**REVIEW**
**of the official reviewer for dissertation work**
**on the theme «Oral health status and adverse pregnancy outcomes» presented by ORALKHAN ZHIBEK for the degree of Doctor of Philosophy (PhD) in the educational program «8D10102 - Medicine».**

| № | Criteria | Eligibility (one of the options must be checked) | Justification of the position of the official reviewer |
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| 1. | The topic of the thesis (as of the date of its approval) corresponds to the directions of development of science and/or state programs | 1.1 Compliance with priority areas of science development or government programs:<br>1) The thesis was completed within the framework of a project or target program financed from the state budget (indicate the name and number of the project or program)<br>2) The thesis was completed within the framework of another state program (indicate the name of the program)<br>3) The dissertation corresponds to the priority direction of the development of science, approved by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan (indicate the direction) | Project title: "Clinical, Genomic and Environmental Variable Approach to Preterm Birth" & State Registration Number: AP14869249.This project was funded by the Ministry of Science and Higher Education of the Republic of Kazakhstan and directly supported national strategies in maternal health and scientific innovation. |
| 2. | Importance for science | The work makes/does not make a significant contribution to science, and its importance is well disclosed/not disclosed | The dissertation addresses the understudied connection between maternal oral health and preterm birth within the Kazakh population, offering new epidemiological and microbiological data. The emphasis on Fusobacterium nucleatum colonization in placental tissue is especially novel. |
| 3. | The principle of independence | Self-reliance level: | The PhD student formulated a |

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| | | 1) High;<br>2) Medium;<br>3) Low;<br>4) No independence | multidisciplinary approach, independently designed and conducted both clinical and systematic review components,and interpreted the findings with critical analysis. |
| 4. | The principle of inner unity | 4.1 Justification of the relevance of the thesis:<br>1) Justified;<br>2) Partially justified;<br>3) Not justified. | The relevance of the dissertation is well justified. The study addresses the association between maternal oral health and adverse pregnancy outcomes, an important public health issue, and provides new evidence in the regional context. |
| | | 4.2 The content of the thesis reflects the topic of the thesis:<br>1) Reflects;<br>2) Partially reflects;<br>3) Does not reflect | The content of the dissertation reflects the research topic and consistently addresses the association between oral health status and adverse pregnancy outcomes through epidemiological, clinical, and molecular analyses. |
| | | 4.3. The purpose and objectives correspond to the topic of the thesis:<br>1) correspond;<br>2) partially correspond;<br>3) do not correspond | The purpose and objectives correspond to the topic of the dissertation and are consistently addressed throughout the study, focusing on the association between oral health status and adverse |

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| | | | pregnancy outcomes. |
| | | 4.4 All sections and provisions of the thesis are logically interconnected:<br>1) completely interconnected;<br>2) the interconnection is partial;<br>3) there is no interconnection | All sections of the dissertation are logically interconnected, with a consistent flow from the introduction and objectives to methodology, results, and conclusions. |
| | | 4.5 The new solutions (principles, methods) proposed by the author are reasoned and evaluated in comparison with the known solutions:<br>1) there is a critical analysis;<br>2) partial analysis;<br>3) the analysis does not represent one's own opinions, but quotes from other authors | There is a critical analysis. Each chapter builds upon the previous one, the objectives align with the hypothesis, and the author demonstrates a thoughtful comparison of findings with existing literature related to oral health and adverse pregnancy outcomes. |
| 5. | Scientific novelty principle | 5.1 Are the scientific results and provisions new?<br>1) completely new;<br>2) partially new (25-75% are new);<br>3) not new (less than 25% are new) | The dissertation provides new epidemiological and microbiological evidence on the association between oral health status and adverse pregnancy outcomes, including assessment of periodontal disease and detection of Fusobacterium nucleatum in regional context. |
| | | 5.2 Are the dissertation findings new?<br>1) completely new; | The integration of epidemiological, clinical, and molecular data offers a |

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| | | 2) partially new (25-75% are new);<br>3) not new (less than 25% are new) | comprehensive and novel perspective in the regional context. |
| | | 5.3 Technical, technological, economic or management decisions are new and reasonable:<br>1) completely new;<br>2) partially new (25-75% are new);<br>3) not new (less than 25% are new) | While the link between periodontal disease and preterm birth is established internationally, this dissertation offers new insight into this association in the Kazakh context, with localized biological and clinical data. |
| 6. | The validity of the main findings | All main conclusions are/are not based on scientifically significant evidence or well-grounded (for qualitative research and areas of training in the arts and humanities) | Statistical methods (multivariable regression, chi-square test) are appropriately applied, and study protocols are clearly described. The integration of primary clinical data with microbiological findings strengthens the validity of the conclusions. |
| 7. | The main provisions for the defense | It is necessary to answer the following questions for each provision separately: 7.1 Is the provition proven?<br>1) proven;<br>2) rather proven;<br>3) rather not proven;<br>4) not proven<br>7.2 Is it trivial?<br>1) yes;<br>2) no<br>7.3 Is it new? | The main provisions submitted for defense are clearly formulated, scientifically substantiated, and adequately supported by the data presented in the dissertation. The conclusions regarding the association between maternal oral health and adverse pregnancy outcomes, including the microbiological mechanism involving Fusobacterium |

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| | | 1) yes;<br>2) no<br>7.4 Application level:<br>1) narrow;<br>2) medium;<br>3) wide<br>7.5 Is it proven in the article?<br>1) yes;<br>2) no | nucleatum, are based on results obtained from systematic review, cohort, and case-control studies. The findings are not trivial, as they provide additional regional evidence and integrate epidemiological, clinical, and molecular data. The level of application is medium, with potential use in maternal healthcare, preventive medicine, and interdisciplinary clinical practice. The provisions are also supported by publications in peer-reviewed journals. |
| 8. | The principle of reliability Reliability of sources and information provided | 8.1 Choice of methodology - is justified or the methodology is described in sufficient detail<br>1) yes;<br>2) no | The choice of methodology is justified and described in sufficient detail. The study applies a comprehensive design including systematic review, cohort, and case-control approaches, supported by clinical assessment and microbiological analysis. The use of appropriate statistical methods ensures reliability and validity of the results. |

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| | | 8.2 The results of the thesis were obtained using modern methods of scientific research and methods of processing and interpreting data using computer technologies:<br>1) yes;<br>2) no | The results of the thesis were obtained using modern scientific research methods and appropriate data processing techniques. The study employs epidemiological study designs, statistical analysis, and microbiological detection methods, supported by computer-based data processing and interpretation, ensuring reliability of the findings. |
| | | 8.3 Theoretical conclusions, models, identified relationships and patterns have been proven and confirmed by experimental research (for areas of training in pedagogical sciences, the results have been proven on the basis of a pedagogical experiment):<br>1) yes;<br>2) no | The theoretical conclusions and identified relationships are supported by empirical and experimental research. The associations between maternal oral health and adverse pregnancy outcomes are confirmed through epidemiological analysis and microbiological detection, supporting the validity of the proposed patterns. |
| | | 8.4 Important statements are confirmed / partially confirmed / not confirmed by references to current and reliable scientific literature | Important statements are confirmed by references to current and reliable scientific literature. The dissertation uses relevant international and regional studies addressing oral health, periodontal disease, and adverse pregnancy outcomes, supporting the validity of the conclusions. |

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| | | 8.5 Used literature sources are sufficient/not sufficient for a literature review | Although the PRISMA section could benefit from additional detail, the overall methodology and bibliographic support are strong, and the literature sources used in the dissertation are sufficient for the literature review. |
| 9 | Practical value principle | 9.1 The thesis has theoretical value:<br>1) yes;<br>2) no | The thesis has theoretical value, contributing to understanding the association between maternal oral health and adverse pregnancy outcomes and supporting the concept of oral–systemic health relationships. |
| | | 9.2 The thesis is of practical importance and there is a high probability of applying the results obtained in practice:<br>1) yes;<br>2) no | The thesis is of practical importance, as oral health assessment is not routinely integrated into prenatal care in the Republic of Kazakhstan. The findings provide evidence supporting the need for interdisciplinary collaboration between obstetricians and dental professionals and suggest the inclusion of oral health screening for pregnant women. The results may contribute to developing preventive strategies aimed at reducing adverse pregnancy outcomes. |
| | | 9.3 Are the practice suggestions new?<br>1) completely new; | The work provides actionable recommendations for integrating oral |

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| | | 2) partially new (25-75% are new);<br>3) not new (less than 25% are new) | health assessment into antenatal care. These recommendations are partially new and support national strategies aimed at reducing preterm birth and improving maternal and neonatal outcomes. |
| 10. | The quality of writing and design | Academic writing quality:<br>1) high;<br>2) average;<br>3) below average;<br>4) low. | The text is well-structured, scientifically formatted, and written in clear academic language. Minor English language errors do not detract from clarity or rigor. |
| 11. | Notes on a thesis | The thesis is a comprehensive, multidisciplinary investigation with significant theoretical and practical implications. However, the PRISMA protocol and systematic review methodology should be revised and expanded to meet international standards of transparency. | |
| 12. | Scientific level of the doctoral student's articles on the topic of research (in case of defense of the dissertation in the form of a series of articles, the official reviewers comment on the scientific level of each article of the doctoral student on the topic of research) | Three article pulished in journals recommended by the Committee for Quality Assurance in Science and Higher Education of the Ministry of Science and Higher Education of the Republic of Kazakhstan, while three were published in foreign periodicals: one in a journal «BMC pregnancy and childbirth» indexed in the scopus database (Q1); one in journal «Iranian Journal of Medical Sciences» indexed in the scopus database (Q2); one in a journal Human ecology» indexed in the scopus database (Q3); Four abstracts in the proceedings of international conferences. | Articles published by the doctoral student demonstrate a good scientific level, contributing both regionally and internationally to maternal health and oral–systemic disease research. |
| 13. | Decision of the official reviewer (pursuant to paragraph | The dissertation by Oralkhan Zhibek titled "Oral health status and adverse pregnancy outcomes" represents an original and valuable scientific work. The author demonstrates a high level of independence, applies appropriate methodology, and addresses an important interdisciplinary issue within maternal and | |

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| | 28 of the present Model Regulations) | oral health. The findings have theoretical significance and practical applicability, particularly in the context of health policy in Kazakhstan.<br>The overall scientific quality, coherence, and relevance of the research fully justify awarding the degree of Doctor of Philosophy (PhD) in the educational program «8D10102 - Medicine». |

In reviews, official reviewers indicate one of the following solutions:

1) to award the degree of Doctor of Philosophy (PhD) or Doctor of Specialization;

2) send the thesis for revision (except for cases of thesis defense in the form of a series of articles);

3) refuse to award the degree of Doctor of Philosophy (PhD) or Doctor of Specialization.

Copies of the reviews of the official reviewers are handed over to the doctoral student no later than 5 (five) working days before the defense of the thesis.

**Official Reviewer:**
S.D. Asfendiyarov Kazakh National Medical University
Head of the Department of Oral Surgery, PhD
(place of work, academic title)



(signature)

Yuliya Menchisheva
(FULL NAME)