The year 1967 marked the beginning of the existing epidemiological situation of malaria already eliminated as indigenous infection in Albania: from 1967 till now (year 2001) Albania results to be a malaria-free country.

Anyhow, there is always a small risk for malaria re-introduction in Albania. Some factors increasing the chances of new malaria cases include the presence of *Anophelae* mosquitoes along the Albanian coast. The potential for reactivation is also influenced by the mobility of the population abroad, in particular to areas where malaria is present in endemic form, as well as cases imported by visitors coming in Albania from these areas. Nonetheless, only one case of malaria has been identified recently in Albania in 1997, which was imported.

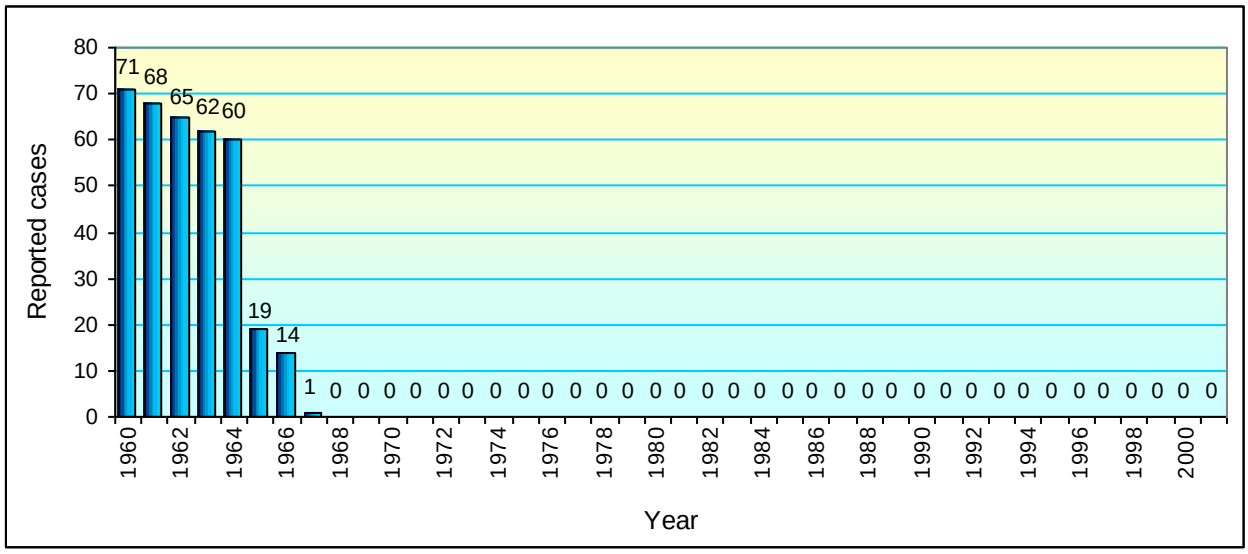
TABLE 27

PARASITIC INFECTIOUS DISEASES:
ANNUAL FREQUENCY (NUMBER OF CASES) AND INCIDENCE (CASES PER 100,000 POPULATION) OVER THE PERIOD 1960-2001

YEAR	MALARIA		DERMATOPHYTOSIS		SCABIES		ANCYLOSTOMIASIS	
	cases	/100,000	cases	/100,000	cases	/100,000	cases	/100,000
1960	71	4.4	866	53.8	143	8.8	ND	
1961	68	4.1	2,007	120.8	160	9.6	ND	
1962	65	3.8	3,829	191.9	261	15.2	ND	
1963	62	3.5	6,274	355.2	208	11.7	ND	
1964	60	3.2	8,603	473	329	18.0	ND	
1965	19	1	6,764	361.4	422	22.5	ND	
1966	14	0.7	4,982	258.9	638	33.1	ND	
1967	1	0.05	5,055	255.6	795	40.2	ND	
1968	0	0	4,813	237.1	945	46.5	ND	
1969	0	0	5,158	247.6	1,169	56.1	ND	
1970	0	0	4,017	188.1	4,126	193.2	ND	
1971	0	0	3,933	179.7	13,986	639.2	ND	
1972	0	0	3,254	145.1	34,003	1,516.6	ND	
1973	0	0	3,349	145.8	11,063	481.8	ND	
1974	0	0	3,447	146.7	6,323	269.0	ND	
1975	0	0	3,275	136.2	4,124	171.5	ND	
1976	0	0	3,528	143.5	3,402	138.4	ND	
1977	0	0	3,176	125.6	2,752	108.8	ND	
1978	0	0	5,427	210.5	1,927	74.7	ND	
1979	0	0	3,003	114.6	1,296	49.5	ND	
1980	0	0	2,604	97.5	1,229	46.0	ND	
1981	0	0	907	33.3	1,305	47.9	ND	
1982	0	0	604	21.7	1,746	62.7	ND	
1983	0	0	566	19.9	3,406	119.8	ND	
1984	0	0	357	12.3	7,724	266.3	ND	
1985	0	0	313	10.6	15,095	509.6	ND	
1986	0	0	287	9.5	18,197	602.2	ND	
1987	0	0	268	8.7	21,682	703.3	ND	
1988	0	0	384	12.2	34,144	1,086.4	ND	
1989	0	0	363	11.4	25,682	807.0	ND	
1990	0	0	514	16	23,695	739.1	5	0.15
1991	0	0	536	16.6	18,078	559.8	2	0.06
1992	0	0	316	9.6	56,272	1,711.8	5	0.15
1993	0	0	486	14.8	30,248	920.1	0	0
1994	0	0	656	19.9	12,387	376.8	0	0
1995	0	0	445	13.5	12,461	379.1	0	0
1996	0	0	637	19.4	14,135	430.0	2	0.06
1997	0	0	362	11	9,126	277.6	0	0
1998	0	0	306	9.3	6,201	188.6	1	0.03
1999	0	0	265	8.1	4,577	139.2	1	0.03
2000	0	0	436	13.2	4,670	142.1	2	0.06
2001	0	0	300	9.1	4,147	126.2	0	0

GRAPH 41

MALARIA:
ANNUAL REPORTED CASES OVER THE PERIOD 1960-2001
(YEAR 1967 = THA LAST CASE OF INDIGENOUS MALARIA IN ALBANIA;
PERIOD 1968-2001 = ANNUAL ZERO CASES OF INDIGENOUS MALARIA IN ALBANIA)



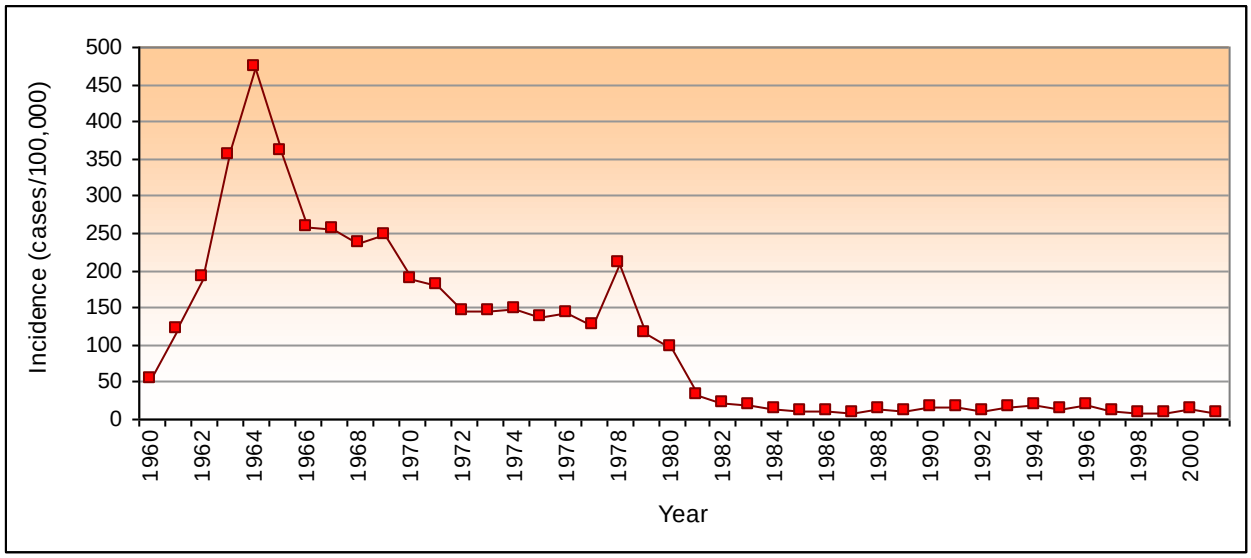
6.11.2. DERMATOPHYTOSES (TINEA)

(*TABLE 27*)
(*GRAPHS 42*, *44*)

Albania shows an ongoing endemic circulation of dermatophytoses (generic term) among the country population over the four-decade period 1960-2001. Anyhow, there is a noticeable tendency of lower their occurrence levels from 1980s onwards, (*TABLE 27*, *GRAPH 42*) as a result of the implementation throughout the country of appropriate secondary prevention (screening) and tertiary prevention (treatment) measures. Thus, during the period from 1960 till early 1980s the annual reported cases varies in a range from 2,000 to 8,000 ones, with an annual average of 4,012 cases (or 192 cases per 100,000 population per year as the incidence rate). Meanwhile, the following time-period (from early 1980s till 2001) shows an annual average of 438 reported cases (or 13-14 cases per 100,000 population as the average incidence rate), that is, disease occurrence rates of around 13-14 times lower than the preceding period.

GRAPH 42

DERMATOPHYTOSIS (TINEA):
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION) OVER THE PERIOD 1960-2001



The most affected age groups are those of 5-14 years old, representing 30-60% of the total annual reported cases.

The rural areas generally show higher occurrence rates than the urban ones: they represent 60-70% of the total annual reported cases.

Geographical distribution of dermatophytoses occurrence does not show any spatial propensity: all country districts are more or less equally affected over the four-decade period 1960-2001.

6.11.3. SCABIES

(*TABLE 27*)
(*GRAPHS 43, 44*)

The epidemiological surveillance data of scabies during the four-decade period 1960-2001 in Albania present an oscillating trend of its frequency levels, with conspicuous peaks (or better period-peaks) in 1971-1973 and 1985-1994, *(TABLE 27, GRAPH 43*). The annual frequency of disease occurrence over the period 1960-2001 varies in an extremely large range, from 200 to 26,000 reported cases, with an average of 9,864 cases per year (or 337 cases per 100,000 population per year as the average incidence rate).

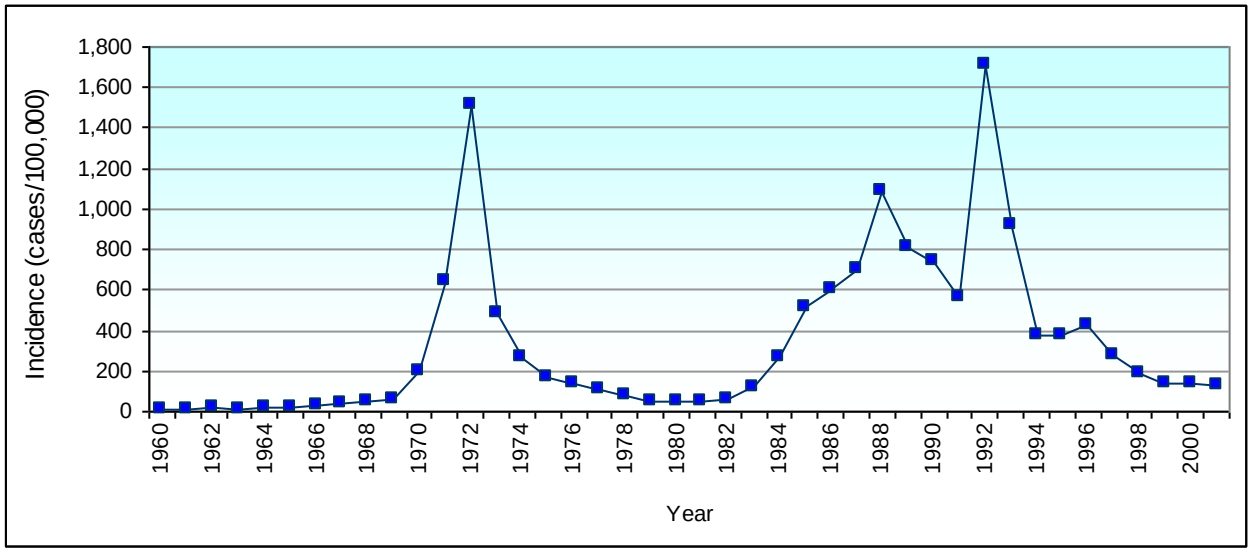
There are no significant differences of disease occurrence between rural and urban areas.

There are no significant age-specific differences of disease occurrence though the young age groups (0-14 and 15-24 years old) show some higher incidence rates than the other ones.

There are no spatial differences of scabies occurrence: all country districts are more or less equally affected over the four-decade period 1960-2001.

GRAPH 43

SCABIES:
ANNUAL INCIDENCE (CASES PER 100,000 POPULATION) OVER THE PERIOD 1960-2001



6.11.4. ANCYLOSTOMIASIS

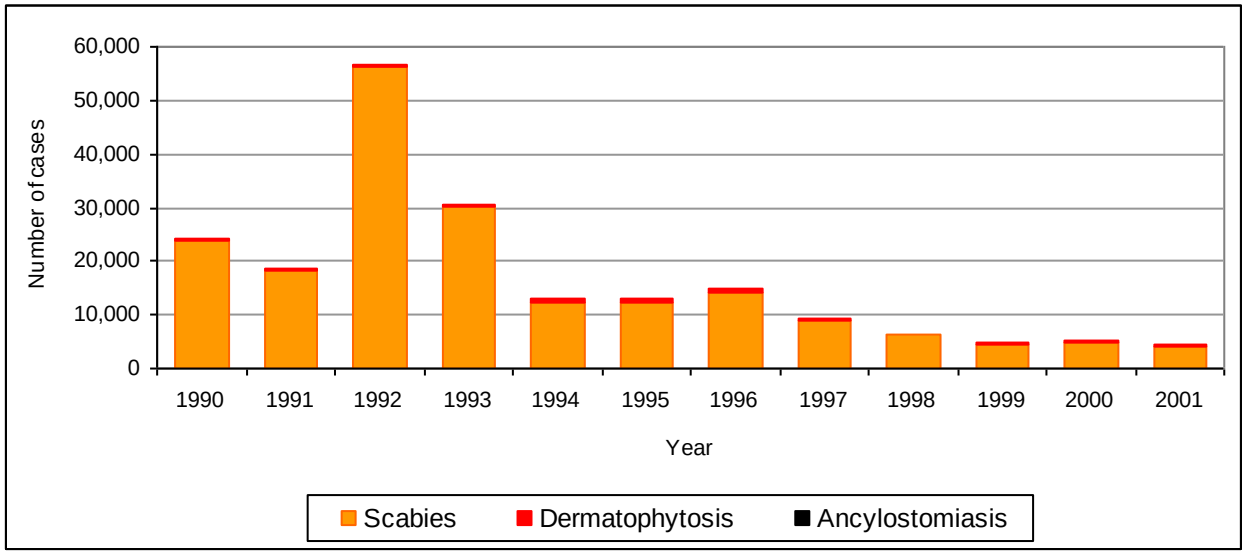
(*TABLE 27*)
(*GRAPH 44*)

The epidemiological surveillance data availability of ancylostomiasis in Albania dates from the year 1990. The annual number of reported cases during the period 1990-2001 varies in a range from zero cases to at maximum 5 ones, thus presenting very low figures of disease occurrence, (*TABLE 27*). Nevertheless, such insignificant figures do not represent the real occurrence levels of the disease: a certain number of cases remain not laboratory confirmed and, therefore not reported.

A comparative sight of the epidemiological surveillance data of parasitic infectious diseases over the period 1990-2001 clearly shows their representation by almost scabies only, while occurrence levels of dermatophytoses are much lower and those of ancylostomiasis are quite insignificant, (*GRAPH 44*). Scabies presents an annual average frequency of 16,333 cases per year, which is 37 times higher than that of 438 cases per year of dermatophytoses.

GRAPH 44

SCABIES, DERMATOPHYTOSIS, ANCYLOSTOMIASIS:
ANNUAL FREQUENCE (NUMBER OF REPORTED CASES) OVER THE PERIOD 1990-2001



6.12. OTHER INFECTIOUS DISEASES

MUMPS and **CHICKENPOX**, two airborne infectious diseases, were not considered in the respective subchapter 6.4. Anyhow, the epidemiological surveillance data of their annual frequency (number of reported cases) and incidence rate (cases per 100,000 population) during the period 1990-2001 (period of the availability of their data) are presented in *TABLES 7* and *8* (see).

From 1978 onwards there are not **RABIES** cases in Albania. The veterinary data (Institute of Veterinary Research in Tirana) show the missing of rabies virus circulation in its natural hosts (red fox and other wild animals) in Albania from 1980s onwards. However, the presence of rabies virus circulation among its natural hosts in the surrounding region countries represents a potential risk of rabies re-occurrence in Albania, furthermore in the context of the actual overpopulation of street dogs in urban and rural areas.

7. ENVIRONMENTAL HEALTH HAZARDS MONITORING DATA AND FOOD SAFETY CONTROL IN ALBANIA

7.1. WATER AND SANITATION

Water supply in Albania uses natural sources, well drillings, water treatment stations and individual wells. Although drinking water is centrally distributed in majority of cases (about 80% of the population); some villages use crude river water due to a lack of alternative sources.

Details regarding means of water supply systems are given in *TABLE 28*.

TABLE 28

MEANS OF DELIVERY OF WATER SUPPLY FOR THE POPULATION OF ALBANIA

WATER DELIVERY TYPE	% OF TOTAL HOUSEHOLDS/POPULATION	DEFINITION USED
PUBLIC STANDPIPE	80 %	Having access to in-house connection from water supply system
PRIVATE WELL	10 %	Having no access to in-house water supply system.
UNPROTECTED SPRING	5 %	Water sources unprotected, used for drinking water
SURFACE SOURCE	0.1 %	Families use untreated surface water
SURFACE WATER	4.9 %	Families use treated surface water

Of the annual total sale of water, 80% is used by the general population and 20% by industry and other entities. However, the quantity of water sold in Albania is only 36% of that produced, indicating that 64 % is lost, as a result of: (i) dilapidation of steel pipes in the existing distribution network; (ii) illegal links to existing water supply network; (iii) increase of population, mainly in big cities; and (iv) inefficiency of the management structure.

The above also contributes to explain why water supply to the population is not regular (sometimes only one hour per day) and that water pressure is very low. Low pressure can in turn allow contamination of drinking water as waste from adjacent sewage pipes leaks into water pipes. In rural areas where no water pipes

exist, villagers use individual wells located close to their houses; nearby pit latrines contaminate the wells as a result of infiltration of leached sewage into the well waters. An investigation of domestic wells showed that 73% of them were contaminated from bacteriological point of view, (*TABLE 29*).

TABLE 29

SANITATION SERVICE TYPE FOR THE POPULATION OF ALBANIA

SANITATION SERVICE TYPE	% OF TOTAL HOUSEHOLDS/ POPULATION	DEFINITION USED
SEWERAGE SYSTEM	76 %	Households connected to a sewerage system
HOUSEHOLD LATRINE	23 %	These households are remote and have no immediate possibility of being connected to a sewerage system
PRIVATE SEPTIC TANK	1 %	Households that have possibility of being connected to sewerage system in future

Another problem identified is the lack of correct disinfection treatment with calcium or sodium hypochlorite; in rural areas, water disinfection is frequently absent altogether. The existing chlorination does not ensure a controlled dose of disinfectant substances in the water since systems usually are manual and the preparation as well as injection of the solution is in approximate quantities. A terrible example of the potential risk posed by water infrastructure was the outbreak of cholera in 1994.

Urban areas possess a network for collecting and removing wastewater. However, connections exist between water and sewage systems due to splits and breaks in the pipelines. As mentioned above, the small quantity and pressure of water in the network encourages contamination.

Industrial water generated from technological processes is not usually treated, but directly discharged into surface waters, thereby further contaminating them (exceptions occur, but even those treatment plants that do exist do not operate properly because of overused equipment, lack of maintenance, etc.). Waste-waters from hospitals also join the wastewater removal network from residential areas or are discharged into surface water. Infectious diseases hospitals simply disinfect the emerging waste-waters before they join the city water network (but this is not adequate to render them harmless). Very often wastewater comes to the surface and creates dangerous sources of infection. As cities continue to

grow, the systems continue to diminish their capacity to meet the demands put upon them; the situation is even worse in suburban areas where migrants from all over the country settle and construction takes place without meeting planning criteria and in the absence of necessary infrastructure.

In conclusion, the main problems with water, presenting in themselves risk determinants for outbreaks of water-borne diarrhoeal diseases, are:

- lack of sanitary protected zone for the captures;
- lack of adequate treatment of drinking water;
- high level of dilapidation of the distribution network of water pipes;
- intersections of the drinking water pipeline network with waste waters;
- limited capacities of controlling water quality.

Some details concerning the quality of drinking water and the results of the monitoring of the seawater in Albania are given in the following *TABLE 30* and *TABLE 31* respectively.

TABLE 30

QUALITY OF POTABLE WATER

	1997	*1998*	*1999*
TOTAL SAMPLES	*76,340*	*138,439*	*150,000*
% OUT OF NORMS	*5.73*	*5.88*	*6.53*
% SERIOUSLY CONTAMINATED	*0.39*	*0.43*	*0.5*

TABLE 31

RESULTS OF THE MONITORING OF THE SEAWATER IN ALBANIA, 1997-1998

Number of BEACH AREAS tested	7
Number of BEACH AREAS POLLUTED *% of beach areas polluted*	3 *42.8 %*
Number of LAKES POLLUTED	1 (Ohrid Lake)
Number of RIVERS POLLUTED	1 (Gjanica, Fier)
Number of AQUIFERS POLLUTED BY SALTWATER	6 (from the total of 10)

7.2. MANAGEMENT OF SOLID WASTE

Only 55% of the Albanian population have access to services for solid waste removal. Services for collecting and transporting urban wastes are performed by primitive methods.

Another problem is the lack of waste containers on roads. Even in cities supplied with waste containers, some of them are damaged (in Tirana and Durres, moveable metal containers have been introduced and have improved the situation). In these conditions urban solid waste is just left on the roads. Dogs, cats, rodents, etc., i.e. natural sources and vectors for numerous infectious diseases, visit these areas.

Moreover, the opening of the country to the outside world has caused an influx of large quantities of imported consumer goods, the waste from which is difficult to dispose of appropriately. The use of products packaged in cardboard, glass or plastic is continuously increasing. Migration from the rural areas towards the main cities of the country has also worsened the problem. During 1998, some 520,000 tons of urban waste was produced in the country, the main cities accounting for 44% of the total. Tirana on its own produced 116 000 tons, 22% of the national total. The amount of inert materials in urban waste is about 12%, (*TABLES 32* and *33*).

TABLE 32

AMOUNT OF URBAN WASTE ACCORDING TO DISTRICT, 1996

CITIES	POPULATION	DAILY PRODUCTION OF WASTE (TON/DAY)	ANNUAL PRODUCTION (TON/YEAR)	SPECIFIC PRODUCTION (KG/DAY/CAPITA)
TIRANE	400,000	300	110,000	0.8
VLORE	110,000	80	30,000	0.7
POGRADEC	30,000	50	19,000	1.6
ELBASAN	110,000	100	37,000	0.9
KORÇE	75,000	80	30,000	1.0
SHKODER	110,000	90	33,000	0.8
DURRES	120,000	110	41,000	0.9
FIER	80,000	70	26,000	0.8

TABLE 33

PRODUCTION OF URBAN WASTE:
ANNUAL QUANTITIES [TON] AND RATES [TON PER 100,000 POPULATION])
IN 1996, 1997, 1998

YEAR	QUANTITY *(TON)*	RATE *(TON / 100,000 POPULATION)*
1996	450 000	13,689.2
1997	480 000	14,601.9
1998	520 000	15,818.7

Municipalities are responsible for managing the collection, transportation and final disposal of urban waste. These services are generally public, but some municipalities (Tirana, Durres, Pogradec, Korçe, etc.) have privatised waste collection and transportation.

Generally, there is a lack of treatment plants for solid waste; the existing system is simply dumping the waste in open areas.

HOSPITAL WASTE

The daily production of hospital waste in the 7 main cities (Tirane, Shkoder, Durres, Elbasan, Fier, Vlore, Korçe) has been estimated as 7.3 tons/day. It has been estimated that the amount of hospital waste is about 2 kg/patient/day.

All hospitals in the country are dependent on state structures for waste management (i.e. none has a separate system of disposing of medical waste).

INDUSTRIAL WASTE AND GROUND WATER AND SOIL POLLUTION

Regarding industrial waste, ground water in certain areas is polluted by industrial discharges; e.g. near the Shkumbin river behind the industrial discharge place of the Metallurgical Combine, ammonia, nitrite and iron contamination has been observed. In 1997 the level of industrial solid waste discharge decreased by 50% due to the lack of industrial activity during the period of civil unrest. Figures in 1998 remained much the same, while in 1998-99 a small increase in chemical industry, such as detergent manufacture, took place, (*TABLE 34*).

Pesticides also cause problems in some areas, including contamination of ground water.

TABLE 34

DISCHARGES OF INDUSTRIAL SOLID WASTE
(IN THOUSAND TONS)

YEAR	MINES	PETROL	EAC	TOTAL INDUSTRY
1997	371.7	1.3	13	386
1998	413.7	1.36		415

Source: Report on the environmental situation in Albania 1997-1998

In conclusion, the main problems regarding waste are:

- waste management not yet considered as a priority problem;
- inadequate technology of waste treatment;
- inadequate protection of ground waters when disposing of waste;
- inadequate level of population and social education.

7.3. AIR POLLUTION

While total industrial discharge level has fallen by 45% during the last 10 years as a direct consequence of the drastic fall of industrial activity, the discharge related to vehicles, that is carbon monoxide, nitrogen oxides, hydrocarbons and lead, as well as air pollution from total (dust) particles (LGS) and sulphur dioxide have increased many times in Albania.

Those harmful air pollutants affect especially urban areas, capital Tirana and other big cities in the first place, where the respective pollution levels exceedingly surpass the WHO norms. It should be stressed that Tirana presents the highest levels of dust (LGS) and soot content in air compared with other European capitals.

7.4. FOOD SAFETY

There exists a tradition of many years with regard to the control of the food products and food safety as a whole. It has been done through the State Sanitary Inspectorate and the laboratory network, which support it as well as under the scientific and methodological guidelines provided by the Institute of Public Health.

The following tables (*TABLE 35* and *TABLE 36*) present data on the activities of State Sanitary Inspectorate on food safety control in 1999.

TABLE 35

ACTIVITY OF STATE SANITARY INSPECTORS ON FOOD CONTROL DURING 1999

	Total samples of food	Import	Local	Total chemical tests	Total bacteriologic tests	Products blocked (in thousand leks)	Products eliminated (in thousand leks)	Mains food products blocked
Number of FOOD SAMPLES	14,500	6,653	3,431	14,625	5,180	135 000	17 000	*Salami* *Condensed milk* *Meat*

TABLE 36

RESULT OF THE CONTROL OF STATE SANITARY INSPECTORS IN 61 RETAIL MARKET SITES IN 1999

Designation	*Controlled*	*Permitted*	MEETING CRITERIA	COOLING BASE	SANITARY KNOT
Meat, By-products	187	152 (=81.3%)	148 (=79.1%)	151 (=80.7%)	106 (=56.7%)
Milk, By-products	269	196 (=72.8%)	199 (=74.0%)		120 (=44.6%)
Maize, drinks	1,150	843 (=73.3%)			484 (=42.0%)
Trading net	5,192		4,398 (=84.7%)	3,126 (=59.8%)	
Social food	2,923		2,884 (=98.7%)		1,871 (=60.9%)

By the new Law "On Food" (No.7941 of 31.05.1995) (see the chapter "Legislation") the responsibility on food safety is divided between State Sanitary Inspectorate (dependent on the Ministry oh Health) and the Inspectorate of Food and Veterinary Inspectorate (dependent on the Ministry of Agriculture and Food), what actually weakened food control activities because of an inadequate cooperation, instead to reinforce it as it was foreseen.

In conclusion, existing problems directly related with food safety are:

- In some cases food products pass through customs without being controlled by the sanitary inspectors;
- Butchering of animals is realised in private houses and in the majority of cases is not subject to veterinary control;

- There are no slaughterhouses with appropriate hygienic, sanitary and veterinary conditions;
- Control is insufficient or incomplete in butcher shops;
- In many districts, particularly the urban areas, trading of food products on sidewalks and street, etc., without the approval of the local authorities is going on;
- The food safety legislation is not adequate; in the meanwhile there are problems with regard to its enforcement and especially with the collection of the imposed fines and the implementation of the imposed administrative measures;
- Sanitary inspectors training is inadequate and information systems are insufficient;
- There is a lack of a role for media and school in health education concerning food safety.

The above picture explains the increasing incidence of foodborne intoxications during recent years in Albania.

Furthermore, in 1992, 1996 and 1997, outbreaks of lead intoxication occurred in some rural zones of the country, related to the use of flour ground in old flourmills, repaired with lead filling. About 3,000 individuals living in those zones were exposed to this pollutant in varying doses.

8. GENERAL AND SPECIAL MEASURES OF INFECTIOUS DISEASES CONTROL AND PREVENTION

In compliance with the legal framework (see chapter 1 "Legislation") regarding infectious diseases control and prevention, the preventive medicine services in Albania, namely District Epidemiological, Hygiene and Sanitary Inspectorate Services, under the technical supervision and expertise of the Institute of Public Health (IPH), organize and take general and special measures of control and prevention of infectious diseases.

8.1. GENERAL MEASURES OF INFECTIOUS DISEASES CONTROL AND PREVENTION

- Provision of hygienically approved potable water as well as sanitary protection of springs and public water supply facilities;
- Elimination of waste waters and other waste materials in a way and under conditions that prevent pollution of waters and land;
- Measures against breeding of insects and rodents;
- Maintenance of sanitary-technical and hygienic conditions in public buildings, public transport means, and public places;
- Sanitary inspection of food products and conditions under which they are produced and distributed (circulated);
- Preventive disinfection, anti-vectorial control measures and derattisation in public places, public transport means, facilities for food production and distribution, as well as other facilities;
- Provision of a sufficient amount of disinfectants and other necessities for disinfection, vectors control and derattisation.

8.2. SPECIAL MEASURES OF INFECTIOUS DISEASES CONTROL AND PREVENTION

- Timely detection of the source of infection and its transmission ways through compulsory epidemiological reconnaissance of the terrain, epidemiological investigation in case of occurrence or a threat of occurrence of infectious diseases, medical checkups and epidemiological investigation of infected persons or persons that are suspected to be infected by infectious disease caused by known or unknown microbial agent;

- Compulsory laboratory tests of carriers of certain infectious diseases, in order to timely undertake the proper measures for protection of population and environment;

- Mandatory notification of each suspected case of infectious disease; mandatory urgent notification of each death caused from such a disease;

- Mandatory urgent notification of any eventual outbreak (a cluster of cases in space and time regardless of the cluster size) of infectious disease;

- Immediate medical treatment of any patient with infectious disease from the moment of clinical diagnosis, (i.e. without laboratory confirmation);

- Immediate hospitalization (what does mean both isolation and specialized treatment) of any case of infectious diseases requiring such a measure according to the Respective Sanitary Regulations of Albania;

- Quarantine in case of those infectious diseases requiring such a measure according to the Respective Sanitary Regulations of Albania;

- Disinfection of personal belongings and residing premises of persons infected by certain infectious diseases;

- Disinfection, anti-vectorial control measures and derattisation of the environment;

- Sanitary inspection of the carriers of infectious diseases;

- Vaccination of all contacts of any case of a vaccine-preventing infectious disease on the basis of respective epidemiological indications.

Other measures to be taken by the competent authorities aiming at control and prevention of infectious diseases in case of a larger scale epidemics, or in case of a natural disaster occurrence (flood, earthquake) that might lead to an epidemics or outbreak of infectious disease are:

- Mobilization of medical staff and other citizens;
- Requirement of equipment, medicines, and transport means;
- Temporary usage of business and other premises to provide health care services;
- Definition of special tasks of public health services.

9. INFECTIOUS DISEASES AFTER NATURAL DISASTERS

Among the numerous problems arising from occurrence of natural disasters is the problem of population protection against the outbreak and spreading of infectious diseases. In this case, a great number of tasks related to control and prevention of infectious diseases on the affected area will have to be performed by preventive medicine services. It's important to stress that the activities of preventive medicine and the entire health care service are then carried out under special circumstances. The successful control and prevention of infectious diseases in case of natural disasters depends, on a great extent, on the preparation of a disaster preparedness plan.

9.1. POSSIBLE OCCURRENCE OF INFECTIOUS DISEASES

THE GREATEST DANGER OF INFECTIOUS DISEASES OCCURRENCE IN CASE OF NATURAL CATASTROPHES ARISES FROM THE HUMAN ENVIRONMENT ITSELF SINCE THE CHANGES THAT IT SUFFERS UNDER SUCH EVENTS INFLUENCE THE EXISTING HYGIENIC-SANITARY CONDITIONS. IN AREAS WHERE SANITARY-PUBLIC SERVICE CONDITIONS ARE AT A LOW LEVEL OF DEVELOPMENT, INFECTIOUS DISEASES OCCUR QUITE FREQUENTLY UNDER NORMAL CONDITIONS, WHAT DOES MEAN A BIGGER PROBABILITY OF EPIDEMICS OCCURRENCE.

Seasonal climatic conditions may also influence the occurrence and spreading of infectious diseases in the post-disaster period. Diarrhoeal diseases mainly occur during the summer season in the conditions of the lack of potable water or usage of not hygienically approved water, though their occurrence is not excluded during the other seasons. Respiratory infections are especially characteristic during cold season (winter); large concentrations of population (temporary sheltering) represent another factor influencing on their increased occurrence because of the enhanced person-to-person transmission.

IN CONDITIONS OF NATURAL DISASTERS, THE ACTIVATION OF ENDEMIC FORM OF INFECTIOUS DISEASES CIRCULATION REPRESENTS A REAL THREAT. THE DISTURBED ECOLOGICAL EQUILIBRIUM CAUSES THEIR OUTBREAK AND FAST SPREADING. The reasons of epidemics occurrence might be the importation of any pathogenic agent, any significant change in the vulnerability of the population and the more frequent transmission of autochthonous pathogenic microorganisms.

Unless timely measures of control and prevention of potential epidemics are undertaken, large-scale natural catastrophes represent a real threat of epidemics occurrence caused by the activation of endemic forms of infectious diseases like

viral hepatitis, salmonelloses, food-borne intoxication, typhoid and paratyphoid fevers, and shigelloses. As to the large group of airborne infectious diseases, depending on the seasonal climatic conditions and population concentrations there is a great probability of occurrence of epidemics of influenza, streptococcal infections, upper and lower respiratory infections, etc. Due to the high morbidity, way of spreading, and important health consequences and complications, as well as the lack of corresponding space of hospitalization and care of the patients, the occurrence of a mass contagion represents a particular problem under emergency conditions arising from the occurrence of a natural disaster (earthquake, flood) or breaking out of wars.

9.2. PREVENTIVE MEASURES

The exact and realistic reporting on the size and characteristics of the endemic-epidemic potential of the territory affected by a natural disaster is a necessary prerequisite for fast and efficient evaluation and necessary preventive measures undertaking. Therefore, the established HEADQUARTERS that organizes and undertakes preventive measures must include an experienced epidemiologist as the most qualified person for evaluating the field epidemiological situation.

That specialist represents the responsible person who decides the number of FIELD TEAMS and the FINANCIAL RESOURCES, necessary for infectious diseases control and prevention. The arrival and the distribution of the field teams and financial resources should be carried out via the established Headquarters, while in performing their duties, the teams should stick to a unique methodology. The activities of the field teams should be coordinated and directed by the Headquarters.

Upon their arrival on the terrain, the field teams should be acquainted with the epidemiological situation of the affected area prior to the natural disaster occurrence as well as the newly created conditions. This should take several hours at the most.

Direct measures for mitigating the potential of infectious diseases occurrence like procurement of hygienically approved water, waste materials elimination, and endangered population sheltering under proper hygienic-sanitary conditions should urgently be undertaken.

Evaluation of the quality of potable water must be based not only on organoleptic control but prompt approval of its chemical-biological regularity also. It is indispensable to scrupulously inspect local springs, water supply

facilities and water distribution systems, in order to determine the state of these facilities, the type and extent of their eventual damages, and the possible pollution of water as well. The inspection of the closer and the wider surroundings of water springs and water supply facilities should provide data on the zone of sanitary protection as well as on the existence of potential pollutants (non-hygienic depots of waste materials, sewage tanks) that might lead to water contamination in case of damage (earthquake, flood) to the protective barriers. Proper selection of water samples for laboratory tests is necessary in order to get a realistic insight into the quality of water.

A VERY IMPORTANT PREVENTIVE MEASURE IS THE EPIDEMIOLOGICAL INVESTIGATION OF THE AFFECTED AREA, WHAT REQUIRES PROPER MODIFICATIONS OF THE USUAL WAY OF INVESTIGATION AND REPORTING.

Firstly, it would be necessary to carry out a daily reporting of eventual cases of infectious diseases, monitoring of infectious diseases that were under control before the disaster occurrence, and distinguishing and examination of indicators that are sufficiently reliable for an exact evaluation of the daily epidemiological situation. The duration of the strict epidemiological investigation depends on the size of the affected area and the speed of improvement of epidemiological situation. The Headquarters takes the decision on termination of the strict epidemiological investigation and transition to the normal system of controlling.

It is also necessary that the information on the epidemiological situation of the affected area be timely provided to the public and with full responsibility in order to prevent spreading of any kind of misinformation that could aggravate the difficult conditions after natural catastrophes. Proper information instills a feeling of security and enables a positive cooperation between the competent authorities and people.

The specific measures for control and prevention of infectious diseases anticipate the active and passive immunization of the population. Such measures are undertaken only if necessary, just on the basis of epidemiological indications. The most effective and efficient are the preventive measures towards infectious diseases, being applied under normal conditions.

9.3. PREPAREDNESS NEEDS

The field medical teams should possess equipment and financial resources for independent work, transport, accommodation, nutrition, and water supply. Any single field team should be composed of one of each public health specialists on

the matter, namely epidemiologist, hygienist, sanitary engineer, microbiologist, and sanitary chemist. As to the necessary equipment, importance is given to all-terrain vehicles and devices for potable water processing. The epidemiologist represents the field team coordinator. The need for samples to be sent to laboratories for microbiological and toxicological tests is defined on the basis of additional data availability from the field. In urban areas, a well-equipped team being composed as mentioned above will be able to provide preventive-medical care for about 50,000 inhabitants. Because of the disperse character of the rural settlements in Albania, in a natural disaster event the preventive-medical teams will be able to control a considerably smaller number of inhabitants, especially in hardly accessible mountainous villages.

10. CONCLUSIONS

Since the years 1950s Albania has undertaken a lot of efforts towards infectious diseases because of their great impact 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 this chapter), has led to considerable achievements. Albania actually has the same mortality patterns of the European developed countries: infectious diseases are ranked in the 5th –6th place in the total mortality rates. Their total morbidity rates have decreased over time. 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). Syphilis was eliminated over the period 1972-1994. The last reported case of indigenous malaria dates in 1967.

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. This, first of all because of still high morbidity levels of respiratory infections and diarrhoeal diseases, that is infectious diseases of physical-chemical environmental hazards in the basis of their occurrence. Zoonotic diseases of the veterinary control and prevention (brucellosis, anthrax, leishmaniasis, leptospirosis) actually represent a steady increasing trend of their occurrence among human population. The re-introduction of syphilis (1995) and the steady increasing trend of HIV infection (since the 1st case in 1993) in Albania demonstrate a real threat of sexually transmitted infections concerning their health and social impact.

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 HISTORICAL FRAMEWORK, BECAUSE SUCH A MODUS OPERANDI HELPS TO A BETTER

PREPARATION FOR ANY EVENTUAL DISASTER IN THE FUTURE. This was the way of developing the above content of this chapter. This is the way of drawing THE FOLLOWING CONCLUSIONS:

- Infectious diseases, mainly resulting from unsolved hygienic-epidemiological problems and the extent of their occurrence, still represent an important health problem in Albania.

- Respiratory infectious diseases are the most common diseases, followed by gastrointestinal infectious diseases. These diseases are often related to poor living conditions and air pollution as well.

- Many of the worrying trends in disease incidence in Albania are related to environmental health (water, air, and soil pollution).

- Though a decrease of occurrence of typhoid and paratyphoid fevers during the period from 1991 onwards, diarrhoeal diseases persist with a considerable high incidence rates due, first of all, to a still inadequate solution of problems related to potable water and food safety. The drinking water supply infrastructure both in urban and rural areas of Albania still suffers from the inadequacy of the system both by qualitative and quantitative point of view. 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 represents another urgent problem in both urban and rural settlements because of 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 diarrheoal diseases of all kinds of transmission (water-borne like salmonelloses, food-borne like alimentary toxic-infections, person-to-person like shigelloses, etc). A terrible example of the potential risk posed by water infrastructure was the outbreak of cholera in 1994.

- Zoonoses of veterinary control and prevention show an increasing trend of their occurrence among human population. The reason is 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).

- Intrahospital (nosocomial) infections are not sufficiently explored. They are reported neither promptly nor in details. Hence, they are not epidemiologically studied yet, i.e. in most of the cases their causative

microbial agents are not identified. Individual cases or smaller-scale outbreaks are not reported at all.

- There is an inappropriate level of laboratory confirmation of infectious diseases, because of the inadequate level of performance of districts microbiological (public health) laboratories.

- Although significant results have been obtained in control and prevention of infectious diseases in Albania, they still represent a principal health problem to be solved in the future. Hence, the programmes for their control and prevention should be prioritized to other health care programmes, what is positively defined with the existing legislative regulations and policy documents.

FOR PRESERVATION OF THE ACHIEVED LEVEL OF POPULATION PROTECTION AGAINST INFECTIOUS DISEASES AND ITS IMPROVEMENT, IT IS NECESSARY TO PROVIDE THE FOLLOWING CONDITIONS:

- Procurement of vaccines should continuously be regular and in sufficient quantities irrespective of the difficult economic situation and other unfavorable conditions. The coverage rates should always be over 95% for each vaccine of our national calendar of immunization in order to preserve the achieved results and realize the set goals.

- In addition to immunization and for the purpose of evaluating the results, it is also necessary to prepare programs for epidemiological studies and control of diseases against which mandatory permanent vaccination is performed.

- For control and prevention of diarrhoeal infections/diseases, further solving of water supply problems both in urban and rural settlements, professional maintenance of rural plumbing systems and their inspection is of an indispensable necessity. Urbanized and hygienically approved sanitation of human and animal excrements represents in itself an essential measure in control and prevention of diarrhoeal infections. Introducing a strict inspection in catering and especially in communal feeding services is also necessary.

- Continuity is needed in carrying out of the special programmes against certain infectious diseases (water-borne diarrhoeal diseases, arthropod-borne infectious diseases, malaria, tuberculosis, influenza and air-borne infections, AIDS and STIs), taking care of their consistent realization and evaluation.

- Preparation of special programmes involving epidemiological studies of zoonoses (brucellosis and anthrax first of all) will be necessary in order to undertake efficient epidemiological measures. These programmes should be realized in cooperation with the veterinary services.

- In order to control and prevent nosocomial (intrahospital) infections, the health care services should prepare corresponding programmes with concrete measures. Epidemiological studies and mandatory notification of these infections as well as undertaking corresponding concrete measures is also necessary.

- A more complete and professional execution of epidemiological studies and the undertaking of the corresponding control and prevention measures towards infectious diseases would also require the completion of microbiological tests. To this purpose, it is necessary to enhance the activity of district microbiological (public health) laboratories by providing the necessary equipment, facilities and well-trained personnel.

UNDER EMERGENCY CONDITIONS CAUSED BY THE OCCURRENCE OF A NATURAL DISASTER, THE MEASURES TO BE UNDERTAKEN FOR THE CONTROL AND PREVENTION OF INFECTIOUS DISEASES REPRESENT A CONTINUATION OF ALL MEASURES AND ACTIVITIES BEING UNDERTAKEN PRIOR TO THE NATURAL DISASTER OCCURRENCE.

However, the activities to be carried out under emergency conditions involve SOME SPECIFIC REQUIREMENTS, namely:

- Protection of the population against infectious diseases in areas that might be affected by natural disasters should be planned under normal conditions.

- A scrupulous epidemiological investigation of the affected area should be carried out during and after the natural disaster occurrence.

- Specific measures of protection including vaccination, disinfection, vectors control and derattization, should be undertaken exclusively based on epidemiological indications.

- Field preventive-medical teams being sent to the affected area by a natural disaster must have their own equipment and financial resources for a independent work.

- In the training process of medical staff, a special attention should be given to adopt unique doctrinaire procedures and measures for infectious diseases control and prevention under emergency conditions.

THE RELATIVELY FAVORABLE EPIDEMIOLOGICAL SITUATION CONCERNING INFECTIOUS DISEASES IN ALBANIA AND THE RESPECTIVE CONTROL AND PREVENTION MEASURES BEING PERMANENTLY UNDERTAKEN, REPRESENT A BASIS FOR MAKING FURTHER IMPROVEMENTS OF THE ORGANIZATION AND ACTIVITIES OF THE COUNTRY EPIDEMIOLOGICAL SERVICES. THIS IS A NECESSARY PREREQUISITE FOR A MORE EFFECTIVE AND EFFICIENT CONTROL AND PREVENTION OF INFECTIOUS DISEASES UNDER NORMAL CONDITIONS AND PARTICULARLY UNDER EMERGENCY ONES.

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