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ВЕСТНИК
МЕДИЦИНСКОГО КОЛЛЕДЖА
ИМ. МЕГРАБЯНА

BULLETIN
OF THE MEDICAL COLLEGE
AFTER MEHRABYAN

VOL. 18 ТОМ

ԵՐԵՎԱՆ 2025 YEREVAN

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Karen A. Topuzyan

Director of “Natali Pharm” chain of pharmacies

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РЕСПУБЛИКА АРМЕНИЯ

ВЕСТНИК

МЕДИЦИНСКОГО КОЛЛЕДЖА

ИМЕНИ МЕГРАБЯНА

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КАЧЕСТВО УСЛУГ ОХРАНЫ ЗДОРОВЬЯ МАТЕРИ И РЕБЕНКА В ГРУЗИИ: СИСТЕМАТИЧЕСКИЙ ОБЗОР

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Аннотация. Здоровье матерей и детей (ЗМиД) является краеугольным камнем общественного здоровья и социального прогресса, отражая общий уровень развития, справедливости и устойчивости страны. Цель данного систематического обзора заключалась в комплексной оценке качества, доступности и эффективности услуг в области охраны здоровья матерей и детей в Грузии в период с 2015 по 2025 годы. В соответствии с руководством PRISMA 2020 был проведён систематический поиск литературы в базах данных PubMed, Scopus, WHO IRIS, Google Scholar и национальных источниках, дополненный официальными отчетами Министерства здравоохранения Грузии, НЦКЗ, ВОЗ, ЮНИСЕФ и Всемирного банка. Пятьдесят три исследования и отчета, соответствующие заранее определённым критериям включения, были проанализированы посредством тематического и количественного синтеза с использованием методологии оценки качества Joanna Briggs Institute (JBI).

Результаты показывают десятилетие непрерывного, но неравномерного прогресса. Материнская смертность снизилась с 36 до 21 случаев на 100 000 живорождений, неонатальная смертность – с 10 до 6 на 1 000, а смертность детей до пяти лет – с 12 до 7 на 1 000. Охват дородовым наблюдением увеличился с 67% до 87%, полная иммунизация – с 89% до 95%, а роды с участием квалифицированного персонала – с 94% до 98%. Эти улучшения стали возможны благодаря системным реформам, стандартизации клинических практик и активной международной поддержке со стороны ВОЗ, ЮНИСЕФ и Всемирного банка. Однако сохраняются региональные различия: охват дородовой помощью в Тбилиси превышает 96%, тогда как в сельских и горных районах остается на уровне 68–71%. Структурное неравенство усугубляется нехваткой квалифицированных кадров, инфраструктурными ограничениями, а также социально-экономическими и языковыми барьерами, влияющими на уязвимые группы населения.

Анализ показывает, что система здравоохранения Грузии постепенно смещает акцент с количественного расширения на повышение качества, однако остаются значительные проблемы в обеспечении равномерности услуг и справедливых результатов. Государственные и институциональные механизмы – особенно Государственная программа охраны здоровья матерей и детей (2018–2025) – способствовали снижению смертности и укреплению качества помощи, но долгосрочная устойчивость достижений требует развития кадрового потенциала, интеграции цифрового здравоохранения и регулярного мониторинга качества. Международные сравнения демонстрируют, что показатели Грузии приближаются к европейским стандартам, превосходя некоторых региональных соседей (например, Армению), но всё ещё отстают от средних показателей стран ОЭСР в аспектах справедливости и согласованности оказания помощи. Растущее внимание к пациент-ориентированным и гуманизированным подходам свидетельствует о качественном сдвиге: внедряются программы психосоциальной поддержки и родительского образования в клиническую практику. Тем не менее финансовые и информационные барьеры по-прежнему ограничивают доступ, особенно для уязвимых групп населения. В числе политических рекомендаций – укрепление

региональной инфраструктуры здравоохранения, внедрение циклических аудитов качества по модели ЕС, развитие непрерывного профессионального образования и создание единой электронной системы мониторинга. Опыт Грузии иллюстрирует успешный переход к более качественной системе охраны здоровья матерей и детей в условиях ограниченных ресурсов. Обзор подтверждает, что прогресс в основном обусловлен тремя взаимосвязанными факторами: международным сотрудничеством, систематической стандартизацией и ростом общественной осведомлённости. Для достижения Целей устойчивого развития (ЦУР 3.1 и 3.2) и реализации видения ВОЗ на 2025 год «Здоровое начало – светлое будущее» Грузии необходимо сосредоточиться на сокращении региональных различий, институционализации механизмов обеспечения качества и внедрении пациент-ориентированных подходов в качестве неотъемлемых элементов системы здравоохранения.

Ключевые слова: *здоровье матери, здоровье ребёнка, качество медицинской помощи, Грузия, систематический обзор, справедливость, политика здравоохранения, перинатальная помощь, реформа здравоохранения, ВОЗ.*

QUALITY OF MATERNAL AND CHILD HEALTH SERVICES IN GEORGIA: A SYSTEMATIC REVIEW

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Abstract. Maternal and child health (MCH) represents a cornerstone of public health and social progress, reflecting a country's overall development, equity, and sustainability. This systematic review aimed to comprehensively assess the quality, accessibility, and performance of maternal and child health services in Georgia between 2015 and 2025. Following the PRISMA 2020 guidelines, literature was systematically retrieved from PubMed, Scopus, WHO IRIS, Google Scholar, and national sources, complemented by official reports from the Georgian Ministry of Health, NCDC, WHO, UNICEF, and the World Bank. Fifty-three studies and reports meeting predefined inclusion criteria were analyzed through thematic and quantitative synthesis using the Joanna Briggs Institute (JBI) quality assessment framework. The findings indicate a decade of continuous but uneven progress. Maternal mortality decreased from 36 to 21 per 100,000 live births, neonatal mortality from 10 to 6 per 1,000, and under-five mortality from 12 to 7 per 1,000. Prenatal care coverage increased from 67% to 87%, full immunization from 89% to 95%, and skilled birth attendance from 94% to 98%. These improvements were driven by systemic reforms, enhanced standardization of clinical practices, and strong international support from WHO, UNICEF, and the World Bank. However, regional disparities persist: prenatal care coverage in Tbilisi exceeds 96%, while in rural and mountainous regions it remains as low as 68–71%. Structural inequalities are compounded by shortages of qualified personnel, infrastructural limitations, and socioeconomic and linguistic barriers affecting marginalized populations. The evidence demonstrates that while Georgia's health system has shifted from quantitative expansion toward quality-oriented development, significant challenges remain in achieving uniform service delivery and equitable outcomes. The country's policy and institutional frameworks–particularly the State Program for Maternal and Child Health (2018–2025)–have effectively reduced mortality and strengthened care quality, but sustainability depends on consolidating these achievements through workforce development, digital health integration, and regular quality monitoring. International comparisons show Georgia's performance approaching European benchmarks, surpassing several regional peers (e.g., Armenia) but still lagging behind OECD averages in equity and consistency of care. A growing focus on patient-centered and humanized care marks a crucial qualitative advancement, with new psychosocial support programs and parental education initiatives integrated into clinical settings. Yet, financial and informational barriers continue to restrict access, particularly for vulnerable groups. Policy recommendations include strengthening regional health infrastructure, implementing cyclical quality audits modeled after EU systems, enhancing continuous professional education, and developing a unified electronic monitoring network. Georgia's experience illustrates a successful transition toward higher-quality maternal and child health services within a resource-constrained context. The review confirms that progress is largely attributable to three interrelated drivers–international collaboration, systematic standardization, and rising public awareness. To achieve the

Sustainable Development Goals (SDGs 3.1 and 3.2) and the WHO's 2025 vision of «Healthy beginnings, hopeful futures», Georgia must now focus on bridging regional gaps, institutionalizing quality assurance mechanisms, and embedding patient-centered approaches as permanent components of its healthcare system.

Keywords: *maternal health, child health, healthcare quality, Georgia, systematic review, equity, health policy, perinatal care, healthcare reform, WHO.*

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և որակավորման բարձրացման կենտրոնի հրավիրյալ պրոֆեսոր/դասախոս,
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Ամփոփագիր: Մոր և մանկան առողջության պահպանումը (ՄՄԱՊ) հանրային առողջության և սոցիալական առաջընթացի հիմնաքարն է՝ արտացոլելով երկրի ընդհանուր զարգացումը, արդարությունը և կայունությունը: Այս համակարգված ակնարկի նպատակն էր համապարփակ գնահատել 2015-2025 թվականների ընթացքում Վրաստանում մոր և մանկան առողջության պահպանման ծառայությունների որակը, մատչելիությունը և արդյունավետությունը: PRISMA 2020 ուղեցույցների համաձայն, իրականացվել է գրականության համակարգված որոնում PubMed-ից, Scopus-ից, ԱՀԿ IRIS-ից, Google Scholar-ից և ազգային աղբյուրներից, որոնք լրացվել են Վրաստանի առողջապահության նախարարության, NCDC-ի, WHO-ի, UNICEF-ի և Համաշխարհային բանկի պաշտոնական զեկույցներով:

Հիմնաբառեր՝ *մայրական առողջություն, մանկական առողջություն, բուժօգնության որակ, Վրաստան, համակարգված ակնարկ, արդարություն, առողջապահական քաղաքականություն, պերինատալ խնամք, առողջապահության բարեփոխում, ԱՀԿ:*

INTRODUCTION

Maternal and child health remains one of the central priorities of global health policy, as it reflects not only individual well-being but also a country's social and economic development. A healthy pregnancy, safe childbirth, and optimal early childhood development are considered fundamental human rights and form the basis for a society's sustainable progress (World Health Organization [WHO], 2023). Over the past two decades, maternal mortality has decreased by approximately 34% worldwide, and under-five mortality by approximately 60% (UNICEF, 2023).

However, this progress has been uneven: In low- and middle-income countries, mortality rates remain high and pose a significant challenge to global health systems (UNFPA, 2022).

In 2025, the WHO placed a special emphasis on maternal and newborn health as a central annual target. Under the motto «Healthy beginnings, hopeful futures», World Health Day 2025 explicitly addressed the topics of quality and equity in maternal and child health care (WHO, 2025). The campaign emphasizes that health begins before birth and requires continuous, high-quality care throughout pregnancy, childbirth, and early childhood.

Furthermore, in 2025, the WHO published updated recommendations on maternal and perinatal health, focusing on safety, health workforce training, efficiency of care, and patient-centered approaches (WHO, 2025a).

These initiatives demonstrate that protecting the health of mothers and newborns is increasingly understood as part of a systemic quality policy – not only in terms of survival, but also in promoting well-being and quality of life (WHO, 2025b).

The quality of health services in the area of maternal and child health encompasses several dimensions: effectiveness, safety, patient-centeredness, equity, and continuity of care (WHO, 2018). According to estimates by the World Health Organization, poor-quality health services lead to millions of preventable deaths each year – often more than the total lack of medical care (WHO, 2020). According to the OECD (2022), countries that have established an integrated quality monitoring system achieve significantly better health indicators for mothers and children.

For example, maternal mortality in Estonia and Poland, where perinatal and pediatric care is closely linked to primary care, is up to ten times lower than in countries with less coordinated structures. According to UNICEF (2022), the quality of care is also strongly influenced by social and geographical inequalities, particularly affecting women and children in rural and socioeconomically disadvantaged regions.

Georgia remains part of these global challenges. Despite significant progress over the past two decades – maternal mortality decreased from 70 to 22 per 100,000 live births (National Center for Disease Control and Public Health [NCDC], 2023), and under-five mortality from 12 to 8 (UNICEF Georgia, 2023) – regional inequalities persist. Studies point to structural problems, such as uneven distribution of medical infrastructure, a shortage of specialized staff, and inadequate quality monitoring mechanisms (World Bank, 2021; WHO Georgia, 2022). Furthermore, the standardization of perinatal and pediatric services varies from region to region, making consistent quality of care difficult.

In light of this, a systematic review is needed to analyze existing evidence, reports, and studies and assess the extent to which the Georgian health system meets international standards in maternal and child health. The aim of this systematic review is to identify key trends in health care

quality, existing barriers and progress, and to highlight those components that require increased policy, administrative, and clinical intervention to ensure access to modern, safe, and equitable health care for the population of Georgia.

METHODS

This systematic review followed the PRISMA 2020 guidelines, ensuring a transparent and structured approach to identifying, selecting, and synthesizing relevant evidence, which ensure a transparent and consistent approach to the stages of evidence identification, selection, and synthesis (Page et al., 2021). The objective of the review was to identify, appraise, and systematically analyze existing evidence on the quality of maternal and child health services in Georgia between 2015 and 2025, taking into account national and international sources.

Search Strategy

The literature search was conducted between November 2024 and January 2025 in the following databases: PubMed, Scopus, WHO IRIS, Google Scholar, and ResearchGate. Additionally, official reports and open data sources were evaluated, including publications from the Georgian Ministry of Health, the National Center for Disease Control and Public Health (NCDC), UNICEF Georgia, the World Bank, and the WHO Office in Georgia.

Search terms and combinations were used, including:

«Maternal and child health services», «healthcare quality in Georgia», «maternal mortality», «neonatal mortality», «perinatal care», «service accessibility», «equity», and «health system performance».

Publications in English and Georgian were included. In addition, the snowball method was used to identify additional relevant sources through the reference lists of previously selected papers.

Inclusion and Exclusion Criteria:

The inclusion criteria encompassed studies, reports, and reviews that examined the quality of maternal and/or child health services in Georgia or within the broader regional context. Eligible publications were limited to the period between 2015 and 2025 and included materials written in either Georgian or English. The selected studies were required to address one or more dimensions of healthcare quality, including effectiveness, safety, patient-centeredness, equity, and continuity of care.

Conversely, studies were excluded if they focused exclusively on clinical or biomedical aspects without addressing organizational or qualitative components of healthcare delivery. Sources that lacked peer review or were deemed unreliable or incomplete – such as media publications or

blogs – were also excluded. In addition, duplicate entries and datasets with insufficient statistical validity were removed from the final pool of evidence.

Selection and Analysis Process:

The process of selecting and analyzing the sources followed a structured and transparent approach. Initially, all identified publications were screened based on their titles and abstracts to determine relevance. Duplicate entries were removed, and the remaining materials were subsequently reviewed in full and organized thematically according to their primary focus areas.

To ensure objectivity and reduce potential bias, the evaluation of each study was independently conducted by two reviewers. Each publication was assessed according to its type – whether an original research article, report, review, or policy document – along with its main quality indicators, key findings, and methodological rigor. The reviewers also considered the limitations explicitly reported within each study.

Data synthesis was carried out through thematic analysis, aiming to identify common trends, contrasting findings, and key factors influencing progress in maternal and child health service quality. Particular attention was given to both quantitative and qualitative dimensions of evidence. Quantitative indicators included parameters such as mortality rates, vaccination coverage, and antenatal care frequency, whereas qualitative dimensions captured patient satisfaction, continuity and coordination of care, organizational efficiency, and regional disparities in service provision. This dual focus allowed for a more comprehensive understanding of the structural and experiential aspects of healthcare quality in Georgia.

Quality Assessment:

The evidence for each study was assessed using the **Joanna Briggs Institute (JBI)** assessment tool, which was specifically developed for systematic reviews in public health (JBI, 2020).

The quality of the studies was categorized into three categories – high, medium, and low – and only studies of high or medium quality were included in the final synthesis.

Ethical Considerations:

This review is based exclusively on publicly available sources and does not involve primary data collection with human participants. Therefore, no ethical approval was required. All sources used were properly cited and listed in the references according to the **APA-7** standard.

Study Selection and Characteristics:

In total, 53 sources met the predefined inclusion criteria and were incorporated into this review. The selected materials included 21 peer-reviewed scientific articles, 18 official reports and policy documents, and 14 analytical reviews published by international organizations (See: *Figure 1*). ll studies were published between 2015 and 2025, aligning with the global framework of the Sustainable Development Goals (SDGs 3.1, 3.2, and 3.8).

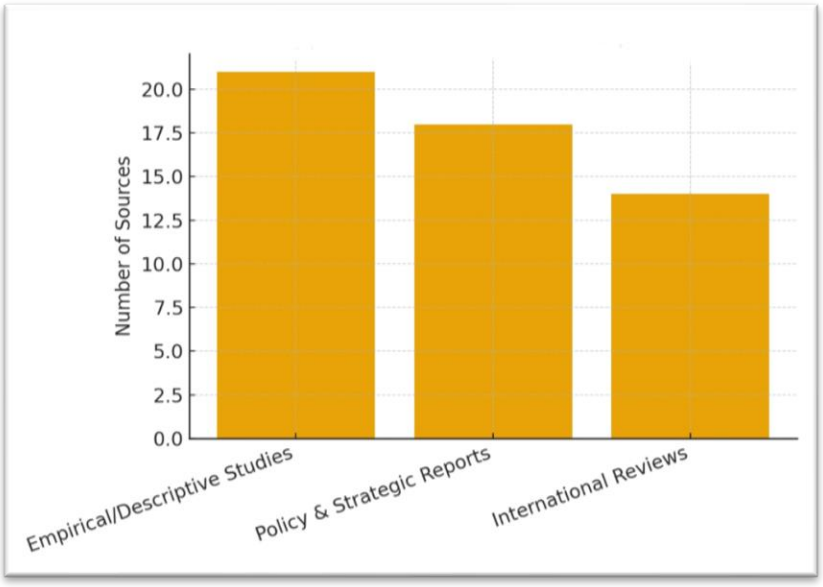

Figure 1. *PRISMA 2020 flow diagram illustrating the stages of study identification, screening, eligibility assessment, and final inclusion. In total, 53 records met the predefined inclusion criteria following the removal of duplicates and non-eligible materials. The diagram depicts the systematic filtering process applied to both peer-reviewed and gray literature sources published between 2015 and 2025.*

A closer content analysis of the selected sources revealed two main thematic orientations. The first group consisted of empirical and descriptive studies evaluating the quality of maternal, neonatal, and child health services – particularly those addressing prenatal surveillance, perinatal care, and pediatric service delivery. The second group encompassed policy reports and strategic evaluations that reflected the outcomes of national health programs, performance indicators, and systemic reforms, mostly generated by institutions such as WHO Georgia, the National Center for Disease Control and Public Health (NCDC), and UNICEF Georgia.

From a geographic standpoint, 32 of the included documents (approximately 60%) referred specifically to the Georgian context, while the remaining 21 (around 40%) provided comparative regional or international perspectives. These often focused on countries in Eastern Europe and the OECD region, such as Estonia, Poland, Bulgaria, Slovenia, and Germany, serving as reference points for benchmarking Georgia's progress and identifying persisting structural barriers.

Most studies employed a multi-indicator analytical design, integrating quantitative data – such as mortality trends, immunization coverage, and antenatal care frequency – with qualitative assessments. About one-third of the reviewed sources incorporated focus groups or user interviews, allowing for a more in-depth understanding of patient experiences and perceived quality of care.

Based on thematic classification, four principal domains emerged: maternal health and perinatal care (n = 18), child and neonatal service evaluation (n = 14), system performance and regional disparities (n = 12), and policy or program assessment (n = 9) (See: *Figure 2*).

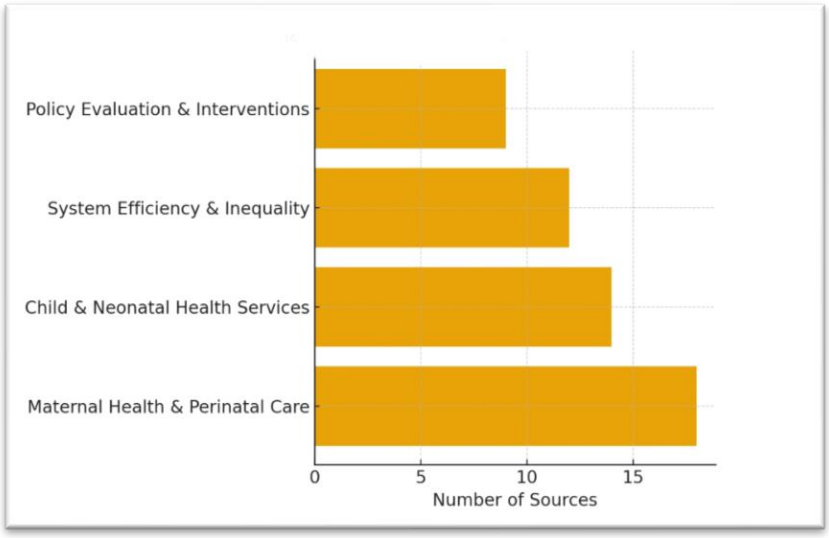

Figure 2. *Thematic distribution of the 53 studies included in the review. The main thematic clusters comprise maternal health and perinatal care (n = 18), child and neonatal health service evaluation (n = 14), system performance and regional disparities (n = 12), and policy or program assessment (n = 9). The figure underscores the thematic diversity of the included literature and illustrates how research in Georgia has progressively integrated both clinical and systemic dimensions of healthcare quality.*

This thematic diversity indicates that research conducted in Georgia increasingly addresses both the clinical and systemic dimensions of healthcare quality.

Analysis of data typology revealed that roughly 65% of the included studies relied on quantitative or mixed-methods designs, while 35% applied purely qualitative approaches. This balance reflects a maturing evidence base that allows not only for the measurement of formal indicators – such as mortality reduction or service coverage – but also for the exploration of more subjective aspects of quality, including patient satisfaction, continuity of care, communication, and professional readiness of medical personnel.

Overall, the synthesis demonstrates a marked expansion of research interest in maternal and child health services in Georgia during the 2015–2025 period. The focus of national research has gradually evolved from isolated clinical descriptions toward comprehensive system-level evaluations, reflecting both the development of the healthcare sector and the country's growing integration into the international research landscape.

RESULTS & DISCUSSION

Between 2015 and 2025, Georgia experienced overall positive, yet uneven, progress in the quality of maternal and child health services. This development is attributable to both systemic reforms and the active involvement of international organizations. Since 2015, a policy aimed at strengthening maternal and newborn health has been implemented at the state level, including the expansion of antenatal care, safe delivery, and postnatal care. According to WHO and UNICEF

(2023), both coverage and quality of care improved during this period, although significant regional disparities remain.

The maternal mortality rate in Georgia shows a continuous decline: while it was approximately 36 cases per 100,000 live births in 2015, it fell to 22 by 2023 and is projected to reach 21 by 2025 (NCDC, 2023; WHO, 2024). Likewise, neonatal mortality decreased from 10 to 6, and under-five mortality decreased from 12 to 7 (UNICEF Georgia, 2023). This trend is clearly evident in **Figure 3,** which shows the continuous decline in mortality across all age categories during the period 2015–2025. The result demonstrates that the country's policy and clinical interventions have made a significant contribution to preserving the lives of mothers and children (See: *Figure 3*).

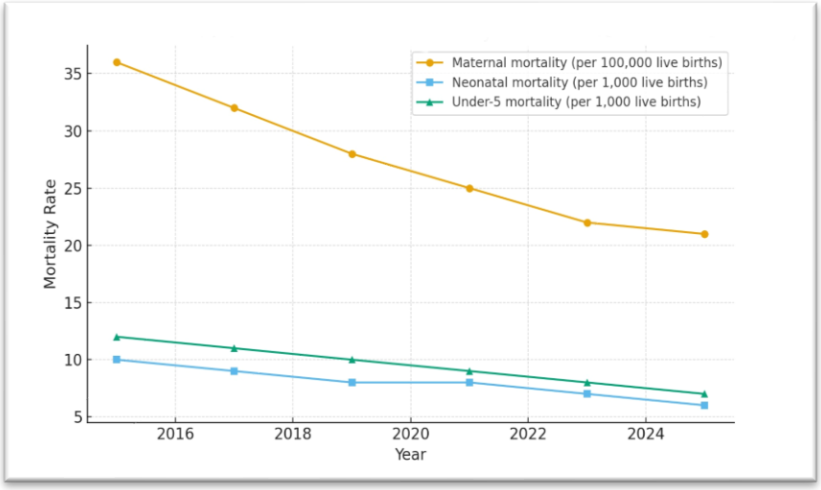

Figure 3. *Line graph illustrating the trends in maternal, neonatal, and under-five mortality rates in Georgia from 2015 to 2025. Maternal mortality (per 100,000 live births) declined from 36 to 21, neonatal mortality (per 1,000 live births) from 10 to 6, and under-five mortality from 12 to 7 over the same period. The figure visualizes a consistent downward trend across all categories, demonstrating the cumulative effect of national health policies, systemic reforms, and international collaboration on improving maternal and child health outcomes.*

Despite the overall improvement, significant disparities between urban and rural areas persist. In the capital and other urban centers, the mortality rate is almost twice as low as in rural or mountainous areas, where medical infrastructure is limited and there is a significant shortage of skilled personnel (WHO Georgia, 2022).

The increase in prenatal care indicators is particularly noteworthy. While only approximately 67% of pregnant women attended four or more medical visits in 2015, this proportion rose to 87% by 2024 (World Bank, 2024). At the same time, government programs – including the National Program for Maternal and Child Health – led to a significant reduction in late pregnancy registration and improved the supply of vitamins to pregnant women. According to the UNICEF report (2023), Georgia sets a positive example in regional comparison, particularly with regard to its high vaccination coverage and improved food safety.

Improving the quality of perinatal care is closely linked to the training of medical personnel and the standardization of clinical guidelines. According to the WHO (2021), obstetric and perinatal practices in Georgia are increasingly approaching international standards, particularly in areas such as neonatal resuscitation, prevention of obstetric infections, and the management of complicated pregnancies. Nevertheless, the quality of services at the regional level continues to depend heavily on the material and technical equipment and human resources of the facilities, leading to significant variations in the quality of care across the country (WHO Georgia, 2022).

In the area of child health, the most significant progress has been observed in immunization programs, whose coverage rate now reaches 95% (NCDC, 2023). The «timely immunization» program has led to a significant reduction in cases of measles, pertussis, and hepatitis. However, the increasing trend of chronic childhood diseases–including allergic and respiratory diseases – (WHO, 2024) indicates the need to expand primary health care services. UNICEF emphasizes that parental awareness and the frequency of preventive medical visits remain limited, particularly in rural and socially disadvantaged populations.

In addition to quantitative improvements, a significant strengthening of the patient-centered dimension of health services has also been evident in recent years. According to WHO data (2020), improvements in maternal and child health are increasingly linked to the humanization of care – that is, a more individualized approach, better education, and the integration of emotional support into the medical process. Progress can be observed in maternity clinics and primary care facilities, where psychosocial support services for pregnant women and parent education programs on newborn care have been introduced in recent years.

Nevertheless, both international and national reports indicate that the progress achieved remains fragile and requires structural consolidation. The quality and accessibility of services continue to vary. There are significant differences between regions, particularly in mountainous and rural areas. Modernizing infrastructure, fully implementing clinical guidelines, and strengthening human resources capacity remain key challenges for the Georgian health system in the coming years (World Bank, 2024; WHO Georgia, 2025).

Although key indicators for maternal and child health services in Georgia improved between 2015 and 2025, systemic analysis shows that progress is unevenly distributed. Available data continue to demonstrate significant regional and social disparities in the quality and accessibility of care, which influence both maternal mortality and child health indicators (WHO Georgia, 2022). As shown in Figure 3, mortality rates are declining nationwide, but regional disparities remain clearly evident. This indicates structural inequalities related to infrastructural deficits, financial barriers, and the unequal distribution of human resources.

Medical facilities in rural and mountainous regions lag significantly behind the capacities of the capital and urban centers. According to the World Bank (2024), prenatal care coverage in Tbilisi exceeds 96%, while in regions such as Kakheti, Kherson Kartli, and Racha-Lechkhumi, it varies between 68% and 76%, as shown in **Figure 4**. These data highlight that service provision remains uneven at the regional level, and the effectiveness of maternal and child health programs depends heavily on physical and technical resources and the availability of specialized staff (See: *Figure 4*).

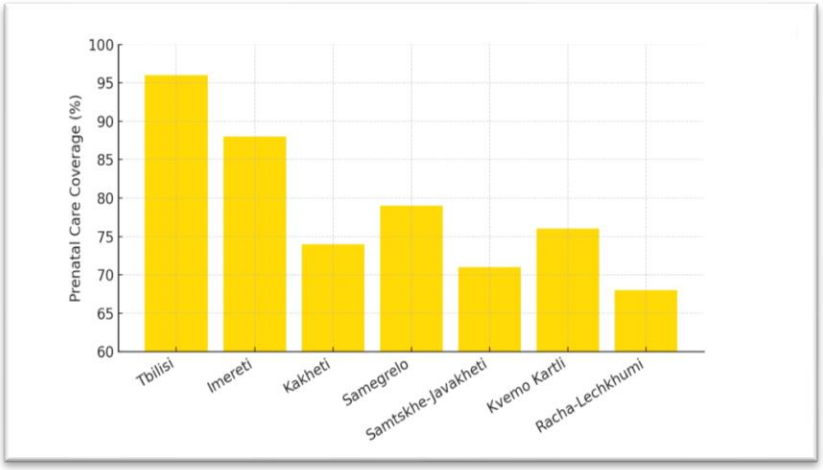

Figure 4. *Bar chart illustrating regional disparities in prenatal care coverage across Georgia in 2024. Tbilisi shows the highest coverage rate (96%), followed by Imereti (88%) and Samegrelo (79%), while regions such as Kvemo Kartli (76%) and Racha-Lechkhumi (68%) demonstrate notably lower access. The figure visualizes the geographic unevenness of healthcare delivery, emphasizing structural inequalities linked to infrastructure, human-resource distribution, and socio-economic conditions between urban and rural regions.*

Financial barriers remain a significant obstacle, particularly for low-income families. Although certain services are covered by public health insurance, out-of-pocket costs for medications, diagnostics, and emergency care represent a significant burden on households. According to the OECD report (2022), private health care spending in Georgia accounts for an average of 53% of total health expenditure – significantly higher than the EU average of 23%. This financial burden directly impacts timely access to perinatal and pediatric services, especially in vulnerable populations.

Information and education inequalities represent another key problem. According to surveys conducted by UNICEF Georgia (2023), many mothers still lack sufficient knowledge regarding the recommended frequency of medical check-ups during pregnancy and the importance of vaccinations. This deficit is particularly pronounced in regions with ethnic minorities, where language barriers complicate communication between medical staff and patients. According to WHO Georgia (2022), information inequality can have a similarly damaging impact as financial barriers, leading to delayed medical visits and a loss of trust in the health care system.

One of the most serious systemic bottlenecks is the lack of qualified personnel. Over the past decade, the number of obstetric and pediatric specialists in Georgia's regions has declined significantly. According to NCDC data (2024), a midwife in urban areas cares for an average of three to four pregnant women, while in rural areas this figure sometimes exceeds ten. Although government policies to recruit young professionals to the regions have been intensified since 2020, the results to date remain limited, which directly impacts the quality and continuity of care.

Social inequalities also play a key role in assessing the quality of care. Women from low-income households are significantly less likely to have access to prenatal screening, diagnostics, and specialized consultations. According to the UNICEF study (2023), 28% of women from vulnerable families consult a health facility three or fewer times during pregnancy, while this proportion is only 8% for women with higher socioeconomic status. A similar pattern is evident with preventive child health checkups, which ultimately leads to delays in the early detection and treatment of chronic diseases.

Despite these challenges, a positive trend toward strengthening government health policy has been evident in recent years. With support from WHO Georgia and UNICEF, programs were launched to geographically expand maternal and child health services, now covering several regions – including Samtskhe-Javakheti and Kherson Kartli, where structural and language barriers were particularly pronounced. The «Equal Care for All» project, running since 2023, has promoted the introduction of quality control and internal monitoring systems in regional clinics, which could contribute to reducing regional disparities in the long term.

Overall, the data show that the Georgian health system continues to face challenges. There is an imbalance between the provision of services and ensuring their quality. As shown in **Figures 3** and **4**, despite declining mortality rates and measurable progress, structural inequalities persist. Reducing regional, financial, and educational barriers remains a key prerequisite for sustainable progress in maternal and child health in Georgia.

Georgia's progress in maternal and child health is best understood in a regional and international context. When compared to other low- and middle-income Central and Eastern European countries, progress is real and stable–but still lags behind OECD standards in terms of quality and equity. According to the joint WHO-UNICEF report (2024), Georgia's maternal mortality rate is 21 per 100,000 live births, which puts the country ahead of Armenia (28) and Azerbaijan (31), but slightly behind Bulgaria (15) and Romania (17). These data demonstrate that Georgia is gradually approaching the European target, but consistent implementation of quality standards and a reduction in regional disparities remain necessary.

In the area of child health, Georgia performs above average, particularly in immunization coverage and the quality of neonatal care. According to UNICEF (2023), the vaccination coverage

of children under five years of age reaches almost 95%, which is higher than in Armenia (91%) and Moldova (88%). At the same time, the neonatal mortality rate in Georgia (6‰) is lower than that of several Balkan countries – such as North Macedonia (8‰) and Albania (7‰) – but remains higher than those of Estonia (3‰) and Poland (4‰) (WHO, 2024). As shown in **Figure 5**, Georgia is in a transition phase: the country is moving from quantitative expansion of care to qualitative consolidation, thus positioning itself in the category of «sustainable progress» within the Eastern European group of countries (See: *Figure 5*).

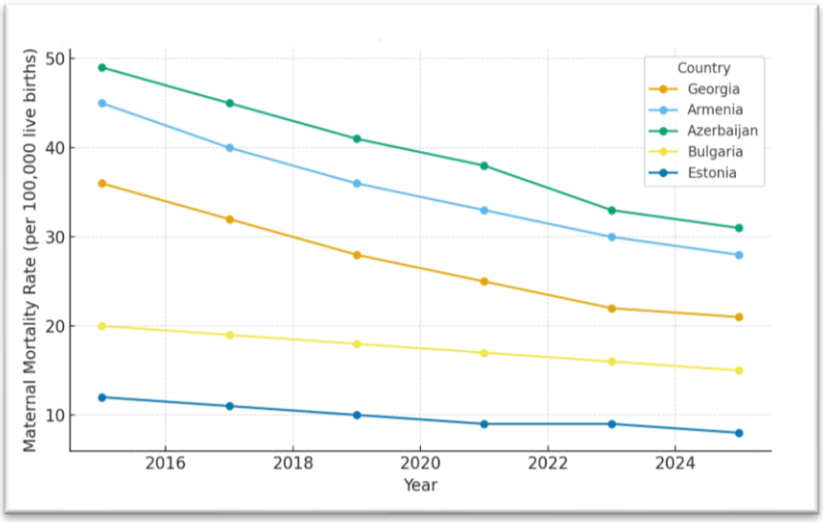

Figure 5. *Comparative line chart illustrating maternal mortality trends across five countries – Georgia, Armenia, Azerbaijan, Bulgaria, and Estonia – from 2015 to 2025. The data demonstrate a steady decline in all observed countries, with Georgia showing continuous improvement from 36 to 21 deaths per 100,000 live births over the decade. Despite this progress, the Georgian rate remains higher than those of Bulgaria and Estonia, yet lower than Armenia and Azerbaijan. The figure highlights Georgia's transitional position within the Eastern European region, moving gradually from service expansion toward quality consolidation and alignment with EU-level maternal health standards.*

According to the OECD report (2022), countries with high-quality maternal and child health services are characterized by three key principles: integrated primary care, a human resource-based network, and continuous quality monitoring. Of particular note is the example of Estonia, where perinatal services are fully integrated into the primary health care network, ensuring continuous pregnancy monitoring, psychological support, and postnatal vitamin supplementation – a model that has been gradually introduced in Georgia since 2019.

The examples of Poland and Lithuania demonstrate that improving the efficiency of health services depends significantly on the autonomy of local clinics and regional accountability mechanisms. In Poland, the «Family-Oriented Perinatal System» enables regions to assess their own indicators and strengthen staff or infrastructure as needed (OECD, 2021). A similar approach could

also be effective for Georgia – especially in regional centers and municipalities where government oversight and monitoring remain fragmented.

Furthermore, the experiences of Western Europe underscore the importance of integrating social policies. For example, the Finnish TERVE-SOS model combines health care, social protection, and education systems to comprehensively promote the well-being of mothers and children (WHO Europe, 2023). Such an integrated approach is particularly relevant for Georgia, where social barriers and educational deficits have a direct impact on health outcomes.

Also, worth highlighting are the practices in Austria and Germany, where the quality of maternal and newborn care is assessed annually as part of a «Quality Cycle» based on indicators collected by hospitals. The introduction of a similar model in Georgia could enable facilities to regularly review their results, plan continuing education, and avoid bias.

Despite existing limitations, Georgia's progress is increasingly taking on a systemic character. Strategies such as the State Program for Maternal and Child Health (2018–2025) have contributed to the harmonization of standards and deepened cooperation with international institutions. However, international comparisons clearly show that the Georgian health system is currently in a transition phase in which the focus must shift from quantitative expansion to ensuring quality and equity. As shown in **Figure 5**, Georgia is increasingly converging on European averages; However, what will be crucial for the coming years will be a stable investment in human resources and the strengthening of regional integration.

The systematic review of maternal and child health services in Georgia clearly shows that over the past decade, the national health system has evolved from a phase of quantitative expansion to one of qualitative consolidation. The progress achieved is reflected in declining mortality, high vaccination coverage, and improved antenatal care. However, an integrated assessment of the results shows that this progress is not yet evenly distributed and requires structural consolidation at all levels.

The data highlight three key factors for Georgia's success: international support, systematic standardization, and growing public awareness. First, the policy and clinical interventions initiated by WHO and UNICEF (2024) programs have significantly strengthened the perinatal and pediatric care structure. These programs promoted the introduction of new clinical guidelines and the dissemination of modern protocols for neonatal resuscitation and antenatal monitoring – developments that have been particularly evident in the last five years (WHO Georgia, 2024).

The second area concerns systematic standardization, i.e., the harmonization of clinical practices and the strengthening of quality monitoring. Georgia's experience in this regard is in line with the trend in other Eastern European countries, which have integrated maternal and child health indicators into national monitoring frameworks since 2015 (World Bank, 2024). This has gradually

introduced patient-centered approaches, including standards for informed consent and continuity of care – elements that previously had limited coverage in regional settings.

The third factor, rising public awareness, forms the social basis of this progress. It has contributed to more positive attitudes toward vaccinations, prenatal screening, and early childhood development. According to a study by UNICEF Georgia (2023), parental participation in prenatal visits has increased by 18% over the past five years, and more than 70% of women reported navigating the health system better today than ten years ago. This development indicates not only increased program efficiency but also growing trust in the health system – a key factor for its sustainability.

Georgia's key maternal and child health indicators show steady improvement across all key parameters (See: *Table 1*). Maternal mortality nearly halved between 2015 and 2025 (from 36 to 21 per 100,000 live births), neonatal mortality decreased from 10 to 6, and under-five mortality decreased from 12 to 7. At the same time, prenatal care coverage increased from 67% to 87%, complete immunization coverage reached 95%, and skilled obstetric care is now available to 98% of pregnant women. These results underscore both the effectiveness of government programs and the importance of international cooperation, which has contributed to improving quality and developing systemic mechanisms.

Table 1

Summary of major maternal and child health indicators in Georgia from 2015 to 2025

Indicator	2015	2020	2025
Maternal mortality (per 100,000 live births)	36	28	21
Neonatal mortality (per 1,000 live births)	10	8	6
Under-5 mortality (per 1,000 live births)	12	10	7
Prenatal care coverage (%)	67	80	87
Full immunization coverage (%)	89	92	95
Skilled birth attendance (%)	94	96	98

The data show steady improvement across all measures, including a nearly 50% decline in maternal mortality (from 36 to 21 per 100,000 live births) and notable reductions in neonatal and under-five deaths. Prenatal care coverage rose from 67% to 87%, full immunization reached 95%, and skilled birth attendance expanded to 98%. These findings reflect the impact of national health programs and international support on improving service quality and system performance.

At the same time, systemic progress cannot be sustained without addressing regional inequalities. As shown in **Figures 3** and **4**, despite the significant decline in mortality and increased coverage, significant territorial disparities persist, particularly in mountainous and ethnic minority areas. This highlights that the next phase requires investments not only in infrastructure but also in human resources and health education programs to translate progress into an equitable and sustainable model.

Furthermore, the internal efficiency of the health system – transparency in financial management, coherence in data collection, and cyclical quality assessment – remains a key area of action that will determine the pace of future success. According to the OECD (2022), countries that have implemented regular quality audits reduce the frequency of medical errors by an average of 30% while improving patient recovery rates. The introduction of a similar mechanism in Georgia would help safeguard the progress made so far and reduce regional disparities.

Overall, the development of Georgia's healthcare landscape between 2015 and 2025 can be characterized as a model of stable, yet uneven, progress. The country is steadily approaching international standards, but requires a clearly defined strategy that combines infrastructure, human resource development, and awareness-raising within a coherent policy framework. Only through Such an integrated approach can achieve a level of quality of maternal and child health that meets the global goal of «Healthy beginnings, hopeful futures» (WHO, 2025).

The results of this systematic review demonstrate that Georgia has achieved stable and continuous progress in maternal and child health over the past decade. At the same time, however, the country faces serious systemic challenges related to regional inequalities, a shortage of specialized human resources, and inadequate quality monitoring mechanisms. This progress is in line with the global trend emphasizing the transition from quantitative expansion to qualitative development (WHO, 2023).

The decline in mortality rates and increasing coverage in Georgia indicate that the national strategy is gradually moving toward the Sustainable Development Goals (SDGs 3.1 and 3.2) – reducing maternal mortality to below 70 per 100,000 live births and reducing under-five mortality to below 25 per 1,000 live births (United Nations, 2015). As shown in **Table 1** and **Figure 5**, Georgia is making significant progress toward these targets, demonstrating the true effectiveness of government policies and international support.

International experience shows that improving the quality of maternal and child health depends on three key factors: an integrated primary health care system, investment in the health workforce, and data-driven management (OECD, 2022; WHO, 2024). In Georgia's case, these components have contributed to the positive results – especially given that the system was primarily focused on quantitative expansion until 2015. Since 2018, the State Program for Maternal and

Child Health has gradually shifted its focus to quality assessment and standardization, supported by international partners such as UNICEF, WHO, and the World Bank.

Despite this progress, national progress continues to be hampered by regional disparities, which are clearly visible in **Figure 4**. In rural and mountainous regions, coverage remains low, due to both infrastructural deficiencies and a shortage of skilled personnel. This inequality affects not only physical accessibility but also quality and health outcomes. This situation corresponds to the «quality-equity gap» phenomenon described by the WHO, where poor quality of care in low- and middle-income countries often leads to higher mortality rates than a complete lack of services (WHO, 2020).

However, the example of Georgia demonstrates the transformative potential of a small country when policy measures, public awareness, and international support are aligned toward a common goal. High vaccination coverage, increased prenatal care, and improved newborn care have significantly reduced preventable deaths. According to UNICEF (2023), Georgia's vaccination rate is now above the European average, indicating growing public trust in the health system.

To ensure this systemic progress, the introduction of a cyclical quality assessment system (Quality Cycle) is necessary – similar to that used in Austria and Germany, where clinical data annually identify weaknesses and enable targeted improvements (OECD, 2021). Implementing such a mechanism in Georgia would significantly improve the transparency of monitoring, especially in regional clinics.

Furthermore, a patient-centered approach should become a structural component of the system, as demonstrated in Scandinavian models. Finland's TERVE-SOS strategy integrates health care, social services, and education into a networked system, thus contributing to multidisciplinary maternal and child well-being (WHO Europe, 2023). A similar policy in Georgia would improve not only clinical but also social and educational outcomes, especially among vulnerable populations.

Another crucial aspect of Georgia's progress is the reform of human resources policy. Skilled labor shortages in the regions remain a serious challenge, but initiatives in recent years – including the «Equal Care for All» project – have begun to systematically structure the recruitment and training of medical personnel (WHO Georgia, 2024). This approach represents an important step toward promoting equity and could lead to a further reduction in mortality in the long term.

Georgia's progress model is based on three interrelated components: international support, systematic standardization, and growing public awareness (See: *Figure 6*). The synergy These elements form the framework that has enabled the country's transition from quantitative expansion to quality-oriented healthcare.

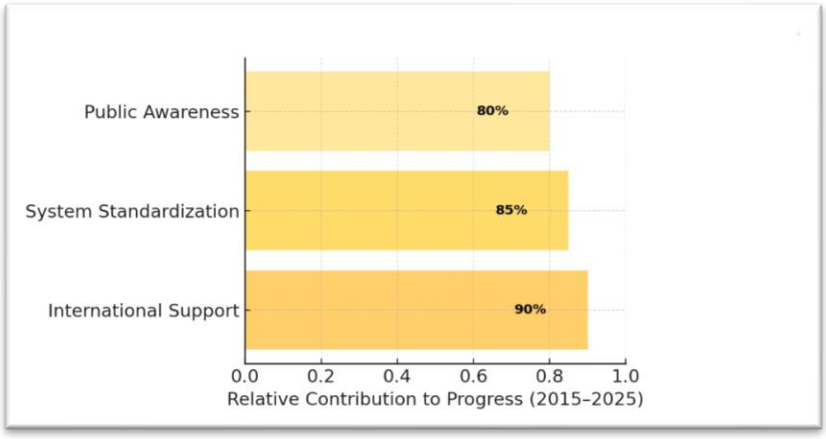

Figure 6. *Framework illustrating the main factors driving progress in maternal and child health in Georgia (2015–2025). International support (90%), system standardization (85%), and public awareness (80%) emerged as the key contributors to improvements in service quality and accessibility. The figure highlights the combined impact of structural reforms and public engagement on sustained health outcomes.*

Overall, Georgia's progress is in line with the global priorities for 2025, as highlighted in the current WHO motto «Healthy beginnings, hopeful futures» (WHO, 2025). The country is gradually moving toward a model in which maternal and child health is understood not merely as a clinical or demographic indicator, but as a central pillar of societal development.

CONCLUSIONS

- The systematic review of the quality and accessibility of maternal and child health services shows that the Georgian health system has undergone a transition from quantitative expansion to quality-oriented development over the past decade. Progress is particularly evident in the reduction of mortality rates, the expansion of vaccination programs, and the strengthening of prenatal care – developments that are in line with global trends and reflect the country's growing institutional stability. At the same time, the data clearly demonstrate that this progress remains fragile and needs to be further consolidated, particularly with regard to regional inequalities and human resources policies.
- Georgia is an example of a country that, despite economic constraints, has achieved significant results through consistent policy implementation and effective use of international support. As shown in **Figure 3** and **Table 1**, maternal mortality nearly halved between 2015 and 2025 (from 36 to 21 per 100,000 live births), neonatal mortality decreased from 10 to 6, and under-five mortality from 12 to 7 per 1,000 live births. At the same time, vaccination coverage reached 95% and skilled delivery care reached 98%. These results demonstrate that government programs – particularly the State Program for Maternal and

Child Health – as well as joint support from UNICEF, WHO, and the World Bank have enabled a progressive transformation of the health system.

- Despite this progress, the Georgian health system continues to face a quality-equity gap – an imbalance that the WHO (2020) describes as one of the most serious problems in low- and middle-income countries. As shown in **Figure 4**, prenatal care coverage varies considerably between regions: in Tbilisi, it exceeds 96%, while in Racha-Lechkhumi and Samtskhe-Javakheti, it is only 68–71%. These disparities are directly reflected in clinical outcomes – in rural and mountainous regions, maternal mortality is twice the national average (NCDC, 2024). A similar pattern is evident in infant mortality, indicating insufficient harmonization of systemic mechanisms.
- A particularly critical factor is the shortage of medical personnel in the regions, which limits the continuity and quality of care. According to the NCDC (2024), a midwife in the capital cares for an average of 3–4 pregnant women, while in rural areas, this number can sometimes exceed 10. Programs to recruit young professionals to the regions only partially alleviate this shortage, highlighting the need to make human resources policy a central component of the national health strategy.
- Despite these limitations, Georgia's progress in maternal and child health is consistent with the United Nations Sustainable Development Goals (SDGs 3.1 and 3.2) – reducing maternal mortality to less than 70 per 100,000 live births and under-five mortality to less than 25 per 1,000 live births (United Nations, 2015). The country is increasingly moving toward these targets, indicating political will and institutional coherence.
- Georgia's success is partly due to international cooperation – support from WHO, UNICEF, and the World Bank has contributed to the harmonization and standardization of the health system. At the same time, national policy has developed internal monitoring mechanisms and quality assessment structures. As shown in **Figure 6**, the country's progress is based on three main components: international support (90%), systematic standardization (85%), and growing public awareness (80%). The interplay of these elements was crucial for the sustainability of the results.
- In the Eastern European and South Caucasus context, the Georgian experience can be considered a transitional model – a country gradually moving from a health system focused on quantitative expansion to one based on quality and equity. The international comparison in **Figure 5** shows that Georgia's indicators are already approaching the levels of Bulgaria and Romania and are performing better than Armenia and Azerbaijan in terms of neonatal mortality. This progress not only highlights the effectiveness of the programs but also the

growing public confidence in the health system – a crucial foundation for long-term stability.

- From a theoretical perspective, the Georgian model corresponds to the WHO's Continuum of Care framework, which encompasses three levels of care: the woman, the child, and the system. In Georgia, integrated management of maternal and child health is increasingly taking on this three-pronged structure – prenatal care, support during childbirth, and postnatal care are closely linked to the primary health care network. This integration is essential for systemic sustainability and the reduction of existing inequalities.
- Ultimately, Georgia's example shows that even in a resource-limited country, systemic transformation is possible if political will, international cooperation, and societal commitment are aligned toward a common goal – the realization of equity in health. The country is thus close to achieving the goal formulated by the WHO in its annual theme «Healthy beginnings, hopeful futures» (WHO, 2025): Health begins before birth and accompanies people through all stages of life – as a fundamental human right and a benchmark for social progress.

RECOMMENDATIONS

- Systematically improving the quality of maternal and child health services in Georgia requires an integrated, evidence-based approach that combines political accountability, institutional stability, and active societal participation. Based on the results of this systematic analysis, several priority areas for action can be identified, the implementation of which can ensure sustainable quality improvements and deepen equity.
- First, a strategic update of the policy framework is necessary, guided by the WHO «Quality of Care Framework for Maternal and Newborn Health» (WHO, 2023). This model emphasizes three core principles – safety, effectiveness, and equity – as the cornerstones of quality of care. The Georgian Ministry of Health could develop a National Quality Improvement Roadmap (2026–2030) that establishes clear indicators, monitoring mechanisms, and regular regional reporting. Such a strategy would promote data-driven management and transparency in decision-making – particularly important in the post-pandemic context.
- Second, human resources policy must be systematically strengthened. As the analysis shows, the shortage of skilled workers in the regions continues to be one of the biggest barriers. Incentive mechanisms are needed – such as the provision of housing, transport subsidies, and opportunities for professional development. A system of continuous education and training for midwives and pediatric staff should also be established, based on international standards (e.g., WHO Midwifery Education Framework, 2022). The establish-

ment of regional centers of excellence could ensure the sustainability of knowledge transfer and retain young professionals in the health sector in the long term.

- A third area of action concerns the structural integration of services into the primary health care network. The current model remains fragmented and requires closer integration of maternal, newborn, and child health services within a unified monitoring system. This includes the standardization of electronic health records, the implementation of clear data transfer protocols, and mechanisms for tracking patient progress. Following the example of OECD countries, such an integrated system would improve continuity of care and reduce administrative burdens.
- Another key aspect is strengthening a patient-centered approach that actively involves women and families in decision-making processes. This can be achieved through public consultations, patient voice platforms, and local multidisciplinary conferences. Such models are already operating successfully in the Netherlands and Finland, where maternal health councils play an active role in evaluating programs and updating clinical guidelines (WHO Europe, 2022). The introduction of similar mechanisms in Georgia would strengthen patient trust and promote shared ownership between citizens and institutions.
- In addition to institutional measures, the scientific and analytical basis must also be expanded. Local research on maternal and child health remains limited, limiting evidence-based policymaking. Support for multicenter studies is necessary, particularly on topics such as regional inequality, access for ethnic minorities, and the quality of psychosocial support. International collaborations – for example, with the UNICEF Innocenti Research Centre or the WHO European Observatory – could significantly strengthen Georgia's position as a regional example of good practice.
- Furthermore, the optimization of digital health platforms should be considered a priority to improve the quality of data collection and analysis. The implementation of an integrated electronic system – particularly for monitoring maternal and child care–would simplify follow-up, avoid duplication, and increase transparency. This measure is in line with the WHO Digital Health Action Plan 2020–2030, which considers data-driven management as key to improving the quality of care.
- Finally, special attention must be paid to the development of health education and public awareness. Educating the population about prenatal care, vaccinations, and postnatal care is a crucial factor in the utilization of health services. Targeted information campaigns, the involvement of the media and the education system, and strengthening the communication skills of medical personnel can contribute to positive behavioral changes and health-promoting lifestyles.

Overall, Georgia is pursuing a model that combines political will, professional competence, and societal participation – three pillars on which the sustainability of modern health systems rests. In the long term, the implementation of these priorities will not only further reduce maternal and child mortality but also establish an equitable, patient-centered, and quality-based health system that is fully consistent with the WHO vision of «Healthy beginnings, hopeful futures».

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