

**ECONOMIST
IMPACT**

Immunization Agenda 2030

Seeking to resume the path
towards its achievement

Supported by **sanofi**

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About this report

Since it was first put together in 1973, the National Immunization Programme (*Programa Nacional de Imunização*, or PNI) has experienced an impressive evolution. Achievements such as smallpox and poliomyelitis eradication - recognized by the certificate of absence of autochthonous circulation of wild poliovirus in the Americas, a document stating that both the disease and the virus were eliminated in the continent, the control of other vaccine preventable diseases such as diphtheria, whooping cough and accidental tetanus, hepatitis B, meningitis, yellow fever, grave forms of tuberculosis, rubella, and more recent goals such as the elimination of measles and neonatal tetanus are proof of this evolution.

The PNI has a leading role controlling communicable diseases. It is through the programme that Brazil acquires, distributes and regulates the use of immunobiologicals of various types, whether those included in basic vaccination programmes, as well as those considered special, aimed at specific situations and population segments and who are served by the Reference Centres for Special Immunologicals (*Centros de Referência para Imunobiológicos Especiais*, or CRIE). Furthermore, the PNI also coordinates the implementation of information systems for vaccine tracking and the consolidation of vaccine coverage data for the whole country.

Despite such preponderance of the program, Brazil started to witness a constant decrease in vaccine coverage from 2015 on, which brought risks that the country could not meet the goals

defined by the World Health Organization (WHO) through its Immunization Agenda 2030 (IA2030), of which Brazil is a signatory.

The Economist Impact prepared this study, supported by Sanofi Vaccines, to understand the reasons behind this decrease in vaccine coverage and to suggest a positive agenda to reverse this trend with the objective to bring Brazil back on track to achieve the IA2030 goals.

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Executive summary

Vaccine coverage in Brazil, which until the middle of the last decade was considered an example for other emerging countries, particularly those of Latin America, has decreased since 2015.

This fall has sparked concern among experts and public administrators, not only because of its consequences for the public health, but also because of its implication to the country's commitments to UN's Objectives for Sustainable Development (OSD) for 2030. After all, Brazil is one of the WHO IA2030 signatory countries, an unfolding of UN OSD.

This study's objectives are to identify the causes for this recent fall and the challenges Brazil faces to resume its vaccine coverage, and to propose a set of actions that support Brazil to get back on track to achieve the goals set by IA2030.

This report was built after an extensive process of analysing academic research, governmental documents at federal, state and municipal levels, and interviews with experts, many of whom are former and current public servants.

The National Immunization Programme (*Programa Nacional de Imunização*, or PNI) is one of the largest and more complex in the World, and faces several challenges, from its complex logistics to acquire, distribute and apply vaccines, the lack of specialized personnel fully dedicated to vaccination, to the challenges of implementing an integrated information system that allows the complete tracking down of the vaccines up to their delivery to the whole population.

Our main finding is that the greatest challenge is the difficulty of public administrators, working at federal, state and municipal levels, to completely visualise the needs of the population, including several specific groups, the vaccination process and the achieved results.

The lack of this visualization capability brings inefficiency to the strategic planning and decision process, since they start from the assumption that may not be based on real facts. As a consequence, resource allocation also becomes inefficient, leading to investments in the vaccination activity



that do not convert to efficient, equitable vaccination that would lead to the total elimination of communicable diseases.

In order to bring Brazil back on track to achieve the IA2030 proposed goals, we suggest that the following points should be addressed:

- Implementation of a fully integrated tracking system and used by all governmental entities, with qualified personnel to use it and that offers public managers the incentives necessary for its complete utilization;
- Creation of capable teams fully dedicated to the vaccination activity;
- Investments in infrastructure involved in the logistical process of vaccination in Brazil;
- Investments in the industrial health complex in order to increase the

national capabilities in development and production of innovative vaccines, through the enhancement of public-private partnership models;

- Re-evaluation of the current formats of vaccination, with the increase of combined vaccines and reduction of multi-dose vials in order to reduce vaccine waste and increase vaccine efficiency;
- These activities should demand resources currently not available in the public sector – and we do not foresee a change in this scenario due to the country’s economic situation and to the current public sector spending structure. For this reason, the private sector involvement, whether through PPPs or joint collaboration for the creation of greater value added contracts for the county, should be taken into account.



Introduction

Communicable diseases have been addressed with great importance and concerns by the international community. Although we have observed advances in world efforts to eradicate a large portion of these diseases, there are still advancements to be pursued. Immunization has a prominent role in this battle.

The WHO defined an immunization agenda with important goals to be fulfilled by 2030⁴. These objectives address relevant and urgent topics, such as disease prevention, equity promotion, and the construction of strong immunization programmes. This agenda was formally set through a document called Immunization Agenda 2030, and signed by 192 countries in 2012⁴.

The IA2030 includes the following vision and impact goals:⁴

A world where everyone, everywhere, at every age fully benefits from vaccines for good health and wellbeing.

Impact goals:⁴

- Reduce mortality and morbidity from vaccine-preventable diseases for everyone throughout the life course.
- Leave no one behind, by increasing equitable access and use of new and existing vaccines.
- Ensure good health and wellbeing for everyone by strengthening immunization within primary health care and contributing to universal health coverage and sustainable development.

Figure 1. IA2030 Vision and impact goals



<p>A world where everyone, everywhere, at every age...</p>	<p>Reduce mortality and morbidity from vaccine-preventable diseases for everyone throughout the life course.</p>
<p>... fully benefits from vaccines...</p>	<p>Leave non one behind, by increasing equitable access and use of new and existing vaccines.</p>
<p>... for good health and well-being</p>	<p>Ensure good health and well-being for everyone by strengthening immunisation within primary health care and contributing to universal health coverage and sustainable development.</p>

Source: WHO (2020)⁴

Such impact goals unfold into seven strategic priorities:⁴

1. Immunization programmes for primary health care and universal health coverage
2. Commitment and demand
3. Coverage and equity
4. Life course and integration
5. Outbreaks and emergencies
6. Supply and sustainability
7. Research and innovation

In our study, we chose to focus on strategic priorities 1 and 6, since those are the ones that are more influenced and rely more on formulation of consistent and long-term vision public policies, with focus on equity, coverage and elimination of deaths from communicable diseases. However, whenever possible, the other strategic priorities were also considered in our analyses.

Several events negatively affected the search for those objectives, from the economic crisis that started in 2008, to its impact in Latin America and culminating with a major economic recession, and finally aggravated by the COVID-19 pandemic, which started in 2019 and still produces consequences nowadays.⁴

In Brazil, a country that was always considered a global reference in national vaccination programmes, vaccine coverage has decreased

since 2015. This fall is due to many reasons which will be explored throughout this report, but it is worth highlighting that primary health services were seriously impacted by the COVID-19 pandemic, which reached Brazil in 2020, with negative consequences to vaccine coverage.

Our approach was organized in three major phases, as presented in the following figure:

In the first phase, we conducted in-depth secondary research to identify the current situation and barriers for the increase in vaccine coverage. This secondary research included academic studies, Ministry of Health official documents and, more specifically, National Immunization Programme documents, and several reports about the history and current situation of vaccination in Brazil.

In the second phase, we interacted with several experts, either through an expert panel or through one-on-one interviews with experts in vaccination from distinct sectors, including researchers, former and current public health officials, academics and members of trade associations. Those interaction helped us clarify some questions we raised in the previous phase, as well as gather insight about bringing Brazil back on track to achieve the IA2030 goals.

In the third phase, we analysed all the collected information to, finally, write this report.

Figure 2. Methodology



Background

As expected, the PNI is inserted into the Unified Healthcare System (*Sistema Único de Saúde*, or SUS) scope, whose objectives include identification and amplification of conditioning factors and determinants of health policies and assistance to citizens through health promotion, protection and recovery activities (*Law 8.080/1990*).

The PNI was created in 1973, as a way to coordinate actions that, until then, were characterized by discontinuity, an episodic nature and reduced geographical area coverage. Those actions were conducted within specific programmes (smallpox eradication, tuberculosis control) and as activities developed by state government initiatives required a central coordination that could offer synchronicity and rationalization.

Law 6.259, created on 30/10/1975, and officially approved by Decree 78.231, on 12/08/1976, makes the PNI official and defines competences that can be considered valid to this day:

- Implement the programme's actions related to mandatory vaccines;
- Establish criteria and offer technical and financial support to the vaccination programme's creation and implementation (...);
- Establish basic norms for the execution of vaccinations;
- Supervise (...) and evaluate the vaccination execution throughout the country (...);
- (...) Analyse and disclose information related to the PNI.

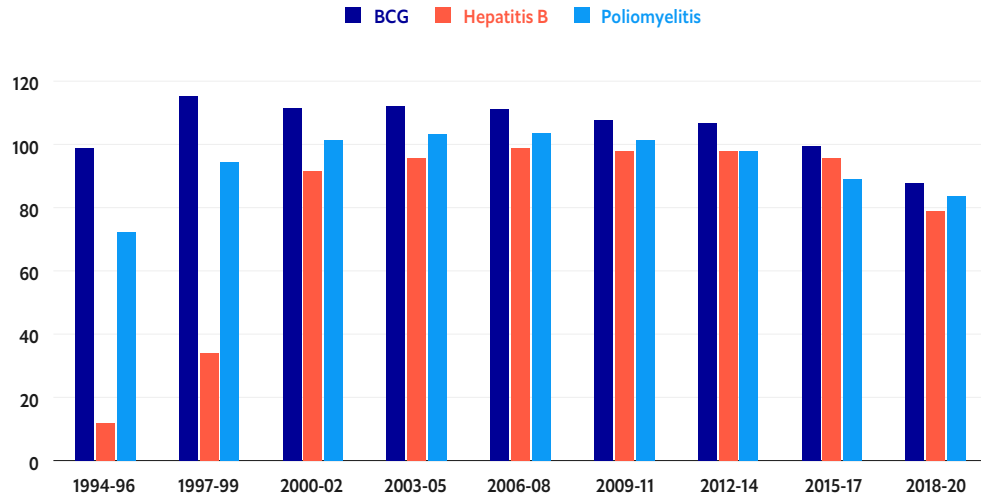
In this manner, the PNI introduces the concept of routine immunization, starting with measles vaccination and expanding to other communicable diseases, and including several population segments throughout the years (see annex I).

The actions included in the PNI are executed in the three governmental spheres, where vaccinations are mostly under the responsibility of municipalities (see annex II).

Despite being considered a global reference in vaccination programmes, Brazil has observed decreases in vaccine coverage since 2015. The Federal Government continues acquiring vaccines in a centralized format. The PNI purchases around 300 million vaccine doses per year.



Figure 3. Vaccine coverage in Brazil, (%), per three-year period 1994-2020



Source: Ministério da Saúde (2019)⁵

Vaccine coverage decrease has many origins. One of them relates to the economic crisis that started in 2015, when the GDP drop and a new spending ceiling rule, which passed in the National Congress in 2016, demanded that all governmental entities adjusted their expenses and established priorities, in order to comply with the Fiscal Responsibility Law. Experts state that those adjustments had an impact on the entities' needs for investments in infrastructure and the hiring of healthcare professionals, with negative consequences to the offer of vaccination services.

In addition, the PNI is considered complex by the medical community that is part of the public healthcare services, as it expanded its scope with new vaccines for increasing communicable diseases as well as increased target groups since its implementation.

The vaccination supply chain is extremely complex considering Brazil's continental dimensions. It involves long periods for vaccine production and the health authorities' approval

processes, which precede the purchasing of vaccines directly by the Federal Government from local and multinational pharmaceutical labs and purchases through a consortium with the Pan-American Health Organization (PAHO). It also requires inventory centres⁶, cold chain on a national level, distribution logistics and qualified personnel to execute the vaccination services at municipal level.

In addition, vaccines have distinct minimum temperatures for their conservation and expiration dates after their conservation cases are opened.⁷ That means the specifics of each vaccine require not only adequate infrastructure at the vaccination rooms, but also trained personnel to keep the correct vaccine storage. In this way, it is possible to avoid waste of unused doses. Considering the number of vaccination rooms throughout the country, it becomes clear that the logistics and the vaccines' pathway to become available to the population are of extreme importance to ensure the correct and efficient execution of the PNI.

Although Brazil has relevant state-owned labs, there are bureaucratic obstacles that make these institutions' infrastructure modernization and updating difficult. In other words, since the State owns those labs they are required to follow Purchase Laws with lengthy and complex processes.

Brazil has excellence centres in Federal and State universities, as observed by the number of research projects to develop vaccines against COVID-19.⁸ Those universities can work in tandem with the state-owned labs and with multinational ones for the development / adaptation of new vaccines to the local conditions, as well as to highlight the country within the Latin American region as a potential production hub to offer vaccines on a regional level.



Brazilian national immunisation programme's current challenges

The PNI faces several challenges related to its size and complexity. The main challenge stems from a lack of an efficient strategic plan. The following subtopics aim to describe broad ranging systemic challenges in Brazil.

Tracking and control

The first challenge lies in the lack of an integrated vaccine tracking and control system that has a complete and full adherence from all federative entities. The absence of surveillance, tracking and monitoring systems results in inefficient strategic planning and hampers execution, thus promoting ineffective resource allocation from both financial and human resource perspective. This further exacerbates efforts to identify, prevent, control and eradicate communicable diseases.

Tracking and monitoring systems are also required to measure uptake of vaccinations across the population. This allows a proper assessment to be made to evaluate user acceptance, ensuring that the most impactful messages are being delivered to the public. The automatization of the PNI's vaccination data started gradually in 1994, initially circumscribing state health secretariats (SES) and, after that, including regional health entities within each state (RES), followed by municipal health secretariats (SMS). The PNI's information system (SI-PNI) is the main tool to support prioritising vaccination actions in Brazil.⁵

Among the several SI-PNI objectives is to make historic series available of vaccination and treatments of all immunobiologicals registered in the system and of vaccine coverage for children up to one year old, between 1994 and July 2019. The PNI established minimum targets for vaccine coverage, of 90% for BCG and rotavirus, and of 95% for pentavalent, polio, pneumococcal, meningitis, triple viral, hepatitis A and B, and yellow fever.

The vaccine coverage was initially calculated by dividing the total number of doses applied by the birth certificates of that year in each municipality registered at the Information System of live births (*Sistema de Informações sobre Nascidos Vivos*, or Sinasc), at the Secretariat of Health Surveillance at the Ministry of Health. This early methodology did not allow for the identification of each vaccinated individual and place of residence, thus preventing the understanding of the real vaccine situation in each municipality.

In 1998, electronic registries of vaccines were first used in vaccination programmes, starting with the campaign against polio. In 2008, a tool called "vaccinometer" was introduced in the national campaign for the eradication of rubella. This tool allows the monitoring of registries advancement and is now available for the evaluation of all the national vaccination campaigns.

This system went through many versions with technological upgrades, culminating with the online current version (API WEB), which allows for more efficient operations and cheaper maintenance costs. However, the responsibility for updating data lies with the municipalities, which face difficulties in computer acquisitions, later partially solved through financial aid from the Ministry of Health. Municipal adoption is rising, but there are still a few municipalities that resist registering vaccination data on an individual level (municipal adoption was around 80% in 2019).

The current system related challenges are based on the variety of legacy systems and on the current backlog for the Datasus IT teams to align the information inventory in a single base, thus not allowing historical comparisons of vaccine coverage and its evolution.

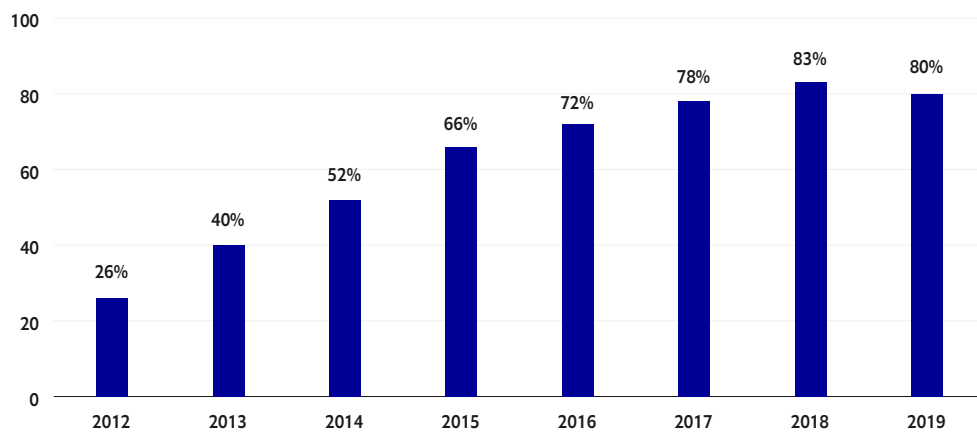
In addition, there are constant complaints from mayors about the lack of internet coverage, but current available data show that all municipalities have 3G mobile internet coverage, besides all municipalities with more than 30,000 inhabitants counting with

4G mobile internet coverage. Furthermore, a recent research published in October of 2021 from *TIC Saúde*, a technology-focused organization, performed at the Internet Management Committee's request, points out that 94% of all or UBSs had access to computers and 92% of those had internet access.⁹ In any case, the recent bid for 5G concession will speed up fast access to several municipalities in the coming years.¹⁰

The fact is that these methodological changes in vaccination registries, from aggregate to individual level, may have contributed to the fall of vaccine coverage observed in the past 7 years.

An integrated and comprehensive system should cover all the events, from start to finish, including information about vaccine adverse effects, new outbreaks, trained capable personnel to operate it, equipment suitable to technological advances (software evolution, internet access) and proper incentives that guarantee its use by public managers at municipal, state and federal levels.

Graph 1. SI-PNI Use (% of total vaccination rooms)



Source: ⁵

Infrastructure

The infrastructure in Brazil is inadequate to address challenges, particularly in smaller cities that do not own Basic Health Centres (*Unidades Básicas de Saúde*, or UBS) with vaccination room or have appropriate storage and temperature-controlled facilities with the necessary equipment to store vaccines properly.

The lack of adequate infrastructure results from the process by which vaccine programme financing works in Brazil. Since vaccination occurs within the Unified Healthcare System (SUS), investments and management costs follow the responsibility criteria, shared by the federal, state and municipal governments.

The federal government invests its resources as prescribed in the budgeting process. The amount spent must correspond to the amount invested in the previous year indexed by the nominal increase in the gross national product (GDP). States (including the federal district, Brasília) must invest at least 12% of their tax income in healthcare and public services, after deducting the amounts transferred to their respective municipalities. The latter must invest 15% of their tax income in healthcare and public services.¹¹

The federal government makes available the National Healthcare Fund for investments and current expenses with healthcare actions and public services to be executed at the state and municipal level.¹¹ Among these actions, there are those destined to sanitary surveillance and basic healthcare attention.

Until November 2019, those resources from the National Healthcare Fund were shared in blocks, for current expenses and investments. The financing of expenses was distributed according to both a fixed and a variable component. The fixed component was distributed on a per capita basis, weighted by socio-demographic indicators. The variable component depended on the registration and implementation of strategies and programmes, such as Family

Healthcare Teams, (*Equipes de Saúde da Família*, or eSF), Oral Healthcare Teams (*Equipes de Saúde Bucal*, or eSB) and Healthcare Community Agents (*Agentes Comunitários da Saúde*, or ACS), among others.¹²

In 2019, the Ministry of Health established a new financing model through transferences to the Basic Healthcare Attention (*Atenção Primária de Saúde*, or APS) to municipalities: the *Previne Brasil* programme. This model aims to increase access to primary care services and is based on mechanisms linked to the accountability of public managers and their supporting teams. It is composed of three financing components: weighted capitation payments, performance linked payments, and incentives to address strategic goals.

Weighted capitation is based on a payment per person registered with the Family Health (eSF) and Primary Attention (eAP) teams, weighted by health needs and assistance costs of the registered population. Performance payments are based on performance indicator goals achieved by the municipalities that count with eSF and eAP, oral health, and multi-disciplinary teams.

The incentive for strategic actions is based on payment to teams, services or APS programmes. Inactivated polio and pentavalent vaccine coverage are the vaccine coverage indicators used for performance payments.

Dedicated vaccination personnel

Budgets for primary health services are usually below the amount required by municipalities to maintain health services. The experts with whom we consulted suggested that since it is necessary a high specialization to effectively manage vaccination programmes due to its complexity and vaccine demand volatility, health professionals tend to be allocated to primary care services. Thus, there is the detriment of epidemiological surveillance services. Ensuring the availability

of dedicated vaccination personnel trained to manage vaccination programmes may mean that other services are neglected. The lack of health professionals dedicated to vaccination, especially in smaller municipalities with limited financial resources is a cause for concern in Brazil.

One alternative to minimise inequity between primary care and epidemiological surveillance might be to conduct vaccination programmes on specified days each month. This would ensure the availability of dedicated vaccination personnel but the challenge is to ensure that the vaccines are available during times and in locations that are convenient for the population. Also, definition of specific days for vaccination creates excess demand on days defined for vaccination due to the fewer days dedicated to vaccination, since it reduces the opportunity for parents to take their children to meet vaccination requirements included in the PNI.

Since the criteria for resource allocation that make up the fixed minimum amount for health surveillance (*Piso Fixo de Vigilância em Saúde*, or PFVS) at the federation units are defined and approved by Bipartite Inter-management Committees (*Comissões Intergestoras Bipartite*, or CIB), States need to establish tangible indicators based on evidence to establish these criteria.

The economic crisis that started in 2015 has had a negative impact on the ability of states and municipalities to make investments in maintenance capabilities. The significant fall in GDP forced states and municipalities to reduce costs and adjust their budgets in order to comply with the Fiscal Responsibility Law.

We can identify various situations affecting the PNI compliance:

- Lack of adequate resources has meant that as health professionals retire, they have

not been replaced by new professionals through public hiring processes.

- Difficulty in maintaining and replacing equipment to ensure that vaccines are stored in the required temperature controlled environment.
- Difficulty in purchasing computers required to run updated versions of the SI-PNI.

The impact of these challenges should be felt more acutely in smaller cities and remote areas, where the lack of qualified personnel is greater. This results in a lack of access to vaccination services among vulnerable populations, and insufficient revenue sources for investments and current expenses.

Complexity of PNI

The experts with whom we consulted, mentioned that the number of vaccines included in the PNI and the number of doses that must be administered to provide enduring protection are a challenge for vaccination programmes since the teams responsible must ensure proper coordination and record-keeping within a complex environment of different vaccines that require a range of eligible age groups, a variety of dosing schedules, and vaccine storage requirements that must be addressed even in the most remote areas. Vaccine stocks must be carefully managed to ensure that each vaccine is used prior to its expiration.

Basic sanitation infrastructure

Basic sanitation relates to public health activities beyond the healthcare delivery system, such as basic sanitation, urban cleaning services, waste removal and environment preservation.¹³ These public health services have a direct impact on the conditions that can impact the spread of communicable diseases throughout populations.

States and municipalities are responsible for these services. If these services are not offered properly and equitably to the population, they are more prone to disease outbreaks, which can spread through communities adding pressure on already constrained healthcare services.

Vaccine hesitancy

A SAGE vaccine hesitancy working group concluded that vaccine hesitancy results in

a delay in vaccine acceptance or outright vaccine refusal. Vaccine hesitancy is a complex topic and specific to the context where it happens, varying through time, location and type of vaccine.¹⁴

This phenomenon is not restricted to Brazil, as pointed out in recent World Bank research.¹⁵ It is important to keep track of such phenomenon to avoid an increase in vaccine hesitancy due to fake news. Also, it is essential to have containment plans.

Impact of the National Access and Quality Improvement Programme (Programa Nacional de Melhoria do Acesso e da Qualidade, or PMAQ)

In order to incentivise health authorities and teams to improve the quality of healthcare services¹, the federal government launched the PMAQ to enhance access and quality of basic healthcare services¹. In general, the programme increases the monthly allocation of resources to Basic Healthcare Centres (UBS) that reach service quality goals and indicators².

It was possible to observe an increase of resources passed on to municipalities following the increasing participation of basic attention teams, reaching more than R\$12 billion up to August 2019³. However, due to several changes in its phases, the programme became more complex and difficult to interpret. In addition, the country's political and economic scenario played an important role in defining PMAQ priorities³. It became evident that the responsibility of healthcare public authorities to guarantee actions fighting challenges in the execution of healthcare public policies.

Opportunities for the creation of a purposeful agenda to increase vaccine coverage

Considering the above-mentioned challenges, the expert team pointed out several opportunities of actions to face them and increase the vaccine coverage in line with IA2030.

Re-evaluation of vaccination strategies and tools

As already mentioned, the PNI high complexity, combined with practices such as the purchase of multi-dose stock-keeping units (SKUs), reduces the convenience of the vaccinated target group and encourages waste. A short-term solution would be using single-dose SKUs, which would drastically reduce the waste of unused doses. It is worth mentioning that not all vaccines offer single dose SKUs, and that the purchase of single-dose SKUs would require an increase in the national cold chain storage capacity.

Increasing the use of vaccine combos would also help reduce vaccination complexity throughout the year, as this practice would require fewer trips to vaccination centres, given the scientific and medical acceptability of the options available and those in the development pipeline. A higher integration between the Ministries of Health and Education, and increasing regional integration would also help increase vaccination sites, with higher incentives to increase the vaccine offer and efficacy in vaccine distribution.

Intersectoral partnerships and innovation

The private sector could be involved in several activities, from vaccine production to

distribution and delivery to the population, thus helping close the infrastructure and personnel gaps currently observed in the public healthcare services. Public Private Partnerships (PPPs) and inclusion of additional clauses in vaccine purchase contracts would make this involvement viable.

The Federal Government should stimulate local production of vaccines currently purchased through annual public tenders, especially those with a higher volume used in Brazil. Out of all 19 vaccines offered through the PNI, 12 of them represent 81% of the volume offered in the country (BCG, yellow fever, hepatitis B, varicella, dT, VIP, MncC, VORH, VOP, pentavalent, DTP and SCR).⁵ Partnerships between multinational and national labs could make national production viable, as observed with the model adopted for some vaccines against COVID-19, with positive results.

The need for high investments in the development of new vaccines must be taken into account, since the public sector alone cannot afford those amounts. The involvement of multinational labs with Brazilian universities, which have proven to be centres of excellence in research and development, and with national labs for production through technological transfer agreements could be a great incentive for the increase in availability of innovative solutions supporting the increase in vaccine coverage and the achievement of the IA2030 goals.

Brazilian population size and ethnicity diversity play an important role in multinational labs' interest in this type of partnership. The contracts should also include distribution services to states, as multinational labs present distribution capabilities and infrastructure capillarity for vaccine storage, thereby reducing the waste of doses due to cold chain related problems in some states.

Vaccine logistics

Another alternative for the private sector involvement would be to include PPPs in distribution. As in any well-developed PPP contract, it should establish a clear service scope, definition of the best bid strategy (if by region, state or by municipalities with a population above a defined threshold, among others) and quality indicators to be used in a variable remuneration.

Pharmacies could play an important role, especially in large and mid-sized towns and with better economic conditions, where pharmacies with larger capacity are more available. Experts stressed that this participation of the private sector in vaccination already exists: currently, private clinics offer PNI included vaccines to wealthier populations who look for convenience and who are willing to pay for this added value instead of seeking vaccination in public facilities.

The State could offer a new service option to more vulnerable populations through pharmacies, which would be fully compensated. Such a model could adopt various formats, such as payment through capitation, use of vouchers or payment based on used dose.

Experts also mentioned that not all pharmacies are properly equipped to offer vaccine services, whether because of lack of adequate infrastructure or 100% available capable personnel. In any case, these requirements could be defined in a PPP bidding notice for pharmacies interested in this service.

Financing lines

As previously mentioned, the Federal Government maintains the National Health Fund to finance primary health actions and sanitary surveillance, but it ends up being used mostly to finance the primary care.

On the other hand, governmental entities cannot take on debt to finance current expenses, only for investments. However, the Federal Government faces budgeting hurdles to increase new investments, including those of a social scope.

The Federal Government should re-evaluate the criteria for accessing the National Health Fund to primary attention and sanitary surveillance, including incentives for investments in sanitary surveillance, which have less social impact in the short term.

An alternative could be international financing lines offered by multilateral organizations, to finance vaccination infrastructure such as IT and cold chain equipment, as well as ancillary equipment required to administer them such as syringes and needles, for instance. These financing lines would be conditioned to achieving vaccine coverage goals, while these goals would be linked to potential credit line increases or interest rate reductions through the achievement of universal vaccination goals. This would create incentives for health authorities to invest in vaccine infrastructure, with gains in credit enhancement and reduction of financing costs.

Previne Brasil

A recent study points to progress in basic health services coverage since the *Previne Brasil* programme was launched. One of the new programme's objectives was to "put people at the healthcare system core" and this created incentives for municipalities to identify citizens served through better structured registries, offering structural conditions for better accountability of eSF teams.¹⁶

One example of *Previne Brasil's* success is the number of people correctly registered at the APS database. On the day of the programme's launch there were 98.2 million people registered in that database, while in August of 2021 that number increased to almost 152 million people.¹⁷

Moreover, the new capitation model offered the possibility for people to register in any team, without restrictions only based on geographical criteria. "If a citizen is registered by one eSF team but is not properly served, the eSF team that offered a proper service will keep this registry with the federal government, even in cases where this registry includes eSF teams from distinct municipalities. This approach corrects distortions created by the per capita payment model based on total population (former fixed PAB) since this criteria did not direct resources where the citizen was effectively served".¹⁶

This programme also created incentives for the automation of services and municipalities, since it creates the possibility of analyses of the indicators used for performance-based

payments. At the programme launch, 62.4% of all 44.000 teams had some sort of automation. Currently, more than 41.000 teams (78% of the total) have some sort of automation and are able to request the programme incentive.¹⁶

Previne Brasil also aims to create incentives to actions such as oral health, extended service hours (*Saude na Hora*) and professional capability development. Performance-based payments for oral health resulted in a 32% increase in teams' current expenses. In addition, the programme sought to create incentives for teams working in flexible hours to increase the offering of services in alternative hours. Transfers to municipalities that count with healthcare professionals in residence focused on eSF or oral health allowed the creation of 2151 job positions in residence programmes in 120 municipalities.

Although we consider *Previne Brasil* as a significant progress in creating incentives to healthcare authorities to increase the efficiency of ASP actions, we understand that vaccine coverage should gain more weight and also cover more vaccines, in line with the PNI.

Recommendations

Based on the identified opportunities, we suggest an action plan that can help address these opportunities:

- Establishment of a comprehensive strategic plan with focus on achieving the strategic goals defined by the IA2030, based on reliable data and analyses that guarantee the highest vaccine efficacy possible.
- Investments in the industrial health complex to increase national capabilities in the development and production of innovative vaccines by enhancing PPP models.
- Instant priority in the implementation of a tracking and control system with the previously presented characteristics, with the involvement of representatives of all federative entities, private sector, academic sector and researchers.
- Revision of the incentive system for public officials so that they take into consideration the various existing conditions to significantly and sustainably reduce the proliferation conditions of communicable diseases.
- Creation of financing lines for investments in vaccine infrastructure and equipment, including hiring and training needs for the professionals dedicated to vaccine actions, and assessment of the involvement of multilateral organisms to increase the financial resources aimed at these financing lines.
- Speed up the amplification of basic sanitation systems with the objective to reduce conditions that increase the proliferation of communicable disease contamination vectors and improve the health of citizens who live in areas that lack those services.

- Development of a programme to monitor fake news dissemination involving vaccination and definition of a misinformation combat plan, using adequate channels and language to target segments.
- Ample discussion involving all members of civil society and health authorities from governmental entities to find alternatives to increase vaccine coverage, with sustainability and equity, and with people at the centre of the discussion.
- Development of a study to quantify the total cost of vaccination, including logistics costs and waste, that can support decisions to involve the private sector in different links of the logistic chain.



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Annex II – responsibilities for public health actions

According to the Federal Constitution from 1988 (CF88), healthcare is a right to all Brazilian citizens and a State duty. Healthcare service delivery is provided through the Unified Healthcare System (Sistema Único de Saúde, or SUS), and «its actions and services form a regional and hierarchical network and constitute a single system, organized according to the following directives:¹⁹

- I. De-centralization, with single direction in each government sphere;
- II. Integral service, with priority for preventive activities, without prejudice to assistance services;
- III. Community participation.”
- IV. “The SUS is responsible, in addition to other attributions, under the terms of the law, for:²⁰
- V. carrying out sanitary and epidemiological surveillance actions, as well as workers’ health; (...);
- VI. collaborating in the protection of the environment, including that of work.”

As the financing and delivery of health services take place in a tripartite scheme, that is, at the federal, state and municipal levels, there are Bipartite (CIB) and Tripartite (CIT) Inter-management Commissions, which act as forums for negotiation and agreement between managers of the three spheres. The National Council of Health Secretariats (CONASS) and the National Council of Municipal Health Secretariats (CONASEMS) are recognized as representative entities of state and municipal entities to deal with matters related to health.²¹

The SUS planning and budgeting process will ascend, from the local to the federal level, after hearing its deliberative bodies, making them compatible with the needs of the health policy with the availability of resources in health plans.²¹

The organization of SUS services must be established by regions, to be defined by the states, in articulation with municipalities, respecting the general guidelines agreed with the CIT, and must contain, at least, actions and services of:¹³

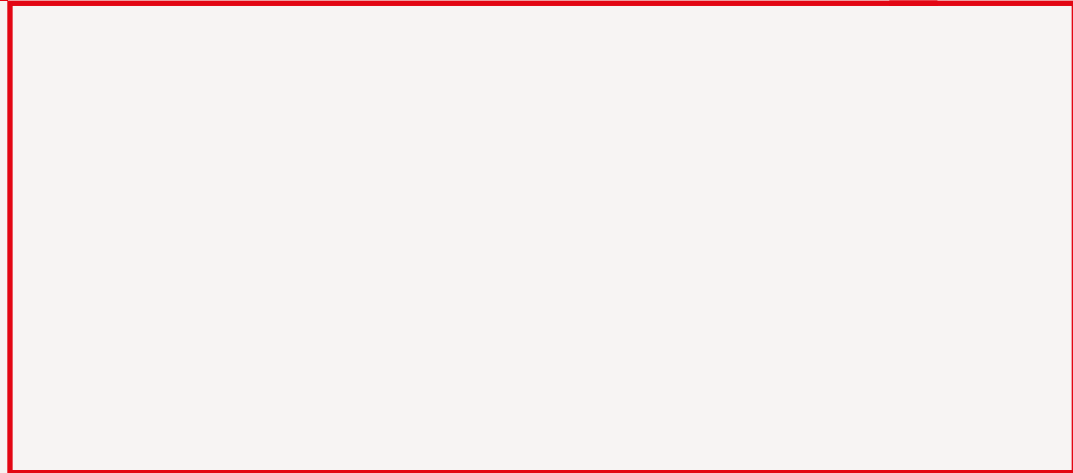
- Primary attention,
- Urgency and emergency,
- Psychosocial attention,
- Specialised ambulatory hospital attention, and
- Health surveillance.

The Federal Government applies resources defined in the preparation of the federal budget, and this amount must correspond to the amount committed in the previous year, plus, at least, the nominal variation of GDP that occurred in the previous year.

The states and DF must invest at least 12% of their tax collections in public health actions and services, deducting the installments transferred to the respective municipalities. These must invest 15% of their tax revenue in health actions and services.¹¹

The Federal Government makes the National Health Fund available for investment and funding with public health actions and services to be carried out by the States, DF and Municipalities.¹¹. Among these actions are those aimed at sanitary surveillance and basic health care.

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