E CONF SERIES

International Conference on Educational Discoveries and Humanities
Hosted online from Moscow, Russia
Website: econfseries.com 16th June, 2025

THE PROBLEM OF ANTIBIOTIC RESISTANCE IN CHILDREN

Ismailov Baxromiddin Zaxriddinovich
Assistant in the Department of Pediatrics
Fergana Medical Institute of Public Health

Zaxriddinova Oyazimxon Baxromiddin qizi
Student of Fergana Medical Institute of Public Health

Annotation

This thesis explores the epidemiological trends, molecular mechanisms, and treatment strategies related to antimicrobial resistance in children. Although pediatric mortality from resistant infections has declined by over 50% since 1990, the rise of extended-spectrum beta-lactamase producers and multidrug-resistant pathogens remains a major concern. Contributing factors include poor infection control, inappropriate antibiotic use, and limited diagnostic resources in pediatric care. Resistant bacterial infections still cause around 200,000 child deaths globally each year, underscoring the urgent need for improved antimicrobial stewardship, robust surveillance, and innovative therapies.

Keywords: antimicrobial resistance, pediatric infections, extended-spectrum beta-lactamases, antibiotic stewardship, multidrug resistance, bacterial infections, children, therapeutic strategies, infection control, surveillance systems

At present, aAntimicrobial resistance is currently one of the most serious threats to pediatric healthcare worldwide, significantly affecting how infectious diseases are treated in children. The World Health Organization identifies it as a major global cause of death, with children being especially vulnerable due to their dependence on effective treatments. Recent data indicate that over one million people die each year from bacterial resistance, including around two hundred thousand children under eighteen. Unlike adults, children—especially those under five—have seen a more than fifty percent reduction in resistance-related mortality between 1990 and 2021. While this suggests that pediatric-focused interventions are effective, the growing

complexity of resistance mechanisms and treatment challenges in children calls for urgent action from healthcare professionals, policymakers, and researchers.

Antibiotic resistance in pediatric pathogens arises from various molecular mechanisms, particularly the production of extended-spectrum beta-lactamases. These enzymes, mainly found in Enterobacteriaceae, break down commonly used antibiotics such as cefotaxime, ceftriaxone, and ceftazidime, leading to multidrug resistance and severely limiting treatment options in children. The burden of resistant infections in pediatric populations varies by region, with low-resource settings facing higher resistance rates and mortality. The COVID-19 pandemic further intensified this issue, causing a twenty percent rise in hospital-acquired, drug-resistant infections, especially peaking in 2021. Treating resistant infections in children requires consideration of age-specific pharmacological factors. The lack of suitable pediatric drug formulations and the need for accurate weight-based dosing complicate clinical decisions. Carbapenems are currently the primary treatment, but growing resistance to them among pediatric isolates calls for alternative therapies. Pediatric antimicrobial stewardship programs have shown success in reducing unnecessary antibiotic use, encouraging optimal dosing, and shortening treatment durations without compromising outcomes. These initiatives help lower healthcare-associated infections and preserve the effectiveness of essential antibiotics in children.

The problem of antibiotic resistance in children represents a complex and evolving challenge that requires coordinated global action to preserve the effectiveness of antimicrobial therapy for future generations. While significant progress has been achieved in reducing pediatric mortality from resistant infections over the past three decades, the continued emergence of multidrug-resistant pathogens and the expansion of resistance mechanisms demand sustained vigilance and innovative approaches. The implementation of comprehensive antimicrobial stewardship programs, enhanced surveillance systems, and targeted infection prevention strategies must be prioritized to address the unique vulnerabilities of pediatric populations to resistant infections.

Furthermore, the development of novel therapeutic agents specifically designed for pediatric use, coupled with improved diagnostic capabilities for rapid resistance

detection, will be essential for maintaining effective treatment options for children with serious bacterial infections. The integration of these multifaceted interventions offers the greatest potential for mitigating the impact of antimicrobial resistance on pediatric health outcomes and ensuring the continued availability of effective antimicrobial therapy for children worldwide.

References:

1. Umarovich, B. M. (2025). DEVELOPING OF VIRAL INFECTIONS IN HEMATOPOIETIC STEM-CELL TRANSPLANT (HSCT) RECIPIENTS. Web of Medicine: Journal of Medicine, Practice and Nursing, 3(5), 468-473.
2. Muhammadiev, S. (2025). HEMIEPIPHYSIODESIS IN PEDIATRIC ORTHOPAEDICS AS A TREATMENT OF KNEE DEFORMITIES. International Journal of Artificial Intelligence, 1(4), 225-227.
3. Pulatjonovna, U. M. (2024). METABOLITE SYNDROME AND COGNITIVE IMPAIRMENT. IMRAS, 7(6), 419-423.
4. Умарова, М., & Кодиржонов, Н. (2022). ТРОМБОЛИТИЧЕСКАЯ ТЕРАПИЯ В ЛЕЧЕНИИ ИШЕМИЧЕСКОГО ИНСУЛЬТА. Theoretical aspects in the formation of pedagogical sciences, 1(5), 218-220.
5. Умарова, М. (2021). МИГРЕН КАСАЛЛИГИ ВА УНИНГ ШОШИЛИНЧ ТЕРАПИЯСИНИ ТАКОМИЛЛАШТИРИШ. ИНТЕРНАУКА, 47, 93.
6. Хошимова, А. Ё. (2018). ВЛИЯНИЕ ЗАГРЯЗНЕНИЯ ОКРУЖАЮЩЕЙ СРЕДЫ НА ЗАБОЛЕВАЕМОСТЬ БРОНХИАЛЬНОЙ АСТМОЙ. Актуальные вопросы современной пульмонологии. Ма, 200.
7. АБДУГАНИЕВА, А. Ё., & ЮЛДАШЕВА, Х. Б. К. ЛАБОРАТОРНАЯ ДИАГНОСТИКА ПРИ COVID-19. ИНТЕРНАУКА Учредители: Общество с ограниченной ответственностью" Интернаука", 37-38.
8. Умарова, М. (2021). ИНСОМНИА ВА МЕТАБОЛИК СИНДРОМНИНГ ЎЗАРО КОМОРБИДЛИГИ МУАММОНИНГ ДОЛЗАРБЛИГИ. Интернаука, (20-7), 29-30.
9. Исмаилов, С. И., & Маматханова, Г. М. (2022). ЭЛЕКТРОННЫЙ ДОКУМЕНТООБОРОТ КАК ВАЖНЕЙШИЙ ФАКТОР ПОВЫШЕНИЯ

ЭФФЕКТИВНОСТИ УПРАВЛЕНИЯ ЗДРАВООХРАНЕНИЕМ. Евразийский журнал медицинских и естественных наук, 2(8), 38-45.

10. Erkinovich, M. B. (2023). Prevention and Modern Treatment of Fatty Embolism in Traumatological Patients. Eurasian Medical Research Periodical, 21, 158-164.

11. Abdujabborova, C. (2024). O'tkir zaharliligini aniqlash" LUPINUS AS". Universal xalqaro ilmiy jurnal, 1(9), 151-157.

12. Abdujabborova, C. (2024). PSORALEA DRUPACEAE BUNGE (PSORALEA KOSTYANKOVA OR AKKURAI) CHEMICAL COMPOSITION AND APPLICATION IN MEDICINE. B INTERNATIONAL BULLETIN OF MEDICAL SCIENCES AND CLINICAL RESEARCH (Т. 4, Выпуск 1, сс. 9–14). Zenodo.

13. Erkinovich, M. B. (2025, February). ACCUMULATION OF FLUID IN THE KNEE JOINT. In The Conference Hub (pp. 31-35).

14. Erkinovich, M. B. (2025). EFFECT OF JOINT FLUID ON JOINT ACTIVITY IN THE BODY. Web of Medicine: Journal of Medicine, Practice and Nursing, 3(2), 256-260.

15. Maxmudovna, M. G., Qizi, S. M. I., & Xasanboyevich, X. S. (2024). VIRAL HEPATITIS DISEASE AND ITS SPREAD AMONG THE POPULATION. THE EXAMPLE OF RISHTAN DISTRICT. Eurasian Journal of Medical and Natural Sciences, 4(1-2), 118-121.

16. Mamatkhanova, G. M., & Ismailov, S. I. (2021). Optimization Of Medical Records And Implementation Of Electronic Systems In Healthcare. The American Journal of Medical Sciences and Pharmaceutical Research, 3(01), 193-198.

17. Маматханова, Г. (2021). Оптимизация медицинской учетной документации и внедрение электронных систем в здравоохранение. Общество и инновации, 2(8/S), 61-67.

18. Мурадимова, А. Р. (2019). Нейрофизиологический аспект метаболической терапии хронической церебральной ишемии. In Инновации в медицине. Материалы I международной научно-практической конференции-Махачкала, 2019.-Том. II.-232 с. (p. 192).

19. Lutfidin o'g'li, Y. B. (2025). ENDEMIK BUQOQ KASALLIGINI TA'SIRIDAN YO'LDOSH TERMINAL SO'RGICHLARDAGI QON TOMIRLARNING PATOMORFOLOGIK O'ZGARISHLARI. THEORY AND ANALYTICAL ASPECTS OF RECENT RESEARCH, 3(33), 322-325.

20. Lutfidin o'g'li, Y. B. (2025). Major Hystologic Types of Lung Cancer. Miasto Przyszłości, 57, 81-86.

21. Yusupov, B., & Xatamova, M. (2025). GIPERTIREOZ TA'SIRIDAN YO'LDOSH TERMINAL SO'RG'ICHLARDAGI QON TOMIRLARNING PATOMORFOLOGIK O'ZGARISHLARI. Modern Science and Research, 4(2), 432-437.

22. Habibullayevna, A. G., & Shavkatjon o'g'li, Q. S. (2025, February). STRUCTURE AND INTRACELLULAR ACTIVITY OF THE DNA-CONTAINING HERPES SIMPLEX VIRUS. In International Educators Conference (pp. 126-132).

23. Мурадимова, А. Р. (2019). КЛИНИКО-НЕВРОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ТЕЧЕНИЯ СО-СУДИСТОЙ ЭПИЛЕПСИИ, ПРОГНОЗИРОВАНИЯ И ЛЕЧЕНИЯ. In Инновации в медицине. Материалы I международной научно-практической конференции-Махачкала, 2019.-Том. II.-232 с. (p. 178).

24. Мурадимова, А. Р. (2019). КЛИНИКО-ДИАГНОСТИЧЕСКИЕ АСПЕКТЫ И СОВРЕМЕННЫЕ ПОДХОДЫ К ЛЕЧЕНИЮ СОСУДИСТОЙ ДЕМЕНЦИИ. In Инновации в медицине. Материалы I международной научно-практической конференции-Махачкала, 2019.-Том. II.-232 с. (p. 185).

25. Xojiakbarovna, K. M. (2025). SKLETAL MUSCLE RELAXANTS. PERIPHERALLY ACTING SKLETAL MUSCLE RELAXAXANTS: NEUROMUSCULAR BLOCKERS AND SYNTHETIC COMPETITIVE BLOCKERS. Web of Medicine: Journal of Medicine, Practice and Nursing, 3(5), 509-514.

26. Yevgenevna, S. O. (2025). PREDICTION OF PREECLAMPSIA DEVELOPMENT IN PREGNANT WOMEN WITH OVERWEIGHT AND OBESITY. Web of Medicine: Journal of Medicine, Practice and Nursing, 3(5), 561-568.

27. Isroilova, G. (2023). DEVELOPING THE PRINCIPLES OF STUDYING AND TREATMENT OF VAGINAL DYSBIOSIS DURING PREGNANCY. Modern Science and Research, 2(4), 52-53.
28. Юсупова, Р. Т., & Шаланкова, О. Е. (2020). РЕПРОДУКТИВНОЕ ЗДОРОВЬЕ ДЕВОЧЕК-ПОДРОСТКОВ, ПРОЖИВАЮЩИХ В УСЛОВИЯХ ФЕРГАНСКОЙ ДОЛИНЫ. In Университетская наука: взгляд в будущее (pp. 612-614).
29. Пулатова, Н. С., Йигиталиев, А. Б., & Абдурашидов, А. А. ЭПИДЕМИОЛОГИЯ РАКА ТЕЛА МАТКИ В ФЕРГАНСКОЙ ОБЛАСТИ. 1-SON, 1-JILD IYUL 2022 1-QISM, 29.
30. Эгамбердиев, Д. Э., Абдурашидов, А. А., & Эргашов, У. Ш. ПРОФИЛАКТИКА И МЕТОФИЛАКТИКА МОЧЕКАМЕННОЙ БОЛЕЗНИ.
31. Husanboy, U. (2024). ACUTE HEMORRHAGIC CYSTITIS DISEASE IN CHILDREN AND ITS DEVELOPMENT IN THE CHILD'S DODY. In International Conference on Multidisciplinary Sciences and Educational Practices (pp. 88-94).
32. Умарова, М. (2021). ИНСУЛТДАН КЕЙИНГИ ТАЛВАСА СИНДРОМИ. Интернаука, (18-5), 46-48.
33. Pattoyevich, G. A. (2025). IRON DEFICIENCY ANEMIA IN CHILDREN: EARLY DIAGNOSIS AND MODERN TREATMENT APPROACHES. Web of Medicine: Journal of Medicine, Practice and Nursing, 3(5), 494-501.
34. Ravshanovna, R. Y., & Abduxoliq o'g'li, R. A. (2024). Clinical and Morphological Characteristics and Treatment of Gaucher Disease. Miasto Przyszłości, 49, 1407-1412.