

# ACCESSIBILITY OF HIGH-PERFORMANCE MEDICAL IMAGING SERVICES IN THE REPUBLIC OF MOLDOVA

*Eugenia PEATAC, Chief of Radiology and Medical Imaging Department IMSP SCM „Sfânta Treime” CHIȘINAU, REPUBLIC OF MOLDOVA*

*Mihai CIOCANU, profesor universitar, dr.hab.șt.med., Director IMSP Institutul de Medicină Urgentă, CHIȘINAU, REPUBLICA MOLDOVA*

*Maria-Magdalena POJOGA, student, State University of Medicine and Pharmacy „Nicolae Testemițanu,, CHIȘINAU, REPUBLIC OF MOLDOVA*

## INTRODUCTION:

**Actuality:** Easy access to medical imaging services has a large impact on public health, as solving access problems can solve 70% to 80% of diagnostic problems.

According to data from the World Health Organization (WHO), approximately two thirds of the world's population do not have access to diagnostic radiography [7].

**European Union (EU)** - the accessibility of high-performance medical imaging services has increased over the last two decades at EU level, but access levels remain different depending on the country - for example - limited access in countries such as Hungary, Romania, Serbia, Macedonia and the UK where these services benefits up to 50% of the population, but there are countries such as Germany, Austria, Italy, Greece and Finland where over 60% accessibility is recorded when using medical imaging services [2, 3].

**Republic of Moldova** – access to specific services is dependent on numerous factors such as the population's need for imaging medical services, related to the health system's capacity, characterized by the existence of limits (in terms of resources, means, funds, etc.) in the mandatory medical assistance insurance.

Thus, high-performance services constituted 2.7% of the expenses of the basic fund of the National Medical Insurance Company (CNAM) for the years 2019/2020 (reported to 631 622 services and 453 126 respectively), of which only 104 194 imaging investigations [4, 5].

One of the problems of public health is facilitating patients' access to quality medical diagnostic services, which should be as close as possible to the patient's home, services that

*After a modest beginning, radiology and medical imaging continued to evolve and at the moment we are witnessing a rapid development of the medical imaging equipment, which has a huge role in the progress of medical and technical science worldwide.*

*Medical imaging is a discipline that plays a major role in establishing the diagnosis and therapeutic tactics.*

*The accessibility of high-performance imaging medical services within the framework of mandatory health care insurance proves that the normative framework and the network of providers from the Republic of Moldova are continuously developing, increasing year by year the population's access to high-performance imaging services, especially to computed tomography, digital radiology, nuclear magnetic resonance, angiography and ultrasonography.*

*In this article, the assessment of the accessibility of high-performance medical imaging services was carried out to identify barriers and improve this phenomenon.*

*To fully assess the proposed purpose, a selective, cross-sectional, mixed (quantitative and qualitative) descriptive research study was conducted.*

*The quantitative component - being addressed in the evaluation of the opinion of the beneficiaries (patients) regarding the accessibility to high-performance medical imaging services through the application of the questionnaire (20 questions), developed in the interest of the study, the research sample constituting 423 people.*

*The qualitative component - used to assess the perception of providers and prescribers regarding access to high-performance medical imaging services by forming focus groups with providing and prescribing doctors and an in-depth individual interview with the Head of the Contracting Department of medical service providers within the CNAM.*

*As a result, Tanahashi's concept, used by the World Health Organization (WHO) to determine effective coverage and identify the factors and barriers that determine access to health services [1, 6] was taken into account and it was found that the main deficiencies that limits the accessibility of the insured population to high-performance imaging services are of a subjective nature (restriction of access by medical workers, false reporting of high-performance services which were not performed as being performed in order to obtain unjustified income from the National Medical Insurance Company, monopolization of prescriptions for the performance of services by the specialist doctors) and objective (uneven distribution of imaging facilities throughout the country, lack of knowledge of the rights of insured persons, limited financial resources allocated for high-performance imaging services).*

*Based on the analysis and conclusions of the research, several recommendations were developed regarding the improvement of the accessibility of high-performance medical imaging services.*

*Key words: high performance medical services, accessibility, medical imaging services, barriers.*

are offered by few medical service providers, most of them being concentrated in municipalities [1].

These aspects served as the basis for a more detailed analysis of the informational, geographical, medical and financial accessibility of high-performance medical imaging services throughout the territory of the Republic of Moldova.

**AIM OF STUDY:** evaluating access to high-performance medical imaging services to identify barriers and improve this phenomenon.

**OBJECTIVES:** - analysis of international and national practice regarding access to

high-performance imaging medical services; - evaluation of the beneficiaries' opinion regarding accessibility to high-performance imaging medical services; - evaluation of the perception of providers and prescribers regarding access to high-performance medical imaging services; - developing recommendations to facilitate access to high-performance imaging medical services.

**METHODS AND MATERIALS:** mixed research study (with the inclusion of quantitative and qualitative components), transversal, descriptive, selective.

The first component was quantitative and included the evaluation of the beneficiaries' opinion regarding access to high-performance medical imaging services, based on the application of a questionnaire (the screening tool for the quantitative component), which was developed specifically for this study.

The questionnaire was presented in written form (paper) and was distributed physically to district hospital institutions and AMT in the municipality of Chisinau, in the form of 20 questions structured thematically in 5 chapters (general information, information accessibility, geographical accessibility, medical accessibility, financial accessibility).

The questions were closed-ended, dichotomous, multiple-choice and control.

The study sample included 423 respondents from the entire territory of the Republic of Moldova (RM), the North region (districts: Briceni, Edineț, Bălți, Florești, Glodeni), South (districts: Cahul, Cimișlia, Ștefan Vodă), Center (districts: Călărași, Orhei, Ialoveni, Hâncești, Nisporeni, Ungheni), the municipality of Chisinau (AMTs Botanica, Buiucani, Centru, Ciocana, Râșcani), in total being 14 districts and 5 AMTs from the municipality of Chisinau.

The inclusion criteria were: age over 18 years, patients who have the need for high-performance imaging services and informed consent to participate in the research.

The second component represented qualitative research by evaluating the perception of providers and prescribers regarding access to high-performance medical imaging services by using the qualitative technique of the type: focus – group, with the application of the research tool: focus group guide.

The focus group guide was created differently for each group of doctors: for the providing doctors 4 questions with 7 open-ended sub-questions and respectively 5 questions with 7 open-ended sub-questions for the prescribing doctors, the guide also included 2 other common questions for each group of doctors. All records and summary reports have been kept anonymous.

Inclusion criteria for focus groups: imaging doctors, family doctors/specialists, work experience being more than 5 years, from primary/secondary/tertiary public/private medical institutions.

Number of participants in the focus groups: 6 focus group sessions of 8 people each (3 focus group sessions of 8 providing doctors and respectively 3 focus group sessions of 8 prescribing doctors), a total of 48 doctors were interviewed.

Also, an in-depth individual interview was conducted with the head of the Directorate for contracting medical service providers within the National Medical Insurance Company (CNAM), in which 5 open questions were asked regarding the population's opinion on access to high-quality medical imaging services performance.

To achieve the research objectives, the following research methods were used: historical data collection method, descriptive epidemiological, mathematical-statistical, comparative, logical.

## RESULTS AND DISCUSSIONS:

### Quantitative research

**General informations.** The general population survey included 423 people, of whom 64% were women and 36% were men.

According to the area of residence, 55.5% of those questioned are from urban areas and 44.5% - from rural areas. The environment of residence plays a very important role in determining the standard of living and financial affordability. Thus, the urban environment is characterized by a higher share of people with a good standard of living compared to rural ones, according to data from the National Bureau of Statistics (NBS).

Depending on age, the sample is distributed as follows: most respondents are in the working age group 45-62 years - 48%, however most are 50 years old; the minimum age was 18 years and the maximum 82 years. According to the occupational status, 63% of the respondents work and 37% – are not employed.

The research highlighted the fact that, even if only 63% of those surveyed were employed, the proportion of people in the sample who had a compulsory health insurance policy was 92% of the general sample, while in another 2% people had had individual insurance policies and only 6% of all respondents did not have a mandatory medical insurance policy at the time of applying the questionnaire; the share of people who do not have a health insurance policy is higher in urban areas, among men.

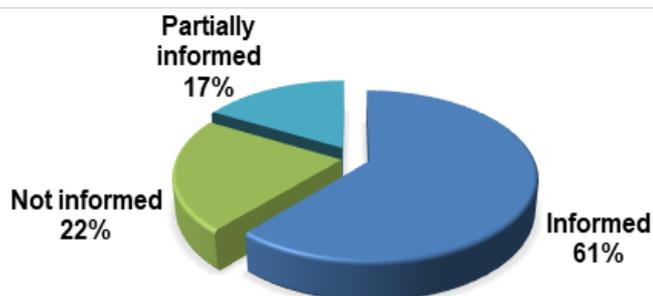
According to our research, about 3% of the respondents have the first degree of disability, 8% the second degree, 10% the third degree and 79% have no degree of disability.

Regarding chronic diseases, 41% of those questioned mentioned that they "have no chronic disease",, 45% "have chronic diseases", and 14% "don't know about the presence of these diseases".

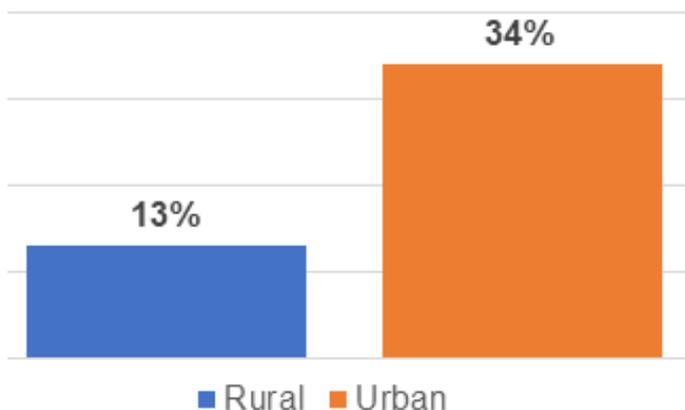
Depending on the gender of people, the share of people with chronic diseases is higher among women 29% compared to men 17%.

**Access to information.** The analysis of respondents' access to high-performance imaging medical services, from an informational point of view, highlighted the fact that only 61% of the number of people surveyed knew what these services mean and include, and also had knowledge about the possibility of performing these imaging procedures in the health insurance policy account (see Diagram 1).

**Diagram 1.** Level of information about free medical services imaging from the account of the insurance policy with referral from the specialist doctor, %



**Diagram 2.** Structure of the study group according to physical access to medical institutions and residential environment, %



The share of the surveyed population that knew the information about medical imaging services covered by the mandatory medical insurance is higher in the group of population with chronic diseases - 28%.

**Geographical accessibility.** Geographical accessibility was assessed by calculating the indicator "the share of the rural population has physical access to a medical institution that offers diagnostic services". The analysis of this indicator showed an equal ratio between patients who travel to Chisinau or another city to benefit from high-performance medical imaging services and the consultation of a specialist doctor and those who can use these services right in the town where they live.

Depending on the place of residence, the share of the rural population that has physical access to a medical institution that offers diagnostic services in their locality - was 13%, respectively 28% for those who move to another city or Chisinau; the proportion is approximately 3 times lower compared to that of the urban population – 34%, which indicates a lower physical accessibility of this group to the respective services (see Diagram 2).

In the case of respondents with chronic diseases, overall, 20% mentioned that they can benefit from diagnostic medical services at a local medical institution, and 23% of them move to another city or to Chisinau and 3% - they don't know.

**Medical accessibility.** More than half of the respondents go to the family doctor and/or the specialist doctor 1-2 times a year, and they mentioned that they can make an appointment up to -/or more than 5 days after the request.

When asked about the obstacles or limitations encountered in the indication of imaging investigations from the medical insurance policy account by medical specialists, most of the respondents chose several answer options, and some reported individual options in writing. Most (31%) identified as an obstacle the long waiting time to carry out the above-mentioned investigations, 19% considered that the lack of available places would be a significant difficulty, 17% assessed that the long distance between the place of living and the institution where these diagnostic medical services are indicated to be performed would be an important limitation.

Also, 14% of all beneficiaries surveyed acknowledged that a complicated procedure must be completed to access high-performance imaging investigations.

At the same time, 8% of the interviewees opined that a remarkable barrier is represented by insufficient knowledge of the family doctor or specialist about imaging services.

About 5% of the respondents cited the family doctor's or specialist's refusal to indicate high-performance diagnostic investigations as an impediment.

Only 6% of the beneficiaries did not express their opinion regarding the recognition of the existence of obstacles or limitations in the indication of imaging investigations (see Diagram 3).

### Financial accessibility

In the case of the people surveyed, half mentioned that they had financial constraints and did not have the possibility to use diagnostic medical services, even if they indicated that they were necessary. The medical institutions selected to do imaging medical investigations on their own account are the private ones, and those on the account of the medical insurance policy – the public medical institutions.

### Qualitative research.

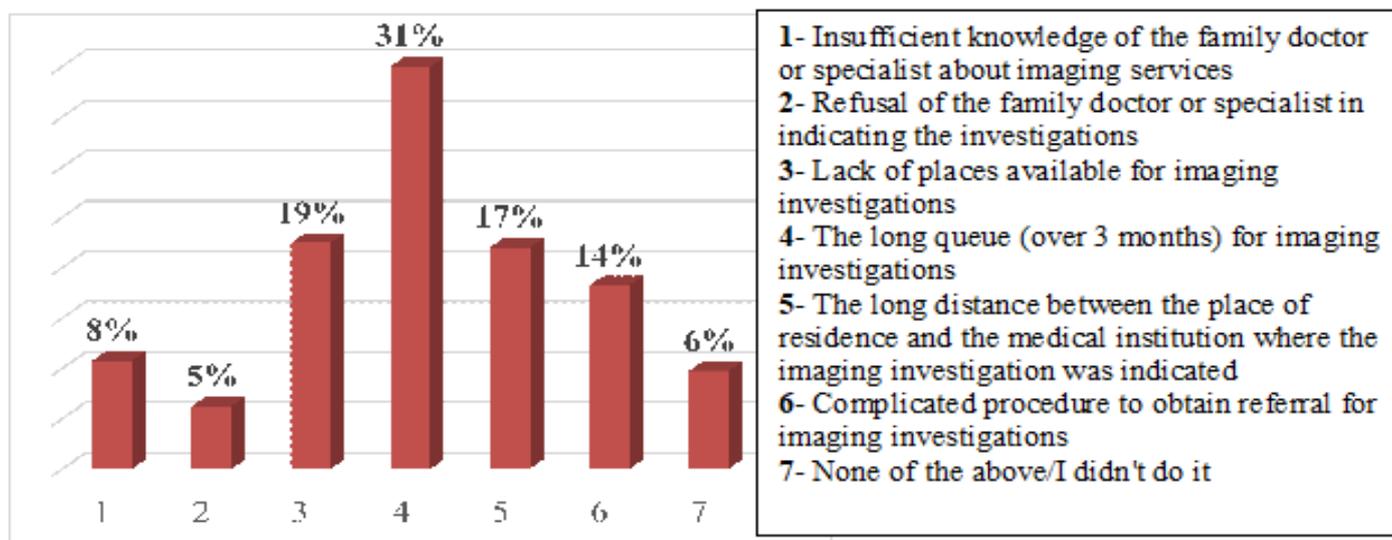
Assessing the opinions of prescribers and providers regarding limitations or barriers to access to high-performance imaging services, we can highlight the existence of similar opinions regarding the long waiting times for performing high-performance imaging investigations and the lack of a single scheduling system.

The individual in-depth interview regarding the opinion on the accessibility of high-performance medical imaging services of the CNAM expert in the field, focused on impediments related to the difficult geographic/territorial access and the patient scheduling system for high-performance imaging services.

## CONCLUSIONS:

• Access to high-performance medical imaging services in the Republic of Moldova is

Diagram 3. The structure of the study group according to the obstacles encountered in the indication of imaging investigations at the expense of the insurance policy, %



dependent on numerous factors such as the population's need for medical imaging services, related to the capacity of the health system characterized by the existence of limits (in terms of resources, means, funds, etc.) in ensuring mandatory medical assistance.

- Medical accessibility is one of the main deficiencies that reduce the availability and access to high-performance imaging investigations.
- The freedom of choice of providers is limited (especially in rural, remote and underdeveloped regions) and is strongly correlated with the geographical access of diagnostic services.
- The financial barrier (direct payments for performing imaging investigations and transport costs) has a negative impact on access to these services, making them inaccessible, especially for beneficiaries with low incomes or from vulnerable socio-economic categories.
- Access to information has a major impact on the application of interoperability standards, but also on quality, security and relevance in the knowledge and level of information regarding high-performance medical imaging services in the Republic of Moldova.

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