

SUMMARY OF SCIENTIFIC WORK

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The scientific works of Dr. M. Panteleeva are related to the main topics of the disciplines she is teaching: “Disaster Medicine” – in Bulgarian and English, “Medical provision in disaster”, “Getting ready for the event of a terrorist attack and anti-terrorism”, “Medical provision in disasters and Mass Casualty Events”, “First aid at home and in the office”, “Basic life support”.

Scientific works are mainly in the field of Disaster Medicine:

- Presentation of the main terms used in Disaster Medicine and other related disciplines. Classifications. Basic characteristics of disaster situations and recommended actions for survival.
- Survey studies on assessing the awareness and preparation of students, master pharmacists and the population in general for disaster situations.
- Management and organization of the protection of the population in disasters.
- Chemical accidents and consequences for Varna region, health and psychological aspects. Environmental problems.
- The role of pharmacists in disasters.
- Nutrition and human health.
- Experiments with experimental animals, epidemiological and other studies.

A1. Dissertation work for obtaining the educational and scientific degree "PhD"

POSSIBLE ENVIRONMENTAL RISKS IN VARNA REGION AND PHARMACISTS ROLE IN CASE OF INDUSTRIAL ACCIDENTS AND CHEMICAL TERRORISM

Recently the increased frequency of global disasters has made healthcare systems face constant challenges. The risk of chemical accidents and chemical terrorism is growing constantly. In case of disasters one of the most important issues to deal with is the medical provision of the population and the shortage of medical staff. At the same time, pharmacists are underestimated as valuable hidden system reserve. Easily accessible by the population, in the event of an accident, they could take care of the survivors and the lightly injured, and will ease the burden on hospitals and primary healthcare facilities. Previous accidents and terrorist attacks on land and sea, as well as important industrial and chemical warfare agents have been researched. Adequate medication to reduce their toxic effects on the population was discussed, as well as other authors publications on the role of pharmacists in disaster. The availability in the pharmacy network in Bulgaria of medications, suitable for treatment of victims of chemical accidents and terrorism, has been studied. A survey was conducted and a comparison of the knowledge of two groups of respondents – college pharmacy students and working master-degree pharmacists. Master-degree pharmacists have been found to have less knowledge on first aid and rescue activities in case of chemical accident than college pharmacy students because they do not study Disaster Medicine at

university. We suggest the role of pharmacists in disasters to be officially recognized and regulated by the state, the master-degree pharmacists to take a course in Disaster Medicine during their university education and postgraduate courses in first aid to be provided for both groups. An Algorithm for proper pharmacists actions and Guidelines for Medication Treatment of victims in case of a mass casualty event with toxic chemical substances and terrorism have been developed.

B3. Habilitation work – monograph

CHARACTERISTICS OF MAJOR DISASTERS AND RECOMMENDATIONS FOR PROPER BEHAVIOUR . NATURAL DISASTERS.

Global climate changes observed in recent decades affects different areas of the Earth, causing major climate anomalies and increasing their recurrence. Droughts, fires, unusual in quantity and duration rains and floods, hurricane winds, etc. are often observed, causing, in addition to the economic catastrophe, also a serious disruption of social life in a number of countries of the world. More and more often information appears not only about natural disasters, but also about those that occurred as a result of human activity. The modern world around us is characterized by constant problems, stress and catastrophes.

The monograph is discussing different disasters, their origin and suggestions for proper behavior are given. Special attention is paid to meteorological disasters – storms, cyclones, anticyclones, hurricanes, whirlwinds, etc.; topological disasters, including floods, landslides, avalanches; tectonic disasters – earthquakes and volcanic eruptions.

A general geographical profile of the Varna region with territorial distribution of the population, built-up area, relief, water bodies, climate, precipitation, industry, road infrastructure, railway lines and stations, airport, ports is presented. Attention is paid to the strategic objects in the district in connection with possible disaster situations of natural and anthropogenic nature. Typical disasters for the area are earthquakes, floods, landslides, hurricane winds, field and forest fires, snow storms and icings, sea storms, outbreaks of epidemics and outbreaks of infectious diseases. Vulnerability to climate change is especially important. Systematized measures have been proposed to protect the population during various disasters.

The monographic work examines basic concepts of psychological problems arising after a disaster. A very important point in the provision of psychological assistance is the identification of the key moments after the disasters and the vulnerable groups of the population.

The author's personal studies on disasters and population preparedness to deal with them are reviewed. The results of various surveys are presented in text, tables and graphical images.

The presented monographic work concerns a particularly relevant topic. Against the background of the recent disaster situations in the region, it is very important to summarize and present information about the correct behaviour of the population in a real disaster situation. The monograph is a well-designed modern practical guide that can be successfully used by students, interns, doctors and educators in the problems of disaster situations, giving a great deal of recommendations for proper behaviour for the purpose of survival and protection.

INDICATOR G7. Publications and reports published in scientific publications, referenced and indexed in world-renowned databases of scientific information.

1. DISTRIBUTION OF ⁸⁶RUBIDIUM AND ⁷⁵SELENIUM IN ORGANS OF RATS AFTER EXERCISE AND TREATMENT WITH PROTEIN HYDROLYZATE AND VITAMIN C

Purpose of the study is to track in, the blood flow and the metabolism in 15 organs of experimental rats, which are subjected to severe physical strain, treated with protein hydrolyzate and vitamin C (Vit. C). The animals are divided into one control and 4 experimental groups. After 30 minutes of swimming they are treated with already used produces, methionine ⁷⁵selenium and after another 2 hours of swimming, with ⁸⁶ rubidium. After being euthanized with thiopental and an autopsied, the following organs are taken from the rats: pancreas, spleen, testicles, duodenum, a part of small intestine and colon, adrenals, kidneys, liver, lungs, heart, aorta, a piece of muscle, part of a brain and stomach. Percentage of the activity per gram of tissue is determined, of the total activity, of the two isotopes for every organ and them being compared. Physical strain deteriorates blood flow and reduces the accumulation of methionine ⁷⁵selenium, while the treatment with the hydrolyzate and Vit. C has a beneficial effect in almost all organs.

2. CIVIL PROTECTION MODERN ASPECTS IN CASE OF DISASTERS – BULGARIA

This article aims on the modern aspects of Civil Protection in Bulgaria by thorough research of the management and the organization of its activities. We used descriptive analysis and summary of scientific publications and state documents concerning the nature, goals, objectives, principles and remedies available to the population in disasters. A study of the documents on the establishment and development of civil protection in Bulgaria was made.

In Bulgaria the organization of the civil protection in disasters includes actions on prevention, emergency rescue, relief and recovery. The structure of the main Integrated Rescue System components was built throughout the country in accordance with the administrative - territorial division, each of which supports 24-hour readiness to respond. The basic principles for protection and prevention should be known by all the citizens because they give the right for defense for each person and priority of the human life rescue.

The conclusion is that the Bulgarian Civil Protection aspects are up to date and correspond to the modern principles of protection, applied in other European Union member states.

3. NUTRITION AS A BONES HEALTH FACTOR WITH SIGNIFICANT INFLUENCE

Osteoporosis is a global health problem with increasing importance. It is a chronic, debilitating disease characterized by low bone density and deterioration of the microarchitectonics of bone tissue. Although genetic factors largely determine bone size and density, factors such as healthy eating, good physical activity and avoiding alcohol and smoking also play a key role. At all ages, healthy eating is an important factor in bone health.

Aim: To study the eating habits that are important for bone health in women from Varna.

Methods: A cross-sectional study of the eating habits of 139 women in Varna was conducted between January 2018 and March 2019. Questions, giving information on diet, frequency of consumption of certain food groups and beverages, affecting bone density, physical activity, demographic indicators are included in the questionnaire. Descriptive analysis of the data is done with SPSS version 19.

Results: The average age of the participants was 29.86 ± 13.60 years. Daily consumption of milk and dairy products was found among 36.7% and 32.4% of the respondents respectively. The relative share of respondents who consume fish 1-2 times a week is 33.1%. The daily consumption of fruits and vegetables is 47.5% and 56.8% respectively.

Conclusion: Nutrition plays an important role in reducing the risk of osteoporosis by affecting the development and maintenance of bone mass.

4. ANTHROPOGENIC DISASTERS ON BULGARIAN TERRITORY: CHEMICAL ACCIDENTS ON LAND AND AT Sea

Natural and anthropogenic disasters become more frequent worldwide. As technology advances, the risk of major industrial accidents increases. Often accidents in the chemical and oil industry, in agriculture, or during transportation, lead to mass poisoning and extensive environmental pollution.

The article aims to analyze the chemical accidents and the measures taken to reduce their effect in Bulgaria and in the Black sea aquatory.

Historical and documentary methods have been used to gather information on disasters and accidents in Bulgaria, where toxic chemicals have been released into the environment causing material damage and human casualties. We have researched and analyzed various articles and publications in Bulgarian and foreign scientific journals on the subject.

Major industrial and transport accidents in the last 50-60 years on land and water had been selected from the literature sources. Both the reasons that led to them and the measures taken to eliminate the consequences were discussed.

The major industrial accidents with release of industrial toxic substances into the environment are relatively common and result in contaminating large areas and many casualties. Chemical accidents at sea are indicative of the need for joint action by different organizations to quickly overcome and avoid environmental impact. The risk of industrial poisonous substances entering the environment is significant and measures to avoid such accidents have to be taken, as well as training of a wide range of health professionals and the general public on the proper behavior in case of a chemical disaster.

5. DIETARY HABITS OF PREGNANT WOMEN IN BULGARIA

The optimal nutritional status of the mother is one of the most influential non-genetic factors for the healthy development of the fetus. In recent years, more and more scientific evidence has been accumulating that her dietary habits and nutritional status determine the fetal development and the health of the offspring.

A cross - sectional study of pregnant women's dietary habits was conducted online. A questionnaire is attached, including questions about the diet, the frequency of consumption of certain food groups, application of alternative eating patterns and more. The analysis of the results is done with a software statistical package Jamovi ver. 2.3.0.

The survey is conducted among 117 women with a mean age of 30.4 -4.88 years. The majority of them have changed their dietary habits after registering a pregnancy (72.6%). Among all respondents, 18.8% haven't got a fixed diet. 67% of the respondents eat 3 - 4 times a day, and 5.1% - less than three times a day. The relative share of pregnant women who consume milk and dairy products every day is 41% and 47%, respectively. None of the respondents restrains from consuming dairy products. Only 5.1% of the respondents do not consume milk. Six of the

surveyed women (5.1%) do not eat meat and 14 (12%) do not eat fish. The relative share of women who eat fish 1 - 2 times a week is 29.9%. The majority of women (88.9%) doesn't consume alcohol during pregnancy. The relative share of vegetarians is 6%. There are no vegans among the women surveyed.

The majority of pregnant women surveyed follow the recommendations for healthy eating. There are women at risk of developing nutritional deficiencies among the respondents - macro - and micronutrients, which is a threat for maternal health, the course of pregnancy, as well as the growth and development of offspring.

Key messages:

The key to a normal pregnancy and primary prevention of complications is to establish healthy dietary habits.

Malnutrition, overfeeding and unbalanced nutrition during pregnancy can adversely affect the offspring health at all stages of its life.

INDICATOR G8. Publications and reports published in non-refereed peer-reviewed journals or published in edited collective volumes

1. MEDICAL SORTING AND NECESSARY ORGANIZATION IN EMERGENCY SITUATIONS

Specialists' opinion concerning the organization of the medical help during crises, including medical sorting, has been reviewed.

The participants in the rescue of casualties in the area of the accident have to be prepared in giving first aid, as well in organizing and conducting medical sorting.

The medical sorting is a part and an integral process of giving first aid, during crisis situations.

The number of organized rescue groups giving first aid and conducting the medical sorting in the region of the accident, before the arrival of the teams of The Urgent Care Medical Center in Bulgaria in this moment is insufficient.

The available rescue groups and teams of The Urgent Care Medical Center have to define and rescue, during mass accidents, the heavily distressed \urgent\ during the first 30 minutes.

2. POSSIBLE ACCIDENTS AND CONSEQUENCES FOR VARNA

The main causes for the contemporary severe chemical accidents have been analyzed. They are three – two of which are from a subjective character /bad qualification and control/ and one from an objective character – natural disaster.

On the territory of The Republic of Bulgaria industrial accidents with the release of dangerous compounds can occur in more than 350 regions from the metallurgic, chemical, textile, petrol and pharmaceutical industry, 17 of which are on the territory of the Varna region.

Concerning their chemical structure the toxic compounds are: chlorine, carbon oxide, ammonia, hydrogen cyanide, sulfur, hydrogen sulfide, nitrate and other gasses.

In a predicted situation it is possible to have a toxic gas leak over a territory of 2-3 kilometers in the western zone of Varna, including not only industrial objects, but residential areas "Vl. Varnenchik", "Vazra jdane", "Mladost" and Varna Airport as well.

3. ORGANIZATION OF THE SYSTEM IN CASE OF EMERGENCIES IN THE FEDERAL REPUBLIC OF GERMANY

A short overview of the rescue system in emergency situations in the Federal Republic of Germany (FRG) is done. Leading element in the rescue activities in the FRG is the volunteering principle. Priority of the German Federation are only activities related to military matters. Rescue activities in the FRG are performed mainly by the following organizations: Fire Protection Divisions; German Red Cross (Deutsches Rotes Kreuz) and the Bavarian Red Cross; Maltese utility service (Malteser-Hilfsdienst); „St. John Accident Assistance“ (Johanniter-Unfall-Hilfe); Union of Workers of the Samaritans (Arbeiter-Samariter-Bund); German Life Saving Association (Deutsche Lebensrettungsgesellschaft).

4. RESULTS FROM STUDIES OF ENTERIC PATHOGENS IN MICROBIOLOGICAL LABORATORY RHI VARNA

Nowadays intestinal pathogens are an important problem. An analysis of tests conducted in the microbiology laboratory of the RHI - Varna for bacterial pathogens in fecal samples: Salmonella, Shigella, Escherihia colli, Vibrio cholerae, typhoid and paratyphoid fever in a seven - year period is done.

In the first five years of the reference period there was a triple decrease in the number of the prophylactic tests, due to an amendment of Regulation 15 about the personal health booklets. Annual testing was canceled and there was only an initial test before someone's assignment.

Moreover, new microbiological laboratories were set up in Varna to which part of the population was redirect. Later, in 2012 the Ordinance restored the requirement for annual testing for pathogenic intestinal bacteria. This reflected in the number of samples increase. The prophylactic tests show highest share of positive samples for E. coli and Salmonella tests remain positive at low levels with a little fluctuation.

All samples of patients treated for dysentery are negative for the period 2007-2011 and in the last two years appear sporadic cases of shigellosis. Research on salmonellosis and enteritis of patients treated for colli and contact persons shows a low level of positive results. For the monitored period there were no positive results for cholera, typhoid and paratyphoid fever.

5. A SURVEY AMONG MEDICAL STUDENTS ON THE LEVEL OF KNOWLEDGE OF DISASTER SITUATIONS AT MEDICAL UNIVERSITY-VARNA

A survey was held among second year medical students at Medical University-Varna. 118 Bulgarian students were interviewed as well as 108 students in the English-language program, on their knowledge of handling disaster situations, what preliminary information did they have on the topic and where from, aswell as their wishes to further expand their knowledge. A direct individual survey was used, consisting of 26 questions: 20 - closed and 6 - open questions.

The conclusions show that according to the bigger part of the participants in both groups of the survey they had only partial and not sufficient knowledge to deal with disaster situations before the Disaster Medicine training course at MU-Varna. After summarizing the answers we can

conclude that most of the interviewed students believe that they have received sufficient training to deal with a real situation. Both groups of respondents consider that in a real situation they will best cope with providing first aid in traumatism, indicating also that this section of the material is the most interesting for them and they want additional hours of training on the topic.

Respondents in their majority are correctly informed about possible natural disasters in Varna region, and the difference in their answers to specific questions related to acute mass intoxication is due to the fact that the students in the Bulgarian language program were interviewed immediately after final exam in Disaster Medicine while students in the English language program - were interviewed two months later.

6. PECULIARITIES OF THE COASTAL MARINE ENVIRONMENT AND BIOTERRORISM - PART 1: BIOAGENTS – MICROORGANISMS

The article gives an overview of some bioagents – microorganisms prevalent in coastal marine environments identified as causes of human disease (and in other species) only in the last few decades.

The review is showing the interactions of pathogens (including some traditional and known for millennia – (*Vibrio cholera*) with the environment and surrounding wildlife and the resulting modes of transmission of diseases. Some of these routes of transmission are being clarified, while others remain unappreciated until now.

7. DISASTER RISK – A HEALTHCARE CHALLENGE IN BULGARIA

Introduction: Due to the considerable increase of the number and frequency of natural and anthropogenic catastrophes in the last few years there have been significant human and economic losses. The assessment of the disaster risk plays an important role in the adequate organization of the rescue operations and the disaster resilience.

Materials and Methods: Following researches, analysis, studies and forecasts by the European Commission, the United Nations, and other different research institutes and organizations, it is highlighted that the highest risks for the European Union, and particularly for Bulgaria, are floods, earthquakes, fires, temperature abnormalities, etc.

Results and Discussion: The risk of disasters is perceived as a possible loss of life, injuries and damage due to an incident hazard.

The typical disaster losses and impact are related both to the hazard event itself and, to a large extent, to the exposure and vulnerability of people and places.

This poses a serious challenge to the public health and healthcare structures rendering the help. To meet these challenges, risk awareness and pre-trainings are needed.

Conclusion: Disaster risk is a concept for future hazards and their impact on the society. For Bulgaria the main risks are related to disasters as extreme weather events, earthquakes and etc. Disaster risk management is an essential part of the overall disaster protection strategy.

8. CONTEMPORARY ASPECTS OF DISASTER VICTIMS WITH MENTAL HEALTH PROBLEMS

Disasters create circumstances for severe general and medical conditions at the accident spot. The effect is due to changed environment, biological and psychological factors.

Mental problems arise from the sudden occurrence of the event, lack of preparedness for it, helplessness, confusion, panic, and often lack of empathy and help.

Immediately after the accident or after a certain latent period, a significant increase in the percentage of people with mental health problems is registered. General practitioners and other medical staff have to be able to recognize the three major groups of mental disorder emerging from disasters: neurotic disorders, stress-related and somatoform disorders; associated with psychoactive substance abuse and personality disorders.

9. GLOBAL RISKS AND ENHANCED DISASTER PREPAREDNESS

Due to the significant increase of economic losses as a result of more frequent disasters, accidents and catastrophes, a study was conducted to determine the global risks, natural and anthropogenic disasters for the Republic of Bulgaria and the North-Eastern Planning Region.

Studies on the World Economic Forum experts' reports, as well as other European Council documents on disaster risk and disaster risk reduction have been done.

To enhance disaster prevention and preparedness in the EU, different approaches to reduce the impact of disasters are proposed. These relate to the creation of a simplified reporting framework, focusing on key cross-border and low-risk but high-impact disasters; providing support to member states to increase the existing measures; building a new EU civil protection network where knowledge and lessons learned from past disasters can be shared and coped with.

10. PSYCHOLOGICAL ASPECTS OF FIRST AID FOLLOWING CHEMICAL ACCIDENTS

We discuss mass casualty chemical accidents, causing psychological problems in victims, rescuers and medical staff at the accident site and in medical facilities. The study explores and analyzes the psychological support to the victims.

We found out how important it is for first-aiders and medical professionals to follow some basic safety rules during search and rescue operations. Of great importance for treating acute stress disorders at the spot is the availability of trained specialists.

It is extremely important the rescuers themselves to be able to detect first symptoms of mental problems in victims and survivors after mass casualty chemical accidents.

11. THE ROLE OF VITAMIN K IN HUMAN HEALTH

Introduction: Vitamin K is a fat-soluble vitamin. It exists in the form of three compounds with similar structures and functions. Vitamin K1 (phylloquinone, phytomenadione) is the most common active form in nature and is found in plants. Vitamin K2 (menaquinone), which has about 75% of the potential of K1, is synthesized by bacteria in the human intestinal tract. Vitamin K3 (menadione) is a water-soluble synthetic compound that can be converted to K2 in the intestinal tract.

Aim: The purpose of this review is to discuss the role of Vitamin K in human health.

Materials and Methods: An analysis of publications available in PubMed, ScienceDirect, Google Scholar, Medline scientific databases was conducted. The keywords used were vitamin K, menaquinone, phylloquinone, physiological effects of vitamin K.

Results: Vitamin K's best known function is its participation in the synthesis of coagulation factors in the liver. Vitamin K affects the osteoblast proliferation and differentiation as well as the calcium deposition in the blood vessels. The vitamin's essential role in the synthesis of sphingolipids in the brain determines its importance for the central and peripheral nervous system.

Conclusion: Vitamin K has numerous biological effects, including blood coagulation, regulation of calcium metabolism in tissues, oxidative stress, inflammatory reactions, cell growth, and proliferation.

12. MEDICAL SUPPLIES FOR CHEMICAL ACCIDENTS AND TERRORIST ATTACKS WITH CHLORINE IN THE PHARMACY NETWORK IN VARNA

The city of Varna is a large transport, cultural and educational center. Various factories and plants are established throughout the city and the district. A lot of toxic industrial materials are used as a raw materials or are produced into the cycle, or as a final products of the industrial process. The presence of enterprises that use chlorine and chlorine derivatives in their production is a prerequisite for the occurrence of an outbreak of chemical damage. On the other hand, the presence of numerous resorts, the port of Varna, the ship repairing plant, various university campuses increase the number and density of the population at risk, which may be affected by the development of the chemical area of damage. Chlorine and its derivatives are toxic industrial materials, characterized by the rapid onset of intoxication, which requires the provision of first and first medical aid at a very limited time interval. Disaster medical support to the casualties with chlorine intoxication is hampered by the lack of an antidote.

The widespread use of chlorine and its derivatives in industry and households make them easily accessible and convenient for use in terrorist acts.

The purpose of this study is to investigate the necessary medicines and consumables for medical support to the casualties intoxicated by chlorine and chlorine compounds, as representatives of highly aggressive, fast acting toxic industrial materials and their presence in the emergency medical center and pharmacy network.

In order to achieve the set goal the capabilities documentary method have been used. The comparative and logic methods were applied into the analysis and the summary of the data from the performed research throughout the published scientific works, centre for emergency aid and pharmacy network in Varna.

The pathogenesis, clinical symptoms and course of intoxication following incidents with one of the most common and aggressive industrial toxic material - chlorine, as well as the recommended first and first medical aid and therapy have been studied. In 2018, researches were conducted on the availability in the pharmacy network of medicines and consumables required for prompt and efficient medical support to the casualties of chlorine area of damage in the territory of city of Varna and the Varna region.

Pharmaceutical networks have been found to contain medicines and supplies that can be used to provide first aid and first medical aid to the casualties of the chlorine area of damage, but the available amount of these medicines into the emergency teams emergency bags does not allow adequate medical support to an incident with a mass casualty due to intoxication with higher doses of chlorine.

13. PHARMACISTS PREPAREDNESS FOR SELF PROTECTION IN CHEMICAL INCIDENTS

Abstract: Background Contemporary word development is highly dependent on chemical industry. Great variety of chemical elements and compounds are present into the industrial processes - as a sources, medium and final products. Large amount of the chemicals that are into circulation throughout industrial processes or are transported and stored into warehouses or damp are with proven toxicity for humans. Therefore, in certain circumstances, uncontrolled or undesired release into environment, they could create life-threatening area of chemical damage. The risk of chemical exposure of population is increasing with the presence of chemical industrial sites in vicinity of the cities. City of Varna is an example of a city almost under constant siege by several large chemical plants.

In case of incidents caused by toxic materials release into environment, always there is high risk level of air pollution and extremely rapid spread of the chemical hazard. The first minutes' activities in such incidents are of utmost importance for life saving and health preserving. Very few of the citizens are keeping at their homes/offices stock of medicines for coping with the possible chemical intoxication. It is expected that in chemical incident threat, alert or incident, the pharmacies will become overcrowded, therefore their operability has to be assessed as a preventive and life-saving asset in case of chemical incidents or disasters.

The aim of our study is to analyze the pharmacists' preparedness to safeguard their own life and the lives of their colleagues in case of chemical incidents, thus participating actively into relief and recovery operations for the affected population.

Material and Methods A comprehensive survey among the pharmacists, both with master and professional bachelor degrees, was conducted in Varna region. 221 participated into the survey - 115 working pharmacists with master degree and 106 students attending the 3-year pharmacist assistant course in Medical University Varna. A multiply choice questions regarding their self-assessment of knowledge and skills possessed for protecting activities required in case of chemical incidents have been asked. By the means of descriptive and comparative methods the given answers were thoroughly analyzed.

Results and discussion Results of the performed analyses undoubtedly highlight the extremely low level of pharmacists in Varna region knowledge, skills and self-confidence related to required activities in case of chemical incidents. Great majority of the respondents are declaring their willingness to increase their capabilities for protection and healthy behavior in case of chemical incident. The most preferable by the participants into the survey are also analyzed and presented.

14. PREPAREDNESS AND READINESS OF THE PHARMACISTS IN VARNA REGION TO MEDICALLY SUPPORT AFFECTED POPULATION IN CASE OF CHEMICAL MAJOR INCIDENT OR DISASTER

The Northern-Eastern region of Bulgaria is one of the most developed industrial regions of the country. There are numerous chemical plants and industrial installations related to the chemical production. In order to maintain the industry, a lot of warehouses for storage of diverse chemical substances and compounds are also established. Another source for chemical hazard is the biggest Bulgarian port, where thousands of tons of chemicals are continuously loaded or downloaded. The transportation of the chemicals is also a risk factor for chemical incident occurrence. Records are proving that the risk related to the present chemical hazards has not to be neglected, as several chemical major incidents have challenged the regional relief agencies. One of the lessons identified is describing the requirement for faster identification of all those from

the population that have been affected by the chemicals in low doses - those into the zones of damaging concentration of the chemical area of damage. All chemical injured casualties that were close to the chemical spill or within the zone of lethal concentration develop rapidly the symptoms of the intoxication and are easily diagnosed and medically attended. The challenge is how to find and direct the casualties with minor symptoms. Majority of these casualties are not considering their complains as serious, therefore are not contacting their general practitioners, but instead are addressing the closest pharmacists for advice and prescription of some drugs for the light symptoms. Based on this records the conclusion of the significant role of pharmacists into chemical incident management has been noted.

The objective of this study is to analyze the preparedness and readiness of the pharmacists in Varna region to medically support affected population in case of chemical major incident or disaster.

Materials and Methods: a sociological survey of a specific group of healthcare professionals (pharmacists), was conducted, using the direct individual survey method with a standard questionnaire with 38 questions. Method of survey - applied to determine the knowledge of two groups of healthcare professionals – master-degree pharmacists and college degree assistant pharmacists, on the risk of chemical accidents of natural and anthropogenic nature, the properties of some widespread industrial toxic substances, the availability of antidotes and the proper first aid that may be given in case of poisoning with them. The principle of anonymity of the respondents is complied with. A stochastic (or random) selection method was used in which all units of the general aggregation have an equal chance to fall into the sample of the study.

The means of the descriptive and comparative method along with the deductive analysis were applied.

Results and discussion: 221 people were interviewed, 115 of which were master-degree pharmacists, working with pharmacies (52%) and 106 - students - college degree assistant pharmacists, trained in Disaster Medicine during their education at the Medical University of Varna (48%). The distribution of all respondents by gender is as follows: a total of 40 men (18.1%) and 181 women (81.9%) corresponding to those engaged in the profession. A statistically meaning differences were found into the preparedness of the two main groups of respondents. Overall analysis present relatively low level of readiness of the pharmacist to actively participate into the major chemical incident or chemical disaster medical support to the affected population.

Conclusion: The results of the thoroughly performed analyses undoubtedly present the requirement for amelioration of the pharmacists education and training into university and college based undergraduation courses.

15. PHARMACISTS CHALLENGES INTO AREA OF BIOLOGICAL DAMAGE

The evolving pandemic caused by the emerging coronavirus SARS-CoV-2 has changed the healthcare systems activities into medical support provision. In each unit of medical care, regardless of outpatient or inpatient, restructuring and changes in the established organization and the approved standard operating procedures were required. The continuing increase in the number of people affected by the coronavirus among the population is a challenge for any medical professional.

There are numerous studies and publications on the difficulties in providing emergency and urgent pre-hospital care. These are many times surpassed by publications examining the

challenges to the diagnosis, treatment and recovery of those infected in hospital care facilities and the practices of general practitioners. In the recent months, more and more scientific papers and materials in the general information and social media have examined in details the stages of creation, production and distribution of a reliable vaccine against the causative agent of COVID-19. Analyzing the ever-increasing volume of medical and non-medical scientific and information materials on the various aspects and negative effects of the pandemic, the relatively small number of publications on the challenges and difficulties of pharmacists, undeservedly not mentioned among life-saving medical professionals, into the protection, preservation and restoration of the health of population in the conditions of a rapidly developing area of biological damage, has to be noted.

The purpose of this publication is to analyze some of the challenges faced by pharmacists and assistant pharmacists during the COVID-19 pandemic.

Materials and methods: The dangers and risk factors to which the medical specialists working in the pharmacy network are exposed in case of a developing area of biological damage are analyzed and presented through descriptive and comparative analyzes.

Results and discussion: The analysis of the peculiarities of the working environment of pharmacists and the changes that occur in it due to increased contact with clients who have suspected symptoms of coronavirus infection or have been in contact with infected with SARS-CoV-2 are divided in several groups depending on their negative impact, as well as depending on the activities that require to be undertaken to modify and mitigate the severity of the consequences.

Conclusions: Based on the results of the analyzes, the pronounced negative impact of the developing focus of biological damage on the mental and physical health of pharmacists was proved. Basic recommendations for reducing the level of risk for those working in the pharmacy network in the conditions of the COVID-19 pandemic have been made.

16. ANTHROPOGENIC AIR POLLUTION AND HEALTH CONSEQUENCES FOR THE POPULATION

We observe an increase in the anthropogenic impact on the biosphere. The negative environmental effect of air pollution contributes a great deal to it. The significance of this problem is due to serious social and health consequences for the population - morbidity and mortality, as well as increased migration .

The aim of the study is to establish the effect of air pollution and trends in the period 2014-2018 for Bulgaria.

Sources of air pollution, the main pollutants and their effect on the health of the population are discussed.

There are trends in reducing the effect of air pollution due to the implemented environmental measures in compliance with EU Directives and national legislation. Recommended actions to overcome the harmful effects of air pollution on the resilience of ecosystems have been identified.

17. AIR POLLUTION IN EUROPE - CURRENT TRENDS

Air quality in Europe is not good enough and a significant part of the population, especially in urban areas, is exposed to the effects of its pollutants.

The present study aims to analyze and summarize data on the state of ambient air, the environmental impact of air pollution and the current trends in Europe.

Different methods were used - documentary, historical, descriptive, methods for analysis and summarizing of information from the collected materials.

Harmful emissions affect not only the health of the population, but also the material heritage - historic buildings, architectural monuments, sculptures, paintings and more. There is an environmental impact too, which poses a risk of future disasters and affects biodiversity.

The implemented measures to limit the spread of COVID-19 have led not only to a reduction in the number of infected people, but also to an improvement in the air quality after April 2020. The joint efforts of the EU member states, the adoption of documents to overcome the challenges facing the EU countries, the changing of standards for air pollutants presence and developing of a Zero Pollution Action Plan for air, water and soil can alter the current situation and achieve better air quality.

18. STUDY OF MEASURES TO PREVENT THE IMPORT OF MALARIA (ORGANIZATION OF MOSQUITO CONTROL) IN THE VARNA REGION

Malaria is a globally spread disease, mostly in Africa, Asia and South America, where climatic conditions favour the spread of anophelian mosquitoes - living vectors of the causative agent of the disease.

Our aim is to study the imported parasitosis - malaria in Varna region and the general preventive measures (i.e. disinsection) for the period 2015-2019.

Materials and methods: Epidemiological analysis, documentary, statistical and graphic methods are used to evaluate the registered acute infectious diseases, RHI-Varna's reports on the topic, as well as National programs and regulatory documents.

Results: Varna region is one of the risk regions in Bulgaria. The presence of anophelian mosquitoes' biotopes (the vectors of infection) can contribute to local distribution. Varna Regional Health Inspectorate maintains a file with records of 126 main mosquito biotopes, grouped by settlement systems, with more or less frequently flooded area around them and many adjacent small water basins. Biotopes are subject to regular monitoring and research (the entire mosquito-active season from April to October). Until 2013, larvae and adults of the subfamily Culicinae were found in them, and after 2014 - anophelic mosquito larvae.

Conclusions: An organization has been established for conducting disinsection treatments in the municipalities of the district - imagicidal and larvicidal and seasonal dynamics with mosquito larvae in three controlled biotopes on the territory of Golden Sands and two in St. St. Constantine and Helena. A total of 465 biotopes have been inspected and two genera mosquitoes have been identified: ANOPHELES and CULEX.

Full-text publications in scientific journals and anthologies, beyond the minimum scientometric requirements for the position "associate professor"

1. A STUDY ON THE USE OF HOMEOPATHIC REMEDIES AMONG STUDENTS FROM THE MEDICAL UNIVERSITY AND THE MEDICAL COLLEGE – VARNA

A study was held among 133 1st – and 2nd-year students from the Medical University and Medical College – Varna about their predisposition to use homeopathic remedies.

The conclusions we made were that the majority of the respondents are familiar with homeopathy as a therapeutic method and more than half of them have already used homeopathic remedies. The younger respondents are less informed. It was determined that the best known and the most commonly used homeopathic remedies are Oscillocoquinum, Stodal, Cinnabsin, Influcid, Tonzilotren, Sedatif PC and other commonly advertised products. More than half of the respondents are willing to study homeopathy as a subject at the Medical University and the Medical College.

2. NUTRITION, NUTRITIONAL STATUS AND CANCER OF DISABLED PEOPLE FROM VARNA

The leading strategies in the field of food policy, proposed at international conferences on nutrition are: improving the nutrition of vulnerable population groups in socially disadvantaged situations, promoting healthy eating. A direct anonymous poll examined the nutritional habits of 100 disabled people, members of the Society of Disabled People in Varna.

The study shows unhealthy nutrition of the disabled, resulting in insufficient variety of consumed food, as well as inadequate consumption of fish, fresh fruit and vegetables. Due to good information and lots of leisure time, 69% of the respondents have a proper diet. The reason for poor nutrition, according to the subjective estimate of 3/4 of the respondents, is insufficient financial means.

Only 1/5 of the study participants have normal weight. A total of 30% are overweight and 51% have obesity to varying degrees. The „poor“ nutrition and reduced motor activity as a consequence of the disability result in overweight and obesity, which lead to worsening and deteriorating of the health condition.

Nutrition has a significant role in the tumor formation, especially tumors of the mammary gland, gastrointestinal tract, liver, skin, endocrine organs (thyroid gland, pancreas), lung, uterus, etc. Among the factors that increase the carcinogenic risk for the study group are general over-eating, excessive intake of fats and carbohydrates, chemical and radioactive substances and stress - especially with regard to emergency situations (traffic accidents, flood, fire, etc.).