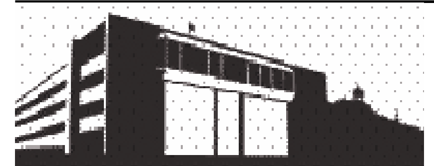
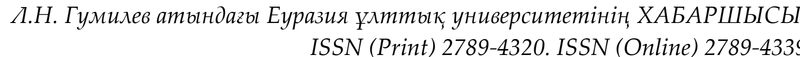
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Navigating Health Insurance Economics: A Data-Driven Approach to Enhanced Pricing in the United States

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Abstract. This study delves into the dynamics of healthcare spending in the United States, revealing a considerable financial commitment that hasn't translated into commensurate health outcomes. With healthcare costs reaching $4.3 trillion in 2021, driven by factors such as an aging population and escalating service prices, the nation confronts challenges to its fiscal health. The analysis extends to the intricacies of U.S. health insurance pricing, critiquing the existing system's complexity and opacity while drawing comparisons with approaches in other developed countries. Amid criticisms of profit-centric motives in the private sector, the study prompts discussions on potential reforms, learning from international experiences. Additionally, the study explores the transformative potential of data analytics in health insurance pricing, emphasizing its role in enhancing fairness and competitiveness. However, ethical considerations, including privacy, data security, and potential biases, underscore the need for a delicate balance between leveraging data-driven insights and responsible practices. The results of the study may be of great interest to specialists from the point of view of the further development of the compulsory social health insurance system in the Republic of Kazakhstan.

Key words: health insurance, healthcare, pricing, data analytics

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Introduction

The United States confronts a paradox wherein its considerable healthcare spending does not align with commensurate improvements in health outcomes. A comparative analysis with other developed countries provides a foundation for discussions on potential reforms.

Subsequently, the paper directs its attention to the transformative possibilities brought about by data analytics in health insurance pricing. Advanced analytics techniques furnish a nuanced understanding of risk factors, claims patterns, and cost drivers. The incorporation of predictive modeling introduces precision to pricing structures, ensuring equity and competitiveness. Nevertheless, the integration of data analytics prompts ethical considerations, necessitating a meticulous examination of privacy, data security, and the potential for algorithmic bias[1].

Problem Statement

The United States allocates a substantial budget to healthcare, exceeding the expenditures of other nations. Despite this significant financial commitment, the expected correlation with superior healthcare outcomes remains elusive. Furthermore, the escalation of healthcare expenses not only contributes significantly to the nation's burgeoning debt but also hampers the ability to mount effective responses to public health crises, exemplified by challenges encountered during the COVID-19 pandemic[2]. The subsequent exploration delves into the surge in healthcare costs, meticulously investigating the underlying factors driving this increase. This analysis aims to shed light on the intricate dynamics at play, emphasizing their implications for both public health and the broader fiscal landscape[3].

Goals

This paper aims to decipher the intricate factors contributing to the upswing in healthcare costs, examining the roles of an aging population and the rise in service prices. Additionally, it explores the complexities of health insurance pricing in the U.S., elucidating the amalgamation of community rating, experience rating, and adjusted community rating.

Literature review

Research aimed at assessing the effectiveness of financing health care costs and their impact on health indicators based on the use of big data analysis is very limited in the domestic literature. In particular, Kazakhstani scientists mainly analyze the health care system as a whole and its individual areas, This is due to the fact that the health insurance system in the Republic of Kazakhstan is relatively new. Thus, among domestic researchers, the works of Tanasilov M.D., Urkumbayeva A.R. can be noted [4]. Attention should also be paid to the publications of Keldibayeva Z., Keruenova Z. on the application of digital technologies in the domestic system of compulsory medical insurance [5]. Taking into account the significant experience in implementing health care programs and comparable coverage of the population, the US experience is interesting, the study of which is devoted to a number of scientific publications by foreign experts Nick Paul Taylor, Paul Zane Pilzer, John Hsu, Chia Yi Chin, Max Weiss, Michael

Cohen, Jay Sastry, Nina Katz-Christy, John Bertko, Joseph P., Gary Claxton, Matthew Rae, Anthony Damico, Gregory Young, Nisha Kurani, Heidi Whitmore, Trifonova M.A., Sautkina V.A., etc[6]. At the same time, the effectiveness assessment is based on the use of computational analytical methods, on which the research of this article was based. Similar approaches were used in the works of Obermeyer, Z., & Emanuel, E. J., Raheja, K., Dubey, A., & Chawda, R and others[7].

History

Scaling Healthcare Spending in the United States

The United States contends with one of the highest global healthcare costs. In 2021, the nation's healthcare spending peaked at $4.3 trillion, averaging around $12,900 per person. In stark contrast, other affluent nations expend roughly half this amount per capita. Despite the recent exacerbation by the COVID-19 pandemic, the upward trajectory of healthcare costs predates this global health crisis. Relative to the size of the economy, healthcare costs have surged from 5 percent of GDP in 1960 to 18 percent in 2021[8].

United States Healthcare Spending Dynamics

National Health Expenditures (% of GDP)

25%
20%
15%
10%
5%
0%
1961 1967 1973 1979 1985 1991 1997 2003 2009 2015 2021

Driving Forces Behind Escalating Healthcare Expenses

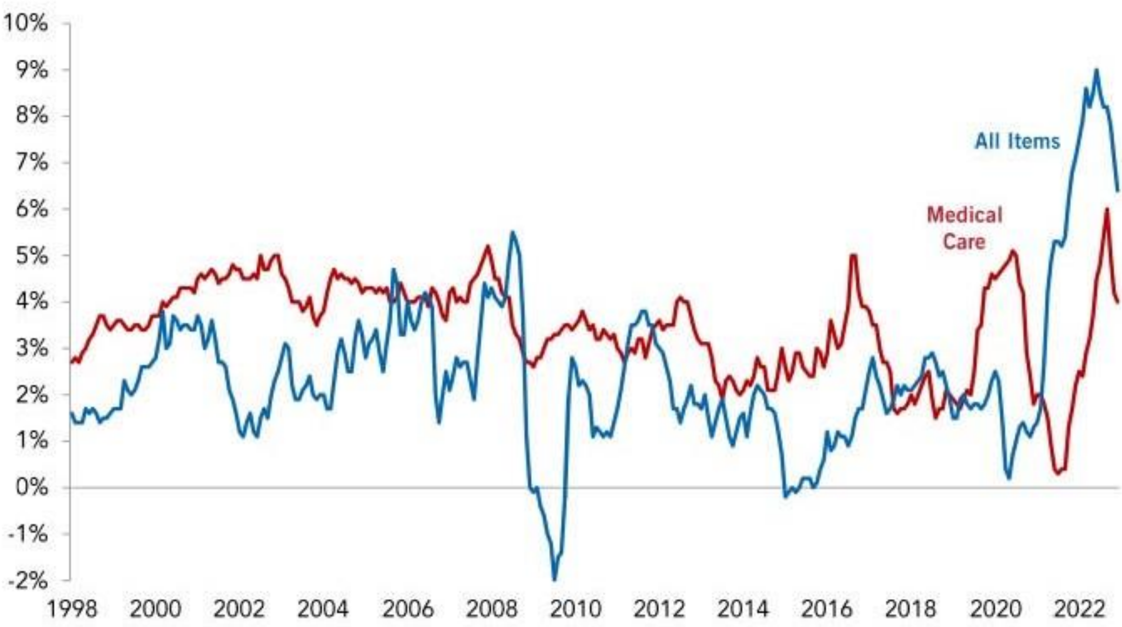
Understanding healthcare spending involves dissecting two critical components: price (the cost of healthcare services) and utilization (the extent of service usage). Numerous factors contribute to an increase in both price and utilization, thus driving up overall healthcare expenditure. Key factors include the aging population and escalating healthcare prices[9].

The Impact of an Aging Population

The proportion of the U.S. population aged 65 and above has witnessed a substantial increase, rising from 13 percent in 2010 to 16 percent in 2021. Projections indicate a further increase to 20 percent by 2030. As individuals aged 65 and above typically allocate a higher proportion of their expenses to healthcare, the growth in this demographic is expected to escalate overall healthcare costs. Additionally, as individuals reach 65, becoming eligible for Medicare, the projected increase in program enrollees—expected to reach 65 million in 2022—will substantially amplify associated costs. The Congressional Budget Office predicts that Medicare spending will nearly double over the next 30 years relative to the economy's size, climbing from 3.1 percent of GDP in 2023 to 5.5 percent by 2053[10].

The Surge in Healthcare Service Costs

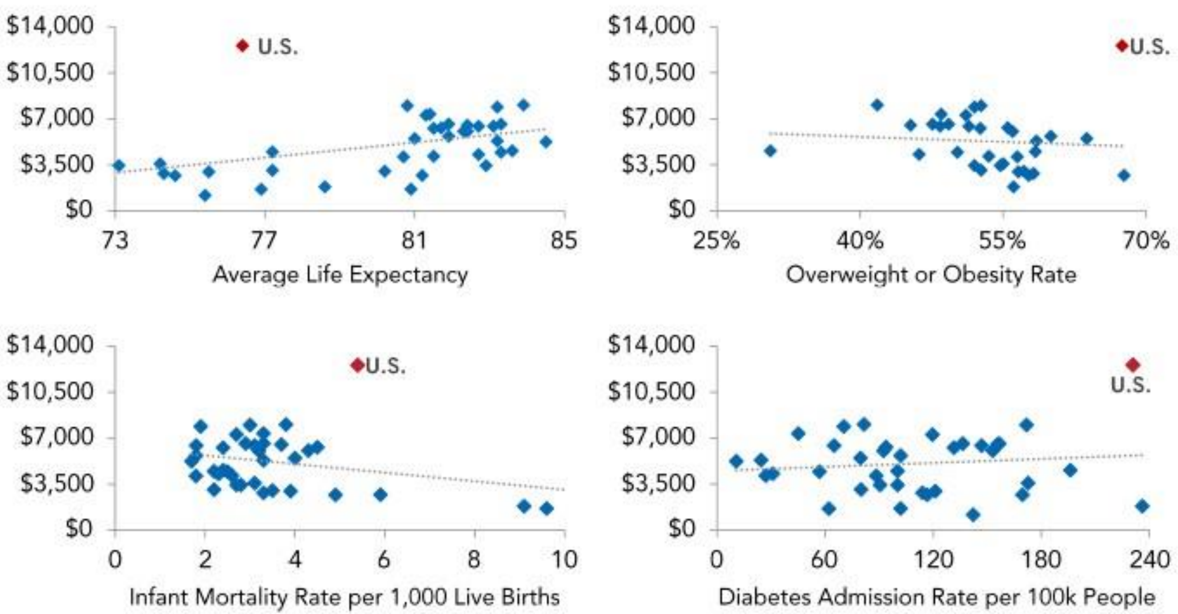
Prices constitute another significant driver of escalating healthcare spending in the United States. The costs of healthcare services tend to outpace the inflation rates of other goods and services in the economy. Over the past two decades, while the Consumer Price Index (CPI) for various goods and services grew at an average rate of 2.5 percent per year, the CPI for medical care increased at an average rate of 3.2 percent per year. Multiple factors could contribute to this surge in healthcare prices, including the introduction of advanced and costly healthcare technology, administrative inefficiencies within the complex healthcare system, and hospital consolidation fostering a lack of competition or monopolistic conditions, allowing providers to increase prices. Further research is essential to confirm the precise reasons for the rapid growth in healthcare costs [10].



The Significance of Escalating Healthcare Costs

High healthcare spending doesn't equate to superior health outcomes in the United States. Despite a substantial financial commitment to healthcare goods and services, the nation lags

behind others in common health metrics. The burden of high healthcare costs exacerbates an already strained fiscal scenario and stands as a primary driver of the inherent long-term imbalance between spending and revenues entrenched in the nation's budget. Effectively managing and curbing the escalation of healthcare costs is crucial for the nation's sustained fiscal and economic well-being [11].



Methods

During the research, publications on the chosen topic were studied, in particular, work on the organization of the medical care and health insurance system in the United States, and methods of theoretical and statistical sampling and data analysis were used. To identify problems, limitations and determine directions for the development of US healthcare, a comparative analysis was carried out with similar systems in other countries according to certain criteria. A statistical sampling allowed to determine the adequacy of actual medical expenditures for the children and adult populations based on a study of disease statistics. The application of statistical methods was based on the analysis of big data using computer processing. The method of comparative analysis was used to identify the general and specific aspects of the healthcare system in the USA. The use of statistical and mathematical analysis methods made it possible to identify problems in the pricing of medical services and develop directions for improving the efficiency of healthcare in the United States.

Results

Comparative Analysis: Challenges and Potential for Improvements

The U.S. health care system is unique, primarily characterized by a mix of private and public providers, and it stands out for its high overall spending on healthcare. When comparing health

insurance pricing between the U.S. and other developed nations, several factors contribute to the differences observed.

1. *Fragmented System in the U.S.:* The United States has a fragmented health care system with a mix of private insurance, public programs like Medicare and Medicaid, and uninsured individuals. This fragmentation contributes to administrative complexities and higher overhead costs for both insurers and healthcare providers.

2. Role of Private Insurers: In the U.S., private health insurance plays a significant role, with many individuals obtaining coverage through their employers. The presence of multiple private insurers creates competition, but it also introduces administrative costs and a lack of standardized pricing, which can result in higher premiums.

3. Administrative Costs: The administrative costs associated with health insurance in the U.S. are notably higher than in other developed countries. A substantial portion of these costs is attributed to the billing and claims processing activities of various insurers, healthcare providers, and government programs.

4. Prescription Drug Costs: The cost of prescription drugs in the U.S. is considerably higher than in other developed nations. Pharmaceutical companies in the U.S. often charge higher prices for medications, contributing to elevated insurance premiums and out-of-pocket expenses for individuals.

5. Fee-for-Service Model: The fee-for-service reimbursement model, common in the U.S., incentivizes healthcare providers to deliver more services, leading to increased healthcare spending. In contrast, some other developed countries have adopted alternative payment models that focus on outcomes, which can help control costs.

6. Universal Healthcare Systems: Countries like Germany and Switzerland have successfully implemented community-rated systems, where health insurance premiums are based on broader community risk rather than individual health histories. Furthermore, countries such as the United Kingdom, Canada, and Australia have opted for government-funded, single-payer systems, eliminating the need for complex pricing models. In these systems, health insurance is often provided as a public service, with costs covered through taxation, and the government often plays a more direct role in negotiating prices with healthcare providers and pharmaceutical companies, leading to lower overall costs.

7. Preventive Care and Health Outcomes: Some countries with lower health insurance costs prioritize preventive care and public health initiatives. By investing in early intervention and population health, these nations aim to reduce the overall burden on the healthcare system and control long-term costs.

8. Government Regulation: The level of government intervention and regulation in the healthcare sector varies among developed countries. Countries with more government involvement often have mechanisms in place to control prices and ensure equitable access to healthcare services[12].

Challenges and Criticisms in the US Healthcare System:

1. Complexity and Lack of Transparency: The U.S. healthcare system is often criticized for its complexity, making it challenging for individuals to navigate insurance plans, understand coverage options, and estimate out-of-pocket costs. The lack of transparency in pricing and

billing processes adds to the confusion, with consumers often unaware of the actual costs of medical services until after they are provided [11].

2. Disparities in Coverage and Pricing: The fragmented nature of the U.S. health insurance market contributes to disparities in coverage and pricing. Individuals may face different premiums, deductibles, and co-payments based on factors such as age, location, and pre-existing conditions. This can result in inequitable access to healthcare, with certain population segments experiencing financial barriers to essential services.

3. Affordability Issues: Affordability is a significant concern in the U.S. healthcare system. While employer-sponsored insurance is common, not all employers offer comprehensive coverage, and some individuals may be left without insurance options. High deductibles, co-payments, and out-of-pocket expenses can create financial strain for insured individuals, limiting their ability to seek necessary medical care.

4. Profit-Oriented Private Sector: The profit-driven nature of the private healthcare sector in the U.S. has been a subject of criticism. Critics argue that the emphasis on maximizing profit margins can lead to cost containment measures that may compromise the quality and accessibility of care. Some pharmaceutical companies, hospitals, and insurers are accused of prioritizing financial interests over patient well-being.

5. Administrative Overhead Costs: The administrative overhead costs associated with the U.S. healthcare system are significantly higher than in countries with more centralized or universal healthcare models. The complexity of dealing with multiple insurers, billing systems, and regulatory requirements contributes to administrative inefficiencies, diverting resources away from direct patient care.

6. Limited Focus on Preventive Care: The U.S. healthcare system has been criticized for its limited emphasis on preventive care. The fee-for-service model, which reimburses providers for specific services rendered, may not adequately incentivize preventive measures. This can result in a healthcare system that is more reactive than proactive, potentially leading to higher long-term costs and poorer health outcomes.

7. Lack of Universal Coverage: Unlike several other developed nations, the United States does not have a universal healthcare system. This leaves a significant portion of the population, especially those without employer-sponsored insurance, at risk of being uninsured or underinsured. The absence of a safety net for all citizens contributes to disparities in healthcare access and health outcomes.

8. Prescription Drug Pricing: The high cost of prescription drugs in the U.S. is a well-documented challenge. The lack of effective mechanisms to negotiate drug prices and control pharmaceutical costs contributes to the overall burden on both insurance providers and individuals, impacting the affordability of healthcare[12].

Potential for Improvement in the US Healthcare System:

1. Simplification of Health Insurance Pricing: The complexity of health insurance pricing in the U.S. is a significant challenge. Simplifying the system by standardizing coverage plans and making pricing structures more transparent could enhance consumer understanding and facilitate better decision-making. This might involve creating more straightforward, easily comparable insurance products to help individuals choose plans that best meet their needs.

2. Community-Rated Models: Learning from successful models in other developed countries, the U.S. could consider community-rated or risk-pooling approaches. Community rating involves setting insurance premiums based on the characteristics of a specific community rather than individual risk factors. This can contribute to a more equitable distribution of costs, reducing the disparities in pricing faced by different population segments.

3. Incorporating Elements of Single-Payer Systems: Some advocates propose incorporating elements of a single-payer system into the U.S. healthcare model. A single-payer system, where a single public or quasi-public agency organizes healthcare financing, can streamline administrative processes and negotiation of prices. While a full transition to a single-payer system may be challenging, exploring elements like centralized negotiation for drug prices could be considered to address cost concerns.

4. Data Analytics for Informed Decision-Making: Leveraging data analytics can be pivotal in refining the U.S. healthcare pricing system. By analyzing large datasets, insurers and policymakers can gain insights into risk factors, cost drivers, and opportunities for cost reduction. This data-driven approach can lead to more informed decision-making, allowing for targeted interventions and improvements in the efficiency of healthcare delivery [13].

5. Value-Based Care and Alternative Payment Models: Shifting towards value-based care models, where reimbursement is tied to patient outcomes rather than the volume of services provided, could be explored. This approach incentivizes preventive care, reduces unnecessary procedures, and promotes cost-effective healthcare. Alternative payment models, such as bundled payments and accountable care organizations, aim to align incentives for providers with the goal of improving patient outcomes and reducing costs.

6. Preventive Care Emphasis: Enhancing the focus on preventive care can lead to long-term cost savings by preventing the development of chronic conditions and reducing the need for expensive treatments. Incentivizing providers and insurers to invest in preventive measures, such as screenings and lifestyle interventions, can contribute to a healthier population and lower overall healthcare costs.

7. Telehealth Integration: The integration of telehealth services can improve access to care, particularly in underserved or remote areas. By leveraging technology for remote consultations, monitoring, and follow-ups, healthcare providers can offer more cost-effective and convenient services, potentially reducing the burden on the traditional healthcare system [12].

Data Analytics in Health Insurance Pricing

In the realm of health insurance pricing, the integration of data analytics stands as a transformative force. The utilization of advanced analytics techniques provides insurers with a powerful toolset to delve into intricate aspects of their business [7]. Through the analysis of expansive datasets, insurers can unravel critical insights into risk factors, claims patterns, and the underlying drivers of costs. Machine learning algorithms, capable of processing vast amounts of data, play a pivotal role in identifying correlations and predicting future trends [14]. This, in turn, empowers insurers to make more informed decisions when assessing individual health risks.

Furthermore, the implementation of predictive modeling takes these capabilities a step further. By leveraging historical data related to an individual's health history, lifestyle, and other

pertinent factors, insurers can craft personalized pricing models. This move toward precision pricing not only enhances the overall fairness of the insurance system but also fosters an environment where insurers can offer more competitive and tailored insurance products to meet the diverse needs of their clientele [1].

Lowering Costs through Data Analytics: Unveiling Efficiency Gaps

A primary advantage stemming from the integration of data analytics into health insurance pricing lies in its potential to drive cost reduction. Data analytics becomes a crucial ally in the identification of inefficiencies within the healthcare system [14]. This includes pinpointing areas with unnecessary medical procedures or preventable hospital readmissions. Armed with this information, insurers can develop targeted strategies to mitigate these issues, optimizing the utilization of resources [14].

Moreover, data analytics facilitates the identification of high-risk populations. This insight enables insurers to implement precisely targeted interventions and preventive measures. By focusing on these high-risk groups, insurers can effectively reduce overall healthcare costs and enhance the efficiency of healthcare delivery [14].

Navigating the Ethical Landscape

Despite the promising solutions that data analytics brings to the table, a host of challenges and ethical considerations demand careful attention. Privacy concerns emerge as a critical factor, with the need to safeguard sensitive health information at the forefront. Data security becomes paramount in ensuring the integrity and confidentiality of the vast datasets involved in analytics [15].

Moreover, the potential for algorithmic bias adds another layer of complexity. Insurers must be vigilant in addressing biases that may inadvertently be introduced during the development and deployment of analytics algorithms. Striking a delicate balance between harnessing data-driven insights and upholding ethical considerations is indispensable. This balance ensures the responsible and equitable use of data analytics in health insurance pricing, paving the way for a future where technological advancements align seamlessly with ethical principles [16].

Conclusion

In conclusion, this paper underscores the urgent need for a comprehensive understanding of the intricacies surrounding U.S. healthcare spending and insurance pricing. The challenges posed by escalating costs, an aging population, and a complex insurance pricing system demand strategic reforms [6]. Lessons from other developed nations suggest potential avenues for improvement, with a keen emphasis on transparency, accessibility, and affordability.

The transformative role of data analytics in health insurance pricing holds promise for cost reduction and personalized models but necessitates vigilant management of ethical considerations. Striking a delicate balance between leveraging data-driven insights and upholding privacy and fairness is crucial for the responsible evolution of the healthcare system. As the United States navigates its healthcare landscape, informed reforms and ethical considerations will be pivotal in achieving a system that aligns technological advancements with the principles of fairness, accessibility, and improved public health outcomes [2].

The analysis of the current health insurance system in the United States with a view to its further development allowed us to develop the following proposals. Firstly, it is possible that shifting to an outcome-based care model will be more cost-effective and efficient. Secondly, strengthening preventive activities and shifting the emphasis from reactive to proactive medical care will also contribute to a gradual reduction in medical costs. Thirdly, the use of artificial intelligence in health insurance, including the expansion of telemedicine, will help ensure transparency of medical care. And finally, the introduction of standardization methods in medical care, including focusing on client association, will increase control over billing for treatment and will gradually lead to the optimization of medical costs and improved quality and coverage of health insurance in the United States.

References

1. Obermeyer, Z., & Emanuel, E. J. (2016). Predicting the future—big data, machine learning, and clinical medicine. New England Journal of Medicine, 375(13), pp. 1216-1219.

2. Mittelstadt, B. D., & Floridi, L. (2016). The ethics of big data: Current and foreseeable issues in biomedical contexts. Science and engineering ethics, 22(2), pp. 303-341. . Available at:https://www.researchgate.net/profile/Luciano-Floridi/publication/305813620_The_Ethics_of_Big_Data_Current_and_Foreseeable_Issues_in_Biomedical_Contexts/links/619104d6d7d1af224bea68f8/The-Ethics-of-Big-Data-Current-and-Foreseeable-Issues-in-Biomedical-Contexts.pdf /(accessed: 09.10.2023).

3. Keehan, S. P., Cuckler, G. A., Poisal, J. A., Wolfe, C. J., & Sisko, A. M. (2018). National health expenditure projections, 2017–26: despite uncertainty, fundamentals primarily drive spending growth. Health Affairs, 37(3), pp. 482-492 . . Available at: https://www.healthaffairs.org/doi/epdf/10.1377/hlthaff.2017.1655 / (accessed: 12.10.2023).

4. Тинасилов М.Д., Уркумбаева А.Р. Экономика и финансирования здравоохранения: Учебное пособие - Караганда: ИП «Издательство АҚНҰР» [Электронный ресурс]. - 2019.- URL:https://krmu.edu.kz/wp-content/uploads/2020/12/Ekonomika-i-finansirovaniya-zdravoohraneniya.pdf/ (дата обращения 23.01.2024).

5. Keldibayeva Z., Keruenova Z. The role of digitalization of health in the system of mandatory social medical insurance of the Republic of Kazakhstan [Электронный ресурс]. – URL: https://cyberleninka.ru/article/n/the-role-of-digitalization-of-health-in-the-system-of-mandatory-social-medical-insurance-of-the-republic-of-kazakhstan?ysclid=lrr7inlb6z873073527/ (дата обращения 23.01.2024).

6. John Hsu, Chia Yi Chin, Max Weiss, Michael Cohen, Jay Sastry, Nina Katz-Christy, John Bertko, and Joseph P. Newhouse Growth In ACA-Compliant Marketplace Enrollment And Spending Risk Changes During The COVID-19 Pandemic . Available at: https://www.healthaffairs.org/doi/abs/10.1377/hlthaff.2021.00501?journalCode=hlthaff / (accessed: 20.01.2024).

7. Raheja, K., Dubey, A., & Chawda, R. (2017). Data Analysis and its Importance in Health Care. International Journal of Computer Trends and Technology (IJCTT) – Volume 48 . Available at: http://ijcttjournal.org/2017/Volume48/number-4/IJCTT-V48P132.pdf.

8. Centers for Medicare & Medicaid Services. (2022). National Health Expenditure Data . Available at: https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data /(accessed: 20.01.2024).

9. Peter G. Peterson Foundation. (2023). Why are Americans paying more for healthcare? . Available at: https://www.pgpf.org/blog/2023/07/why-are-americans-paying-more-for-health care#:~:text=The%20complexity%20of%20the%20U.S.,the%20opportunity%20to%20increase%20 prices / (accessed: 10.10.2023).

10. Bureau of Labor Statistics, US Department of Labor. (2023). Consumer Price Index – September 2023 . Available at: https://www.bls.gov/news.release/pdf/cpi.pdf#:~:text=The%20Consumer%20 Price%20Index%20for%20All%20Urban%20Consumers,items%20index%20increased%203.7%20 percent%20before%20seasonal%20adjustment /(accessed: 19..01.2024).

11. The Organisation for Economic Co-operation and Development (OECD) (2023). OECD Health Statistics 2023. Available at: https://www.oecd.org/health/health-data.htm / (accessed: 10.11.2023).

12. Sommers, B., Mc Murthy, C., Blendon, R., Benson, J., Sayde, J. M. (2017). Beyond Health Insurance: Remaining Disparities in US Health Care in the Post-ACA Era. The Milbank Quarterly: A Multidisciplinary Journal of Population Health and Health Policy, vol. 95, issue 1, pp. 43-69 . Available at: https://doi.org/10.1111/1468-0009.12245 / (accessed: 11.12.2023).

13. Terry, N. P., & Francis, L. P. (2017). Ensuring the privacy and confidentiality of electronic health records. The Electronic Health Record, 2, pp. 227-254.

14. Rehman, A., Naz, S., & Razzak, I. (2021). Leveraging big data analytics in healthcare enhancement: trends, challenges and opportunities. Multimedia Systems, vol. 28, pp. 1339–1371 . Available at: https://doi.org/10.1007/s00530-020-00736-8 / (accessed: 09.11.2023).

15. Dyda, A., Purcell, M., Curtis, S., Field, E., Pillai, P., Ricardo, K., Weng, H., Moore, J. C., Hewett, M., Williams, G., & Lau, C. L. (2021). Differential privacy for public health data: An innovative tool to optimize information sharing while protecting data confidentiality. Cell Press . Available at: https://doi.org/10.1016/j.patter.2021.100366 /(accessed: 10.11.2023).

16. McGraw, D., & Goldberg, A. (2013). Privacy and public health at risk: public health and open government data. Journal of General Internal Medicine, 28(5), pp. 580-585.

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Ориентирование в экономике медицинского страхования: подход на основе анализа данных по повышению цен в США

Аннотация. Представленный в статье анализ раскрывает тему динамики расходов на здравоохранение в Соединенных Штатах, раскрывая значительные финансовые вложения, которые не находят соответствия в средних показателях здоровья. С расходами на здравоохранение, достигшими 4,3 триллиона долларов в 2021 году, вызванными такими факторами, как стареющее население и растущие цены на услуги, страна сталкивается с вызовами для своего финансового «здоровья». Анализ затрагивает тонкости ценообразования на медицинское страхование в США, критикуя сложность и непрозрачность существующей системы и проводя параллели с

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подходами в других развитых странах. В контексте критики мотивов, ориентированных на прибыль, в частном секторе, исследование провоцирует обсуждение потенциальных реформ с учетом международного опыта. Кроме того, данная работа исследует трансформационный потенциал аналитики данных в ценообразовании на медицинское страхование, подчеркивая его роль в повышении справедливости и конкурентоспособности. Однако этические соображения, включая конфиденциальность, безопасность данных и потенциальные предвзятости, подчеркивают необходимость тонкого баланса между использованием данных для принятия решений и ответственной практикой. Результаты исследования могут представлять большой интерес для специалистов с точки зрения дальнейшего развития системы обязательного социального медицинского страхования в Республике Казахстан.

Ключевые слова: медицинское страхование, здравоохранение, ценообразование, аналитика данных.

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Медициналық сақтандыру экономикасын шарлау: Америка Құрама Штаттарындағы бағаны жақсартуға деректерге негізделген тәсіл

Аңдатпа. Бұл талдау Құрама Штаттардағы денсаулық сақтау шығыстарының динамикасы тақырыбын ашып, денсаулықтың орташа көрсеткіштерінде сәйкестік таппайтын едәуір қаржылық салымдарды ашады. 2021 жылы 4,3 триллион долларға жеткен, қартайған халық және қызмет бағасының өсуі сияқты факторлардан туындаған денсаулық сақтау шығындарымен ел өзінің қаржылық «денсаулығы» үшін сын-қатерлермен бетпе-бет келеді. Талдау қолданыстағы жүйенің күрделілігі мен мөлдірлігін сынай отырып және басқа дамыған елдерде тәсілдермен қатар жүргізе отырып, АҚШ-тағы медициналық сақтандыруға баға белгілеудің жіңішкелігін қозғайды. Жеке сектордағы пайдаға бағдарланған уәждерді сынау тұрғысында зерттеу халықаралық тәжірибені ескере отырып, әлеуетті реформаларды талқылауға итермелейді. Бұдан басқа, аталған жұмыс медициналық сақтандыруға баға белгілеудегі деректерді талдаудың трансформациялық әлеуетін зерттейді, оның әділеттілік пен бәсекеге қабілеттілікті арттырудағы рөлін атап көрсетеді. Алайда, құпиялылықты, деректердің қауіпсіздігін және ықтимал алғышарттарды қоса алғанда, этикалық пайымдаулар шешім қабылдау үшін деректерді пайдалану мен жауапты практика арасындағы нәзік теңгерім қажеттігін көрсетеді. Зерттеу нәтижелері Қазақстан Республикасындағы міндетті әлеуметтік медициналық сақтандыру жүйесін одан әрі дамыту тұрғысынан мамандар үшін үлкен қызығушылық тудыруы мүмкін.

Түйін сөздер: медициналық сақтандыру, денсаулық сақтау, баға белгілеу, деректерді талдау

References

1. Obermeyer, Z., & Emanuel, E. J. (2016). Predicting the future—big data, machine learning, and clinical medicine. New England Journal of Medicine, 375(13), pp. 1216-1219.

2. Mittelstadt, B. D., & Floridi, L. (2016). The ethics of big data: Current and foreseeable issues in biomedical contexts. Science and engineering ethics, 22(2), pp. 303-341. . Available at: https://www.researchgate.net/profile/Luciano-Floridi/publication/305813620_The_Ethics_of_Big_Data_Current_and_Foreseeable_Issues_in_Biomedical_Contexts/links/619104d6d7d1af224bea68f8/The-Ethics-of-Big-Data-Current-and-Foreseeable-Issues-in-Biomedical-Contexts.pdf /(accessed: 09.10.2023).

3. Keehan, S. P., Cuckler, G. A., Poisal, J. A., Wolfe, C. J., & Sisko, A. M. (2018). National health expenditure projections, 2017–26: despite uncertainty, fundamentals primarily drive spending growth. Health Affairs, 37(3), pp. 482-492 . . Available at: https://www.healthaffairs.org/doi/epdf/10.1377/hlthaff.2017.1655 / (accessed: 12.10.2023).

4. Tinasilov M.D., Urkumbaeva. A.R. Ehkonomika i finansirovaniya zdravoohraneniya. Uchebnoe posobie. Karaganda. Izdatelstvo “Acnur”- 2019 . Available at: URL:https://krmu.edu.kz/wp-content/uploads/2020/12/Ekonomika-i-finansirovaniya-zdravoohraneniya.pdf/ (accessed: 023.01.2024).

5. Keldibayeva Z., Keruenova Z. The role of digitalization of health in the system of mandatory social medical insurance of the Republic of Kazakhstan . Available at: https://cyberleninka.ru/article/n/the-role-of-digitalization-of-health-in-the-system-of-mandatory-social-medical-insurance-of-the-republic-of-kazakhstan?ysclid=lrr7inlb6z873073527/ (accessed: 23.01.2024).

6. John Hsu, Chia Yi Chin, Max Weiss, Michael Cohen, Jay Sastry, Nina Katz-Christy, John Bertko, and Joseph P. Newhouse Growth In ACA-Compliant Marketplace Enrollment And Spending Risk Changes During The COVID-19 Pandemic . Available at: https://www.healthaffairs.org/doi/abs/10.1377/hlthaff.2021.00501?journalCode=hlthaff / (accessed: 20.01.2024).

7. Raheja, K., Dubey, A., & Chawda, R. (2017). Data Analysis and its Importance in Health Care. International Journal of Computer Trends and Technology (IJCTT) – Volume 48 . Available at: http://ijcttjournal.org/2017/Volume48/number-4/IJCTT-V48P132.pdf.

8. Centers for Medicare & Medicaid Services. (2022). National Health Expenditure Data . Available at: https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data /(accessed: 20.01.2024).

9. Peter G. Peterson Foundation. (2023). Why are Americans paying more for healthcare? . Available at: https://www.pgpf.org/blog/2023/07/why-are-americans-paying-more-for-health care#:~:text=The%20complexity%20of%20the%20U.S.,the%20opportunity%20to%20increase%20 prices / (accessed: 10.10.2023).

10. Bureau of Labor Statistics, US Department of Labor. (2023). Consumer Price Index – September 2023 . Available at: https://www.bls.gov/news.release/pdf/cpi.pdf#:~:text=The%20Consumer%20Price%20Index%20for%20All%20Urban%20Consumers,items%20index%20increased%203.7%20percent%20before%20seasonal%20adjustment/(accessed: 19.01.2024).

11. The Organisation for Economic Co-operation and Development (OECD) (2023). OECD Health Statistics 2023. Available at: https://www.oecd.org/health/health-data.htm / (accessed: 10.11.2023).

12. Sommers, B., Mc Murthy, C., Blendon, R., Benson, J., Sayde, J. M. (2017). Beyond Health Insurance: Remaining Disparities in US Health Care in the Post-ACA Era. The Milbank Quarterly: A Multidisciplinary Journal of Population Health and Health Policy, vol. 95, issue 1, pp. 43-69 . Available at: https://doi.org/10.1111/1468-0009.12245 / (accessed: 11.12.2023).

13. Terry, N. P., & Francis, L. P. (2017). Ensuring the privacy and confidentiality of electronic health records. The Electronic Health Record, 2, pp. 227-254.

14. Rehman, A., Naz, S., & Razzak, I. (2021). Leveraging big data analytics in healthcare enhancement: trends, challenges and opportunities. Multimedia Systems, vol. 28, pp. 1339–1371 . Available at: https://doi.org/10.1007/s00530-020-00736-8 / (accessed: 09.11.2023).

15. Dyda, A., Purcell, M., Curtis, S., Field, E., Pillai, P., Ricardo, K., Weng, H., Moore, J. C., Hewett, M., Williams, G., & Lau, C. L. (2021). Differential privacy for public health data: An innovative tool to optimize information sharing while protecting data confidentiality. Cell Press . Available at: https://doi.org/10.1016/j.patter.2021.100366 /(accessed: 10.11.2023).

16. McGraw, D., & Goldberg, A. (2013). Privacy and public health at risk: public health and open government data. Journal of General Internal Medicine, 28(5), pp. 580-585.

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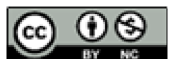

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