

A light gray world map is the background. Overlaid on it are several semi-transparent circles in shades of orange, purple, blue, and pink, scattered across the continents.

A POLICY FOR DELIVERY OF ESSENTIAL MEDICINES TO VULNERABLE POPULATION IN ARGENTINA: A CASE STUDY OF REMEDIAR PROGRAM

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Abstract

Essential medicines play a key role in financial protection and in the management of chronic diseases and acute conditions and it is well known that lower-income households spend a greater proportion of their health expenditure on the purchase of drugs, thus exacerbating inequity. This study aims to analyze the financing and purchasing model and the supply chain of the REMEDIAR Program along more than two decades (2002–2024), evaluating how its capacity to address economic and political challenges contributed to maintaining an uninterrupted supply chain, guaranteeing equitable access to essential drugs at the primary health care level, within the framework of the Universal Health Coverage (UHC) strategy in Argentina.

Since its implementation, the REMEDIAR Program has undergone various financing models that alternated between international concessional loans and domestic funds from the treasury. This duality conditioned its planning, execution, and results, reflected in a cyclical budget, strongly influenced by the macroeconomic and fiscal space context. The efficiency and sustainability of the program's procurement process were also influenced by the financing scheme. Through a quantitative and qualitative analysis of its evolution, the strategies for financing, purchasing, distribution, and out-of-pocket drug impact are reviewed, as well as the regulatory, political and institutional changes that have affected its operation.

Our study seeks to provide empirical evidence on three key policy areas that shape the financing and performance of public medicine supply chains.

First, it addresses the challenge of budget formulation in contexts of multiple financing sources, analyzing how supply chains financed through multiple budgetary sources can fragment or undermine domestic service delivery planning. In this regard, the study examines the coexistence of international concessional loans and national funding in the REMEDIAR Program and their effects on planning, coordination, and sustainability. The findings show that while the international loan initially enhanced efficiency, it also constrained domestic planning by relying on external rules, creating tensions during the transition toward nationally financed schemes. For example, national funded processes extend to 458 days from initiation to purchase order, while the ones internationally financed take 235 days.

Second, it explores issues related to budget execution itself and procurement predictability. The case provides evidence on the conditions under which budget planning and execution can ensure more stable and predictable financing for procurement agencies. Empirical data from REMEDIAR indicates that the program executed over 90% of its allocated budget in most years, with greater predictability under international financing. The study suggests transferring key features of the IDB framework—such as systematic monitoring, technical and financial reporting, and payments in hard currency—into the national budgeting process to enhance stability and predictability.

Third, it analyzes the balance between centralization and decentralization in procurement systems. The study contrasts centralized and decentralized models, demonstrating that national centralized procurement achieves substantially higher price efficiency and lower price

dispersion. Nonetheless, it acknowledges persistent rigidity in adapting supply to local needs, particularly in the absence of a formal federal governance structure for decision-making.

Within the framework of a centralized medicine supply program, when analyzing the territorial distribution, impact on out-of-pocket spending, and effective coverage reveals that REMEDIAR has contributed to reducing access barriers and improve financial protection to the most vulnerable households, especially those without formal coverage. However, the effectiveness of the program does not depend exclusively on the volume of resources, but also on its proper management. After substantial progress in its early years, the program entered into a period of stabilization, failing to sustain its initial momentum of innovation. Specifically, REMEDIAR showed limitations in consolidating robust mechanisms for coordination and collaboration with subnational policies. As a result, the program became entrenched in its own operational logic, relatively independent of provincial strategies.

Finally, the report stresses that the transition to national financing must contemplate a more profound institutional redesign, integrating operational capacities, regulatory frameworks, and federal coordination to guarantee long-term sustainability.

Introduction

The REMEDIAR Program is an initiative of the Argentine Ministry of Health aimed at ensuring free access to essential medicines at the point of care in primary healthcare centers (PHC). It was established in 2002 as part of a strategy to address the healthcare needs of the most vulnerable populations, particularly during the dramatic economic and social crisis of Argentina in that period. Over the years, the program has evolved as a key component of Argentina's public health system. The program's main objectives are: provide medicines by delivering essential ambulatory drugs free of charge for the treatment of common illnesses, primarily at primary health care centers (PHC); strengthen the primary healthcare system, by enhancing the capacity of PHC to provide comprehensive and high-quality care; and reduce inequities by ensuring access to medicines in underserved regions and mostly for poorer populations relying only on public coverage. The REMEDIAR program delivered medicines to more than 8,000 PHC, with free coverage for the population without social or private insurance. According to the latest census carried out in 2022, more than 16 million people only have access to the public care system (35.8%), who are the beneficiaries of REMEDIAR program (6).

Throughout its more than two decades of implementation, the program shifted from an emergency strategy to address the economic crisis of 2001–2002 into a structural policy within Argentina's healthcare system. The medicines are distributed in kits containing a defined package of essential drugs to address prevalent conditions such as hypertension, diabetes, asthma, and other chronic conditions, antibiotics for common infections, and contraceptives, among other ambulatory drugs. Each PHC receives these kits adjusted for local needs and the population they serve, dispensing the medications to individuals with exclusive public coverage (without social security or private insurance). Over time, changes have been made to its funding sources, procurement modalities, list of essential medicines included in the kits, and prioritized diseases, among other critical aspects. Additionally, its sustainability has been challenged by macroeconomic and political factors. Despite REMEDIAR being a federal program, public health in Argentina is mostly decentralized to the provinces, and in some provinces, also to its municipalities. In this regard, there are significant complementarities with medication coverage policies implemented at the provincial and municipal levels.

Historically, the REMEDIAR Program has faced persistent challenges due to inflation, economic crises, and political shifts. A crucial aspect in its evolution has been the transition from international concessional loan financing to treasury budget funding. In this regard, REMEDIAR has operated under two distinct financing models: International Loan-Based Model -financed through external credits from the InterAmerican Development Bank (IDB)-characterized by structured planning, rigorous monitoring, international tenders, payment of suppliers in US currency and indicator-based performance tracking, and National Program Model -funded by domestic budget, characterized by financial and procurement management under national regulatory frameworks such as national bids, direct purchases, inter-administrative agreements and payment to suppliers in local currency, while the flow of monies are related to the country's fiscal space. In the case of the IDB, lending schemes generally operate through co-financing arrangements between the Bank and the recipient country. The IDB typically finances a defined proportion of the total project cost—often between 50 and 80 per cent—while the national government is required to provide the remaining share as the local counterpart, normally through its public budget. These operations follow a *pari-passu* logic: where both contributions are executed under a cost-sharing agreement.

These models differ in budgetary planning and predictability, procurement processes and efficiency, tracking and monitoring of indicators, and execution speed and adaptability.

This study aims to analyze the two financing models of REMEDIAR Program during 2002-2024, focusing on budget planning, procurement efficiency, and supply chain performance.

The performed analysis allows us to understand the importance of different assembly strategies between money-purchase-distribution in different financing models.

Methodology

Design

This is a case study, defined as an empirical investigation that examines a contemporary phenomenon in depth and within its real-life context. Following Yin's principles (4), this methodology is well-suited to addressing "how" and "why" questions related to complex challenges such as the implementation of health policies.

The design will involve a single-case study with a longitudinal focus, centered on the REMEDIAR Program during the 2002–2024 period. This approach, using both quantitative and qualitative methods, will enable an analysis of the evolution of financing, procurement strategies, distribution and coverage.

The conceptual framework of this study is based on the guidelines set out in the Nexus Working Group Brief: Policy issues in the financing of supply chains by Pete Baker et al. (2) They argue that health supply chains are a critical determinant of the performance of health systems and, by extension, of universal health coverage (UHC) accomplishment (3). They integrate two frameworks to understand the nexus between financing and logistics performance: UNICEF's supply chain maturity model (Plan, Procure, Supply and Monitor) and WHO's Public Financial Management (PFM) Cycle (budget formulation, execution and monitoring)(3,5,6). The overlap between the two generates a matrix in which budget formulation is aligned with the planning phase, budget execution with procurement and delivery, and financial monitoring with logistical monitoring. This scheme situates the availability of inputs as the result of dynamic interactions between financial and operational decisions, an intersection addressed in this case study.

Data Collection

Sources of information

The study is based on the principle of methodological triangulation, integrating multiple sources of evidence. The sources used are as follows:

Secondary Sources:

- Normative and administrative documents (budget laws, decrees, IDB contracts, bidding documents, ministerial resolutions): Institutional and regulatory reconstruction of the program; identification of design milestones and operational changes
- Budgetary (, Integrated Financial Management System (SIAF by its acronym in Spanish) and operational databases (purchase and delivery orders, stock, monitoring dashboards): Evaluation of allocations, execution, timelines, distributed volumes, and logistical efficiency.

- Price and exchange rate databases (Consumer Price Index of the National Institute of Statistics and Census -INDEC CPI by its acronym in Spanish-, BCRA -Central Bank of the Argentine Republic by its acronym in Spanish-, ALFABETA and COMPR.AR price manuals): Adjustment of monetary values for inflation and conversion to US dollars for temporal and regional analysis
- Household Expenditure Surveys (ENGHo by its acronym in Spanish 2004/05, 2012/13, 2017/18): Estimation of out-of-pocket spending on medicines by income, coverage, and region; distributive analysis

Primary Sources:

- Semi-structured interviews with key informants (n=5): Conducted with key stakeholders, including current and former program officials and public policy specialists. These interviews provided insights into changes in financing and procurement strategies.

Data Analysis

A mix-method analysis was applied:

Qualitative analysis: thematic analysis of semi-structured interviews and normative/administrative documents, with the aim of reconstructing institutional milestones and capturing political and technical factors that influenced the program.

Quantitative analysis: included several complementary dimensions that combine descriptive quantitative and time-series analysis (budget and prices) with quasi-experimental econometric models (out-of-pocket spending).

- Time-series analysis: monitoring of financial, operational, and impact indicators over more than two decades (2002–2024), allowing for the observation of dynamics of continuity, ruptures, and structural changes.
- Budgetary and financial analysis: re-expression of amounts in US dollars and in constant 2024 pesos to eliminate distortions associated with inflation and exchange rate volatility; construction of a spliced price index to ensure intertemporal comparability.
- Efficiency analysis in procurement: construction of the awarded price/market price (AP/MP) indicator, with the purpose of estimating savings, evaluating institutional purchasing capacity, and analyzing the performance trajectory of the public procurement system in different contexts and financing schemes.
- Distributive impact analysis: application of a quasi-experimental design with microdata from the Household Expenditure Surveys (ENGHo), estimating multivariate regression models with province and year fixed effects. The objective was to identify whether the intensity of the program (treatments distributed per vulnerable household) reduced the financial burden of families in the purchase of medicines, controlling income and level of need.

Data triangulation: integration of qualitative and quantitative findings to strengthen the validity of the study and ensure a comprehensive reading of the processes and results of the program.

Validation: Preliminary findings were presented to key IDB local officials, whose feedback ensured interpretations accurately reflect the realities of the implemented program.

A more detailed description is available in the Methodological Annex for each results section.

Phases under study

For the purposes of analysis, the study period was divided into four distinct phases based on the predominant source of funding, even though these phases may overlap. This approach accounts for the different types of processes supported by the funding framework (FF). The specific phases chosen for this analysis are detailed in Figure 1.

Table 1. Phases for analysis.

2002-2007	2008-2015	2016-2020	2020-2024
SET UP AND INITIAL IMPLEMENTATION	PROGRAM EXPANSION	PROGRAM FINANCIANG TRANSITION	NEW POST-PANDEMIC PHASE
It was established in 2002 under the National Health Emergency (Decree 2724/2002) with financing from the IDB (loans 1134/OC-AR and 1193/OC-AR)(7,8).	Funded by loan 1903/OC-AR (REMEDIAR + Redes I). The list of medicines is expanded, information systems are introduced, and logistics are strengthened. Medicines for hypertension, diabetes, and cardiovascular risk are incorporated.(9)	Shift toward national funding. Although IDB loan 3772/OC-AR was approved in 2017, it was not used for the purchase of medicines under the program(10).	In 2020, loan 5032 OC-AR was approved to support the health response to COVID-19, once again financing medicine purchases for REMEDIAR(11).

Ethics

The study did not require ethics committee review, as it was based on publicly available information, anonymized databases, and secondary sources. All interviews conducted included informed consent and confidentiality safeguards, in accordance with Law 25,326 on the Protection of Personal Data (12).

A more detailed description of each result section methodology is available in the Methodological Annex.

Results

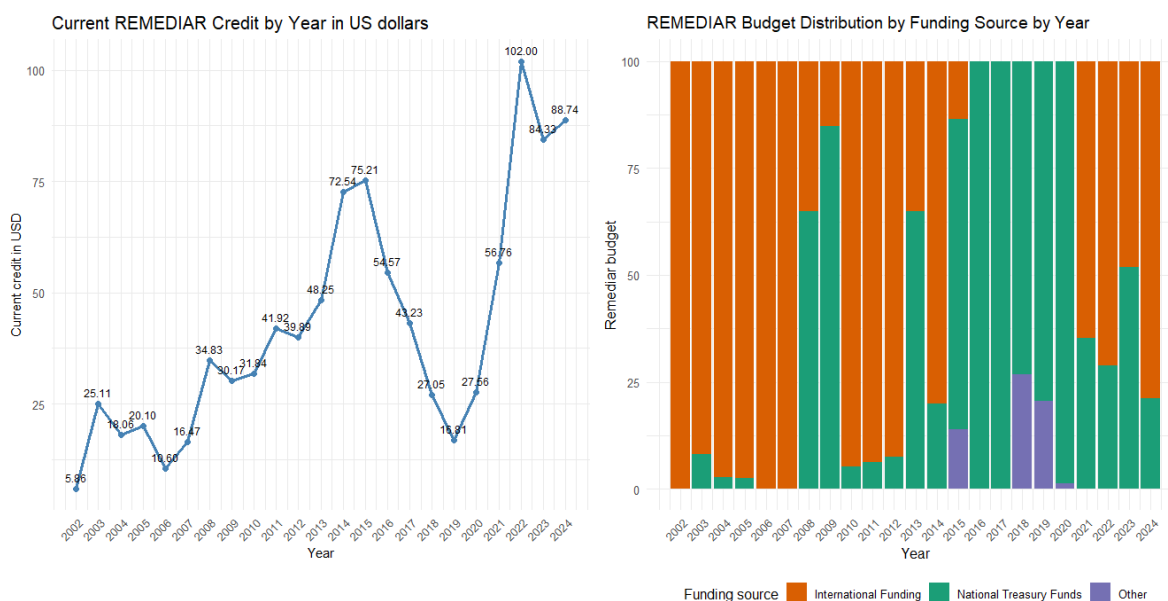
The REMEDIAR study seeks to operationalize the conceptual framework on health supply chain financing developed in the Nexus Working Group Brief (3).

REMIAR Program Budget

The REMEDIAR program has operated under two different financing models, whose institutional and operational characteristics have influenced its performance. Throughout the period 2002-2024, the budget showed a clearly cyclical evolution, closely linked to the macroeconomic context and fiscal space, and the availability of external financing. During the early years (2002–2007), the funding remained at relatively modest levels reflecting the start-up phase and almost total dependence of the IDB. Starting in 2008, a period of sustained expansion began, culminating in 2015. This increase coincided with the diversification of sources and increased participation by the National Treasury, which enabled the expansion of the program's coverage. A contraction was observed between 2016 and 2019 mainly due to internal fiscal constraints, currency depreciation, and austerity policies. The dynamic changed abruptly after the outbreak of the pandemic: financing recovered in 2020, remaining at high levels in the following two years. This rebound was due to a combination of budgetary reinforcements from the Treasury and, above all, renewed access to external credit lines.

An analysis of the budget composition by source of financing (Figure 1) confirms these cycles. Between 2002 and 2007, external credit predominated, accounting for virtually all resources. From 2008 onwards, a more balanced mix is observed, with an increase in the Treasury's contribution. Between 2016 and 2020, domestic financing became almost exclusive, while from 2021 onwards, the share of international organizations grew again, financing more than two-thirds of the annual budget.

Figure 1. REMEDIAR Program Budget Trends and Funding Sources (2002-2024).



On the left panel of Figure 1, the evolution of REMEDIAR's current credit budget in US dollars is shown, revealing significant fluctuations over the program's operational period, with notable

peaks around 2008 and 2017. The right panel displays the distribution of funding sources by year, illustrating the relative contributions of different financing mechanisms: international funding (orange), national treasury funds (green), and other sources (purple). The stacked bar chart demonstrates the program's transition in funding structure over time, highlighting shifts between external and national resource mobilization.

Budget execution is the operational phase in which the allocated funds are translated into actual spending. A review of REMEDIAR's budget execution between 2002 and 2024 (Figure 2) confirms that, in most fiscal years, the program achieves credit utilization levels of 90% or higher, reflecting a consolidated operational capacity to effectively transform allocations into spending. However, the time series is not linear: it starts from a very low initial performance, shows a rapid jump in efficiency in 2003-2004, and records peaks of over-execution in 2006 and 2021. In contrast, there are sharp declines in 2005, 2018, and, in particular, 2022.

The breakdown by source of financing clarifies the causes of these variations. External credit, whose use is restricted to the purposes for which it was granted, exhibits a consistent pattern of high execution: after the start-up period, it stabilizes above 80% and exceeds 95% in several years, indicating that IDB mechanisms facilitate the timely use of resources. The dynamics of the National Treasury are different: although it reaches 100% in numerous periods, it shows strong under-execution in 2012 and 2022.

Figure 2. REMEDIAR budget execution in percentage, by year, by source of funding.

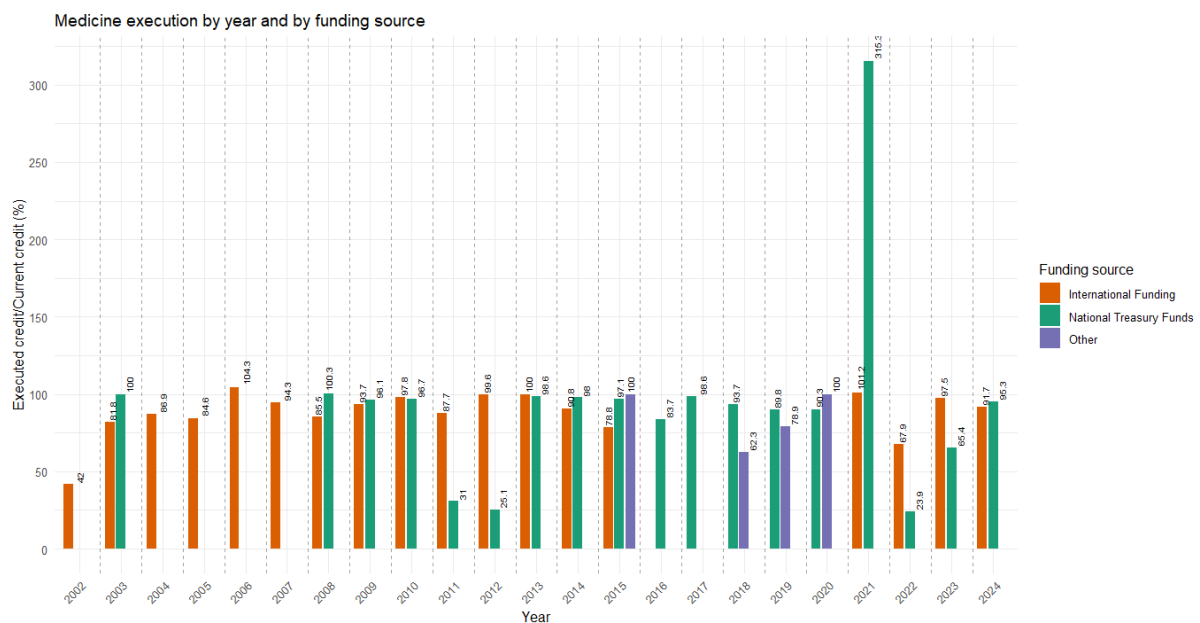


Figure 2 presents annual budget execution rates (as percentage of committed funds) disaggregated by funding source: international funding (orange), national treasury funds (green), and other sources (purple). Most years show execution rates between 50-100%, with notable variation across funding sources. A striking outlier appears in 2021, where one funding source exceeded 300% execution, likely related to the COVID-19 pandemic. The data reveals generally consistent execution patterns for international funding throughout the period, while treasury funding shows more variable implementation rates across years.

REMEDIAR can be considered a program with political flexibility, given that it remained active across governments of different political stripes, but its relative weight was sensitive to sectoral

priorities and the fiscal cycle. REMEDIAR's budgetary history illustrates the ongoing tension between the need for a socially prioritized program and Argentina's macroeconomic conditions.

Efficiency in procurement processes

The Nexus conceptual framework highlights different models of medicine procurement and financing, identifying recurrent tensions such as the trade-off between price efficiency in centralized purchasing and local adaptability, the impact of budget under-execution on procurement, and donor dependency, among others. In this regard, the empirical analysis of the REMEDIAR Program provides evidence across several dimensions within a centralized procurement model. On the one hand, it shows that national centralized purchasing achieved lower prices compared to decentralized procurement in hospitals; however, it also demonstrates that the prices obtained through centralized procurement may vary depending on the type of acquisition process employed. Concerning the relationship between financial rules and logistical efficiency outlined by Nexus, REMEDIAR provides evidence that financial frameworks (contracting rules, currency of payment, execution timelines) shape procurement performance; thus, payments in U.S. dollars and global competition under IDB procedures reduced risks and costs, whereas nationally financed purchases, conducted in local currency and under conditions of greater uncertainty, increased prices and prolonged processes.

Procurement timelines are likewise critical to ensuring the timely availability of medicines. Focusing on four core stages—publication, bid opening, awarding and purchase order (PO), and total process duration—the evidence shows systematic timing advantages under international financing. Nationally funded processes take longer at every stage; in particular, the awarding–PO phase concentrates more than half of total elapsed time and reaches a median of 249 days, while the total process extends to 458 days from initiation to PO issuance. By contrast, internationally financed processes are markedly faster: the awarding–PO phase averages 190 days and the total process takes 235 days, i.e., a little over half the duration observed in national processes. When aggregating all processes, the total duration centers around 291 days, with dispersion and a small number of outliers.

The difference in total duration between financing schemes is primarily explained by the publication stage, measured from the initiation of administrative processing to the formal posting of the call on the relevant procurement portal. In both schemes, this stage encompasses the identification and validation of procurement needs, the preparation of technical and administrative documentation, the issuance of authorizing resolutions, and the formal publication of the tender. In nationally financed processes, longer durations may reflect both procedural and budgetary factors, particularly the dependence on fund allocation, sequential administrative approvals, and inter-institutional coordination required prior to publication, which collectively extend the preparatory phase relative to processes financed through pre-approved external credit lines. These temporal patterns result in substantive differences in predictability and coverage. International financing is associated with shorter and more stable timelines across stages and with reductions exceeding 40% in the publication-to-PO span. Stage-by-stage differences range from 18% to 100% in favor of international financing, except at bid opening, where international processes show slightly longer times that do not offset the advantages accrued in subsequent stages. Overall, the results indicate that financing modality, and its associated contractual and financial conditions, shapes the efficiency and predictability of procurement timelines,

Figure 3. Distribution of procurement timelines by stage and funding source.

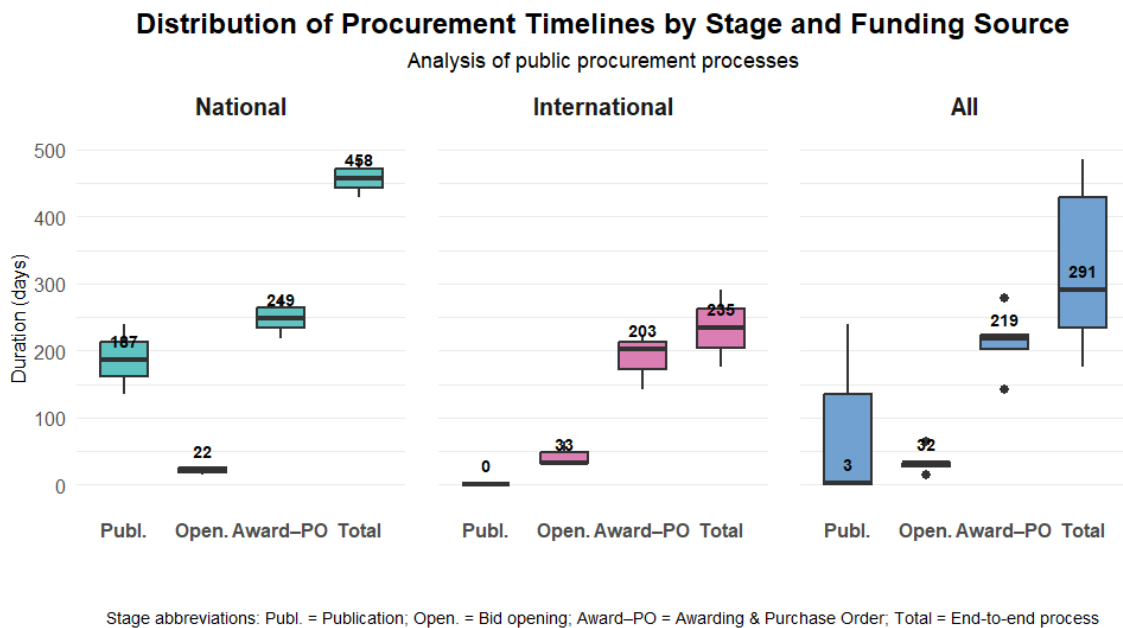


Figure 3 presents a distribution of stage duration in days (Publication, Bid Opening, Awarding, Purchase Order, and Total) displayed separately for National and International financing, with an all panel pooling both schemes. Median values are labeled; boxes represent the interquartile range (IQR); whiskers extend to 1.5×IQR; points denote outliers.

The REMEDIAR Strategy is based on centralized high-volume purchasing, making it essential to evaluate efficiency in structural terms—specifically, the economic impact of procurement conditions. Adopting an evolutionary perspective on the relationship between awarded and market prices, the analysis presents annual trends compared across financing schemes. In this framework, the Awarded Price/Market Price (AP/MP) ratio is employed as an indicator of relative efficiency: it captures the differential the State secures relative to the retail price (the price faced by individuals without formal health coverage) and enables consistent comparisons across financing modalities over time.

The program commenced under exceptionally favorable purchasing conditions amid a crisis. In 2002, REMEDIAR acquisitions were paid at 15% of the market price, reaching a historical low of 9% in 2004. From 2008 onward, the AP/MP series displays an upward trajectory that persists in subsequent years, suggesting a gradual decline in relative efficiency. The most recent years under national financing exhibit a partial recovery relative to the final phase of international financing, though without returning to the program’s initial efficiency levels. The highest AP/MP ratio under international financing was recorded in 2015 (43%; the absolute maximum was 50% in 2006), after which the indicator declined. By contrast, national financing follows a more stable path, in the order of 21%–30%, albeit at efficiency levels below those observed in the early years. Notably, the spikes in 2006 and 2015 should not be construed as procurement inefficiencies: they generally reflect temporary declines in market prices in U.S. dollars alongside relatively stable awarded prices, mechanically raising the ratio without implying higher public expenditure or diminished bargaining power.

Consistent with the aggregate evidence, product-level results for high-consumption medicines point in the same direction: international financing systematically attains lower AP/MP ratios

than national financing (overall average below 36%), with differences exceeding 18 percentage points for iron and a single near-parity exception in metformin (less than one percentage point). These findings underscore the importance of applying efficiency criteria to medications that represent a larger share of total spending, as optimizations in this segment can translate into significant savings and improved equity in access.

Figure 4. Historical series of awarded price, market price (USD), and AP/MP ratio, 2002–2018.

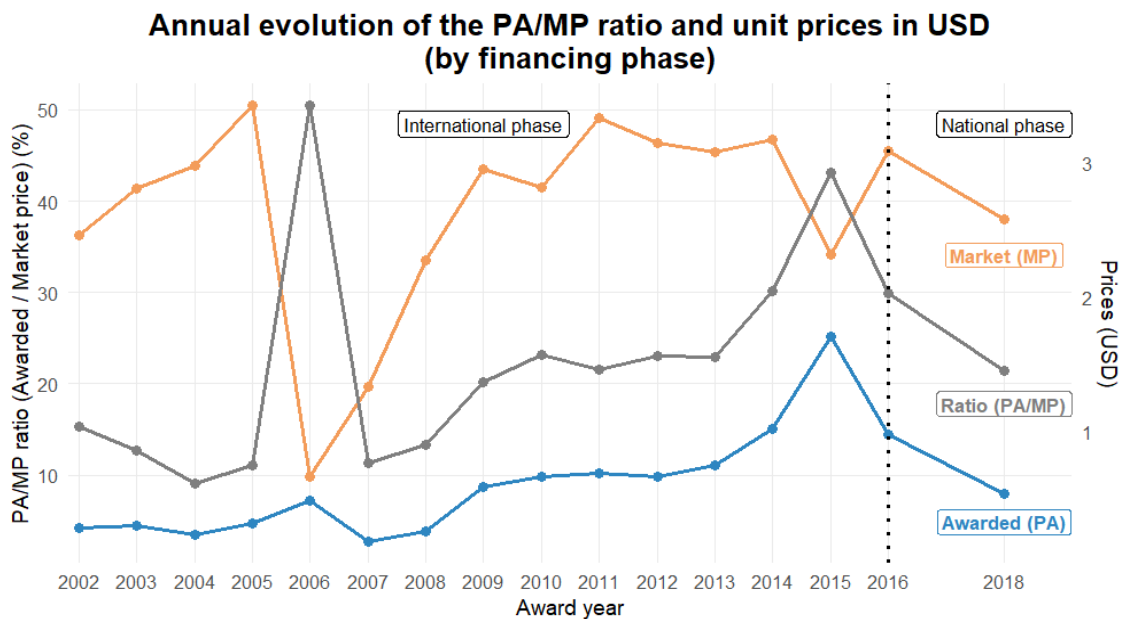


Figure 4 compares internationally and nationally financed tenders; series are simple (unweighted) medicine-level averages with prices in USD. Data refer to REMEDIAR public-tender acquisitions only. The vertical line marks the transition from international to national financing. AP/MP = awarded-to-market price ratio.

Throughout its implementation, the Essential Medicines Formulary (VDM) of the REMEDIAR Programme underwent successive revisions and expansions, aimed at aligning the pharmaceutical supply with evolving epidemiological needs and scientific evidence. The initial selection, developed in 2002, included 39 active principles in 51 pharmaceutical presentations. In 2010, following a technical consensus process, the list was expanded to 41 active ingredients across 60 different presentations(13). Subsequently, under Resolution 2964/2019(14), the formulary was updated once again, reaching 66 active ingredients in 90 presentations. Finally, Resolution 3424/2021 (15) approved a new Essential Medicines List for the Primary Health Care level, comprising 96 active ingredients in 128 presentations, of which the specific REMEDIAR formulary included 75 active ingredients and 99 pharmaceutical presentations.

Although the REMEDIAR Program’s Essential Medicines Formulary (VDM) establishes a set of priority active ingredients for procurement and distribution, in practice it was not always possible to acquire or distribute all of them. This situation can arise due to various factors, such as budget constraints, failures in the bidding processes, limited market availability, or significant discrepancies between reference prices and submitted bids. As a result, not all the medicines included in the VDM (14,16) are ultimately selected for purchase, and among those

that are, actual procurement is not always completed. This gap between planning and execution highlights the operational complexity involved in ensuring sustained access to essential medicines within the framework of public health policy.

Figure 5. Number of types of medicines distributed per year and comparison with the VDM targets.

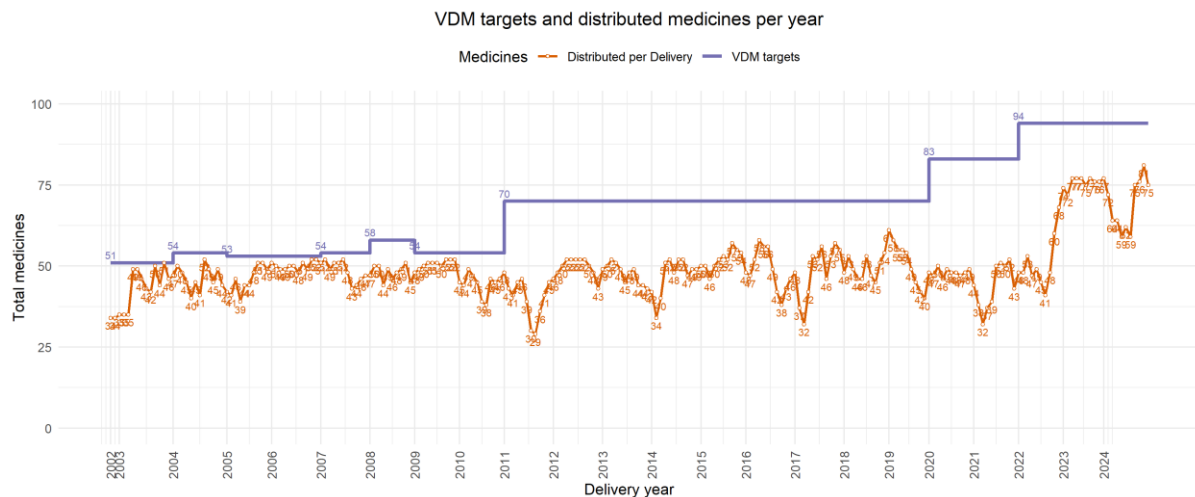


Figure 5 displays the number of distributed medicines over the years (orange line) and the VDM targets (purple line). The stepped increases in the blue line suggest programmatic expansions the VDM targets (15). Along each year there are several distribution points, indicated in each orange point for the same year. The differences between the two lines highlight structural gaps between planning and execution. As discussed in previous sections, these gaps are driven by factors such as budget constraints, challenges in procurement processes, and the mode of financing.

Throughout the period analyzed, the composition of the formulary remained relatively stable, indicating that the VDM, as a theoretical coverage basket, was appropriate but difficult to update. In contrast, the number of types of medicines procured and delivered showed considerable variability. Periods of near-full fulfillment of the VDM were followed by abrupt declines in the number of medicines distributed. This fluctuation reveals a persistent tension between the formulary as designed and the program’s operational capacity to sustain it over time.

Centralization/Decentralization purchase analysis

Conceptually contrasting the centralized model with the decentralized model, some characterizations can be made about the different mechanisms used, based on interviews with key actors in the process who held managerial roles. The decentralized purchasing model delegates the responsibility of acquiring medicines to local units, such as hospitals or centers, instead of a centralized entity. Advantages may include greater agility in administrative processes, allowing shorter durations and more adaptability and flexibility to varying local needs. Generally, they propose an aggregated budget forecast that does not require detailed breakdowns by category and item. From this resource, expenses are deducted, allowing the incorporation of new unforeseen products without requiring budget forecast processing or reinforcement, provided there is general availability. Decentralized systems are often associated with inefficient expenditure management and the erosion of economies of scale—

such as lower unit prices through bulk purchasing—while also heightening the risk of duplicated administrative efforts and reduced availability of information.

In the case of REMEDIAR, the centralized purchasing process generated significant economic improvements integrated with a decentralized logistics model involving delivery to the PHC (Primary Health Centers) in all provinces of the country. This logistics component is financed through the same budget of the REMEDIAR Program, covering both procurement and distribution costs. While distribution does not entail marginal logistical expenditures, they do not materially increase unit prices due to the economies of scale achieved through centralized purchasing. The list of medicines to be procured is prepared on the basis of the VDM. Subsequently, REMEDIAR assembles the kits to be delivered to PHCs, with contents specifically tailored to local epidemiological profiles. In other words, the kits are adjusted to the particular needs of each territory. Despite this flexibility, incorporating medicines for specific or more prevalent pathologies at the subnational level was more difficult than in other models with decentralized purchasing decisions and without the same type of regulatory and budgetary rigidity. An illustrative example in this regard is the incorporation of mental-health medicines into the primary level of care. The joint decision by REMEDIAR and the National Directorate of Mental Health to include these medicines in the distribution kit dates back to 2018, whereas their inclusion in the Essential Medicines List (VDM), the procurement process, and the launch of the first pilot trial across 17 jurisdictions were only realized in 2022. In this sense, aligning supply with service demand required a period of four years before full implementation was achieved.

These conceptual differences between centralized and decentralized procurement models also translate into concrete operational outcomes. To further analyze procurement efficiency under the REMEDIAR Program, a comparative analysis was conducted using a set of essential high-volume medicines. Centralized purchasing is associated with consistently superior price performance relative to prevailing market levels (17). For a comparable basket of medicines, REMEDIAR's centralized acquisitions averaged 25% of the market price, whereas decentralized purchases averaged 46%, more than twice the program's level (Table 2). This contrast reflects performance under competitive procedures; in practice, other modalities commonly used at the subnational level (e.g., direct purchases or emergency acquisitions), especially for low-volume or urgent needs, typically operate under less favorable conditions. Accordingly, the gaps reported here should be interpreted as a conservative (lower-bound) estimate of the differential.

The difference is particularly notable for chronic-use treatments such as Levodopa + Carbidopa (95% vs. 31%) and Levothyroxine (87% vs. 25%). Within the same jurisdiction, Benzathine Penicillin G exhibited up to 10 percentage points of price dispersion across institutions, highlighting coordination gaps and inconsistent performance in decentralized procurement.

This variation in unit prices, within the same jurisdiction and for the same product, underscores structural limitations of decentralized models in achieving price efficiency. Overall, the pattern reinforces the redistributive and rationalizing role of centralized purchasing, not only as a tool for fiscal optimization, but also as a mechanism for reducing access disparities and strengthening institutional equity.

Table 2. AP/MP ratio (% of market price) for a common basket of medicines: decentralized (health centers) vs. centralized (REMEDIAR).

Drug	Average (AP/MP)	
	Health center	REMEDIAN
Azithromycin	50%	21%
Carbamazepine	72%	16%
Fluconazole	49%	58%
Levodopa + Carbidopa	95%	31%
Levothyroxine	87%	25%
Paracetamol	28%	19%
Benzathine Penicillin G	30%	16%
Sodium Divalproate	79%	19%

Table 2 denotes AP/MP is the awarded-to-market price ratio; values are expressed as % of market price. Simple averages by medicine. Decentralized figures correspond to public-tender purchases; gaps are likely conservative relative to non-tender modalities.

Distribution and coverage

The Nexus conceptual framework notes that last-mile delivery is the most neglected phase from a financing perspective, despite representing a very high cost (storage, transportation, logistics). In this regard, the REMEDIAR study provides empirical evidence on the outsourcing of logistics—storage, kit assembly, and transportation—to specialized private operators, combined with centralized distribution and direct delivery to healthcare facilities. It demonstrates that, although the logistics system achieved high standards (ISO certification, traceability), its sustainability is constrained by administrative complexity and a lack of flexibility to adapt deliveries to emergencies or emerging epidemiological needs.

The implementation of logistics within REMEDIAR entails complexity due to its territorial scope in a very large country like Argentina (3,669,711 km) and the multiplicity of actors involved. Two major policy decisions were adopted in the design phase of the program. First, the direct distribution of medicine kits from the central level to each PHC, without the intermediation of jurisdictional warehouses, thereby avoiding delays, operational difficulties in local redistribution, and potential discretionary uses.

The second decision concerned the outsourcing of logistics services for medicine storage, kit assembly, and distribution. According to the logistical cost of the REMEDIAR program (18), the documented reasons for subcontracting logistics included cost reduction, improved service levels, and access to external infrastructure and technology required to ensure product conservation and regulatory compliance. Nonetheless, although logistics operations are outsourced, the REMEDIAR Program remains accountable for logistics as a whole, being responsible for demand planning, quality supervision, information and traceability systems management, and coordination with jurisdictions, while the private sector is in charge of specialized storage, inventory management, differentiated kit assembly, and the physical distribution of medicines.

Figure 6. Distribution of treatments by province, year 2023. On the left: total treatments. On the middle: treatments per province population. On the right: treatments per population with public health coverage.

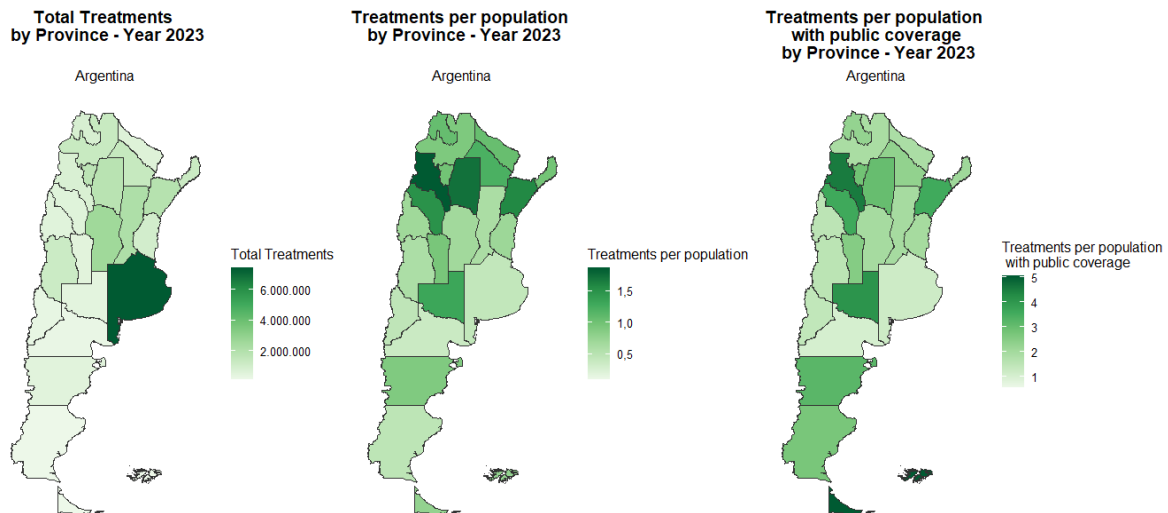


Figure 6 shows the distribution of treatments by province. When examining the first map, which presents the total distribution of treatments in absolute terms, the province of Buenos Aires stands out clearly, with more than six million treatments—far surpassing all other jurisdictions. However, the subsequent maps allow for a more nuanced analysis by incorporating relative indicators. The second map, which relates treatments to the total population, reveals a higher distribution concentration in provinces such as Formosa, Santiago del Estero, Chaco, and Catamarca—all of which report values exceeding 1.5 treatments per inhabitant. The third map, which adjusts distribution based on the population with Exclusive Public Coverage (i.e., individuals without social security or private health insurance), shows that provinces like Formosa, Misiones, Catamarca, Tierra del Fuego, and San Luis have the highest levels—exceeding three treatments per person with public coverage. Taken together, these indicators show that a significant proportion of treatments is concentrated in the northern and northeastern provinces of the country—poor regions that have historically faced more vulnerable health conditions.

Even under national financing—where payments are slower and made in local currency—the program remains appealing because of its high political and social visibility. Maintaining uninterrupted access to essential medicines is reputationally critical for logistics firms operating in a competitive and economically valuable market.

Nonetheless, the model has a structural weakness: every competitive bidding process that results in a new provider requires relocating warehouses and fully transitioning operations. These “moves” have repeatedly caused delays, as each new operator must bring facilities online, creating temporary instability that compromises the continuity and timeliness of supply to primary healthcare centers.

Impact on Out-of-Pocket Spending on Medicines of the REMEDIAR Program

Out-of-pocket (OOP) health expenditures are one of the key indicators of financial protection in health systems, as they represent direct payments that households must make at the point of care—without any insurance coverage or reimbursement mechanisms. According to the World Health Organization (WHO), this type of spending can lead to access barriers and impoverishment, especially among low-income populations (19).

In Argentina, medicines represent the most significant component of out-of-pocket health expenditures. By 2017, they accounted for approximately 38% of the household's health spending.

Figure 7. Spending on medicines by quintiles in Argentina.

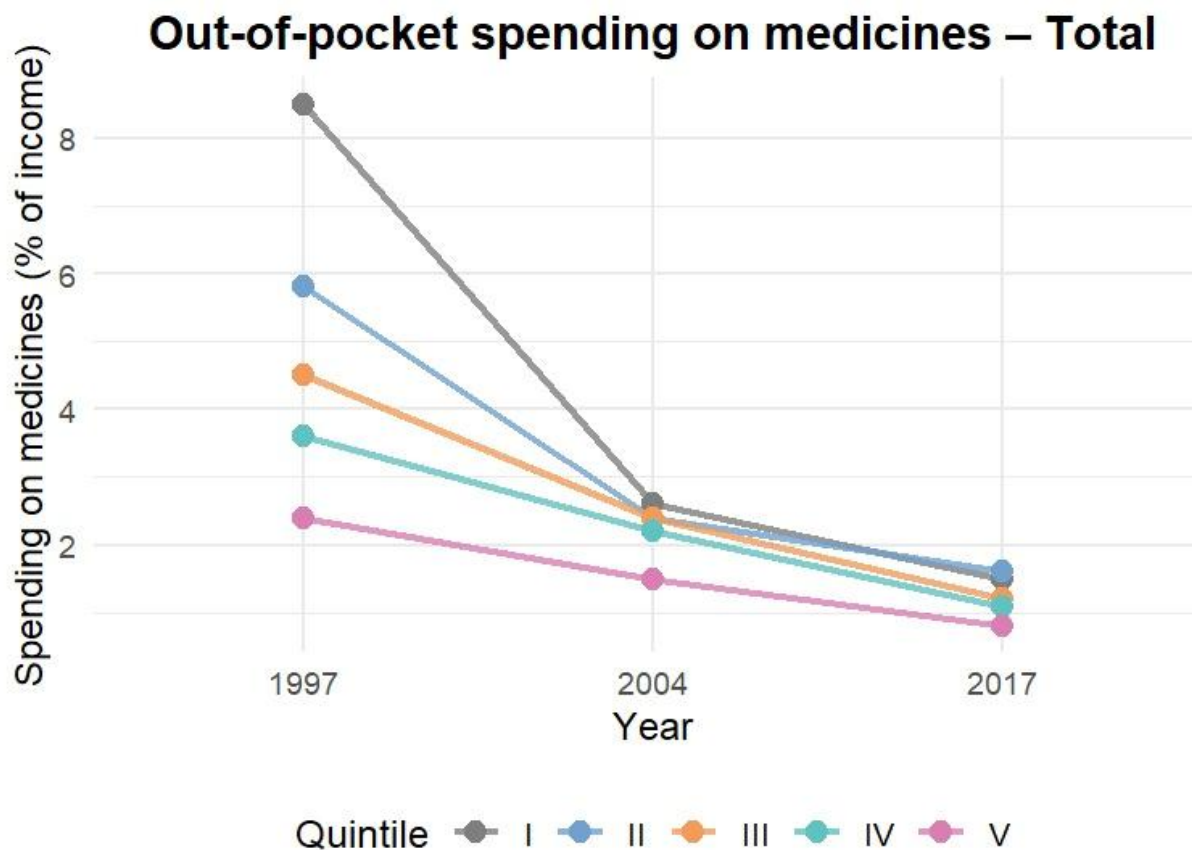


Figure 7 presents medicine spending across income quintiles in Argentina at three points in time: before the Program (1997), during its early implementation phase (2004), and in the most recent measurement (2017).

Analysis of the initial indicators reveals a regressive pattern in out-of-pocket spending on medicines: lower-income households allocate a significantly higher proportion of their income to the purchase of medications. The implementation of the REMEDIAR Program is associated with a substantial reduction in this financial burden, with particularly visible effects in the lower income quintiles.

Between 1997 and 2004, the financial effort required to obtain medicines decreased markedly across all income quintiles. In the first quintile, the burden fell from around 9% of household income in 1997 to approximately 2–3% in 2004, representing the largest absolute reduction in the period. Middle- and upper-income quintiles also experienced consistent declines, converging toward levels below 2%. By 2017, out-of-pocket spending remained relatively low, stabilizing around 1.0–1.6% of household income across quintiles.

Taken together, these results show a generalized downward shift in the financial effort associated with the purchase of medicines. However, the magnitude of the reduction varies across income groups, reflecting differences in the sensitivity of household spending to the increased availability of free treatments provided by the REMEDIAR Program and to the economic conditions affecting each income stratum.

The analysis of out-of-pocket spending was conducted using grouped categories of medicines, processed in consolidated form rather than at the individual product level. To approximate the medicine basket relevant to the REMEDIAR Program, oncology drugs, psychotropic medications, dietary supplements and vaccines were excluded, retaining only groups associated with primary health care. This is a notable limitation, as these groupings may include expenditures on medicines not supplied by the Program; therefore, results should be interpreted in relation to sets of medicines consistent with the Program's profile, rather than as effects attributable to specific products.

The evolution of out-of-pocket spending on medicines across the periods 2004–2005, 2012–2013, and 2017–2018 shows substantial variations in the economic burden borne by households covered by the Program (Figure 8).

In 2004–2005, the average monthly household expenditure on medicines amounted to USD 9.1, representing 2.3% of monthly income. This level of financial effort is consistent with the early phase of the program, marked by limited operational reach and distribution capacity.

By 2012–2013, average monthly spending had increased to USD 12.2, but was accompanied by a significant decline in its relative weight on income, which fell to 0.8%. This trend corresponds to a period of institutional consolidation of the program, with expanded coverage and improved availability of essential medicines, suggesting a more effective protective effect for recipient households.

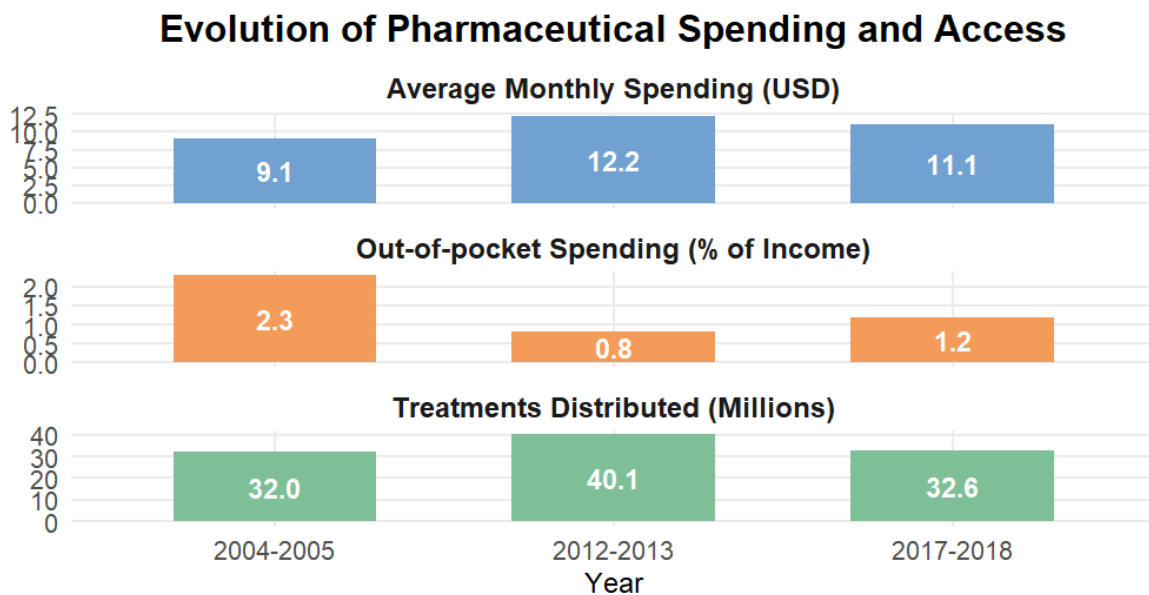
In the 2017–2018 period, average monthly spending remained relatively stable at USD 11.1, but the financial burden rose to 1.2%, driven by a sharp drop in average income. This deterioration in financial protection coincides with a phase of budget contraction and reduced operational capacity of the program.

The intertemporal analysis shows that between 2004 and 2012, average monthly spending in absolute terms increased by 34%, while the financial effort dropped by 65%, indicating a net improvement in terms of protection and income. In contrast, between 2012 and 2017, although average spending decreased by 10%, the financial burden rose by 50%, reflecting the adverse impact of falling incomes and lower programmatic compensation.

These dynamics must be understood within the context of the program's operational performance. In 2012–2013, REMEDIAR reached its peak coverage, with over 40 million treatments distributed annually, coinciding with the lowest financial burden in the entire series.

By contrast, in 2017–2018, the volume fell to 32.6 million treatments, alongside a rise in out-of-pocket spending, even though distribution levels were similar to those of 2004.

Figure 8. Trends in Spending, Treatments, and Out-of-Pocket Medicine Costs



Note: The treatment value corresponds to the average number of units distributed over the two years of each biennial period.

Figure 8 reports average monthly household OOP spending on medicines (USD) and its share of household income for the periods 2004–2005, 2012–2013, and 2017–2018, displayed alongside the annual number of treatments distributed by REMEDIAR. Labels indicate reference values for each period

The empirical evidence suggests an inverse relationship between program intensity—measured by the volume of treatments distributed—and the financial burden of medicine spending. The greater the availability of free-of-charge treatments, the lower the economic strain on uninsured households. From a public policy perspective, these findings highlight the countercyclical nature of the REMEDIAR Program, as it helps to cushion the effects of declining incomes during regressive periods. At the same time, they underscore the vulnerability of this protection in the face of fiscal tightening or operational constraints.

Discussion

The study seeks to provide empirical evidence on three key policy areas that shape the financing and performance of public medicine supply chains.

First, understanding why processes financed through international credit have demonstrated higher levels of administrative and operational efficiency compared to those supported exclusively by national resources. Second, exploring how transitions towards national budgets take place, identifying the institutional, political, and economic factors that shape them, as well as their effects on the sustainability of public health policies. Finally, evaluating centralization/descentralization of financing, procurement, and delivery of medicines.

The Nexus conceptual framework highlights that the planning phase requires coordination among multiple actors (ministries, insurers, procurement agencies, donors, and the private sector) and faces the central challenge of budget fragmentation. In this context, REMEDIAR

provides a concrete example of the fragmentation and coordination problems identified in the planning phase. The program had to reconcile two sources of financing, each with distinct rules, currencies, and timelines, which constrained budget formulation and execution during certain periods and, ultimately, limited the availability of medicines. The REMEDIAR experience demonstrates how poor coordination of funds can generate tensions in the program's predictability, efficiency, and coverage.

Several underlying factors help explain the more efficient pattern related to international loans. One important driver relates to financial risk: international contracts are typically agreed upon in hard currencies (e.g., USD) and operate with shorter, more predictable payment schedules. By reducing exposure to inflation and currency devaluation, suppliers can remove the "country risk" component from their prices, particularly in low-medium income countries. Competitive dynamics also play a role: IDB International Public Bidding (LPI) procedures allow for the participation of global suppliers and for the aggregation of large volumes, which in turn increases competition and exerts downward pressure on prices.

Another source of efficiency lies in budgetary discipline and predictability. Loan agreements set clear financial envelopes and earmarked uses from the outset and require both technical and financial reporting as a condition for disbursement. This framework allows for reliable annual procurement planning. Moreover, the sustained execution rates of external funds—frequently above 80–95%—suggest that IDB mechanisms facilitate the timely utilization of resources, while also meeting the country's need for foreign currency inflows.

By contrast, reliance on national budgets introduces greater volatility. Domestic funding is formally more flexible, but also more exposed to fiscal ceilings, political shifts, and sudden cuts or delays, all of which undermine purchasing power and slow down procurement processes.

Taken together, international financing offers a "package" of conditions—payment in foreign currency, fixed timelines, IDB rules, and performance monitoring—that reduces suppliers' risk perception, broadens competition, and ensures consistent credit execution. At the same time, the predictability of dollar-denominated flows shields the program from macroeconomic and political fluctuations affecting the Treasury. The combination of these elements translates into lower prices, faster processes, and reduced variability in acquisition timelines.

One possible avenue to strengthen national financing without relying exclusively on international loans is to transfer some of the most efficient practices of the IDB framework into the domestic budget system. Complementarily, the institutionalization of monitoring and results-tracking mechanisms—with clear indicators and regular progress reports—would not only reinforce accountability but also contribute to improving the allocation and use of national resources. In this sense, the development of a robust evaluation and control system could serve as a strategic tool to provide national financing with greater predictability, efficiency, and credibility in the eyes of system stakeholders.

Second, the general situation regarding international health financing in Argentina over the last two decades is characterized by loans initially established for a four-year period. However, these are typically extended to achieve a higher percentage of their financial or physical execution. Simultaneously, new contracts are negotiated to continue and expand upon

prioritized lines of work. This means that the priorities set by the national government, through its Ministry of Health in conjunction with international credit organizations, are often financed for longer periods, averaging between 8 and 10 years.

Theoretically⁽²⁰⁾, this extended timeframe should provide sufficient time to plan the transition from international financing to exclusively local funding (phasing out), considering all the dimensions involved, which are not limited to just financing. Based on the Argentine experience, numerous aspects influence this transition. If these aspects are not considered comprehensively or if their re-adaptation is not planned, there may be a direct impact on health priorities.

The processes for acquiring goods and services differ depending on whether national or international regulations are applied. The payment methods, salary scales, and training requirements for human resources within the loan-executing units also differ from the rest of the employees. The contracting and payment cycle for suppliers takes considerably longer when national funding is used, which can impact the price of acquired goods. Other aspects to consider during transitions include the work modality based on objective fulfillment, regular accountability to donors, and the presence of strict internal and external audit controls.

Furthermore, programs with external financing are generally kept outside the administrative and regulatory structure of the Ministry of Health. Their permanent incorporation as a program or work line within the ministerial structure requires institutional arrangements at the highest level of government.

A very important issue was related to the relationship between the Nation and the Provinces when international financing concludes. Given that loans generally involve the purchase of goods or performance-based transfers to the provinces, a discussion arises as to whether these priorities should continue to be financed at the national level or become the responsibility of the jurisdictions. In a federal country with decentralized health, the change in financing and the transition involve particular political dynamics.

The centralization of medicine procurement offers particularly significant advantages for countries characterized by large geographical scale and pronounced territorial heterogeneity, such as Argentina, extending beyond the price reductions typically associated with consolidated purchasing. First, it enhances access to medicines in provinces with limited fiscal capacity, reducing structural disparities between jurisdictions, and ensuring greater equity in the availability of essential supplies. Centralization also helps to offset the technical and administrative weaknesses faced by some provinces in planning, procurement and logistics, by relying on a more robust national institutional framework. Finally, it contributes to overcoming the substantial budgetary asymmetries that exist across jurisdictions, preventing financing capacity from determining effective access to essential medicines.

Nevertheless, the strategy also presents certain disadvantages: it entails a degree of national oversight that may be uncomfortable in a federal country with a decentralized health system and limited interjurisdictional coordination. Moreover, the processes for modifying and incorporating new medicines tend to be slower, as previously noted. Even so, in political and operational terms, the advantages have thus far outweighed the disadvantages.

Limitations

The findings of this study should be interpreted considering several limitations. First, the quality of administrative records was heterogeneous, particularly for the initial years of the study period (2002–2005). Furthermore, relying on retrospective interviews for remote periods presented challenges. Finally, the uneven availability of provincial information limited our capacity to conduct a comprehensive comparative analysis across different regions. National data was used for all analyses except for the comparison with decentralization. Data from Buenos Aires City was used, as it presented more complete data.

Also, it is crucial to acknowledge the REMEDIAR program inherent limitations, both in design and implementation, which may affect the effectiveness of outcomes and the capacity to respond to emerging demands within the health system. The REMEDIAR Program also faces several fundamental limitations that impact its efficiency and reach. Despite its initial goals, the program has been unable to capture data on unmet demand, as physicians often avoid issuing prescriptions when they know there is no stock, which obscures the population's actual needs. In addition, shipment planning often fails to align with the real needs of health facilities, as allocations are based on the availability of medicines at the central level rather than on consumption data. This lack of flexibility also extends to the incorporation of new medicines, preventing the program from adapting to changing epidemiological profiles, particularly in areas like mental health.

Another set of limitations for the program is related to its operation and sustainability. The planning system is not designed to anticipate epidemiological emergencies, making it vulnerable to unexpected outbreaks. Furthermore, the quality of planning critically depends on the accuracy of the information reported by health centers, and any inaccuracies compromise the program's effectiveness. Coordination among the national, provincial, and local levels is often insufficient—despite the existence of the Federal Health Council—creating barriers to the program's distribution and overall functioning. In many cases, decentralized contracting at the provincial and municipal levels still coexists, with little evidence of coordination in the allocation of explicit budgetary resources. Financial sustainability is also precarious, as the program relies heavily on international budgetary allocations, leading to a lack of predictability due to fluctuations in national funding.

REMEMDIAR's governance structure has remained highly centralized. Initially defined by IDB loan documents, the program is led by the National Ministry of Health. Although provinces are crucial for distribution and use, they are not formally part of the decision-making architecture and process. This has limited shared responsibility and coordination between the national and subnational levels, with provinces maintaining their own separate pharmaceutical policies, sometimes leading to overlaps with the national program. The lack of a formalized federal governance structure remains a key challenge for the program's long-term integration and effectiveness.

Conclusion

The REMEDIAR program fundamentally transformed the procurement and distribution of essential medicines in Argentina, shifting from a highly fragmented and decentralized model to a centralized system. Prior to its implementation, provinces operated independently, resulting in marked inequalities in access between wealthier and poorer regions, with the latter

facing chronic shortages. The introduction of REMEDIAR established centralized purchasing, direct distribution to primary health centers, and a comprehensive audit system, which together significantly improved the national supply of medicines.

The analysis presented in this paper confirms that international financing—primarily through loans from the Inter-American Development Bank (IDB)—proved to be more efficient than national financing during the period 2002–2024. This was evident in several key areas, including procurement timelines, predictability, awarded prices, and budget execution. The analysis also raises possible explanations for this relative efficiency. In this context, the programs long-term sustainability faces challenges, particularly in the transition from international to national financing. Success depends on aligning health priorities with government budget allocations, a process that requires political decisions and trade-offs. Sustainability goes beyond merely replacing funds; it entails strengthening governance, financing, and service delivery across the health system as a whole.

In Argentina, the transition towards national financing was closely tied to broader structural political changes that imposed significant budgetary constraints. The consolidation of nationally financed structural policies undoubtedly requires well-established practices that prioritize administrative efficiency in procedures, forward-looking planning, and the strengthening of appropriate monitoring and oversight mechanisms. These requirements are not inherently linked to international processes but rather to sustainable practices and the availability of adequate domestic resources. Otherwise, equating efficiency solely with international financing risks distorting the analysis and may lead to premature conceptualizations.

The analysis of the REMEDIAR Program offers lessons that go beyond the Argentine case and are relevant for other countries in the region facing similar tensions between international and national financing. Experience shows that the efficiency observed under international credit schemes does not depend exclusively on the availability of external resources, but rather on the associated management rules.

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