

Breaking Barriers: Telemedicine Triumphs and Health Workforce Transformations in Rural Georgia

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MID Findings: Giorgi Sinauridze, recipient of a \$50,000 scholarship to explore telemedicine's potential, challenges, and global impact.



Abstract – This manuscript explores the transformative impact of telemedicine on healthcare accessibility in rural Georgia, as revealed in the MID findings of Giorgi Sinauridze. Focused on overcoming geographic challenges, the narrative emphasizes collaborative efforts involving international organizations, the European Union, United Nations agencies, and the Georgian government. The establishment of 50 telemedicine facilities, detailed in Sinauridze's findings, serves as a landmark achievement, addressing healthcare disparities and reaching over 500 previously underserved patients. The article delves into innovative solutions to internet connectivity challenges, community engagement, and the positive impact on patient care. Additionally, it presents a comprehensive health workforce assessment conducted by the WHO Country Office, highlighting demographic trends, workforce remuneration, and strategies for recruitment and retention. The manuscript concludes with WHO policy recommendations, emphasizing the need for a formal health workforce planning mechanism, substantial investment in primary healthcare, and improved data systems. The collaborative success of the telemedicine initiative and insights from the health workforce assessment position Georgia as a model for resilient and responsive healthcare systems globally.

Keywords – Telemedicine, Healthcare Access, Rural Areas, Digital Inclusion, Connectivity Solutions, COVID-19 Pandemic, Healthcare Disparities, Collaborative Initiatives, Georgia, Remote Communities.

INTRODUCTION

In the pursuit of universal healthcare access, geographic barriers often present significant challenges. This manuscript, representing the MID findings of Giorgi Sinauridze, who won a \$50,000 scholarship to explore telemedicine's potential, challenges, and global impact, delves into the transformative impact of telemedicine in addressing healthcare disparities in rural Georgia. Emphasizing challenges related to internet connectivity, this paper highlights collaborative efforts between international organizations, including the European Union and United Nations agencies, and the Georgian government, which resulted in the establishment of 50 telemedicine facilities. The narrative encompasses the collaborative success of the telemedicine initiative, its implications for future healthcare accessibility, and findings from a comprehensive health workforce assessment conducted by the WHO Country Office in Georgia.

I. TELEMEDICINE: A CATALYST FOR CHANGE IN RURAL COMMUNITIES:

The establishment of 50 telemedicine facilities in rural Georgia, as explored in the MID findings of Giorgi Sinauridze, signifies a landmark achievement in healthcare accessibility. These centers serve as crucial connections, facilitating remote consultations, diagnoses, and continuous monitoring for patients in previously isolated regions.

II. NAVIGATING INTERNET CONNECTIVITY CHALLENGES:

A significant hurdle encountered during telemedicine implementation was the unreliable internet infrastructure in rural Georgia. This article, based on the MID findings of Giorgi Sinauridze, sheds light on the multifaceted approach taken to address internet connectivity issues, emphasizing the importance of stable connections for seamless telemedicine services.

Table 1 NCDC Available on Doctor Numbers 2012 -2019

Source of data: NCDC								
Georgian Health workforce	2012	2013	2014	2015	2016	2017	2018	2019
Doctors - Total	19,404	22,490	22,925	24,307	26,552	27,362	30,998	31,746
Family doctor (rural doctor-entrepreneur)	1,988	2,197	2,255	2,373	2,496	2,461	2,435	2,578
Internal Medicine Doctor (Therapist)	1,238	1,309	1,131	1,074	1,084	1,107	1,240	1,248
General Pediatrician	1,057	1,111	1,010	800	921	981	1,108	1,122
Doctor-epidemiologist	132	162	161	179	195	198	241	259
Dentists	1,814	2,027	2,152	2,527	2,566	2,470	3,050	2,873
Junior Doctor	491	694	773	1,008	1,192	1,325	1,817	2,039
Resident	455	381	504	433	394	493	713	681
Other specialists	12,229	14,609	14,939	15,913	17,704	18,327	20,394	20,946

III. INNOVATIVE SOLUTIONS:

To overcome internet connectivity challenges, the telemedicine initiative in Georgia, explored in Giorgi Sinauridze's MID findings, adopted several innovative solutions:

1. **Satellite Internet Technology:** In areas with limited terrestrial internet connectivity, satellite technology provided a stable and consistent connection, overcoming geographical barriers.
2. **Mobile Internet Clinics:** Specially equipped vehicles, acting as mobile internet clinics, were deployed to reach the most remote communities. These clinics featured advanced satellite communication systems, ensuring telemedicine consultations even in the most challenging areas.
3. **Community Engagement:** Local communities played a vital role in raising awareness about the significance of internet connectivity. Workshops and training sessions were organized to educate residents about the benefits of telemedicine, fostering community support for initiatives aimed at improving internet infrastructure.
4. **Government Collaborations:** Collaborations with government agencies led to targeted infrastructure investments in internet connectivity. Partnerships with local internet service providers facilitated the extension of broadband networks, ensuring reliable internet connections for telemedicine facilities.

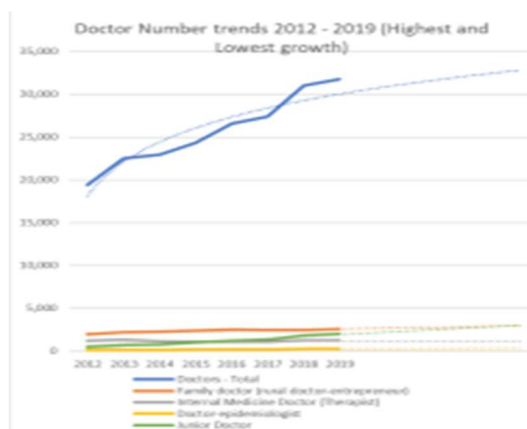


Figure 1 Highest and lowest trends in doctor numbers 2012 -2019

IV. BEYOND CONNECTIVITY: ADDRESSING DIGITAL LITERACY AND RESISTANCE TO CHANGE:

In addition to internet connectivity challenges, the telemedicine initiative in Georgia, as revealed in the MID findings of Giorgi Sinauridze, faced obstacles such as digital illiteracy and resistance to change. The article highlights comprehensive training programs designed to educate healthcare professionals and community members on operating telemedicine equipment and utilizing digital platforms effectively. Awareness campaigns were also launched to instill confidence in the community regarding telemedicine services.

V. POSITIVE IMPACT ON PATIENT CARE:

The telemedicine initiative in Georgia, as unveiled in Giorgi Sinauridze's MID findings, has had a profound impact on patient care, reaching over 500 patients who previously lacked access to medical services. Beyond addressing immediate healthcare needs, telemedicine has empowered patients with knowledge and awareness, fostering a proactive approach to well-being.



VI. OVERCOMING CHALLENGES: COLLABORATIVE SUCCESS:

The success of the telemedicine initiative in Georgia, as evidenced in the MID findings of Giorgi Sinauridze, despite facing technological and societal barriers, underscores the importance of collaboration. The collective efforts of international organizations, including the WHO, UNICEF, UNFPA, UNOPS, the EU, and the Georgian government, have paved the way for sustainable telemedicine services.

VII. FUTURE PROSPECTS AND SUSTAINABILITY:

Looking ahead, the telemedicine project in Georgia, documented in Giorgi Sinauridze's MID findings, sets the stage for the future of healthcare accessibility. Investments in telemedicine infrastructure, digital education, and community engagement position Georgia as a model for building a resilient healthcare system capable of withstanding future challenges.

VIII. HEALTH WORKFORCE ASSESSMENT:

At the request of the Ministry of Internally Displaced Persons from the Occupied Territories, Labour, Health, and Social Affairs (MoIDPLHSA), the WHO Country Office in Georgia conducted a comprehensive health workforce assessment. This report, based on Giorgi Sinauridze's MID findings, aims to better understand the current workforce landscape, its drivers, and existing gaps.

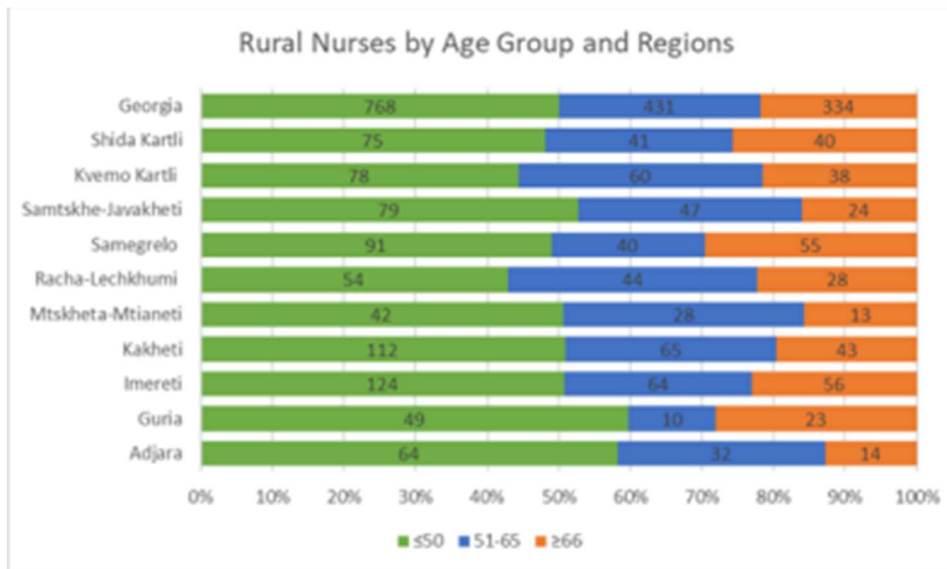


Figure 2. Rural nurses by age group and region

IX. SUMMARY OF KEY FINDINGS:

Quality workforce data is essential for effective planning. Accurate registration of the existing workforce is crucial. A strong regulatory environment contributes to improving staff morale and competencies. Effective management of workforce supply is key. Workforce planning governance is essential.

X. HEALTH WORKFORCE DATA:

The methodology for collecting health workforce data changed in 2020 to improve accuracy and reduce duplication. Doctors' numbers increased by 64% between 2012 and 2019, with variations among specialties. Nurses and midwives increased by 39%, with the highest growth observed in general profile nurses and public health nurses. Recent data for 2020 indicates a nearly 20% reduction in previously reported numbers.

XI. OTHER HEALTH WORKERS:

Additional data from the National Center for Disease Control (NCDC) provides insights into the changes in non-physician and non-nursing midwifery workforce from 2012 to 2019. The trends in junior medical staff, sanitary staff, caregivers, pharmaceutical staff, and other health professionals are examined, highlighting a growth of 44% in junior medical staff, a 23% increase in pharmacists, and a significant rise of 120% in other vocational staff. Challenges in reporting accuracy and the need for a more comprehensive definition of categories are acknowledged.



Picture 1: Telemedicine technology at Dmanisi ambulatory, Amamlo

XII. REHABILITATION WORKFORCE:

A detailed situation assessment by WHO in 2020 emphasizes the importance of integrating rehabilitation supports into the health system. The report identifies challenges and opportunities, providing baseline data and recommendations for scaling access to rehabilitation services. The findings from this assessment should be considered integral to health workforce planning and implementation.

XIII. DEMOGRAPHICS:

In 2018, the Regulation Agency for Medical and Pharmaceutical Activities (RAMPA) conducted an exercise revealing the demographic mix of doctors by age and gender. The data indicate a significant majority of female doctors in the workforce, with figures reaching 78% female and 22% male. The gender distribution is more pronounced in the family doctor workforce, where females constitute 92%, highlighting a unique scenario in the WHO European Region.

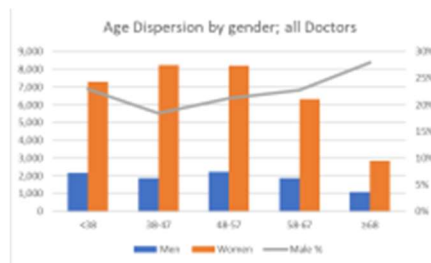


Figure 3: Age dispersion by gender; all doctors

XIV. AGE DEMOGRAPHICS:

Data from NCDC on age profiles for both doctors and nurses reveal a mature physician workforce, with almost 50% over 50 years of age. The situation is more severe in rural settings, where less than 30% of rural doctors are 50 or younger. For nurses, nationally over 60% are 50 years of age or less, but concerns arise in rural areas where nurses working beyond retirement exceed 20%.

XV. WORKFORCE REMUNERATION:

The public sector's competition with the private healthcare sector for labor is analyzed in terms of remuneration. Evidence suggests a narrowing pay differential between the public and private sectors. While female healthcare workers in both sectors are paid similarly, the overall gender pay gap is growing.

XVI. COMPARATIVE WORKFORCE DENSITY:

The Ministry's strategic goal of achieving a 1:1 nurse-to-doctor ratio is explored, with recent NCDC data suggesting an operational ratio of around 1:1. Regional and international comparisons highlight a lower doctor-to-nurse ratio in Georgia, emphasizing the need for ongoing analysis and adjustment.

XVII. WORKFORCE PLANNING FUNCTIONALITY:

Since the deregulation of the health system in 2004, Georgia has lacked a formal health workforce planning mechanism. Instead, the system relies on student choices, educational outputs, and market demands. The Ministry of Education oversees higher and vocational education, while post-graduate education falls under the responsibility of the MoIDPLHSA, leading to an imbalance in the quantity and profile of health workforce professionals. Limited coordination between the two ministries hampers effective planning and training.

XVIII. WORKFORCE DATA AND INFORMATION SYSTEMS:

Effective workforce supply relies on accurate and comprehensive data. Current data sources include GEOSTAT and the NCDC, but weaknesses in the data limit its efficacy, leading to potential inaccuracies. In 2020, steps were taken to improve data collection tools, linking data to personal identification numbers through an electronic module. However, the RAMPA's state certification registry, while containing information on certified physicians, appears outdated and inflexible, requiring manual processing.

The use of a refined data repository is recommended, linking information to other corresponding agencies' databases for automatic updates. This integration is crucial for future mandatory re-validation of medical personnel licensing. A review of the current Health Information System (HRIS) is essential to identify compositional and collection challenges, ensuring compatibility with EU requirements and quality assurance in education, as mandated by the Association Agreement with the EU.

XIX. HEALTH WORKFORCE TRAINING AND ENVIRONMENT:

19.1 Doctor Training:

Cooperation between the Ministry of Education and the MoIDPLHSA remains weak, leading to an imbalance between the health workforce and system needs. The absence of limits on the number of students admitted to higher education, coupled with a high demand for self-funded residencies, contributes to workforce imbalances. Approximately 500 residencies are announced annually, with graduates not admitted to residency programs working as junior doctors, mainly assuming nursing duties. The lack of influence on the flow of graduates exacerbates the workforce misalignment.

Professional competency assessment for doctors relies on a multiple-choice certification exam, criticized for its ineffectiveness in evaluating practical skills. The need for more focused assessments, emphasizing clinical case analysis and problem-solving, is emphasized.

19.2 Nursing:

Acknowledging a shortage of registered nurses, there is limited quantification of its severity. Registered nurses, trained by four higher education institutions, produce around 20-30 nurses annually. The 3-year government-funded vocational training program trains approximately 350-400 vocational nurses per year across 20 colleges.

A critical assessment of health workforce needs is recommended to influence nursing education suppliers. The definition of nursing competencies and the development of assessment tools for professional knowledge and skills are advised.

XX. RETENTION:

Limited available data on workforce retention and the dependence on health workers working beyond retirement raise concerns. The absence of comprehensive Continuing Professional Development (CPD) requirements and strategic retention strategies poses a risk to service quality.

XXI. PRIMARY HEALTH CARE:

The aging profile of the primary health care (PHC) workforce, low wages, rural staff retention challenges, and ad-hoc continuous professional development applications threaten the successful implementation of PHC reforms. The report highlights the need for attracting additional professionals to PHC sustainably, improving wages, addressing rural staff retention issues, and adopting a systematic approach to CPD for enhanced quality of care. The implementation of these strategies is crucial for achieving the goals outlined in the PHC roadmap.

XXII. PUBLIC HEALTH SERVICE ASSESSMENT:

The National Center for Disease Control (NCDC) is actively conducting a service assessment with a focus on understanding the requirements of public health services. The PHC technical assistance team has recommended the consideration of co-locating regional public health units with rural Primary Health Care (PHC) centers. This assessment is expected to yield findings and recommendations that will have implications for the workforce. The WHO country office is maintaining links with the NCDC management team to understand the potential support needed. Any actions taken by the Ministry in response to the recommendations contained in this report are likely to positively impact the supply of public health workers.

XXIII. POLITICAL CONTEXT:

In 2017, the Georgian Parliament reviewed and debated the "Vision for Developing the healthcare system in Georgia by 2030," which outlined two key objectives related to the quality of medical service and personnel. A draft concept paper prepared in 2019 identified three key strategic advantages, emphasizing the development of a workforce aligned with the Ministry's healthcare priorities, harmonization of medical education with EU countries, and improvement of doctors' qualifications. While no action has been taken on these reports, there is potential for substantial improvement in the oversight of postgraduate medical education through the establishment of a body with input from medical associations and health workforce planning experts.

XXIV. CHALLENGES AND SUCCESS FACTORS FOR IMPLEMENTATION:

The successful implementation of healthcare reforms hinges on addressing human resources-related bottlenecks. Challenges include insufficient numbers and competencies for expansion, unfavorable workforce demographics, low wages, rural staff retention issues, and ad-hoc application of continuous professional development. These challenges, if unaddressed, may impede the expansion of high-quality primary healthcare services.

XXV. WHO POLICY RECOMMENDATIONS:

WHO proposes several recommendations to address the identified challenges:

1. **Establishment of an HRH Planning Unit:** Establish a formal planning unit with appropriate governance support to enable sustainable HRH supply-side planning. This unit should gather and assess data, convene stakeholders, and develop sustainable workforce plans aligned with system requirements.
2. **Substantial Investment in HR for PHC:** Advocate for substantial investment in human resources for Primary Health Care (PHC) based on a sustainable HRH planning system in line with the new PHC model.
3. **Establish a PHC Governance Unit:** Create a PHC Governance Unit for better governance and stewardship of PHC, inclusive of rehabilitation supports as part of an integrated multidisciplinary PHC service.
4. **Implement a Formalized Approach to Maintaining Quality:** Develop quality-assured Continuing Professional Development (CPD) and Continuing Medical Education (CME) programs for health workers, aligned with EU standards.

5. **Develop a Formalized HRH Reporting Mechanism:** Establish a formalized HRH reporting mechanism to support planning, including assessment of staffing by whole-time equivalents, gender, and skills distribution across the health and social care workforce.
6. **Review HRH Information System (HRHIS):** Review the capability and capacity of the HRHIS system, ensuring it can feed reliable and accurate data into the planning system.
7. **Improve Regulatory Environment:** Explore and improve the regulatory environment for health professionals, including revalidation and quality aspects.
8. **Recruitment and Retention Strategies:** Consider approaches to recruitment and retention within fiscal affordability constraints, making rural practice attractive through incentives or specific service knowledge requirements during training.

XXVI. WHO SUPPORT:

Based on the findings and recommendations, WHO proposes support in the form of capacity building, technical assistance for strategy development, support for scaling access to rehabilitation and assistive technology, facilitation of policy dialogues, and inclusion in initiatives fostering exchanges of best practices in health workforce planning and management. Additionally, WHO will support the evaluation of the HRHIS and provide recommendations for improving data collection and analysis.

XXVII. CONCLUSION AND RECOMMENDATIONS:

The identified challenges in workforce planning, data systems, training, and retention necessitate a comprehensive and collaborative approach. Recommendations include:

1. Establishment of a formal health workforce planning mechanism.
2. Enhanced coordination between the Ministry of Education and MoIDPLHSA.
3. Development of a dedicated unit for health workforce strategy for PHC reforms.
4. Improvement of data collection tools and refinement of the HRIS.
5. Implementation of a comprehensive competency assessment for doctors.
6. Strategic planning for the nursing workforce, focusing on competencies and assessment tools.
7. Implementation of comprehensive CPD requirements and retention strategies.

Addressing these recommendations will contribute to a more resilient and responsive health workforce, aligning with the goals of universal healthcare and sustainable primary health care reforms.

Conclusion:

The collaborative success of the telemedicine initiative in rural Georgia and the insights from the health workforce assessment, as presented in the MID findings of Giorgi Sinauridze, underscore the transformative power of technology and effective planning. Challenges in internet connectivity, workforce demographics, and remuneration require ongoing attention. The integration of rehabilitation services and a commitment to achieving a balanced nurse-to-doctor ratio further contribute to a resilient and responsive healthcare system. Georgia's experience, as detailed in Giorgi Sinauridze's MID findings, serves as an inspiration for regions globally facing similar healthcare disparities.

Recommendations:

1. Continue investments in telemedicine infrastructure and digital education.
2. Enhance reporting mechanisms for health workforce data to ensure accuracy.
3. Define and categorize health professions more comprehensively for accurate reporting.
4. Integrate recommendations from the rehabilitation situation assessment into health workforce planning.

5. Address gender disparities in the healthcare workforce and monitor the growing gender pay gap.
6. Analyze and adjust nurse-to-doctor ratios based on ongoing data and regional/international benchmarks.

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