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MONITORING THE IMPLEMENTATION OF THE CARDIOVASCULAR POLICY IN COLOMBIA

WHY MONITOR?

1. **Cardiovascular diseases (CVD) were the leading cause of death** in the world in 2019. In Colombia, circulatory system diseases produced 26.01% of deaths in the general population in 2021.

2. In the country, **CVD is prioritized within the Ten-Year Public Health Plan 2022-2031,** and **indicators designed to monitor** compliance with implementing CVD-related activities exist.

3. Although CVD prevention is prioritized, and routine reporting systems and indicator definitions are in place, **there are opportunities for a better integration of the available data to support decision-making.**

WHAT CAN WE LEARN ABOUT THE STUDY POPULATION BY MONITORING?

We can calculate the proportion of people screened for cardiovascular and metabolic risk factors.

1. Between 2015 and 2022, the proportion of people screened increased for those older than 28 years. In this group between 26% (2020) and 40% (2022) were screened with at least one procedure.

2. For adults younger than 29, this indicator was between 11% (2020) and 22% (2024) and its most frequent screening was glycemia. For adults older than 28, similar figures for glycemia, total and high-density cholesterol, and triglycerides screening were observed.

We can assemble a cohort follow-up for persons with hypertension.

1. The number of patients diagnosed with hypertension in some of their medical care attention has grown over the years.

2. In 2021, for every 100 people using services with a diagnosis of hypertension, 86 (84 in 2022) had a confirmed diagnosis of hypertension. Of those with a confirmed diagnosis, 91% (88% in 2022) had a valid blood pressure report; for every 100 people with a valid report, 76 in 2021 and 78 in 2022 had controlled blood pressure.

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3. At the same time, there is an upward trend in the number of people using emergency services for coronary heart disease and cerebrovascular events.

CONCLUSIONS AND RECOMMENDATIONS

1. The information available from routine reporting provides relevant evidence for decision-making.

2. Examples are shown for monitoring interventions for risk factors and people with hypertension.

3. The integration of the different sources of information would allow a deeper understanding of the cardiovascular health situation. It can point out areas to improve CVD policy and/or policy implementation.

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1. Why monitor the situation of cardiovascular diseases?

In 2019, **cardiovascular diseases (CVD) were the leading cause of death** in the world due to ischemic heart disease and stroke (World Health Organization, 2020). In Colombia, between 2005 and 2021, diseases of the circulatory system were the leading cause of death for the general population, producing 26.01% of deaths and 20.05% of years of potential life lost (YPLL) in 2021 (Ministry of Health and Social Protection, 2023).

The **Ten-Year Public Health Plan 2022–2031 recognizes this problem as a priority,** looking forward to reducing disability-adjusted life years attributed to cerebrovascular events, hypertensive heart disease, and chronic kidney disease, and increasing the uptake rate for arterial hypertension, and reducing tobacco use (Ministry of Health and Social Protection, 2022).

The Comprehensive Care Policy **recognizes the need to integrate and articulate community care,** under the responsibility of the Health Secretariats, **with individual care,** under the responsibility of insurers and health service providers. The latter includes early detection and secondary prevention activities. This articulation is essential since treating and preventing CVD requires a multidimensional approach (World Health Organization, 2013).

Despite the priority established to prevent CVD, existing reporting systems, and the definition of various sets of indicators for CVD, there are opportunities for a more integrated use of the available data to support decision-making in all the institutions involved in their intervention.

This Policy Brief serves as a demonstration case of the potential use of existing routine data reports to understand the CVD situation and CVD policy implementation. Based on the information available from a population of more than 800,000 social security affiliates, indicators were estimated, organizing information along the disease's natural history (cohort).

2. What can we learn about the study population by monitoring it?

2.1. Sources of information

According to Health Care Pathway (RIA, in Spanish) for Health Promotion and Maintenance and the document on cardiovascular and metabolic risk assessment prepared by the Ministry of Health and Social Protection (MSPS) (Ministry of Health and Social Protection, 2023), health insurers, territorial entities, and health service providers will conduct joint analyses of the coverage and results in the identification of cardiovascular risk to determine intervention needs and thus keep the population healthy and manage risks promptly.

Indicators have been formulated to monitor compliance in implementing CVD-related care. One of the sources to calculate indicators is the technical annex defined in Resolution 202 issued by the MSPS on February 23, 2021. In this administrative report, preventive activities, including many screenings, like glycemia, lipid profile, and blood pressure, among others, for each individual should be reported every three months. The information on this resolution was not available for estimations, so proxy indicators were estimated using the information provided by an insurer of almost 800.000 insured in the defined format from the MSPS to determine the annual premium in the social security system: Capitation Payment Unit (UPC, in Spanish).

A second source of information used for the estimation of the indicators of tracing and monitoring was the reports that the insurer did for the High-Cost Patients Fund (CAC, in Spanish) related to chronic kidney disease (CKD) between 2021 and 2022, whose structure is defined in Resolution 2463 of 2014 and should be reported by insurers. The number of active affiliates for health insurers in each age group was consulted from the Single Database of Affiliates (BDUA, in Spanish). Some of these databases could be accessed due to PROESA's authorization for using them for research. Moreover, these databases are anonymized.

2.2. Indicators

Four indicators were estimated in this section, three of which are included in the monitoring definition of CVD policy and services utilization indicators.
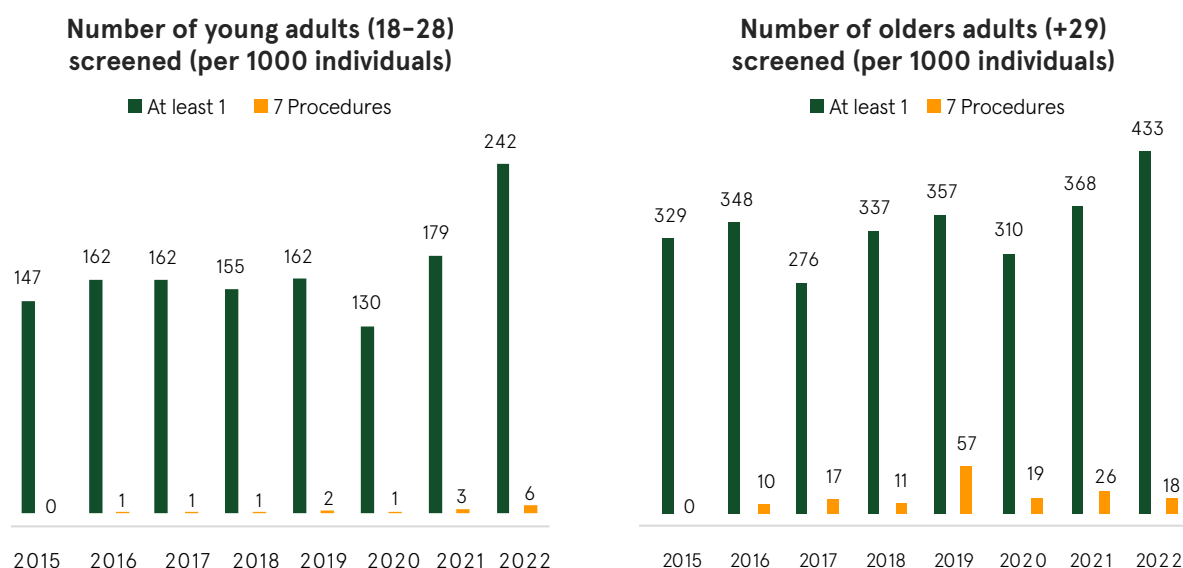
2.2.1. Proportion of people screened for cardiovascular and metabolic risk

Following the indicators defined by the MSPS, the number of people screened corresponds to those who utilized the following procedures reported in no longer than three months.

Table 1. Screening procedures (CUPS)

1. Uroanalysis (90.7.1.06)
2. Glucose in serum or other fluid other than urine (90.3.8.41)
3. Creatinine in serum or other fluids (90.3.8.95)
4. Total cholesterol (90.3.8.18)
5. Semi-automated low-density cholesterol (90.3.8.16)
6. High-density cholesterol (90.3.8.15)
7. Triglycerides (90.3.8.68)

Figure 1 shows the results for youth (18-28 years) on the left side and for adulthood (29 years - 59 years) and old age (60 years and older) on the right side. The proxy indicator was defined as the number of persons (for each age group) who received at least one of the screenings/all the screenings in Table 1 each year (numerator) divided by affiliates (for correspondent age group) in the same year multiplied by 1.000. Both graphics shows that the people who were screened for at least one procedure have a bigger proportion than those screened by all the screenings. At the same time, the older ones showed higher values on the proportion of at least one procedure and all the procedures.

Figure 1. Proportion of people screened for CVD and metabolic risk 2015-2022

Number of young adults (18-28) screened (per 1000 individuals)

■ At least 1   ■ 7 Procedures

Number of olders adults (+29) screened (per 1000 individuals)

■ At least 1   ■ 7 Procedures

Source: Estimation by PROESA based on UPC and BDUA insurer reports

During the period 2015 - 2022, for every thousand young adults (under 29 years of age), at least 130 received screening with at least one of the procedures. The highest proportion of screened young adults was observed in 2022, with 242 in total (almost double that in 2020). For screening with the seven procedures indicated in the RIA, the highest screening rate was observed in 2022 (6 out of every 1,000 young people). In 2015, no young people were reported to have this screening. The screening is indicated in patients at high risk of cardiovascular disease; however, it was not possible to use this denominator since it is reported in Resolution 202 of 2021.

Glycemia was the most frequent screening during the period for young adults reaching a coverage of 7.6% to 15.8% of young affiliates (Figure 2). This is followed by triglycerides, total cholesterol, and high-density cholesterol procedures, which are applied together.

Figure 2. Proportion of screened affiliates for each procedure – Youth 2015 – 2022
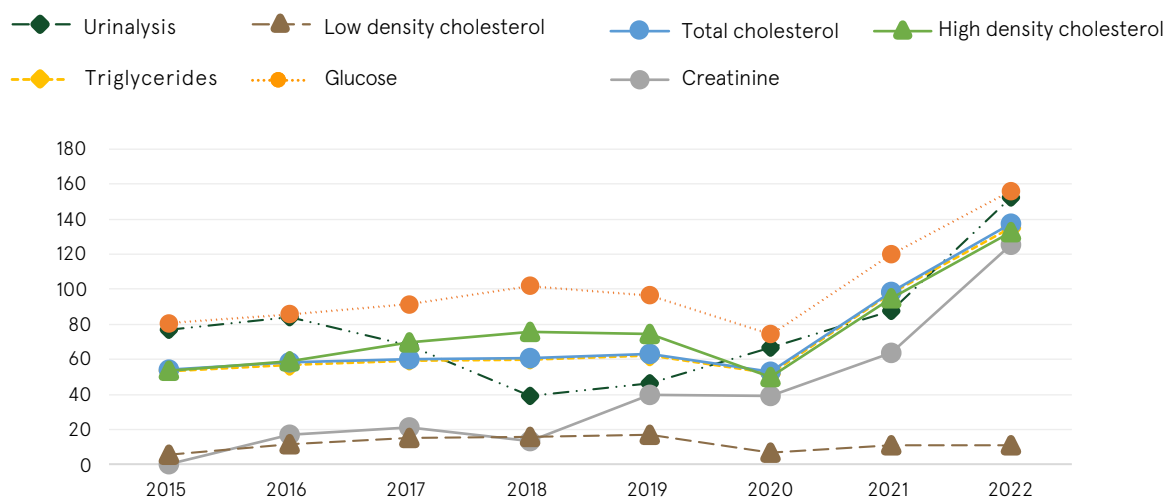
Source: Estimation by PROESA based on UPC and BDUA insurer reports

People older than 28 years present higher screening rates (1,7 to 2,4 times the rate for young adults). Between 2016 and 2022, they are screening with seven procedures covering between 1% and 6% of enrollees of this age. In 2015, no person in the age group received all procedures. The proportion of people who received at least one of the procedures is between 27.6% and 43.3% in this age group, with 2022 presenting the highest screening rate (Figure 1). Figure 3 shows that the most frequent tests performed were total cholesterol, high-density cholesterol, and triglycerides, while low-density cholesterol was the least frequent.

Figure 3. The proportion of screened affiliates for each procedure – Adulthood + Old Age 2015–2022
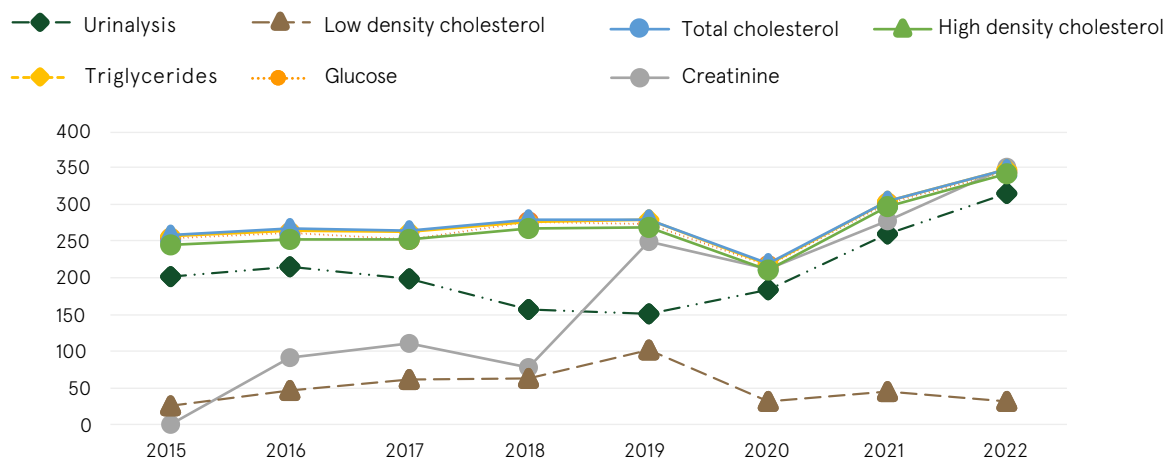
Source: Estimation by PROESA based on UPC and BDUA insurer reports

2.2.2. Proportion of people identified with dyslipidemia

The follow-up and monitoring of the implementation of the RIA has many milestones to identify persons with metabolic risk. In the case of dyslipidemia, the MSPS defined the indicator of the percentage of people aged 18 years or older identified with dyslipidemia according to laboratory criteria. The source for calculating this indicator is the information provided in Resolution 202 of 2021. Proxy indicator based on UPC information considers positive persons as individuals with utilizations related to ICD codes of dyslipidemia (Table 2). Figure 4 shows results.

The indicator is calculated using the people diagnosed with dyslipidemia using the ICD10 codes shown in Table 2.

Table 2. ICD10 Codes – Dyslipidemia

ICD10 Codes	Diagnosis
E780	Pure hypercholesterolemia
E782	Mixed hyperlipidemia
E784	Other hyperlipidemia
E785	Unspecified hyperlipidemia
E788	Other lipoprotein metabolism disorders
E789	Disorder of lipoprotein metabolism, unspecified

Figure 4 shows the proportion of screened persons who obtained a diagnosis of dyslipidemia for each year observed and by each age group. For all years except 2018, the highest proportion of screened persons diagnosed with dyslipidemia is 29 to 59 years (Adulthood). The highest positivity in this age group was reached in 2018 when 19.6% of screened persons were diagnosed.

People aged 60 years and older (old age) also reached the peak of positivity for dyslipidemia in 2018, when 24% of screened people were diagnosed. Young people present a proportion between 3% and 5% of positivity. For the three age groups, there is evidence of a decrease in positivity for dyslipidemia between 2019 and 2022. The lowest values were 3% for youth, 9.4% for adults, and 7.9% for people of old age.

**Figure 4. The proportion of people identified with dyslipidemia**
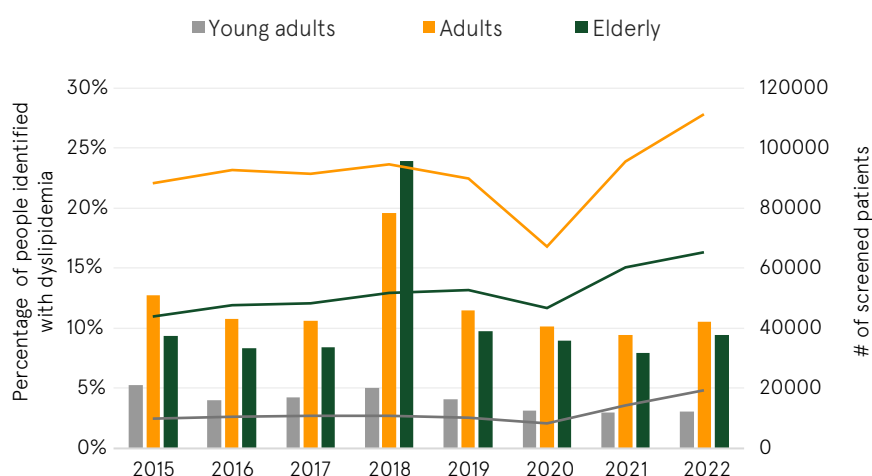
Source: Estimation by PROESA based on UPC and BDUA insurer reports

NOTE: The lines correspond to the right axis of Figure 4, describing several patients screened by dyslipidemia by age group. The bar graph refers to the percentage (concerning the total number of members) of patients identified with dyslipidemia by age group, which corresponds to the left axis.

2.2.3. Proportion of people with hypertension and people with controlled hypertension

It is possible to follow up on the number of people using services due to hypertension and compare it with reports of confirmed patients with hypertension, as shown in Figure 5.

Figure 5. Patients diagnosed with hypertension (utilization of services and confirmed)
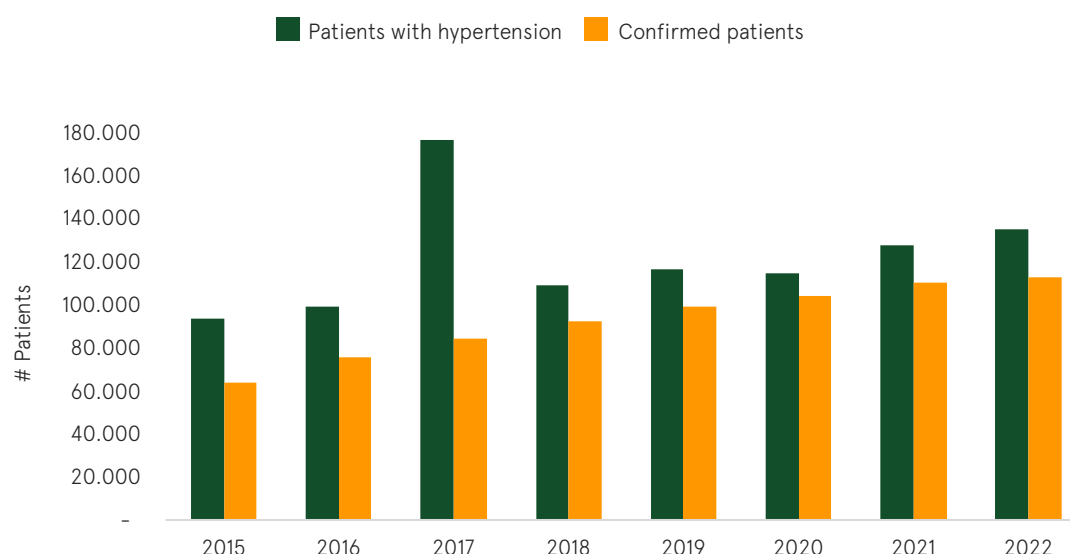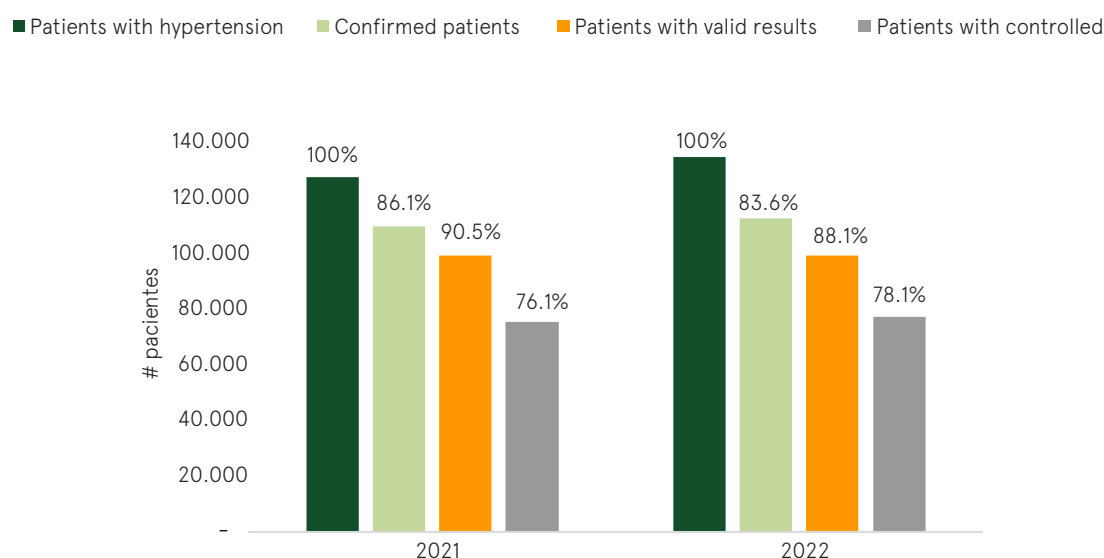

Source: Estimation by PROESA based on CAC and BDUA insurer reports.

Based on UPC and CAC for CKD, persons with a hypertension diagnosis (ICD10) were selected in each available year (for CAC only in 2021 and 2022). The latter are the so-called confirmed patients (green bars). The number of patients diagnosed with hypertension in both data sources has increased over the years. In 2015, 64,188 people had a confirmed diagnosis of hypertension; in 2022, this figure rose to 112,813 people.

Further, based on CAC information brought by insurance for CKD, we estimate the rate of hypertensive patients with under control for years 2021 and 2022 as shown in figure 6. The blue and green bars represent patients with a diagnosis of hypertension in any of their medical care and confirmed patients, respectively. By 2021, confirmed patients represented 86.1% of the total; in 2022, confirmed patients represented 83.6%.

To identify which patients are under control, we used the information reported by the insurance company to the CAC on the results of systolic and diastolic blood pressure measurements. By 2021, controlled patients, i.e., those with systolic blood pressure less than 140 and diastolic blood pressure less than 90, represented 76.1% of patients with valid results, while by 2022, this rate was 78.1%.

Figure 6. Patients with controlled hypertension

■ Patients with hypertension ■ Confirmed patients ■ Patients with valid results ■ Patients with controlled

Source: Estimation by PROESA based on CAC and BDUA insurer reports

2.2.4 Utilization of services due to CVD damage

Figure 7 shows how the proportion of patients diagnosed with hypertension admitted to the emergency department either for coronary heart disease or a cerebrovascular event has been increasing.

Figura 7. Extension of use
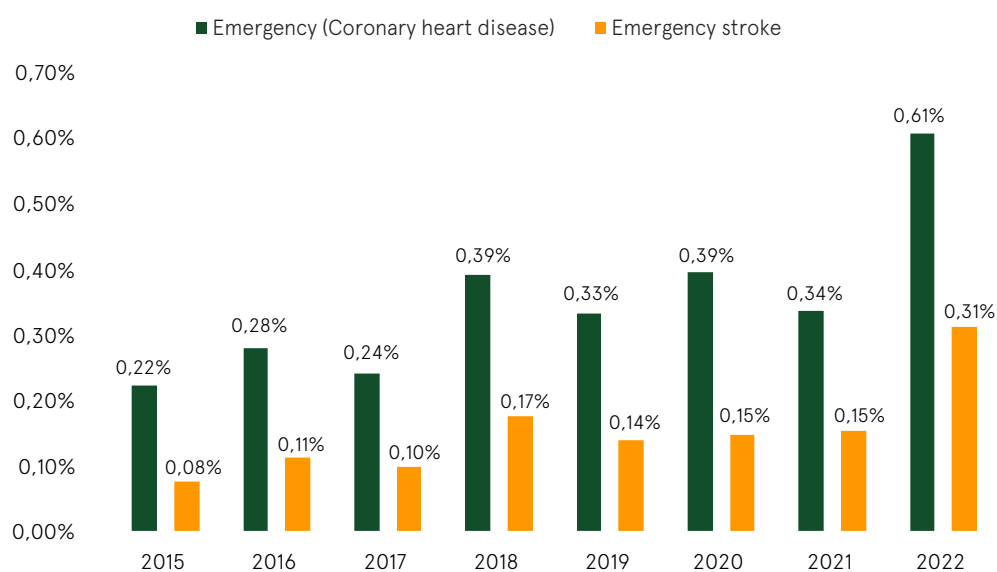
■ Emergency (Coronary heart disease) ■ Emergency stroke

Source: Estimation by PROESA based on UPC and BDUA insurer reports

The analyses presented in this document based on a population of more than 800,000 people use routine reports to estimate indicators related to cardiovascular health and policy implementation. Results show screening trends, results of screening, and indicators of clinical control achievement of risk factors, and can be analyzed together with utilization to monitor effects on critical outcomes such as cardiocerebrovascular events. This information is crucial for evidence-based decision-making.

According to the Health Care Pathway (RIA, in Spanish) for Health Promotion and Maintenance, health insurers, territorial entities, and health service providers must conduct joint analyses to determine intervention needs and manage risks promptly. This includes answering questions such as: How much active screening is being done? Is the expected coverage being achieved? Is the increased screening of people over 29 contributing to risk reduction? Regarding resource management, this type of analysis provides valuable information, also for planning the supply of services.

The indicators proposed in the policy establish the measurement of screening for cardiovascular and metabolic risk, through the 7 procedures, for all those who are in adulthood and old age. However, the data show that there is greater coverage for at least one of the 7 procedures than for all 7 simultaneously, which could be related to clinical criteria in which situations arise where some risks are ruled out and subsequent follow-up is carried out on those risks that were identified as being present in the patient.

Using all available sources of information would allow for the follow-up and monitoring of the implementation of the cardiovascular policy. It would also allow for continuous monitoring of the evolution of the situation over time and the construction of patient cohorts, adding important evidence for the decision-making of those responsible for managing risk at an individual and collective level, with the EPS and IPS being responsible for individual risk and the MSPS for collective risk, monitoring and follow-up. In order to achieve the above, it would be necessary to guarantee access to all information to the responsible actors.

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