

## **REVIEW**

In connection with a dissertation for the award of educational and scientific degree "DOCTOR" on the topic: **"Immunization calendar and vaccinations in Bulgaria - current trends, problems and opportunities for their solution"**

### **Author of the dissertation:**

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### **Prepared the review -**

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The review was prepared in accordance with the Academic Staff Development Act (ZRAS), the Regulations for application of ZRAS (PRZRAS) and the Regulations for the terms and conditions for the acquisition of scientific degrees and holding academic positions (PURPNSZAD) at the Medical University of Varna.

The presented set of materials on paper / electronic media is in compliance with the procedure for obtaining a scientific and educational degree "Doctor" and the rules of MU - Varna. I do not find plagiarism when reviewing the dissertation, abstract and publications related to the dissertation.

I declare the lack of common scientific developments with the doctoral student and potential Conflict of interests.

Vaccines play an important role in the implementation of health protection humanity. They are considered as one of the most important influencing factors global health. Over the past decades thanks to the introduction of this type of protection as mandatory in many countries is observed significant decline in sick and dead newborns and children from many deadly diseases.

In recent years in our country there is a tendency to refuse vaccination children, not only from the Roma ethnic group, but also among the Bulgarian population. The effective Child health policy must be based on the results of scientific research according to modern evaluation criteria, which we are missing in most countries. They would identify the specific problems of immunization and vaccination of children in Bulgaria and outlined guidelines for future actions.

The pandemic with COVID-19 clearly demonstrates many of the problems that exist. Considerable is the fact that science has tackled the challenge of innovation and implementation of highly effective vaccines. Unfortunately, this is not the case the issue of persuading society, something that has to do with certain unfavorable health trends in our country.

These data motivate the choice of topic by Dr. Aleksandrova - "**Immunization calendar and vaccinations in Bulgaria – current trends, problems and opportunities for their solution**".

#### **Structure of the dissertation:**

Dr. Aleksandrova's dissertation is written on 145 standard pages and is illustrated with 26 tables, 45 figures.

The ratio overview: methodical: result-disassembly part is optimal, respectively 35: 15: 50%. The book includes 196 titles, of which 41 are in Cyrillic and 155 in Latin.

Most of the cited titles are directly related to research problems. In connection with the dissertation, four scientific papers have been published articles in peer - reviewed and indexed journals with scientific content, as well as referenced in an international database of journals, such as fragments of dissertations have been reported at national forums. Based on the above, the publishing activity of

the doctoral student is optimal and meets the criteria for obtaining a scientific and educational degree doctor.

**Characteristic features of work:**

The topic of the dissertation "**Immunization calendar and vaccinations in Bulgaria – current trends, problems and opportunities for their solution**" is appropriate selected in terms of the significance of the problem, current relevance and projection into the future. In essence, two parallel studies have been conducted, emphasizing the issues as a whole:

- **IMMUNIZATION CALENDAR STUDY - ATTENDANCE ATTITUDES HIS AND REASONS FOR HESITATION AMONG PARENTS AND FUTURE PARENTS** " The study aims to assess knowledge of the benefits of vaccination, attitudes to adhere to the immunization calendar, hesitations to place of immunizations and sources of information of the interviewed parents.
- **GP AND IMMUNIZATION CALENDAR SURVEY Study** of GPs' knowledge of vaccinations, as well as the possibility children's consultation to be used as a tool for implementation and compliance with the immunization calendar in Bulgaria, giving clear recommendations and accurate information of the parents.

142 parents of infants and children are the subject of the dissertation aged 0 to 36 months, 28 expectant parents with reproductive problems and forthcoming future in vitro fertilization from the city of Varna and 42 general practitioners doctors from Varna, Burgas and Dobrich districts. The dissertation was approved by KENNY Medical University - "Prof. Dr. Paraskev Stoyanov "- Varna with Protocol № 92 / 02.04.2020.

This is the first in-depth study on the current world recommendations for immunoprophylaxis in cases of prematurity, low weight in birth and immunocompromised children, which could be used in our country for achieving better prevention among these vulnerable groups. In addition they are identified current trends and the main reasons for hesitation and / or failure of parents to place immunizations on their children against the background of the epidemiological situation in the world and in our country, as well as the importance of the institution of GPs in obtaining modern, scientifically conditioned knowledge.

**Literary review** as a systematics and analytical in considering the available information presents the doctoral student as a leading expert on the issue. The issues of immunoprophylaxis and historical

history are successively covered development, the introduction of the immunization calendar, successes and challenges, related to its application, the need for continuous training such as a tool for raising the awareness and engagement of medical professional specialists on the one hand and the family environment on the other. From the review in the form of the factual preconditions for the study are concluded.

**The aim** of the dissertation is formulated clearly and precisely - to study and evaluate the practices for immunization and vaccination in our country according to the introduced immunization calendar in Bulgaria in order to reveal current trends and problems in their implementation, as well as the possibilities for their solution.

**The following tasks have been completed:**

1. To study the knowledge of parents of children in infancy and early childhood age on the benefits of vaccinations and their attitudes towards the use of the immunization calendar in Bulgaria
2. To study the need to develop and provide information materials related to the mandatory and recommended vaccines in our country on parents of young and infant children, including future parents
3. To determine the level of knowledge of medical professionals and in particular GPs for the immunization calendar and vaccinations in Bulgaria
4. To study the need for additional training of GPs for those given by them recommendations for compliance with the immunization calendar of Bulgaria.
5. To study the problems in the organization of the children's consultation with a view improving the quality of service in it and implementing a more successful model for immunization in infants and children.
6. To reveal the possibilities for using the children's consultation at the GP for encouraging parents to adhere to the immunization schedule.

**The methodology** of the study in relation to the studied indicators is appropriate with view the reliability and reliability of the reported results and includes:

1. Documentary - analysis of documents and literature sources;

2. Sociological - use of 3 surveys on the attitude and attitudes, hesitation about the benefits of vaccines and the reason for giving up vaccination in order to solve compliance problems of the immunization calendar in the country, from the point of view of GPs, parents and future parents
3. Statistical methods

**The results obtained** are convincing and presented clearly, accurately - in general for research contingent, as well as by subgroups, enabling tracking and comparison of data. Completely appropriate statistics were used to obtain them methods.

**The main results** of Dr. Aleksandrova's work can be summarized in the following guidelines:

1. Despite the very good vaccination coverage of 95.1% among the children of respondents in the survey, 24.71% of respondents consider vaccines to be dangerous, and 31.18% cite them as ineffective.
2. In 55.88% of the parents' knowledge about the administered vaccines is based on information from the Internet. This leads to distortion understandings of the benefits of vaccines, doubts about their effectiveness and fear of dangerous post-vaccination complications.
3. 35.29% of respondents believe that vaccines lead to a decrease in immunity, a 40.59% state that vaccines can harm their children. Confirmed the role of certain demographic factors in forming an opinion on vaccines. The most serious attention should be paid to parents in the age group between 26-35 years - that 73.58% have secondary education and 69.05% consider vaccines to be dangerous and 58.49% to be ineffective.
4. A more frequent refusal of vaccinations was found in families with one child - 71.43% of respondents with unimmunized children compared to families with more than one child.
5. In analyzing the relationship between the employment of parents and the refusal of vaccination and it was found that 42.86% of respondents with unvaccinated children are unemployed at the time of the survey, and 57.14% of mothers are defined as hosts.
6. There is a clear need to develop concrete and up-to-date information materials on mandatory and recommended vaccines according to the immunization calendar and the epidemiological situation in the country, to be provided to current and future parents.
7. 89.74% of the GPs surveyed indicated that there should be additional ones training courses related to mandatory and recommended vaccines, due to the dynamic development of vaccine prophylaxis and the need for constantly updating the knowledge of doctors and medical professionals, directly related to it.

8. The good information of the GPs and the actuality of their knowledge related to Immunoprophylaxis may be the best means of stimulating parents to comply with the immunization calendar in our country and this should be used most actively during each children's consultation.

9. In this aspect, the time spent informing parents at visiting a GP is not enough, but the good organization of children counseling is the way to implement a more successful model of immunization infants and children.

The conclusion corresponds to the obtained results, the same applies to the conclusions drawn. **The contributions** of the dissertation are with emphasized scientific-applied nature, well formulated and are the result of research. Extremely good the successful attempt to systematize the data after its own is impressive presentation and emphasized the practical nature of their commentary, which is a prerequisite for formulating practical recommendations to help daily practice.

I think that the topic of the doctoral dissertation and the volume of work done is significant exceeds the legal requirements for successful defense of a doctoral thesis. The specialty in pediatrics acquired by the doctoral student contributes not only in aspect scientific demand, but also visible in the practice of the medical profession.

**In conclusion**, the dissertation presented by **Dr. Vanya Aleksandrova** contains scientific, scientific-applied and applied results, which represent an original contribution to science and meet the requirements for the award of educational and scientific degrees "DOCTOR". The dissertation shows that the doctoral student has in-depth theoretical knowledge and professional skills in the scientific specialty, such as demonstrates qualities and skills for independent conducting and discussion of scientific research.

On these grounds, I am voting in favor and proposing to the esteemed members of The Scientific Jury to vote positively and propose to the Rector of MU - Varna **to awarded the scientific and educational degree "Doctor"** in a general doctoral program medicine of **Dr. Vanya Antonova Aleksandrova**.

27.01.2022

**Prof. Dr. Arman  
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