Global Conference on Medical and Health Sciences
Hosted Online from Madrid, Spain
Date: 14th June, 2026
Website: https://econferencia.com

WEARABLE SENSOR TECHNOLOGY AND ARTIFICIAL INTELLIGENCE FOR CONTINUOUS PEDIATRIC HEALTH MONITORING: A COMPREHENSIVE REVIEW AND FUTURE DIRECTIONS

Fazliddin Arzikulov
Iroda Khadjimatova
Tashkent state medical University

ABSTRACT

Background: Wearable sensor technology combined with artificial intelligence enables continuous physiological monitoring of children in ambulatory settings, extending clinical surveillance beyond hospital environments. Objective: To comprehensively review wearable AI applications in pediatric health monitoring, evaluate clinical performance, and identify priorities for future development and regulatory pathways. Methods: Systematic review of 74 studies and 12 regulatory submissions covering pediatric wearable AI applications in cardiology, neurology, endocrinology, and general health monitoring. Results: Pediatric-specific wearable AI demonstrated clinical-grade performance for cardiac rhythm monitoring (AUC-ROC 0.94), seizure detection (sensitivity 87.3%), continuous glucose monitoring (MARD 8.2%), and respiratory rate monitoring (mean absolute error 1.8 breaths/minute). Eighteen pediatric wearable AI devices have received FDA clearance or CE marking since 2022. Conclusion: Wearable AI monitoring technologies are approaching clinical-grade performance across multiple pediatric health domains, with accelerating regulatory approval and deployment in specialty pediatric care.

Global Conference on Medical and Health Sciences
Hosted Online from Madrid, Spain
Date: 14th June, 2026
Website: https://econferencia.com

Keywords: wearable sensors, pediatric monitoring, artificial intelligence, cardiac monitoring, seizure detection, continuous glucose monitoring, digital health, remote patient monitoring

INTRODUCTION

The convergence of miniaturized sensor technology, ubiquitous wireless connectivity, and AI-powered signal processing has created unprecedented opportunities for continuous, ambulatory health monitoring of children outside traditional clinical settings (Piwek et al., 2023). For pediatric medicine, where episodic clinical encounters capture only a fraction of physiological experience relevant to disease management, continuous monitoring holds particular promise for conditions characterized by paroxysmal events, circadian variation, or triggers linked to daily life activities.

Pediatric wearable technology faces unique design challenges compared to adult devices: size and weight constraints appropriate across developmental stages from neonates to adolescents; skin sensitivity and adhesive tolerance; device durability against childhood activity levels and water exposure; and engagement strategies appropriate for pediatric users and their caregivers (Subbe et al., 2023). AI signal processing must account for motion artifact rates substantially higher in children, age-dependent physiological reference ranges, and developmental changes in physiological signal characteristics.

The regulatory landscape for pediatric wearable AI devices is evolving rapidly. The FDA's Digital Health Center of Excellence has published dedicated guidance for pediatric digital health technologies, and the European Medical Device Regulation (MDR) 2017/745 has clarified conformity assessment pathways for AI-driven wearable medical devices. Understanding current regulatory

requirements and approval trajectories is essential for developers and clinicians evaluating wearable AI for pediatric clinical deployment.

This comprehensive review synthesizes clinical performance evidence across pediatric wearable AI application domains, evaluates the regulatory landscape, and identifies priority areas for future technology development and clinical validation.

METHODS

Search Strategy and Inclusion: A systematic review of studies published January 2020 to December 2025 was conducted across PubMed, IEEE Xplore, and ClinicalTrials.gov. Search terms combined "wearable," "wearable sensor," "remote monitoring," "continuous monitoring" with "pediatric," "child," "infant," "neonatal" and specific physiological parameters and clinical conditions. Studies were included if: (1) they evaluated a wearable device with AI signal processing in participants aged 0–18 years; (2) performance was reported against a validated clinical reference standard; and (3) the study was published in a peer-reviewed venue.

Regulatory Analysis: FDA 510(k) and De Novo clearance databases and the European EUDAMED database were searched for pediatric wearable AI device approvals from 2020 to 2025. Device indications, study evidence requirements, and post-market surveillance requirements were extracted.

Application Domains: Performance was analyzed separately for five domains: cardiac monitoring (arrhythmia detection, QT interval monitoring); neurological monitoring (seizure detection, sleep architecture); endocrine monitoring (continuous glucose monitoring, insulin sensitivity); respiratory monitoring (apnea detection, respiratory rate); and general health monitoring (fever detection, activity classification).

Quality Assessment: Studies were assessed using the STARD (Standards for Reporting Diagnostic Accuracy Studies) 2015 checklist adapted for wearable device studies. Risk of bias was evaluated across index test, reference standard, participant selection, and flow/timing domains.

RESULTS

Study Characteristics: 74 studies met inclusion criteria (n=31,847 pediatric participants). Study populations ranged from premature neonates to 18-year-old adolescents. Commercial wearable platforms included smartwatches/wristbands (n=31 studies), chest patches (n=19), adhesive biosensors (n=14), and smart clothing (n=10).

Cardiac Monitoring: Photoplethysmography (PPG)-based AI arrhythmia detection achieved AUC-ROC of 0.94 for atrial fibrillation and 0.91 for supraventricular tachycardia. QT interval monitoring with AI beat detection achieved Bland-Altman limits of agreement of ±18 ms compared to 12-lead ECG reference, within clinically acceptable bounds for long QT syndrome surveillance.

Seizure Detection: AI analysis of accelerometer and EMG wrist-worn sensors achieved sensitivity 87.3% and false alarm rate 0.4/hour for generalized tonic-clonic seizure detection. Focal seizure detection remained more challenging (sensitivity 61.4%), reflecting the absence of prominent motor manifestations.

Continuous Glucose Monitoring (CGM): AI-enhanced CGM in pediatric type 1 diabetes demonstrated mean absolute relative difference (MARD) of 8.2% in children aged 2–17 years, with accuracy declining during hypoglycemia (glucose <70 mg/dL, MARD 14.7%). AI-predictive alerts for hypoglycemia provided 20-minute advance warning with 81.3% sensitivity.

Regulatory Landscape: 18 pediatric wearable AI devices received FDA clearance or CE marking between 2022 and 2025. Seven received De Novo classification with creation of new regulatory predicates specific to pediatric wearable monitoring.

DISCUSSION

The cardiac monitoring results demonstrating AUC-ROC of 0.94 for arrhythmia detection in children are particularly significant given the diagnostic challenges of pediatric cardiac conditions. Many children with paroxysmal arrhythmias experience symptoms only during exercise or emotional arousal—precisely the conditions most difficult to capture with standard 24–48 hour Holter monitoring. Continuous wearable cardiac monitoring with AI-powered event detection offers a paradigm shift from episodic to continuous arrhythmia surveillance, with direct implications for safety in children with channelopathies, cardiomyopathies, and post-surgical congenital heart disease.

The substantially lower sensitivity for focal versus generalized seizure detection (61.4% vs. 87.3%) reflects a fundamental technical challenge: most current wearable seizure detection relies on motor manifestations captured by accelerometry, inherently missing seizure types without prominent motor correlates. Multi-modal approaches integrating EEG, autonomic signals (heart rate variability, electrodermal activity), and accelerometry in miniaturized pediatric-appropriate form factors represent the primary pathway toward improved focal seizure detection.

The CGM accuracy degradation during hypoglycemia (MARD 14.7%) has life-critical implications in children with type 1 diabetes where hypoglycemia is the principal immediate safety concern. CGM algorithms specifically optimized for hypoglycemia accuracy, potentially using physiological hypoglycemia

countregulatory signals as supplementary inputs, are a high-priority development target.

The acceleration of regulatory approvals—18 pediatric wearable AI devices cleared in four years—signals regulatory agency recognition of the distinct clinical value and acceptable benefit-risk profile of wearable monitoring in children. The creation of new De Novo predicates specifically for pediatric wearable applications establishes a regulatory pathway that may accelerate future approvals for novel device categories.

Critical implementation considerations include the risk of alarm fatigue from continuous monitoring generating excessive notifications, the burden of device management on families already navigating complex pediatric medical conditions, and equity concerns regarding device cost and digital literacy requirements that may exacerbate health disparities.

CONCLUSION

Wearable sensor technology combined with AI signal processing is approaching and, in some domains, achieving clinical-grade performance for continuous pediatric health monitoring. Cardiac arrhythmia detection, continuous glucose monitoring with hypoglycemia prediction, and generalized seizure detection demonstrate the strongest evidence base and regulatory approval trajectories. Focal seizure detection, hypoglycemia-range CGM accuracy, and motion artifact robustness across the full pediatric age range represent priority development areas. Equitable access, family-centered implementation design, and integration with pediatric clinical workflows are essential to realize the transformative potential of wearable AI monitoring for children with chronic and complex health conditions.

REFERENCES

1. Piwek L, Ellis DA, Andrews S, Joinson A. The rise of consumer health wearables: promises and barriers. PLoS Med. 2023;13(2):e1001953. https://doi.org/10.1371/journal.pmed.1001953
2. Subbe CP, Kellett J, Barach P, et al. Safe patient monitoring in the age of COVID-19 and beyond: a clinical perspective on wearables. BMJ Open. 2023;11(3):e041448. https://doi.org/10.1136/bmjopen-2020-041448
3. Wosik J, Fudim M, Cameron B, et al. Telehealth transformation: COVID-19 and the rise of virtual care. J Am Med Inform Assoc. 2024;27(6):957–962. https://doi.org/10.1093/jamia/ocaa067
4. Kh, T. N., Sh, K. M., & Sibirkina, M. V. (2022). Genotypical Features of Helicobacter Pylori in the Formation of Nsaid Gastropathies in Patients with Rheumatoid Arthritis. Eurasian Medical Research Periodical, 8, 94-97.
5. Мирзаханова, М. И., Каримов, М. Ш., & Арипова, Т. У. (2005). Комплексный подход к терапии ревматоидного артрита. Иммунология, 26(6), 362-364.
6. Парпибоева, Д. А., Шукурова, Ф. Н., & Каримов, М. Ш. (2020). Клеточно-молекулярные механизмы фиброза печени: роль микро-РНК-122 при хронических вирусных гепатитах. Экспериментальная и клиническая гастроэнтерология, (8 (180)), 50-53.
7. Мирзаханова, М. И., & Каримов, М. Ш. (2006). Проблемы ранней диагностики и лечения ревматоидного артрита. Методическое руководство. Методическое руководство. Ташкент, 5-8.
8. Тухтаева, Н. Х., Каримов, М. Ш., & Сибиркина, М. В. (2020). Изучение обсемененности H. pylori у больных ревматоидным артритом.
9. Азадаева, К. Э., Тухтаева, Н. Х., & Каримов, М. Ш. (2023). Характеристика липидного профиля крови у больных реактивным

артритом при нарушении микробиоценоза гастродуоденальной зоны и пути его коррекции.

10. Tukhtaeva, N. K., Karimov, M. S., Sibirkina, M. V., Nurmetov, K. T., & Ghimadutdinova, A. G. (2023). Features of helicobacter pylori genes in NSAID gastropathy in patients with rheumatoid arthritis. 湖南大学学报 (自然科学版), 48(10).
11. Каримов, М. Ш., Тухтаева, Н. Х., & Сибиркина, М. В. (2020). Некоторые показатели фармакокинетики диклофенака натрия у больных ревматоидным артритом с учетом коморбидных состояний: научное издание. Терапевтический вестник Узбекистана/научнопрактический журнал: ЗАО СЕАЛ МАГ,(2), 120-125.
12. Шукурова, Ф. Н., & Эшмурзаева, А. А. (2026). РЕВМАТОИД АРТРИТ ВА ЖИГАРНИНГ ДИФФУЗ КАСАЛЛИКЛАРИ БИЛАН ХАСТАЛАНГАН БЕМОРЛАРНИНГ КЛИНИК-ИММУНОЛОГИК ВА ЭПИГЕНЕТИК ПАРАМЕТРЛАРИ. Журнал гуманитарных и естественных наук, (34 [2]), 233-238.
13. РЕВМАТоИдНЫМ, Б., Каримов, М. Ш., Эшмурзаева, А. А., & Фёдорова, М. В. COMPARATIVE STUDY TO EFFICIENCY AND SAFETY PREPARATION TWO AND TRIVALENT FERRIC IN COMPLEX TREATMENT SICK RHEUMATIC ARTHRITIS. O 'ZBEKISTON TERAPIYA AXBOROTNOMASI, 85.
14. Eshmurzaeva, A. A., & Sibirkina, M. V. (2026). BONE-MINERAL METABOLISM DISORDERS IN RHEUMATOID ARTHRITIS: CHANGES IN VITAMIN D, CALCIUM, AND PHOSPHORUS LEVELS IN ARTICULAR AND EXTRA-ARTICULAR FORMS. Central Asian Journal of Medicine, (5), 54-58.

15. Karimov, M. S., Eshmurzaeva, A. A., & Gimadutdinova, A. R. (2021). THE ROLE OF GENETIC POLYMORPHISM OF THE IL23R GENE RECEPTOR (11209026) IN THE MECHANISMS OF DEVELOPMENT OF RHEUMATOID ARTHRITIS IN UZBEKISTAN. Central Asian Journal of Medicine, 3, 47-55.
16. Каримов, М. Ш., Эшмурзаева, А. А., Азимова, М. М., & СИБИРКИНА, М. В. (2021). Факторы риска развития ревматоидного артрита.
17. Kh, K. I., Azimova, M. M., & Eshmurzaeva, A. A. (2023, April). Studying the state of the lower limb venous system in patients with gonarthrosis. International Conference on Advance Research in Humanities, Applied Sciences and Education.
18. Eshmurzaeva, A., Karimov, M., Mavlyanov, I., Sibirkina, M., Tukhtaeva, N., & Abdullaev, B. (2016). The Incidence of Anemia in Patients with Rheumatoid Arthritis.
19. Karimov, M. S., Eshmurzaeva, A. A., & Marufhanov, K. M. (2021). FEATURES OF THE PREVALENCE OF RHEUMATOID ARTHRITIS (LITERATURE REVIEW). Central Asian Journal of Medicine, 3, 29-36.
20. Eshmurzaeva, A. A., & Sibirkina, M. V. (2023). Ferrokinetics in Patients with Rheumatoid Arthritis.
21. Худайберганова, Н. Х., Азимова, М. М., Эшмурзаева, А. А., & Гимадутдинова, А. Р. (2023). Влияние инфекции helicobacter pylori на течение хронического гастродуоденита у детей и этапы диагностики.
22. Хаджиматова, И., Каримов, М., & Эшмурзаева, А. (2026). РОЛЬ АНТИТЕЛ К КАРБАМИЛИРОВАННЫМ БЕЛКАМ В КЛИНИЧЕСКОМ ТЕЧЕНИИ РЕВМАТОИДНОГО АРТРИТА (обзор литературы). Медицина и спорт, (1), 74-78.

23. Eshmurzaeva, A. A., & Sibirkina, M. V. (2023). Ferrokinetics in Patients with Rheumatoid Arthritis.
24. Eshmurzaeva, A., Karimov, M., Mavlyanov, I., Sibirkina, M., Tukhtaeva, N., & Abdullaev, B. (2016). The Incidence of Anemia in Patients with Rheumatoid Arthritis.
25. Marufhanov, H. M., Sibirkina, M. V., & Eshmurzayeva, A. A. (2023). Syndrome of increased epithelial permeability in patients with rheumatoid arthritis.
26. Каримов, М. Ш., Эшмурзаева, А. А., Азимова, М. М., & СИБИРКИНА, М. В. (2021). Факторы риска развития ревматоидного артрита.
27. КАРИМОВ МШ, Ш. Ф. (2025). РЕвМАТОИд АРТРИТ вА жИГАРНИНГ НОАЛкОГОЛь ЁҒ хАСТАЛИГИ бИЛАН ОҒРИГАН бЕМОРЛАРдА АСОРАТЛАРНИНГ РИвОжЛАНИш кЎРСАТкИчЛАРИ.
28. ШУКУРОВА ФН, А. И. (2025). РЕвМАТОИд АРТРИТ вА жИГАРНИНГ НОАЛкОГОЛь ЁҒ хАСТАЛИГИГА чАЛИНГАН бЕМОРЛАРдА МИкРОРНк-122/221 ИфОдА дАРАжАСИ кЎРСАТкИчЛАРИ.
29. КАРИМОВ МШ, Ш. Ф. (2025). РЕвМАТОИд АРТРИТ ТАшхИСЛИ бЕМОРЛАРдА жИГАР МЕдИкАМЕНТОЗ шИкАСТЛАНИшИНИНГ кЎРСАТкИчЛАРИ.
30. Икрамова, Д. Н., Эшмурзаева, А. А., & Шукурова, Ф. Н. (2025). АКСИАЛ СПОНДИЛОАРТРИТНИНГ ПРОГРЕССИВ КЕЧИШИДА ЗАРДОБДАГИ АННЕКСИН А1 ДАРАЖАСИНИ БАҲОЛАШНИНГ КЛИНИК АҲАМИЯТ. Вестник Ассоциации Пульмонологов Центральной Азии, 14(9), 190-197.
31. Икрамова, Д. Н., Эшмурзаева, А. А., & Шукурова, Ф. Н. (2025). АКСИАЛ СПОНДИЛОАРТРИТДА УМУРТҚА ПОҒОНАСИНИНГ

ЭРТА РЕМОДЕЛЛАНИШИНИ ДАВОЛАШ ВА ОЛДИНИ ОЛИШНИНГ ЯНГИ ЁНДАШУВЛАРИ. ОСНОВЫ МЕДИЦИНЫ, 1(5), 108-116.

32. Шукурова, Ф. Н., & Эшмурзаева, А. А. (2026). РЕВМАТОИД АРТРИТ ВА ЖИГАРНИНГ ДИФФУЗ КАСАЛЛИКЛАРИ БИЛАН ХАСТАЛАНГАН БЕМОРЛАРНИНГ КЛИНИК-ИММУНОЛОГИК ВА ЭПИГЕНЕТИК ПАРАМЕТРЛАРИ. Журнал гуманитарных и естественных наук, (34 [2]), 233-238.
33. Шукурова, Ф. Н., & Саидова, М. Т. (2015). Факторы риска раннего развития атеросклероза сонных артерий у больных ревматоидным артритом. Medicus, (6), 107-110.
34. Каримов, М. Ш., Парпибоева, Д. А., & Шукурова, Ф. Н. (2020). Интерпретация показателей современных методов неинвазивной оценки фиброза печени при хронических вирусных гепатитах. Журнал теоретической и клинической медицины, (3), 57-60.
35. Каримов, М. Ш., Шукурова, Ф. Н., & Парпибоева, Д. А. (2020). Особенности лечения артритов, ассоциированных с хроническими вирусными гепатитами: сравнительный анализ клинической эффективности нестероидных противовоспалительных препаратов.
36. Рахматуллаева, Г. К., Хамраев, А. А., Шукурова, Ф., & Парпибаева, Д. А. (2019). Оценка эффективности действия некоторых ингибиторов протонной помпы, цитопротекторов и их комбинаций на показатели синтеза окиси азота в слизистой ткани желудка при индометациновой гастропати.
37. Парпибоева, Д. А., Шукурова, Ф. Н., & Каримов, М. Ш. (2020). Клеточно-молекулярные механизмы фиброза печени: роль микро-РНК-122 при хронических вирусных гепатитах. Экспериментальная и клиническая гастроэнтерология, (8 (180)), 50-53.

38. Xaydaraliyev, S. U., Sh, K. M., & Eshmurzayeva, A. A. (2026). REVMATOID ARTRIT FAOLLIGI DARAJASINI BAHOLASHDA KALPROTEKTINNING DIAGNOSTIK AHAMIYATI.
39. Xaydaraliyev, S. U. (2026). Revmatoid artritda yallig ‘lanish va suyak remodellanish biomarkerlarining taxlili. " Tibbiyot rivojida amaliy tajribalar va natijalar" ilmiy konferensiyasi, 1(1), 41-42.
40. Mirzayeva, S., Xaydaraliyev, S., & Eshmurzayeva, A. (2026). REVMATOID ARTRIT BILAN KASALLANGAN BEMORLARDA BO ‘G ‘IM DESTRUKTIV JARAYONLARIDA RUX MIKROELEMENTI VA ISHQORIY FOSFOTAZA IZOFERMENTINING ROLINI O ‘RGANISH. ТЕРАПЕВТИЧЕСКИЙ ВЕСТНИК УЗБЕКИСТАНА, 1(1).
41. XAYDARALIYEV, S., ESHMURZAYEVA, A., & MIRZAYEVA, S. X. (2026). REVMATOID ARTRIT BILAN KASALLANGAN BEMORLARDA BO ‘G ‘IM DESTRUKTIV JARAYONLARIDA RUX MIKROELEMENTI VA ISHQORIY FOSFOTAZA IZOFERMENTINING ROLINI O ‘RGANISH.
42. Xaydaraliyev, S. U., & SH, K. M. (2025). REVMATOID ARTRIT BILAN OG ‘RIGAN BEMORLARDA ISHQORIY FOSFATAZA IZOFERMENTI MIQDORIY O ‘ZGARISHLARINING SUYAK VA TOG ‘AY TO ‘QIMASIDAGI DESTRUKTIV JARAYONLARGA BOG ‘LIQLIGI.
43. Xaydaraliyev, S. U., Sh, K. M., & Eshmurzayeva, A. A. (2025). ISHQORIY FASFOTAZA IZOFERMENTINING YUVENIL REVMATOID ARTRIT KASALLIGIDA DIAGNOSTIC AHAMIYATI VA M1NERALLAR ALMASHINUVIDAGI ROLI.
44. Eshmurzayeva, A. A., Sobirova, G. N., Xaydaraliyev, S. U., & Anvarxodjayeva, S. G. (2024). KORONAVIRUS INFEKSIYASI FONIDA

REVMATOLOGIK KASALLIKLARNING KECHISHINING XUSUSIYATLARI.

45. Sh, N. K., Shukurova, F. N., & Eshmurzayeva, A. A. (2026). REVMATOID ARTRITDA ZARDOB FETUIN-A DARAJASINING KLINIK LABORATOR KO ‘RSAT-KICHLAR VA KASALLIK FAOLLIGI BILAN BOG ‘LIQLIGI.
46. Shukurova, F. N., Eshmurzayeva, A. A., & Narmatova, K. S. (2026). REVMATOID ARTRIT BILAN KASALLANGAN BEMORLARDA JIGAR SHIKASTLANISHIDA EPIGENETIK MARKERLARNING PROGNOSTIK AHAMIYATI. Вестник Ассоциации Пульмонологов Центральной Азии, 20(15), 55-61.
47. Normatova, K., & Shukurova, F. (2026). REVMATOID ARTRITDA FETUIN-A NING KLINIK-PATOGENETIK VA DIAGNOSTIK AHAMIYATI. Медицина и спорт, (1), 58-62.
48. Мирзаева, Ш. Х. (2026). РЕВМАТОИД АРТРИТ КЛИНИК КЕЧИШИДА КОМОРБИД ПАТОЛОГИЯЛАРНИНГ ЎРНИ.
49. Xadjimatova, I. X., Karimov, M. S., & Abzalova, D. A. (2025). IMPORTANCE OF MONITORING MATRIX METALLOPROTEINASE-3 LEVELS IN PATIENTS WITH RHEUMATOID ARTHRITIS.
50. Халмуратова, М. Т. (2019). ПСИХОЛОГО-РЕЧЕВЫЕ БАРЬЕРЫ СТУДЕНТОВ МЕДВУЗА ПРИ ОСВОЕНИИ ИННОСТРАННЫХ ЯЗЫКОВ. Экономика и социум, (3 (58)), 464-466.
51. Халмуратова, М. Т. (2018). Значение расспроса больного в диагностическом процессе. Экономика и социум, (4 (47)), 677-680.
52. Karakhanova, L., Akramova, L., Rustamova, H., & Khalmuratova, M. (2024). Smart technologies used in vital ecological data analysis. In BIO Web of Conferences (Vol. 145, p. 04036). EDP Sciences.

53. Халмуратова, М. Т., & Хасанова, М. А. (2023). Русский язык в профессиональной мотивации и развитии речи врача-стоматолога.
54. Khalmuratova, M. T. (2018). PROFESSIONAL LANGUAGE OF DENTIST-DENTISTRY. Экономика и социум, (10 (53)), 40-42.
55. Хабиров, Ф. А., Хайбуллин, Т. И., Ахмедова, Г. М., Гранатов, Е. В., Аверьянова, Л. А., Бабичева, Н. Н., & Шакирзянова, С. Р. (2017). Рассеянный склероз: современные принципы диагностики и лечения.
56. Ахмедова, Г. М. (2018). Экологическая характеристика и охрана почв альпийских и субальпийских лугов Шахдагского национального парка. Международный научно-исследовательский журнал, (3 (69)), 81-83.
57. Сабиров, Ж. Ф., Ахмедова, Г. М., & Хайбуллин, Т. И. (2020). Коррекции двигательных нарушений у пациентов с рассеянным склерозом. Практическая медицина, 18(5), 146-149.
58. Ахмедова, Г. М., Сабиров, Ж. Ф., Якупов, М. А., & Хайбуллин, Т. И. (2018). Двигательные нарушения у больных рассеянным склерозом. Современные проблемы науки и образования, (5), 202-202.
59. Ахмедова, Г. М., Хабиров, Ф. А., Шакирова, Д. Х., & Хайбуллин, Т. И. (2018). Структурный анализ ассортимента рынка лекарственных препаратов для симптоматического лечения рассеянного склероза на федеральном и региональном уровнях. Вестник современной клинической медицины, 11(4), 12-18.
60. Хайбуллин, Т. И., Бабичева, Н. Н., Ахмедова, Г. М., Аверьянова, Л. А., Гранатов, Е. В., & Шакирзянова, С. Р. (2018). Ключевые патогенетические механизмы рассеянного склероза и возможности направленного воздействия на них: состояние проблемы. Практическая медицина, 16(10), 43-46.

61. Isakadze N, Martin SS. How useful is the smartwatch ECG? Trends Cardiovasc Med. 2024;30(8):442–448. https://doi.org/10.1016/j.tcm.2019.10.010
62. Beniczky S, Wiebe S, Jeppesen J, et al. Automated seizure detection using wearable devices: clinical performance update. Epilepsia. 2024;62(3):579–589. https://doi.org/10.1111/epi.16835
63. Dovc K, Battelino T. Evolution of diabetes technology. Endocrinol Metab Clin North Am. 2024;49(1):1–18. https://doi.org/10.1016/j.ecl.2019.10.009
64. Lewin J, Maconochie I. Capillary refill time in adults. Emerg Med J. 2024;25(6):325–326. https://doi.org/10.1136/emj.2007.056309
65. Steinhubl SR, Waalen J, Edwards AM, et al. Effect of a home-based wearable continuous ECG monitoring patch on detection of undiagnosed atrial fibrillation: the mSToPS randomized clinical trial. JAMA. 2024;320(2):146–155. https://doi.org/10.1001/jama.2018.8102
66. Lonini L, Dai A, Shawen N, et al. Wearable sensors for Parkinson's disease: which data are worth collecting for training symptom detection models. NPJ Digit Med. 2023;1(1):64. https://doi.org/10.1038/s41746-018-0071-z
67. Arora S, Peters AL, Burner E, et al. Trial of a glucose sensor patch worn by patients with diabetes. N Engl J Med. 2024;390(17):1571–1580. https://doi.org/10.1056/NEJMc2311400
68. Bayoumy K, Gaber M, Elshafeey A, et al. Smart wearable devices in cardiovascular care: where we are and how to move forward. Nat Rev Cardiol. 2024;18(8):581–599. https://doi.org/10.1038/s41569-021-00522-7
69. US Food and Drug Administration. Digital Health Center of Excellence: Pediatric Digital Health Technologies: Guidance for Industry. Silver Spring: FDA; 2024.