

Chapter 8

Case Study – Bulgaria

Raynichka Mihaylova-Garnizova and Kamen Plochev

Abstract The aim of this paper is to map the current situation in Bulgaria's public healthcare system with regard to bioterrorism response. It explores the main public health threats and focuses specifically on the changing perception of bioterrorism as a potential threat to the country. Furthermore, it explains how this perception is reflected in the existing legal framework and administrative structures. The paper makes the case for the further development of an integrated, flexible and sustainable national management system to respond effectively to emergencies and presents the major challenges for the country in this field. It makes a comparison between military and civilian agencies in their preparedness to respond to naturally occurring emergencies and threats of biological attack. This review points out the higher but still limited capacity of the military medical facilities in Bulgaria. The overall evaluation underlines the need for further strengthening of the relationship between military and civil capabilities and between public healthcare and security and law enforcement structures. As a result the authors make the case for stronger cooperation between military and civil medical facilities as well as for inter-institutional and interdisciplinary dialogue on the expert and political level on biopreparedness in Bulgaria.

8.1 Introduction

The aim of this contribution is to map the current situation in Bulgaria's public healthcare system with regard to bioterrorism response.

In Bulgaria public health and biopreparedness are still regarded as two independent public policies. Public health, including control of infectious diseases and the

R. Mihaylova-Garnizova (✉) • K. Plochev
Department of Infectious Diseases, Military Medical Academy,
Clinic of Infectious Diseases, Sofia, Bulgaria
e-mail: doctor.mihaylova@gmail.com

counter of epidemics, is a priority of the Ministry of Health while preparation for response to bioterrorism is almost entirely within the scope of the activities of the Ministry of Defence. Moreover, until recently the efforts of the military experts were focused completely on the problems of biodefence in the event of an attack with biological weapons and the basic protection of the army. On one hand, the prioritization of the protection of the civilian population from bioterrorism on the global scene in general, and the emergence of new epidemics of infectious diseases, on the other hand, naturally impose the need for coherence and cooperation of efforts of different institutions in Bulgaria for responding to bioterrorism.

Furthermore, in the beginning, a covert biological attack cannot be distinguished straightforwardly from a naturally occurring epidemic, in which case the response will be handled by the existing public health structures.

The overall evaluation is that Bulgaria has no experience in countering bioterrorism.

8.2 Current Public Health Threats and Perceptions

The main public health threats concerning infectious diseases in Bulgaria are defined in the Health Act and its additional regulations. About 60 diseases are indicated in the official list of infectious and parasitic diseases, which are subject to mandatory registration, notification and reporting (Table 8.1). However, not all of the items in the list are subject to regular monitoring. Regular updates are given for 50% of the infectious diseases.

The data for morbidity of the most important communicable diseases for the country is published in the weekly epidemiological bulletin (Table 8.2), published by the National Centre for Infectious and Parasitic Diseases.

Contrary to the existing infectious diseases list, Bulgarian authorities do not have an established official list of potential agents for bioterrorism. In a recent publication we have proposed a list of bio-agents (Table 8.3) which represent a potential threat for Bulgarian citizens in case of bioterrorism, taking into account the following criteria [5]:

- Bulgaria's geographical position;
- The immunization calendar of the country; and
- The implementation of commitments to peacekeeping and other missions.

This lack of official position on the threat of biological agents needs to be further clarified. Until very recently according to the Bulgarian authorities there was no risk of terrorism in the country, including risk of bioterrorism. This attitude is changing and the new position of the government is that Bulgaria faces the risks and threats common to the Euro-Atlantic area which include terrorism and weapons of mass destruction.

The new National Security Strategy of the Republic of Bulgaria (NSS), adopted by the National Assembly on 25 February 2011, states that "risks and threats (including bioterrorism) to the security of the Republic of Bulgaria and its citizens largely coincide or are similar to those that threaten other EU countries and NATO" [4].

Table 8.1 Official list of infectious and parasitic diseases

1. Amebiasis
 2. Anthrax
 3. Ascariasis
 4. Bacterial meningitis and meningo-encephalitis:
 - 4.1. With specified etiology
 - 4.1.1. Pneumococcal
 - 4.1.2. Streptococcal
 - 4.1.3. Haemophilus influenzae
 - 4.1.4. Other bacteria
 - 4.2. With unspecified etiology
 5. Botulism
 6. Brucellosis
 7. Rabies
 8. Creutzfeldt-Jakob disease
 9. Smallpox
 10. Chickenpox
 11. Viral meningitis and meningo-encephalitis
 12. Viral haemorrhagic fevers:
 - 12.1. Ebola and Marburg fever
 - 12.2. Lassa fever
 - 12.3. Congo-Crimean haemorrhagic fever
 - 12.4. Haemorrhagic fever with renal syndrome
 13. Viral hepatitis:
 - 13.1. Acute viral hepatitis types A, B, C, D, unidentified
 - 13.2. Chronic viral hepatitis type B, C, D
 14. Gastroenteritis, enterocolitis
 15. Gonococcal infection
 16. Influenza and acute respiratory infections (ARI)
 17. Shigellosis
 18. Diphtheria
 19. Mumps
 20. Echinococcosis
 21. Yellow fever
 22. Yersiniosis
 23. Campylobacteriosis
 24. Pertussis
 25. Enterohaemorrhagic *E. coli* infection
 26. Typhoid fever
 27. Cryptosporidiosis
 28. Q fever
 29. Lyme borreliosis
 30. Leishmaniasis, visceral
 31. Lambliosis
 32. Legionellosis
 33. Leptospirosis
 34. Listeriosis
 35. Malaria
-

(continued)

Table 8.1 (continued)

36. Marseilles fever (Mediterranean spotted fever (MSF))
37. Meningococcal infection (meningo-coccal meningitis and sepsis)
38. Measles
39. Ornithosis
40. Spotted fever
41. Poliomyelitis
41.1. Acute Flaccid Paralysis
42. Rubella
42.1. Congenital rubella
43. Salmonellosis
44. Syndrome of acquired immune deficiency (AIDS) and HIV infection
45. Syphilis
46. Scarlet fever
47. Streptococcus pneumoniae, invasive infection
48. Severe acute respiratory syndrome (SARS)
49. Tapeworm infection (<i>Taenia solium</i> , <i>Taenia saginata</i> , <i>Hymenolepis nana</i> , and <i>Diphyllobothrium latum</i>)
50. Tetanus
51. Toxoplasmosis
52. Trichinosis
53. Tuberculosis
54. Tularaemia
55. Haemophilus influenzae type B invasive infection
56. Chlamydia trachomatis, genital infection
57. Cholera
58. Plague

Table 8.2 Epidemiological bulletin list

Anthrax	Lyme borreliosis
Bacterial meningitis and meningo-encephalitis	Legionellosis
Botulism	Leptospirosis
Brucellosis	Listeriosis
Chickenpox	Marseilles fever (Mediterranean spotted fever (MSF))
Crimean-Congo haemorrhagic fever	Meningococcal infection (meningo-coccal meningitis and sepsis)
Viral meningitis and meningo-encephalitis	Ornithosis
Gastroenteritis, enterocolitis	Acute viral hepatitis types A, B, C, D
Congenital rubella	Rubella
Shigellosis	Salmonellosis
Mumps	Scarlet fever
Pertussis	Tetanus
Yersiniosis	Tularaemia
Campylobacteriosis	Haemorrhagic fever with renal syndrome
E. coli enterocolitis	Chronic viral hepatitis type B, C, D
Typhoid fever	

Table 8.3 Proposed list of bio-agents which represent a potential threat for Bulgarian citizens in case of bioterrorism

Bacterial agents	Viral agents	Biological toxins
<i>B. anthracis</i>	SARS CoV	Botulinum toxin
<i>Brucella spp.</i>	H5N1	Ricin
<i>B. mallei</i>	H1N1	SEB
<i>B. pseudomallei</i>	Orthopox virus	T-2 mycotoxins
<i>Y. pestis</i>	Venezuelan equine encephalitis virus	
<i>F. tularensis</i>	Haemorrhagic fever viruses	
<i>V. cholera</i>		
Rickettsia	<i>C. burnetii</i>	

The strategy gives special attention to asymmetric threats, especially international terrorism and proliferation of weapons of mass destruction (WMD) and their impact on security in a global and regional context. The document underlines the increasing possibilities of the use of radioactive materials, toxic substances and biological agents, as well as access to information databases and technology for the combat of terrorism.

Particular attention is paid to a number of issues:

- Surveillance of communicable diseases;
- Country protection from importation and distribution of infections;
- Outbreak reduction;
- Terrorist use of biological agents;
- High immunization coverage of the population;
- Rapid response organisations in situations threatening public health;
- Specific actions taken to prevent widespread disease among vulnerable and marginalized populations.

The new approach indicates the importance of building an integrated, flexible and sustainable national management system to respond effectively to crises. In order to reach an effective crisis management level, it is necessary to develop integrated military and civilian capabilities for action in the country and the EU.

This new orientation in the strategic thinking has not been further developed into procedures and other types of documents, including officially recognized bio-threat agents.

8.3 Response to Emergencies

8.3.1 Legal Framework

The perception of risk reflected in the new National Security Strategy and the necessity of integrated military and civilian capabilities fully correspond to the existing legal framework. Firstly, it should be pointed out that the current legal framework

reflects the changes that have occurred in Bulgaria in the past few years. Secondly, the framework has been fully revised in light of Bulgaria's membership in NATO and the European Union. As a result, Bulgarian authorities have aimed at achieving full alignment with internationally acknowledged crisis management systems. Even though an overall look at the existing framework, reveals a strong foundation for Bulgaria's anti-terrorism and WMD defence policies, a deeper observation shows lack of a strategy explicitly addressing the threat and response to bioterrorism [1].

The key acts and plans in Bulgaria on these topics are listed below for information. However, their full description and evaluation is beyond the scope and focus of this paper.

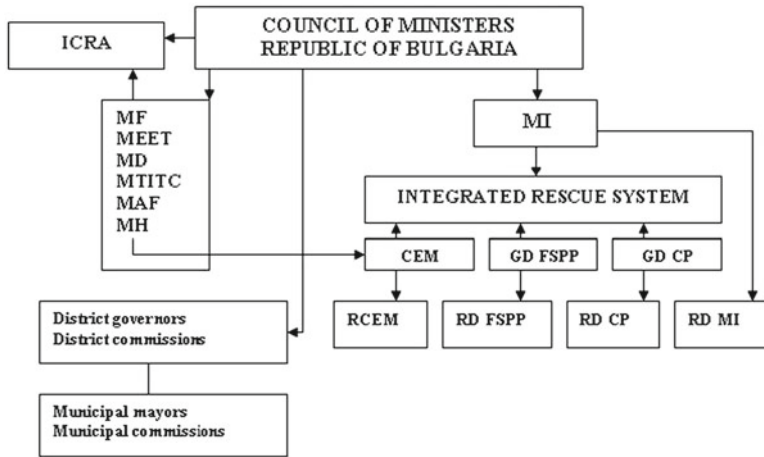
- The Defence and Armed Forces Act
- Ministry of Interior Act
- Healthcare Act
- National Security Strategy of The Republic of Bulgaria
- Law on Disaster Protection
- The Terrorism Management Plan
- National programme for strengthening the capacity of Bulgaria for the prevention of importation of infectious diseases and reaction in events, presenting danger for public health for 2008–2010

8.3.2 Overall Coordination of Managing Bodies

The following governmental bodies are engaged in emergency response and preparedness, including in the case of a bioterrorist threat (Fig. 8.1):

- The Ministry of Health;
- The Ministry of Defence;
- The Ministry of Interior;
- The Ministry of Agriculture and Food;
- State Agency for National Security;
- State Agency “State Reserve and War-time Stock”;
- State Agency “Civil Protection” of the Ministry of Interior.

The Council of Ministers (CM) has the overall responsibility for the design and the implementation of the disaster prevention policy. It adopts the national disaster relief plan and annual strategies for its implementation. The Council establishes the Inter-Ministerial Commission for Recovery and Assistance (ICRA) with representation from the Ministry of Finance (MF), Economics, Energy and Tourism (MEET), Defence (MD), Transport, Information Technologies and Communication (MTITC), Agriculture and Food (MAF), and Health (MH). The Council of Ministers delegates to the Minister of Interior (MI) the responsibility to establish and manage the activities of the Integrated Rescue System (IRS). The IRS organizes,



- CEM Centres for Emergency Medicine
- GDCP General Direction “Civil Protection”
- GDFSPP General Direction “General Fire Safety and Protection of Population”
- ICRA Inter-Ministerial Commission for Recovery and Assistance
- MAF Ministry of Agriculture and Food
- MD Ministry of Defence
- MEET Ministry of Economics, Energy and Tourism
- MF Ministry of Finance
- MH Ministry of Health
- MI Minister of Interior
- MTITC Ministry of Transport, Information Technologies and Communication
- RCEM Regional Centres for Emergency Medicine
- RDCP Regional Direction “Civil Protection”
- RDFSPP Regional Direction “General Fire Safety and Protection of Population”
- RDMI Regional Directions of the Ministry of Interior

Fig. 8.1 Interaction of managing bodies

coordinates and manages the activities of the bodies and structures taking part in disaster relief.

The IRS includes the General Direction “Civil Protection” (GDCP), the General Direction “General Fire Safety and Protection of Population” (GDFSPP) and the regional directions of the Ministry of Interior, as well as the Centres for Emergency Medicine (CEM) and its regional divisions of the Ministry of Health. The main components of the IRS are present in all districts and municipalities throughout the country. In case of a disaster, the chief of operations manages and coordinates the activities of territorial units of IRS on the scene. This position is held by the chief of the territorial unit of the GDFSPP. In the case of epidemics, the activities on the scene are managed by the director of the Regional Health Inspection.

In the following sections, we will have a detailed look at the key bodies involved in emergency response.

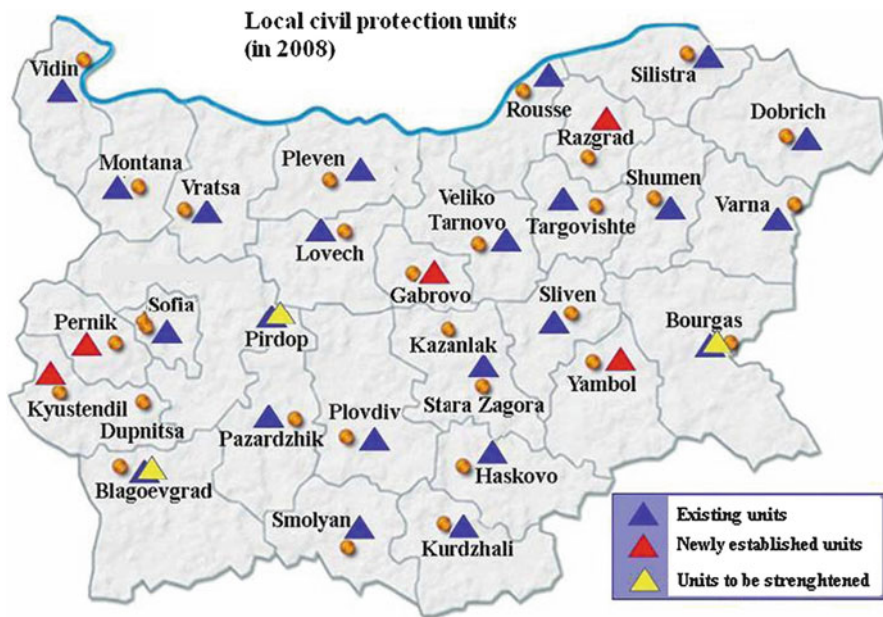


Fig. 8.2 Local civil protection assets

8.3.3 General Direction “Civil Protection”

General Direction “Civil Protection” (GDCP), part of the Ministry of Interior, currently performs a number of tasks related to disaster relief. Firstly, the body warns and signals of the threat of a disaster which also includes the case of state of war (Fig. 8.2). Secondly, it performs search and rescue operations during disasters, including emergency works. In case of incidents and emergencies related to harmful materials and substances, the General Direction is in charge of radiation, chemical and biological protection. In terms of actions for prevention, GDCP organizes education activities and trainings of the population to react during disasters as well as the implementation of protective measures.

Even though GDCP has substantial functions in emergency prevention and response, it lacks tasks directly involved in the use of bioweapons or naturally developing pandemics. In addition to this drawback in its role, it also lacks medical personnel. For this reason GDCP is working in close coordination with the Centres of Emergency Medicine (CEM).

8.3.4 State Agency “State Reserve and War-Time Stocks”

State Agency “State Reserve and War-Time Stocks” is the specialized body of the Council of Ministers that pursues the state policy in the field of the accumulation,

maintenance and use of the country's state reserves and war-time stocks in accordance with the national security's interests. (State Agency "State Reserve and War-Time Stocks") More precisely, it organizes and controls the accumulation, maintenance, updating and accounting of the state reserves and war-time stocks [6].

Its functions include:

- Proposals to the Council of Ministers for approval of the state reserves' nomenclature and norms;
- Reports of its activities to the Council of Ministers and to the Inter-Ministerial Commission for Recovery and Assistance (ICRA) in the matter of the military-industrial complex and mobilization training of the country;
- Participation in the international cooperation, European and Euro-Atlantic integration activities.

In Bulgaria, the main stocks piled into the system of state reserves, for which the State Agency is responsible, are: fuels, chemicals, foods, ferrous and non-ferrous metals, spare parts, timbers and paper, medical provisions, hospital equipment, and tools.

In case of a biological attack these are the available resources of the agency. It has the main equipment in terms of medical provisions except serums and vaccines which are kept at the National Centre of Infectious and Parasitic Diseases.

8.3.5 State Agency for National Security

The State Agency for National Security (SANS) was created in 2007 and it is still in the process of development. The State Agency for National Security is a specialized body for counter-intelligence and security and its chief responsibility is to detect, prevent and neutralize the threats to the Bulgarian national security [7].

In order to fulfil its duties, SANS uses in its work the whole spectrum of counter-intelligence means and resources. The Agency operates against the classic intelligence and non-traditional threats and risks, provides government authorities with information needed for the decision making in the national security sphere. One of its tasks is the gathering of information regarding time, location and media of dissemination of the biological agent.

Moreover, with respect to prevention of terrorism, including bioterrorism, the Agency performs tasks of surveillance, detection, counteraction and prevention of:

- International trade in weapons, products and technologies of dual use, manufacture, storage and proliferation of items of a generally hazardous nature;
- International terrorism and extremism and their financing;
- Protection of facilities or activities of a strategic nature;
- Actions of groups or persons with support of alien services, terrorist or extremist organizations;
- Disruptive actions on communication and information systems;
- Risks and threats related to migration.

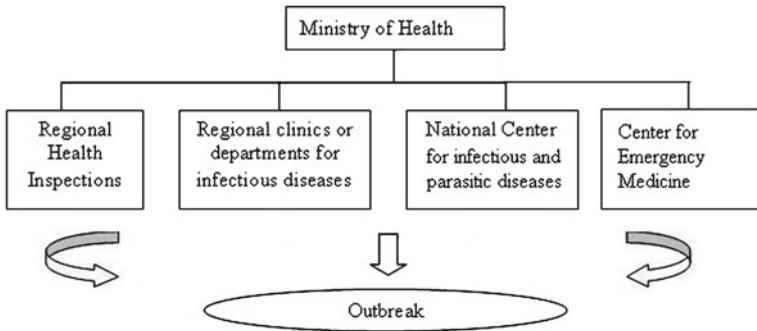


Fig. 8.3 Ministry of Health and its structures

The main concern under discussion about SANS's functions and activities is the order, volume and use of the acquired and analyzed information for the planning to counter a biological attack made by other authorities. This problem stems from the lack of publicity of the reports evaluating the risk of bioterrorism. Therefore, due to the classified nature of the information, further estimates about the activities performed by SANS with respect to biological threats cannot be made.

8.3.6 Ministry of Health and Its Structures

The Ministry of Health's main functions encompass two of its strategic goals with respect to emergency response (Fig. 8.3). First of all, it is responsible for surveillance, prevention and protection from infectious diseases. Second, it deals with the organization of the medical response in the case of a biological attack. The structures directly involved in performing these two functions are the National Centre for Infectious and Parasitic Diseases (NCIPD), Regional Health Inspections (RHIs), the Centre for Emergency Medicine and the medical facilities throughout the country (regional clinics or departments for infectious diseases).

The Ministry of Health has issued a plan for public protection in the case of disasters including terrorism, as well as counteraction to an influenza pandemic, but the structures of the Ministry do not have a specific plan for actions in case of biological attack.

8.3.7 National Centre for Infectious and Parasitic Diseases

As a result of its efforts in the research and surveillance on infectious diseases, in 2007 the European Centre for Disease Control (ECDC) in Stockholm declared

NCIPD as a leading “national competent body” in the field of infectious and parasitic diseases.

The NCIPD has the status of scientific organization of the Ministry of Health, which aims to develop a scientific basis for the fight against infectious diseases and methods for its implementation. Therefore, the areas of intensive research are: infectious diseases, immune reactivity, epidemiology, laboratory diagnostics, and treatment and prophylaxis of bacterial, viral, and parasitic infections. NCIPD includes all National Reference Laboratories (NRL) in various bacterial, viral and parasitic infections.

The NCIPD, acting in cooperation with the European Centre for Disease Prevention and Control, has developed the capacity for surveillance of the spread of infectious diseases and the modern diagnostic capabilities for Biohazard Level III infections. The reaction to the bird flu pandemic has demonstrated this capacity. The Centre is capable of observing the dissemination of one biological agent, but is not designated to coordinate activities to stop it.

The NCIPD holds the country’s reserves of serums and vaccines to be used in cases of biological attack and epidemics. NCIPD has developed a plan for a bio-response; however, access to the documentation is restricted.

8.3.8 Regional Health Inspections

The Regional Health Inspections (RHIs) replaced and merged the functions of the Regional Inspectorate for Protection and Control of Public Health and the Regional Health Centres. The new body started working in January 2011 and it is still in the process of its development.

The RHIs include the regional authorities, performing practical activities concerning public health, such as the identification of the source of communicable diseases, epidemiological studies and health education activities. Similar to the case with its two predecessors, the Ministry of Health has not delegated tasks to the inspections related to planning its activities in case of a bioterrorist attack.

8.3.9 Civilian Medical Facilities

In addition to the NCIPD and the Regional Health Inspections, the Ministry of Health manages civilian medical facilities which include hospitals, clinics or departments dealing with infectious diseases on the regional, municipal, and district levels.

The civilian medical facilities have the necessary experience to respond to the most common epidemics, but lack the capacity – administrative, personnel and material – to act during a bio-attack.

8.4 Role of the Ministry of Defence and the Military Medical Academy

The state structures having both the capacity and preparedness to act in case of bio-terrorism are the Ministry of Defence and the Military Medical Academy (MMA), responsible for the medical treatment of the army [2]. That is why MMA is the only organization able to ensure protection both for the military forces and the civilian population during a bio-attack.

The Military Medical Academy (MMA) was established in 1989, at the Ministry of Defence of the Republic of Bulgaria, as an integrated complex for medical care, education and scientific research with the commitment to develop the military medical science, and to provide training, specialization and qualification of the military medical staff for the purpose of ensuring the fighting strength and combat readiness of the Bulgarian Armed Forces, preservation and recovery of the military servicemen's health. (Military Medical Academy)

Since February 2001, MMA is composed of the following structures for outpatient and hospital care (Fig. 8.4). The Medical Hospitals (MHs) for active treatment are located in Sofia, Varna, Plovdiv, Sliven and Pleven. MMA also includes Centres for Rehabilitation in Hissar, Pomorie and Bankya. In addition, MMA supports the Research Centre for Radiological, Biological and Chemical Protection, the Centre for Military Epidemiology and Hygiene, and Military Medical Units for Emergency Response and its divisions.

Additionally to the above mentioned bodies, MMA operates military medical departments and troops for the army, the air forces and the navy. At the same time, the Central Depot in Lovech holds additional stockpiles in the case of a bio-threat. The MMA develops and regularly updates an action plan for response in case of biological threat which concerns all of MMA's structures.

The Clinic of Infectious Diseases (CID) in Sofia (Fig. 8.5) was reconstructed in 2005 as a result of a military project initiated after the international meetings of experts on biological weapons in Warsaw in January 2003 and Geneva in October 2003. The goal was to build hospital facilities for the reception, isolation and treatment of patients with infectious diseases, and especially for dangerous infections, naturally occurring outbreaks and response to a potential biological attack [3].

The reconstructed clinic fits the modern construction and technology requirements to prevent disease transmission and reduce morbidity of the victims of naturally occurring epidemics and those from biological attack.

The clinic is located in a separate building, which allows protection to prevent the spread of infections in other medical departments of the hospital in Sofia. CID has:

- Capability for isolation and treatment of especially dangerous infections of the bio-safety level 2 and 3;
- Access through a main road and by helicopter;
- Trained medical personnel for bio-attack situations.

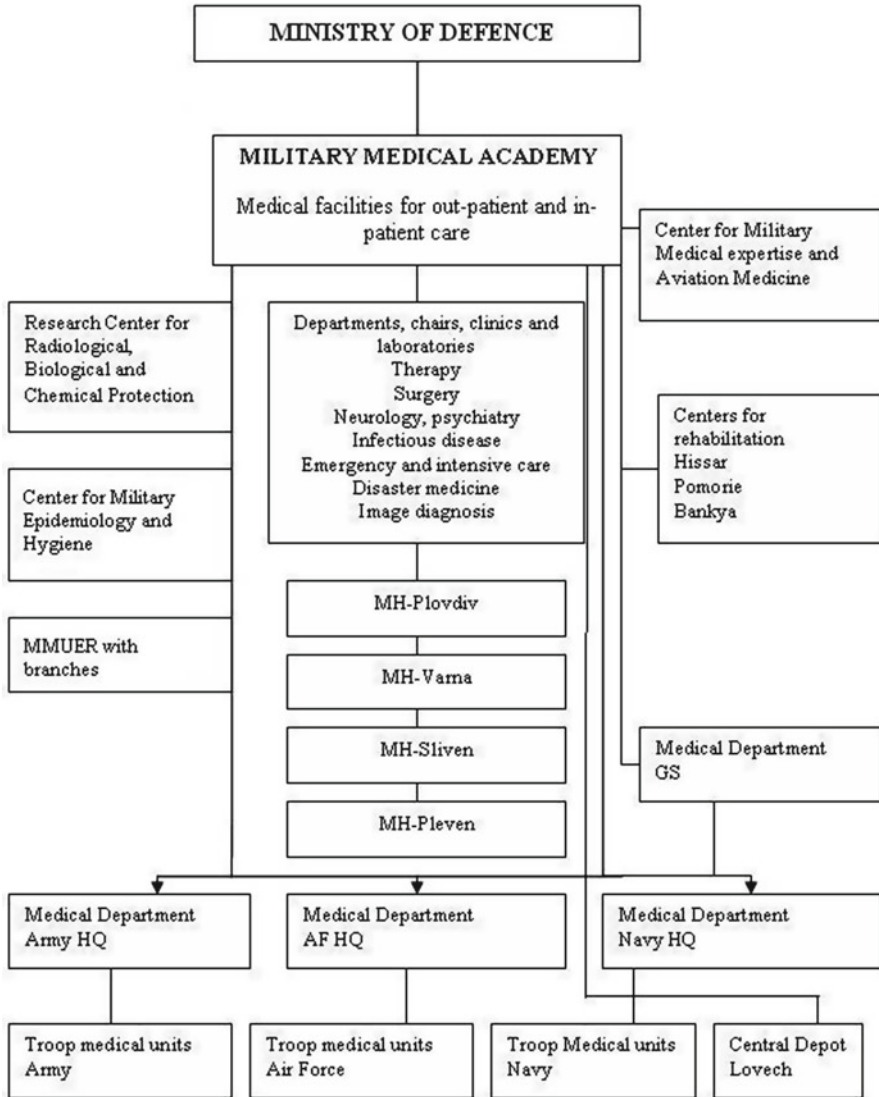


Fig. 8.4 Ministry of Defence and Military Medical Academy

Contrary to the Clinic of Infectious Diseases in Sofia, other military hospitals in the country do not have the same capacity for response to bio-threats. Since other hospitals lack plans, resources and trained personnel, in the case of bio-attack they will be assisted by CID, the Military Medical Unit for Emergency Response, and mobile military hospitals. The latter are intended to be used in these regional military hospitals, which do not have infectious wards.



Fig. 8.5 Clinic of infectious diseases in Sofia

8.5 Military-Civilian Partnership

As a general scenario, the military hospitals without infectious wards sign agreements with the civilian hospitals in the same city or region for the transfer of patients. The issue with these agreements is that regardless of the availability of beds they lack the resources for an adequate response to a bio-attack. For this reason the agreements foresee that civilian hospitals will receive support from the medical personnel of MMA.

Both military and civilian hospitals suffer serious shortages of infectious disease professionals which number about 150 medical doctors for the entire country. This is the result of the policies of the Ministry of Health and the National Health Insurance Fund (NHIF) which fail to assure the necessary budget line for infectious diseases.

An issue which has not been subject to public and expert discussions is the interaction between public (civilian and military) and private facilities in case of a bio-attack. This is the case due to the rising number of privately owned hospitals which operate within the network of public healthcare financed by the National Health Insurance Fund even though they do not have any responsibility in naturally occurring epidemics and bio-attacks.

8.6 Conclusion

To sum up, firstly the subject of bioterrorism and preparedness in Bulgaria is fairly new. However, the institutions involved have started developing a strategic approach for this possibility. These efforts are limited by the continuous changes in the legal framework and the implementing structure. The changes are reflected to a lower extent in the organizations responsible for naturally occurring epidemics.

Secondly, in this changing environment the military medical structures hold the highest capacity in emergency response to bio-threats. Here as well, the capacity remains below the necessary level. Regardless of this fact, since the resources in the country for the prevention of bioterrorism are very limited and the health care system is undergoing serious reform, the military medical capacity could be used to protect civilians.

Thirdly, as a result of the limited capability and resources, the need for cooperation is increasing. In some cases this is already the case, while in others the gap has to be addressed even further. The most important of these are the relationship between the public healthcare and preparedness for bioterrorism and the relationship between the public healthcare and security and law enforcement structures. The inter-institutional and interdisciplinary discourse in Bulgaria on the expert and political level is yet to come.

References and Further Reading

1. Disaster Relief Act (2011) Official gazette. 25 January 2011. <http://www.lex.bg/bg/laws/ldoc/2135540282>. Accessed 30 Apr 2011
2. Military Medical Academy (2011) <http://www.vma.bg/indexen.php>. Accessed 30 Apr 2011
3. Mihaylova-Garnizova R (2011) Organization of the activities of the medical facilities of the Military Medical Academy in response to a biological attack. PhD thesis, Sofia, MMA
4. National Assembly of the Republic of Bulgaria (2011) National Security Strategy. 25 February 2011. <http://www.strategy.bg/FileHandler.ashx?fileId=1419>. Accessed 30 Apr 2011
5. Plochev K (2011) Medical activities organization within Bulgarian Army to counter in case of biological weapon usage. DMS thesis, Sofia, MMA
6. State Agency “State Reserve and War-Time Stocks” (2011) <http://www.statereserve.bg/dadrvvz/opencms/menu/en/>. Accessed 30 Apr 2011
7. State Agency for National Security (2011) <http://www.dans.bg/>. Accessed 30 Apr 2011