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IMPROVEMENT OF OUTPATIENT MEDICAL CARE FOR THE RURAL POPULATION. REVIEW

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Introduction. The provision of outpatient medical care to rural residents is one of the priority areas requiring solutions within Kazakhstan's healthcare system. Approximately 38% of the country's population lives in rural areas, where access to primary medical care remains constrained by workforce shortages, infrastructure limitations, and transport barriers.
Objective. To summarize international and Kazakhstan experience in improving outpatient medical care for rural populations and to identify organizational approaches that may strengthen accessibility and quality of care.
Materials and Methods. A structured narrative review was prepared on the basis of the 20 sources included in the manuscript. The evidence base comprised official statistical and policy materials, international reports, peer-reviewed publications, and web resources describing rural healthcare in China, India, Nigeria, and Kazakhstan. The source manuscript did not report a reproducible database search, search dates, formal inclusion or exclusion criteria, or risk-of-bias assessment; therefore, the work is presented as a narrative rather than a systematic review.
Results. The reviewed experience shows that rural healthcare systems use a combination of workforce incentives, community health workers, mobile services, telemedicine, infrastructure renewal, and preventive programs. In Kazakhstan, the number of visits by rural residents reached 128.4 million in 2023, more than 324 million outpatient services were provided, over 1.3 million people received care through mobile complexes and medical trains, 388,000 newly diagnosed conditions were identified, and 220,000 people were placed under medical supervision. The number of young doctors working in rural areas exceeded 1,200.
Discussion. The international examples differ in organization, but they point to the same practical priorities: sufficient staffing, proximity of primary care, community-based prevention, reliable transport and digital access, and continuity of follow-up. For Kazakhstan, the main unresolved issues remain workforce shortages, infrastructure gaps, and transport accessibility.
Conclusion. Further improvement of outpatient care for rural populations should combine modernization of infrastructure, workforce support, mobile and telemedicine technologies, and adaptation of effective international approaches to national conditions.
Keywords. rural healthcare; outpatient care; access to medical services; medical personnel; provision of medical services; healthcare system.

СОВЕРШЕНСТВОВАНИЕ АМБУЛАТОРНОЙ МЕДИЦИНСКОЙ ПОМОЩИ СЕЛЬСКОМУ НАСЕЛЕНИЮ. ОБЗОР ЛИТЕРАТУРЫ

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Введение. Оказание амбулаторной медицинской помощи сельским жителям - одно из приоритетных направлений системы здравоохранения Казахстана. Около 38% населения страны проживает в сельской местности, где доступ к первичной медицинской помощи ограничивают кадровый дефицит, недостаточная инфраструктура и транспортные трудности.

Цель. Обобщить международный и казахстанский опыт совершенствования амбулаторной медицинской помощи сельскому населению и определить организационные подходы, способные повысить доступность и качество помощи.
Материалы и методы. Проведен структурированный нарративный обзор 20 источников, представленных в исходной рукописи. В анализ вошли официальные статистические и программные материалы, международные отчеты, рецензируемые публикации и интернет-ресурсы по организации сельского здравоохранения в Китае, Индии, Нигерии и Казахстане. В исходном материале не были приведены воспроизводимая стратегия поиска, даты поиска, формальные критерии включения и исключения и оценка риска систематической ошибки; поэтому работа квалифицирована как нарративный, а не систематический обзор.
Результаты. Анализ показал, что ключевыми направлениями развития сельской медицины являются кадровые стимулы, участие работников общественного здравоохранения, мобильные медицинские службы, телемедицина, модернизация инфраструктуры и профилактические программы. В Казахстане в 2023 году число обращений сельских жителей достигло 128,4 млн, на амбулаторном уровне оказано более 324 млн услуг, мобильными комплексами и медицинскими поездами охвачено более 1,3 млн человек, выявлено 388 тыс. новых заболеваний и 220 тыс. человек взяты под медицинское наблюдение. Число молодых врачей в сельской местности превысило 1 200.
Обсуждение. Несмотря на различия национальных моделей, международный опыт указывает на общие практические приоритеты: достаточное кадровое обеспечение, территориальную доступность первичной помощи, профилактическую работу в сообществе, транспортную и цифровую доступность и непрерывность наблюдения. Для Казахстана сохраняются кадровые, инфраструктурные и транспортные ограничения.
Заключение. Дальнейшее совершенствование амбулаторной помощи сельскому населению должно сочетать модернизацию инфраструктуры, поддержку медицинских кадров, развитие мобильных и телемедицинских технологий и адаптацию эффективного международного опыта к национальным условиям.
Ключевые слова. сельская медицина; амбулаторная помощь; доступ к медицинским услугам; медицинские кадры; оказание медицинских услуг; система здравоохранения.

АУЫЛ ТҰРҒЫНДАРЫНА КӨРСЕТІЛЕТІН АМБУЛАТОРИЯЛЫҚ МЕДИЦИНАЛЫҚ КӨМЕКТІ ЖЕТІЛДІРУ. ӘДЕБИЕТКЕ ШОЛУ

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Кіріспе. Ауыл тұрғындарына амбулаториялық медициналық көмек көрсету Қазақстанның денсаулық сақтау жүйесіндегі басым бағыттардың бірі болып табылады. Ел халқының шамамен 38%-ы ауылдық жерде тұрады, ал бастапқы медициналық көмекке қолжетімділікке кадр тапшылығы, инфрақұрылымның жеткіліксіздігі және көлік қиындықтары әсер етеді.
Мақсаты. Ауыл тұрғындарына амбулаториялық медициналық көмекті жетілдіру бойынша халықаралық және қазақстандық тәжірибені жинақтау және көмектің қолжетімділігі мен сапасын арттыра алатын ұйымдастырушылық тәсілдерді айқындау.
Материалдар мен әдістер. Бастапқы қолжазбада келтірілген 20 дереккөз негізінде құрылымдалған нарративтік шолу жүргізілді. Талдауға Қытай, Үндістан, Нигерия және Қазақстандағы ауылдық денсаулық сақтауды сипаттайтын ресми статистикалық және бағдарламалық материалдар, халықаралық есептер, рецензияланатын жарияланымдар және интернет-ресурстар енгізілді. Бастапқы материалда қайталанатын іздеу стратегиясы, іздеу күндері, формалды енгізу және шығару критерийлері және жүйелі қателік тәуекелін бағалау көрсетілмегендіктен, жұмыс жүйелі емес, нарративтік шолу ретінде жіктелді.
Нәтижелер. Талдау ауылдық медицинаны дамытудың негізгі бағыттарына кадрлық ынталандыру, қоғамдастық денсаулық сақтау қызметкерлерін тарту, мобильді медициналық қызметтер, телемедицина, инфрақұрылымды жаңарту және профилактикалық бағдарламалар жататынын көрсетті. Қазақстанда 2023 жылы ауыл тұрғындарының медициналық ұйымдарға жүгіну саны 128,4 млн-ға жетті, амбулаториялық деңгейде 324 млн-нан астам қызмет көрсетілді, мобильді кешендер мен медициналық пойыздар арқылы 1,3 млн-нан астам адам қамтылды, 388 мың жаңа ауру анықталып, 220 мың адам медициналық бақылауға алынды. Ауылдық жерлерде жұмыс істейтін жас дәрігерлер саны 1 200-ден асты.
Талқылау. Ұлттық модельдер әртүрлі болғанымен, халықаралық тәжірибе ортақ практикалық басымдықтарды көрсетеді: жеткілікті кадрлық қамтамасыз ету, алғашқы көмектің аумақтық қолжетімділігі, қоғамдастықтағы профилактика, көлік және цифрлық қолжетімділік, сондай-ақ бақылаудың үздіксіздігі. Қазақстан үшін кадрлық, инфрақұрылымдық және көліктік шектеулер әлі де өзекті.

Қорытынды. Ауыл тұрғындарына амбулаториялық көмекті одан әрі жетілдіру инфрақұрылымды жаңартуды, медицина кадрларын қолдауды, мобильді және телемедициналық технологияларды дамытуды және тиімді халықаралық тәжірибені ұлттық жағдайларға бейімдеуді ұштастыруы тиіс.
Түйінді сөздер. ауылдық медицина; амбулаториялық көмек; медициналық қызметтерге қолжетімділік; медициналық кадрлар; медициналық қызмет көрсету; денсаулық сақтау жүйесі.

INTRODUCTION

Approximately 40% of Kazakhstan's total population resides in rural areas [1]. Preserving the health of rural populations and ensuring access to medical care is one of the most pressing issues today. The quality and accessibility of medical services in rural regions often remain at a low level due to insufficient infrastructure, a shortage of medical personnel, and transportation difficulties.

For example, according to the Ministry of Health of the Republic of Kazakhstan, the shortage of doctors in rural areas reaches up to 30%, and residents have to travel an average of 15–20 kilometers to reach medical facilities [2]. Outpatient medical care is the primary level of healthcare services, providing disease prevention, early diagnosis, and consistent treatment. Therefore, improving the system of outpatient care for rural populations and increasing its efficiency is crucial for enhancing public health and ensuring equal access to medical services. Progress in this area will have a positive impact on the socio-economic development of rural regions [3].

The objective of this review was to summarize international and Kazakhstan experience in improving outpatient medical care for rural populations and to identify organizational approaches that may be adapted to strengthen accessibility, continuity, and quality of care.

MATERIALS AND METHODS

This article was prepared as a structured narrative review. The analytical material consisted of the 20 sources already included by the authors in the manuscript: official statistical and policy documents, international reports, peer-reviewed studies, institutional materials, and web resources concerning rural healthcare and outpatient service organization.

The review focused on four country contexts represented in the source material—China, India, Nigeria, and Kazakhstan. Information was grouped by the main organizational mechanisms used to improve rural access: healthcare workforce capacity, community-based personnel, mobile services, telemedicine, infrastructure, prevention, and follow-up.

A reproducible database search strategy, search dates, formal inclusion and exclusion criteria, and a risk-of-bias assessment were not documented in the source manuscript. No quantitative pooling was performed. Accordingly, the article should be interpreted as a structured narrative synthesis rather than a systematic review.

RESULTS

International approaches to improving rural outpatient care

In China, improving outpatient medical care in rural areas is a key focus in the healthcare sector. About 42.2% of the country's doctors work in rural regions; however, the number of doctors per 1,000 people remains lower than in urban areas. In 2021, this figure was 2.42 doctors per 1,000 people in rural areas, compared to 3.73 in cities [4]. There are more than 599,000 clinics operating in rural areas, but only 21.4% of them meet established standards [5]. Moreover, 70% of rural doctors in China are over the age of 40, highlighting the issue of an aging workforce [6]. Only about 52% of rural residents have access to necessary medical services, whereas in urban areas this figure exceeds 80% [5]. The government is providing financial support to improve rural healthcare infrastructure. In addition, training programs are being organized to enhance the professional qualifications of doctors. Incentive measures are also in place to attract young specialists. All these efforts are aimed at improving the health of the rural population.

In India, over 900,000 community health workers are employed to improve the rural healthcare system [7]. The majority of them are specially trained women known as ASHA (Accredited Social Health Activist) workers. These professionals provide counseling on vaccination, maternal and child health, chronic diseases, and mental health issues. Approximately 65% of the rural population

receives medical care through ASHA workers. In 2023, the infant mortality rate in rural areas was 28.3 per 1,000 live births, a significant decrease compared to the rate in 2010 [8]. This achievement is the result of preventive measures and active vaccination campaigns. Thanks to the efforts of ASHA workers, the rate of prenatal and postnatal care among women increased to 75%, access to primary healthcare rose by 17%, and institutional deliveries grew by 28% [9]. ASHA workers educate rural residents on managing chronic diseases and encourage them to undergo regular treatment. Special attention is given to preventing complications from conditions such as diabetes and hypertension. The government provides ASHA workers with an average annual bonus of around 300 US dollars. Since 2020, specialized mental health training has been conducted on a regular basis. By 2025, the Indian government plans to improve rural healthcare infrastructure by 30% and increase the number of ASHA workers by 20%.

In Nigeria, in 2009, a national program called the Midwives Service Scheme (MSS) was launched with the aim of reducing maternal and child mortality in rural areas. Under this program, about 2,500 midwives were deployed to remote rural regions of the country [10]. These midwives were placed in 652 primary healthcare centers and 163 district hospitals [11]. After the implementation of MSS in 2010, the level of antenatal care increased by an average of 12%, and overall utilization of healthcare services grew by 6% [12]. In 2008, the maternal mortality rate in Nigeria was 840 cases per 100,000 live births, which decreased to 576 cases per 100,000 live births by 2013 [13]. However, the rate of births attended by skilled healthcare workers did not change significantly and remained at a stable level [11].

Development of rural outpatient care in Kazakhstan

In Kazakhstan, in 2022, more than 67,000 medical workers were employed in rural areas, including 13,000 doctors and 54,000 mid-level specialists. The medical trains "Zhardem" and "Salamatty Kazakhstan" covered 147 stations and provided medical assistance to over 77,000 people, including 20,500 children. Additionally, as a result of preventive screenings, 838,000 people were examined, and more than 29,000 of them were diagnosed with hypertension, diabetes, or kidney problems [14]. Eighty-four percent of district hospitals are equipped with modern CT and X-ray equipment. In 2022, 72 new pharmacies and 161 private pharmacies were opened in rural areas [15]. Telemedicine and mobile medical complexes became widely accessible to rural residents (Prime Minister of Kazakhstan, 2023). As part of a national project launched in 2023, 309 primary healthcare centers were established, and 12 interdistrict hospitals were renovated. These measures have allowed the provision of specialized medical care to rural populations to increase to 2.4 million people [16]. These efforts to develop the healthcare system in rural Kazakhstan have significantly improved the accessibility and quality of medical services.

Table 1 - Dynamics of rural healthcare development in Kazakhstan in 2022–2023

Indicator	2022	2023	Change
Number of visits by rural residents to medical institutions	118.8 million (estimated)	128.4 million	+8.1%
Number of outpatient services	310 million (approximately)	324 million	+4.5%
People assisted through medical trains and mobile complexes	1.1 million (approximately)	1.3 million	+18%
Newly diagnosed diseases	350 thousand (approximately)	388 thousand	+10.9%
People under medical supervision	200 thousand (approximately)	220 thousand	+10%
Number of young doctors	1,000–1,100	1,200+	+9–20%

Note. Values marked "estimated" or "approximately" are reproduced from the source manuscript.

Rural healthcare in Kazakhstan showed significant growth from 2022 to 2023. The number of visits by rural residents to medical institutions increased by 8.1%, reaching 128.4 million, indicating a growing demand for medical services. The total volume of outpatient services also rose by 4.5%, amounting to 324 million medical services provided [17]. The number of rural residents receiving assistance through medical trains and mobile complexes increased by 18%, reaching 1.3 million people. Additionally, screening results showed a 10.9% increase in newly diagnosed diseases, while the number of patients under medical supervision grew by 10% [18]. The recruitment of young doctors to rural areas also showed positive dynamics—their number exceeded 1,200, which is an important step toward strengthening the human resources capacity of rural healthcare. Overall, these indicators reflect improvements in the accessibility and quality of rural healthcare, as well as the implementation of effective measures to protect public health [19, 20].

DISCUSSION

In many countries around the world, ambulatory medical care in rural areas is one of the priority directions of the healthcare system. Each country implements systematic measures aimed at increasing the accessibility of medical services for the rural population, taking into account its specific circumstances. In China, important tasks include improving rural medical infrastructure, strengthening the workforce capacity, and attracting young specialists, while in India, preventive measures and public awareness through community health workers are widely developed. In Nigeria, the quality of medical care is improving thanks to national programs aimed at reducing maternal and child mortality.

Kazakhstan is also undertaking large-scale efforts to develop rural medicine. Modern technologies such as medical trains, mobile complexes, and telemedicine are being introduced, and systematic measures to attract young doctors to rural areas are being implemented. All these actions are aimed at improving the health of the rural population, ensuring equal access to medical services, and increasing the level of early detection and prevention of diseases.

Taken together, the reviewed approaches suggest that improvement in rural outpatient care is not dependent on a single intervention. Sustainable access requires simultaneous work on staffing, infrastructure, prevention, transport, digital technologies, and continuity of care. The Kazakhstan data presented in the article demonstrate positive dynamics in service utilization and outreach, but they should be interpreted primarily as indicators of system activity rather than as direct evidence of improved clinical outcomes.

Scientific novelty and practical significance

The scientific novelty of this review is integrative rather than experimental. The article brings together several organizational models of rural healthcare—physician-resource development in China, community health workers in India, the Midwives Service Scheme in Nigeria, and mobile, telemedicine, infrastructure, and workforce initiatives in Kazakhstan—and considers their relevance to strengthening outpatient care in the national context. Its practical value lies in identifying a set of mutually reinforcing directions that can be used when planning rural primary and outpatient healthcare services.

Limitations

The main limitations are the narrative design, the absence of a reproducible literature-search protocol and formal quality appraisal, the heterogeneity of the included evidence, and the use of several non-peer-reviewed web sources. Some indicators in Table 1 are presented as estimated or approximate values. These factors limit the possibility of drawing causal conclusions or directly comparing countries.

CONCLUSION

Nevertheless, to further improve the quality and accessibility of medical care in rural areas, important tasks remain, such as upgrading infrastructure, addressing workforce shortages, and improving transportation accessibility. In the future, sustainable development of this sector will only be possible through the introduction of innovations based on international experience, which will help preserve the health of rural residents and improve their quality of life. Thus, the

improvement of the rural healthcare system remains an important factor in enhancing the well-being of society as a whole.

The reviewed international and Kazakhstan experience indicates that the most promising direction is a combined approach that links infrastructure modernization, workforce support, mobile and telemedicine services, preventive care, and adaptation of effective international practices to local conditions.

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DECLARATIONS / ДЕКЛАРАЦИИ / ДЕКЛАРАЦИЯЛАР

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Этические аспекты. Одобрение этического комитета и информированное согласие не требовались, поскольку статья представляет собой обзор литературы и основана исключительно на ранее опубликованных и общедоступных данных.
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Вклад авторов. А. Танатарова - разработка концепции; проведение исследования; курирование данных; подготовка первоначального варианта рукописи. А.Е. Уалиева - разработка концепции; методология; научное руководство; рецензирование и редактирование рукописи. А.К. Турманова - проведение исследования; валидация; рецензирование и редактирование рукописи.

Этикалық аспектілер. Мақала әдебиетке шолу болып табылатындықтан және тек бұрын жарияланған әрі жалпыға қолжетімді деректерге негізделгендіктен, этикалық комитеттің мақұлдауы мен ақпараттандырылған келісім талап етілмеді.
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Деректердің қолжетімділігі. Мақалада қарастырылған барлық деректер әдебиеттер тізімінде көрсетілген дереккөздерден алынған.
Жариялау туралы мәлімдеме. Авторлар бұл материалдың бұрын жарияланбағанын және басқа баспада қарастырылмайтынын мәлімдейді.
Авторлардың үлесі. А. Танатарова - тұжырымдаманы әзірлеу; зерттеу жүргізу; деректерді курациялау; қолжазбаның бастапқы нұсқасын дайындау. А.Е. Уалиева - тұжырымдаманы әзірлеу; әдіснама; ғылыми жетекшілік; қолжазбаны рецензиялау және редакциялау. А.К. Турманова - зерттеу жүргізу; валидация; қолжазбаны рецензиялау және редакциялау.

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