



Rare diseases and orphan drugs in the Republic of Macedonia

Mirko Spiroski, MD, PhD
(mspiroski@yahoo.com)

*Institute of Immunobiology and Human Genetics,
Faculty of Medicine, University “Ss Kiril and
Metodij”, Skopje, Republic of Macedonia*



Definition

- In Europe, a disease is considered as rare when it affects 1 person per 2,000. However, this status may vary with time and also depends upon the area considered.
- For years, AIDS was an extremely rare disease, then it was rare and it is now a more and more frequent disease in some populations.
- A genetic or viral disease can be rare in one region, while it is frequent in another region. Leprosy is a rare disease in France but it is common in central Africa. Thalassaemia, which is an anaemia of genetic origin, is rare in Northern Europe, whereas it is frequent in the Mediterranean region. 'Periodic disease' is rare in France whereas it is common in Armenia. There are also many diseases whose variants are rare.



Surveillance of health indicators in the Republic of Macedonia

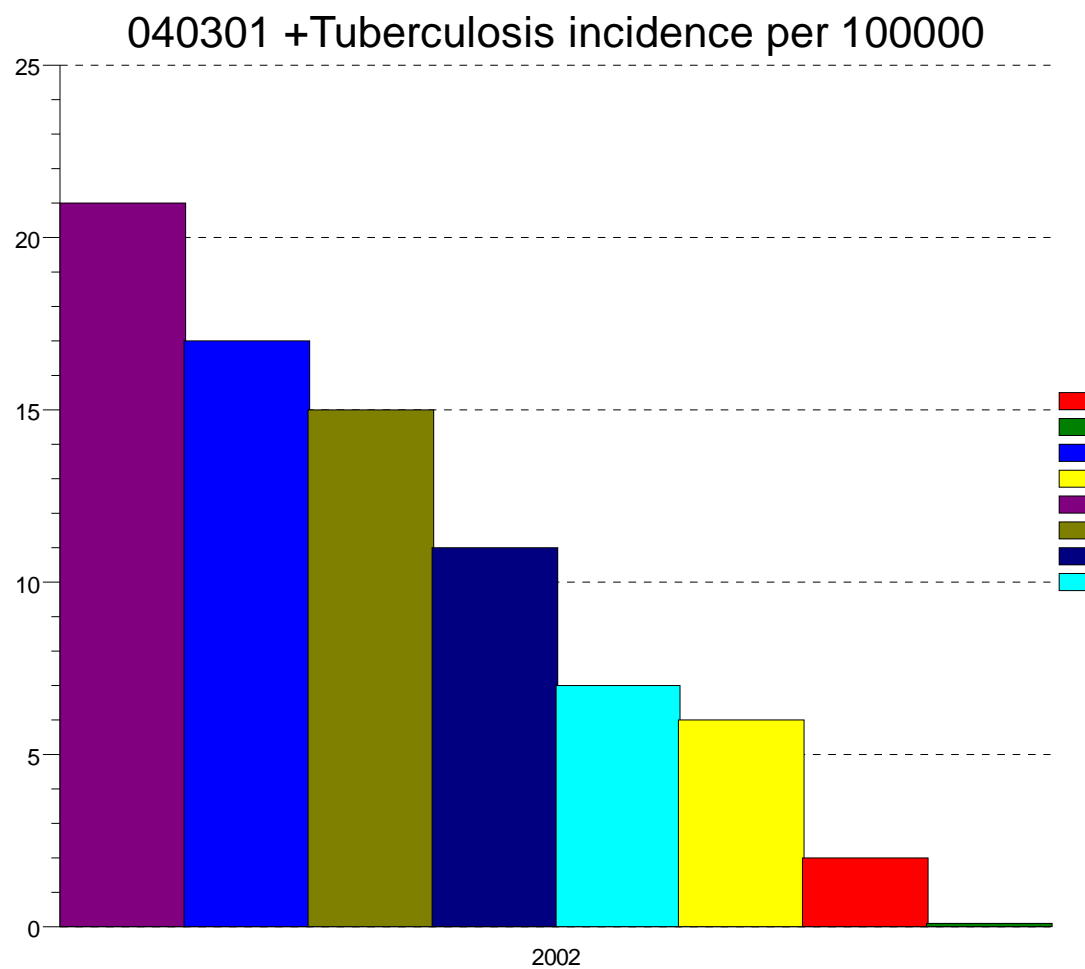
- Low for surveillance in the health sector.
- Health statistics in the public health sector according the Program for statistical investigations in the Republic of Macedonia for 2003/2007 (Official Journal of RM, 69/03).
- Responsible institution is Republic Department for Health Protection.



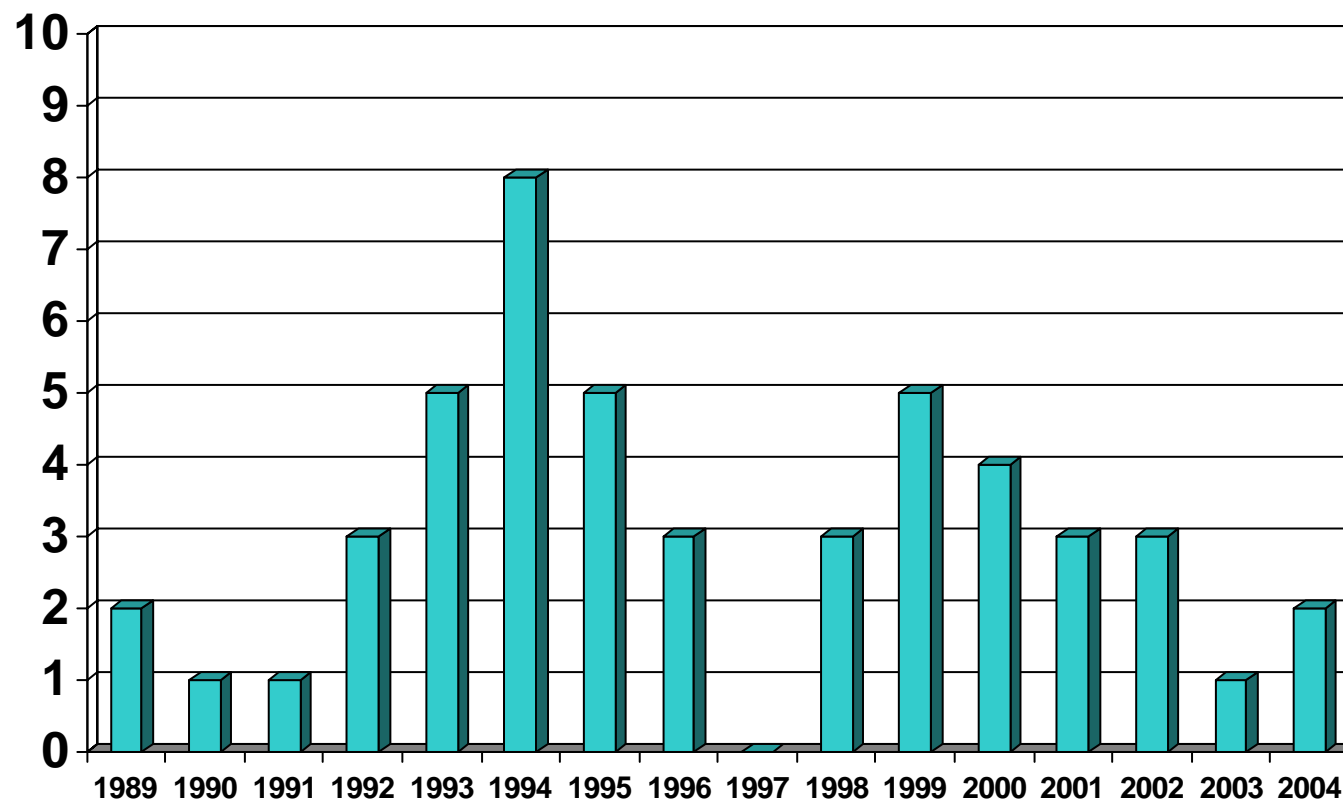
Reports prepared by the Republic Department of Health Protection

- Realization of the Program for obligatory immunization against certain infective diseases in the Republic of Macedonia.
- Measures and activities for protection and cure of intra hospital infections.
- Program for protection of the citizens in the Republic of Macedonia against AIDS.
- Report for infectious diseases in the Republic of Macedonia.
- Report for realization of the program for investigation of appearance, prevention and cure of brucellosis in the Republic of Macedonia


Tuberculosis incidence by regions in the Republic of Macedonia (per 100.000)



Incidence of AIDS in the Republic of Macedonia 1989-2004 year



Source: Macedonian National Strategy on HIV/AIDS, 2003-2006, National Multisectoral Commission on HIV/AIDS, Skopje, Republic of Macedonia



Institutions dealing with genetic diagnostics of rare diseases in the Republic of Macedonia

- Macedonian Academy of Science and Arts (MANU), Research Center for Genetic Engineering and Biotechnology, Skopje, Republic of Macedonia
- Clinic for Children's Diseases, Genetic Laboratory, Faculty of Medicine, University "Ss Kiril and Metodij", Skopje Republic of Macedonia
- Clinic for Obstetrics and Gynecology, Cytogenetic Laboratory, Faculty of Medicine, University "Ss Kiril and Metodij", Skopje Republic of Macedonia
- Institute of Immunobiology and Human Genetics, Faculty of Medicine, University "Ss Kiril and Metodij", Skopje Republic of Macedonia




Genetic diagnostics of rare diseases at the Research Center for Genetic Engineering and Biotechnology, MANU

- Hemoglobinopathy
- Cystic fibrosis
- Hemophilia
- Duchenne/Backer muscular dystrophy
- Spinal muscle atrophy
- Huntington's disease
- Friedrich's ataxia
- Cystinuria
- Fragile X syndrome
- Lesch-Nyhan syndrome
- Male infertility
- Polycystic kidney disease



Genetic diagnostics of rare diseases at the Clinic for Children's Diseases, Genetic Laboratory, Faculty of Medicine

- Karyotype
- FISH
- DNA isolation
- Mutations of mono gene diseases
- Thyroid screening



Institution dealing with diagnostics of rare infectious diseases in the Republic of Macedonia

- Institute of Microbiology and Parazitology, Faculty of Medicine, University "Ss Kiril and Metodij", Skopje Republic of Macedonia.
 - Bacteriology
 - Virusology
 - Mycology
 - Protozoology
 - Helmintology
 - Serological methods
 - Molecular methods



Institutions dealing with diagnostics of malignant rare diseases in the Republic of Macedonia

- **Institute of Pathology**, Faculty of Medicine, University “Ss Kiril and Metodij”, Skopje Republic of Macedonia
- **Institute of Radiology, Cytogenetic Laboratory**, Faculty of Medicine, University “Ss Kiril and Metodij”, Skopje Republic of Macedonia



Medicaments, remedial medicines and medical devices in Republic of Macedonia

- Regulated by the ***Law on medicaments, remedial medicines and medical devices***, Official Journal of Republic of Macedonia, 21, 1998.
- Administrative and expert activities related to the medicaments, remedial medicines and medical devices for human use shall be conducted through the Agency for medicaments, as an institution within the Ministry of Health.
- No medicaments, remedial medicines and medical devices shall be placed on the market unless a marketing authorization has been previously granted by the competent authority.
- The marketing authorization of a medicament, remedial medicine and medical device, shall be issued by the competent authority, in accordance with the statement of the Committee for medicaments, Committee for remedial medicines, and Committee for medical devices.



Orphan drugs in the Republic of Macedonia – without legal harmonization

- **Regulation (EC) No 141/2000 of the European Parliament and of the Council of 16 December 1999 on orphan medicinal products.** *Official Journal L 018 , 22/01/2000 P. 0001 - 0005*
- **Commission Regulation (EC) No 847/2000 of 27 April 2000 laying down the provisions for implementation of the criteria for designation of a medicinal product as an orphan medicinal product and definitions of the concepts 'similar medicinal product' and 'clinical superiority'.** *Official Journal L 103 , 28/04/2000 P. 0005 - 0008*



The Alliances for Rare Diseases in Europe

- At present, Eurordis (European Organisation for Rare Diseases) brings together more than 200 rare disease associations in 16 different countries, 13 of which are European Union member states. Ten National Alliances of Rare Disease Organisations are also members of Eurordis. Eurordis thereby represents millions of patients affected by more than 1000 rare diseases.
- Eurordis is the only organisation that represents the diversity of all rare diseases and the needs of people living with these diseases throughout all European Union member states.
- Republic of Macedonia is **NOT included** in Eurodis.



Conclusions

- There is no knowledge about the rare diseases and orphan drugs in the Republic of Macedonia.
- There are possibilities to adapt actual surveillance system for rare diseases.
- There are several institutions dealing with diagnostics of rare diseases.
- There are not developed NGOs for a rare diseases.
- Republic of Macedonia is not included in the European projects, organizations, networks and financial support for rare diseases and orphan drugs.



Acknowledgements

- **Vlado Spirkovski**, MD, Republic Department for Health Protection, Skopje, Republic of Macedonia
- **Vesna Zafirovska**, nurse, Republic Department for Health Protection, Skopje, Republic of Macedonia
- **Jovanka Kostovska**, MD, Ministry of Health, Skopje, Republic of Macedonia
- **Vesna Velikj-Stefanovska**, MD, PhD, National Multisectoral Commission on HIV/AIDS, Skopje, Republic of Macedonia