

Microplanning in high-quality vaccination: Potential and barriers experienced by multipliers

Microplanejamento na vacinação de alta qualidade: potencialidades e barreiras experienciadas por multiplicadores

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ABSTRACT Although the National Immunization Program is one of Brazil's most important health interventions, vaccination coverage has declined, requiring resumption strategies. Microplanning is a low-cost technology adopted in Latin American countries. It applies to local realities, which enables reorganizing immunization work processes with the participation of several stakeholders. Its implementation has been proposed in Brazil, carrying the need to modify the material and organizational means to ensure High-Quality Vaccination Activities (HQVA). This experience report aimed to discuss enabling factors and barriers to implementing microplanning for HQVA from the perspective of municipal and state-level professionals who participated in the workshops to implement this technology. The results show that the methodology and content of the workshops mobilized the stakeholders involved and supported immunization actions at the local level, where the results of vaccination strategies take shape. However, barriers to implementing microplanning include elements related to human resources, the need to improve processes to ensure the development of all stages of the microplanning, and problems related to logistics and supplies.

KEYWORDS Vaccination. Vaccination coverage. Immunization programs. Health planning.

RESUMO Embora o Programa Nacional de Imunizações seja uma das mais importantes intervenções de saúde no Brasil, as coberturas vacinais vêm caindo, sendo necessário pensar estratégias para sua retomada. O microplanejamento é uma tecnologia de baixo custo, utilizada em países da América Latina, aplicável a realidades locais, que possibilita a reorganização dos processos de trabalho em imunização, com a participação de diversos atores. Sua implementação foi proposta no Brasil, trazendo consigo a necessidade de modificar os meios materiais e organizacionais a fim de assegurar as Atividades de Vacinação de Alta Qualidade (Avaq). O objetivo deste relato de experiência foi discutir fatores potencializadores e barreiras para a implementação do microplanejamento para as Avaq, na perspectiva de profissionais dos níveis municipal e estadual que participaram das oficinas para a implementação dessa tecnologia. Os resultados apontam que a metodologia e os conteúdos das oficinas foram capazes de mobilizar os atores envolvidos e subsidiar ações de imunização no nível local, onde se concretizam os resultados das estratégias vacinais. No entanto, são barreiras para a implementação do microplanejamento elementos relacionados a recursos humanos, necessidade de aprimoramento de processos para assegurar o desenvolvimento de todas as etapas do microplanejamento e problemas relacionados a logística e insumos.

PALAVRAS-CHAVE Vacinação. Cobertura vacinal. Programas de imunização. Planejamento em saúde.

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Introduction

With a hierarchical and integrated network, the National Immunization Program (PNI) was fundamental to improving the epidemiological setting related to vaccine-preventable diseases in Brazil^{1,2}, which makes it one of the most important health interventions in Brazil, securing high vaccination coverage and achieving the elimination, eradication, and control of several vaccine-preventable diseases.

The Brazilian vaccination culture was established after the successful elimination of smallpox and the creation of the National Immunization Program (PNI) legal framework. In 1904, the Vaccine Revolt, a popular movement against mandatory vaccination implemented by the federal government, reflected the initial resistance to mass immunization. However, this resistance was gradually overcome, especially after successful smallpox eradication campaigns and the PNI growth. The Program spread with a significant increase in the number of immunobiologicals offered and an expansion of the age groups covered³, becoming a globally awarded Program. However, since 2016, Brazil has faced a troubling vaccination coverage decline, which puts public health and the eradication of vaccine-preventable diseases at risk.

Several factors contribute to this drop, including misinformation about vaccines, logistical difficulties in distributing and administering vaccines, and lower risk perceptions of previously controlled diseases. This situation emphasizes the need to introduce innovative and effective approaches to increase vaccination coverage and ensure the population's health. In this context, High-Quality Vaccination Activities (HQVA) emerge as a potential strategy to reverse this trend by implementing systematic and evidence-based actions to improve adherence and expand vaccination coverage.

HQVA have been implemented in immunization programs in the Americas in

partnership with the Pan American Health Organization (PAHO). They are based on successful experiences in improving vaccination and conducted in different countries, starting at the local level, whose systematization resulted in microplanning (MP). MP is a strategy to reach the context of municipalities, with support from the state and federal spheres, based on actions that are recognized low-cost technologies, considering local realities that enable reorganizing immunization work processes with the participation of local stakeholders who know and can intervene in the territories⁴. These characteristics make the MP a promising and viable proposal for implementation in different realities.

The decline in vaccination coverage indicates the need for innovative measures, such as the MP, to reverse this situation. However, its incorporation requires changing the work process, including adjusting material and organizational resources to guarantee HQVA. It requires professional qualifications, involvement of local stakeholders, effective work processes, and specific technologies that allow understanding and intervening in their realities. In monitoring the MP implementation, we ask, 'What are the barriers and facilitators for MP implementation in Brazil?'

This experience report aims to discuss potential factors and barriers to implementing the MP for HQVA from the perspective of professionals at the municipal and state levels who participated in the implementation workshops.

Methods

This article discusses potential factors and barriers to implementing MP for HQVA from the perspective of municipal and state-level professionals who participated in the MP workshops from April to September 2023. The workshop participants were professionals involved in implementing the HQVA in the states and municipalities. The Immunization

Department conducted 13 in-person workshops throughout Brazil to train facilitators for implementing MP in municipalities. These workshops included 1,195 professionals from municipal and state health secretariats, state health coordinators, and the National Council of Municipal Health Secretariats (CONASEMS).

Each workshop lasted 24 hours and was spread over three days. Working groups were formed based on health regions and local characteristics, promoting interaction among participants to facilitate the activities proposed by the leaders. Initially, the epidemiological situation and vaccination coverage in Brazil and the state were presented and discussed, followed by discussions on MP-related topics. These topics were the subject of activities developed in the working groups, emphasizing MP in vaccination actions, its stages, components, and high-quality criteria, analysis of the health situation, vaccination records, vaccination indicators, communication and social action for vaccination actions, MP oversight, and rapid vaccination assessment and monitoring.

After the workshops, participants replicated the content in their states and municipalities. Examining their realities identified the facilitating elements and barriers to the MP implementation. In October 2023, a questionnaire was sent via Google Forms to all workshop participants in the states and municipalities to support monitoring the MP actions by the Ministry of Health (MS) team. A total of 235 responses were obtained at the municipal level, with respondents from nine states in the five Brazilian regions. At the state level, respondents were from 12 states in the country's five regions.

The questionnaire questions used in this experience report were (1) What elements are the MP implementation facilitators in your state/municipality? Moreover, (2) What barriers do you identify for implementing the MP in your state/municipality?

The MaxQDA software was adopted to organize the data from the responses subjected

to deductive thematic analysis⁵. This project was submitted to the Federal University of Minas Gerais Research Ethics Committee and approved under Opinion N° 6.739.296. It also met the recommendations of Resolution N° 466 of 2012⁶ of the National Health Council.

Results

Sample characterization

Participants totaled 235 professionals from states and municipalities, of which 67% were nurses, 15% were nursing technicians, 8% had unidentified education, and 10% were from other educational areas. In municipalities, the median seniority in the position was seven years; most were statutory workers (66%), followed by professionals with CLT contracts (24%) and commissioned positions (10%). As for the states, 66% worked in the regional health administrations and the rest at the central level (34%), with a median seniority in the position of five years; most were statutory workers (83%), followed by contracts (9%), commissioned positions (6%), and CLT contracts (2%).

Facilitating aspects for implementing HQVA with MP

Participants at both levels highlighted MP's contribution to the situational diagnosis, the coordination with other stakeholders and sectors, training and sensitization of professionals and the general population, and the perspective of financial resources. Although the themes are similar, some specificities are identified in the contributions detected by professionals at the municipal and state levels.

State multipliers affirm that MP workshops were powerful in "*getting to know each location and its realities*", especially the in-person workshops in the health regions. They were an important device for bringing

the state and municipal realities closer together, as evidenced by their statement that the *“in-person training strategies, with a greater approximation of the realities of the regions/municipalities”* were facilitators. Such an approach is fundamental for assertive planning oriented towards the different realities. The state multipliers also emphasized that the workshops contributed to training by stating that the

face-to-face meetings were crucial for exchanging knowledge and learning. Making the periods available for holding the workshops outside the workplace allowed for greater dedication to the strategy, besides the on-site training in the health regions facilitating access for the municipalities.

They discussed that the *“on-site training was very beneficial since they [multipliers] also conducted the practices”*. The respondents considered that the workshops were moments of *“coordination and identification of partners for the actions”*, stating that *“we managed to identify professionals interested in providing an excellent service in this area”*. Through

discussions about daily work, continuing health education enables collective labor pacts and agreements in the SUS. It focuses on work processes, targets teams, and its locus of production is vulnerable groups.

State multipliers recognize the relevance of *“creating support networks and committees”* and *“intersectoral integration for successful implementation”*. They acknowledged the *“support of state and municipal immunization coordinators for questions, suggestions and guidance”*, including the partnership with *“municipal primary care coordinators were often the same Immunization coordinators for effectively implementing the activities”*.

They also affirmed that *“the three government spheres can work collaboratively”* and mentioned the contributions of the various stakeholders. Each stakeholder identified as

a facilitator contributed effectively. COSEMS (Council of Municipal Health Secretaries) spearheaded the management front to increase managers' participation in this agenda. Primary care management led the front of the professionals who perform the activity, epidemiological surveillance.

With the MP, other ways of mobilizing the stakeholders involved in HQVA were considered, incorporating users and other societal sectors, *“holding educational lectures on the importance of vaccines, mini-courses with professionals, extramural actions in supermarkets, schools, and shopping malls”*. The municipal multipliers highlighted that

the workshops and individual supervision with each municipality, looking at their indicators and territory, analyzing the weaknesses and potentialities, [contributed to] the situational diagnosis.

By analyzing their realities, they highlighted that the dynamics of the MP workshop were important for *“working with data analysis and causing discomfort in doing the same thing; that is, using immunization strategies that have not yielded results so far”*. Results of changes in the strategies used in municipalities based on the MP can already be identified in the reports of municipal multipliers, the activities, and preparation for D-day, and the multi-vaccination campaigns.

Strategies were mentioned to attract customers and provide access to vaccination in remote areas, [the dissemination of] successful actions by some teams to motivate others to implement actions, [festive activities, and the] active search by going to schools to take reminders to parents.

The analysis of their reality was also identified when they recognized the need for *“planning and organizing the multidisciplinary team and disseminating knowledge about the area”*. The MP workshop also provided an opportunity to *“align and make actions uniform in all segments”*, promote *“coordination efforts”*

to involve different stakeholders and diversify actions, as was exemplified when they mentioned

The PHC coordinators work with the health units, holding meetings with the teams and communication activities and disseminating information on radio, television, and the Internet.

It also provided opportunities for intersectoral actions through “partnerships that facilitate integrated work in health, education, and social assistance”, highlighting that “parents are already coming to regularize their children’s vaccinations”. The importance of MP Committee was also identified as a formalized body that seeks to ensure the engagement of representatives from different sectors and the community in developing actions to expand vaccination coverage: “establishing the MP Committee, as it includes professionals from several departments with ideas for actions and future multipliers”.

Intersectoral actions were also mentioned, especially support from education, social assistance, and other institutions. They recognize that, in order to increase vaccination coverage, it is necessary to consider multifactorial issues in each territory, which, through diagnosis, analysis of the health situation, planning, programming, monitoring, supervision, team evaluation, and monitoring, through a committee established with various stakeholders, implement necessary interventions.

Municipal representatives recognized the importance of collaborative work in implementing the MP. They highlighted the support from the federal and state levels:

The method is complex for a culture with little local planning, and we need to advance gradually.

Although we have covered all the content, we have tried to sensitize the teams about the importance of health planning.

Like state multipliers, they highlight the need for intersectoral actions, observing the existing awareness of other sectors.

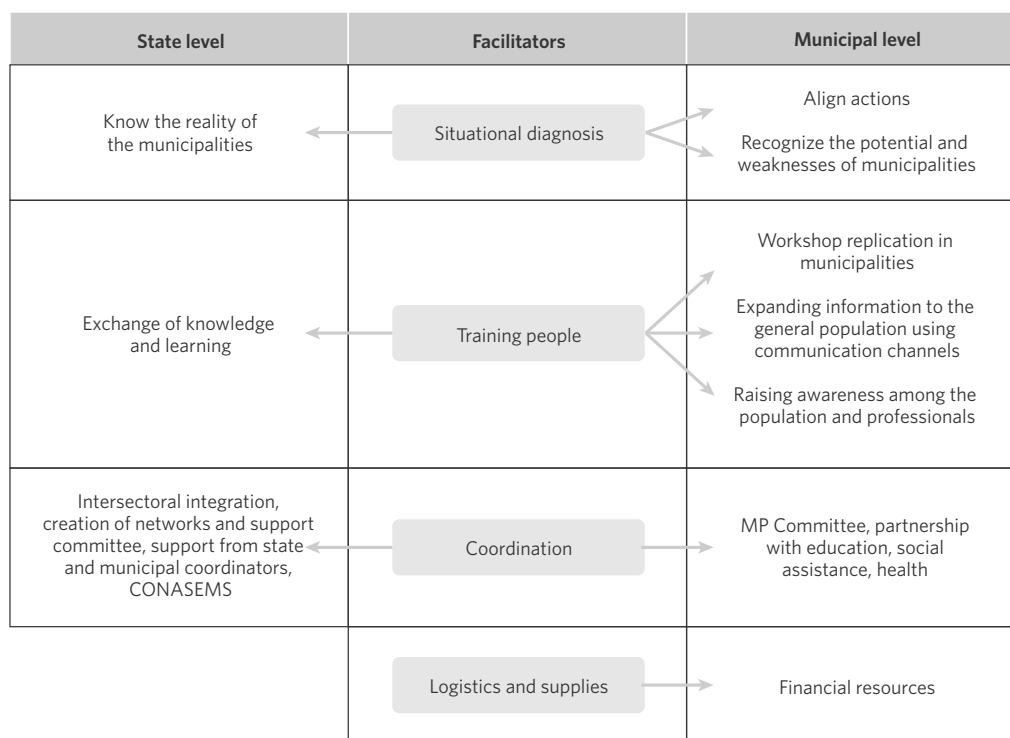
Education and social assistance in the municipality are concerned about the low vaccination coverage and have been working with children and helping to propose actions to achieve the goals.

The contribution of the workshops to the ‘capacity building’ of the different stakeholders was indirectly evidenced by the incorporation of actions that expanded the reach of information related to vaccination and by educating the participants. This was achieved by adapting to reality

the workshop’s content developed by the Ministry of Health, [including] the managers of the health units, and not just the nurses responsible for the vaccination room. Sensitizing professionals and the adherence of community health workers (ACS) [was fundamental to the success of the MP and the increase in vaccination coverage]. Receiving the funds made available by the Ministry of Health upon delivery of the Project [was identified by municipal multipliers as an aspect that contributed to the success of the MP].

Figure 1 is a schematic presentation of the facilitators. The data set allows us to distinguish between the natures of the actions at each level. At the state level, facilitation was identified by aspects that allowed for guiding the planning of the HQVA. Actions of a more operational nature provided by the MP were recognized at the municipal level.

Figure 1. Facilitators for the implementation of HQVA through the MP at state and municipal levels



Source: Prepared by the authors.

Barriers to implementing HQVA through the MP

Regarding the MP implementing barriers and coordination issues, state multipliers highlighted issues related to ‘political aspects’ such as the “*so me managers’ lack of priority concerning prevention*”, which translates into the lack of “*political support for prioritizing immunization in local management*” and “*municipal managers who have not worked collaboratively with the state*”. The gap between PHC and Epidemiological Surveillance was also mentioned as challenging in some locations.

Another notable issue is ‘logistics and supplies’, including the “*lack of some immunobiologicals [and the difficulty in] managing the purchase of materials and acquiring services to implement the planned actions*”. Issues with the information system have also become a barrier

for the MP: “*Currently, the biggest difficulty is in the information system*”. The municipalities question that they feed the system and cannot obtain actual data on vaccination coverage due to data migration problems. They also mentioned that

[the] spread of fake news has become a cause for great concern, [highlighting the need to] resume campaigns that reach the young population and are intersectoral [to confront anti-vaccine culture].

Although state multipliers valued in-person and decentralized workshop delivery, it was also considered a barrier due to the participants’ difficulties getting around. They mentioned the need to “*provide means for professionals to commute from their municipalities for in-person training activities and even to find time for online meetings*”.

Regarding developing the ‘MP stages’, the multipliers recognize that their implementation requires *“changes in work processes based on a situational diagnosis”*. Barriers include the time required for the planned activities and the resistance of teams to change. There is an *“excess of forms, many of which will probably not be used”*, and some spreadsheets do not *“adhere to the reality of some municipalities”*. The need to understand the entire MP process and methodology is evident to adapt it to the realities of the territories. Human resources were a barrier for states and municipalities due to the *“lack of personnel and high turnover”*, leading to overload and hindering the collaboration of all territory stakeholders, which compromises the implementation of actions such as *“conducting extramural actions and reaching the vulnerable population, filling out data in spreadsheets and analyzing, and implementing actions given the high daily demand”*. The turnover of human resources requires frequent initiation of training groups with *“incomplete and unmotivated family health teams due to not receiving overtime pay and/or other bonuses”*.

Political aspects include the *“lack of municipal managers’ awareness”*. Respondents recognize the period close to elections as a barrier to implementing the MP due to the vaccine politicization risk. They report that *“much politics surround vaccines, [and political disputes] directly interfere, mainly due to interests in positions, which hampers any partnerships”*.

The ‘MP stages’ were considered

too bureaucratic and complex to ensure their applicability in all immunization actions. The large volume of data that needs to be collected generates team anxiety and concern.

They pointed out that some factors

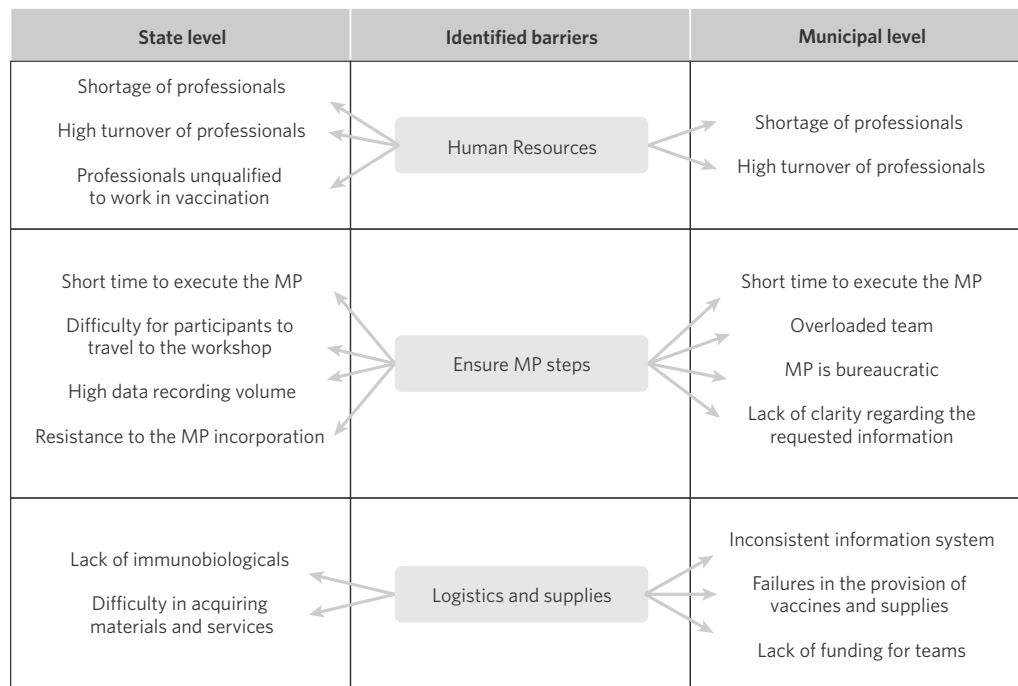
such as the instruments made available and the lack of information or database to implement them, the lack of organization of the schedule proposed by the Ministry, and the lack of clarity of the information requested [were imposed as a barrier to implementing the MP].

The multipliers in the municipalities emphasized the short time to implement the MP stages. They reported having little time for *“training and operationalizing microplanning”*. To ensure multiplication in the municipalities, it was necessary to *“close rooms right in the middle of a multi-vaccination campaign”*. The lack of time seems more relevant when added to the professionals’ overlapping daily activities, evidenced when they point out the *“availability of time given the multiple activities that professionals must develop”*, besides time and commuting possibilities for actions outside the health unit.

From the ‘logistics’ to implementing the MP, municipal respondents emphasized the need to improve the information system due to *“data inconsistency”*, showing a different scenario than the actual one. They identify *“divergent coverage in different systems and data transmission inconsistencies”*, which can compromise the planning of actions and the MP. State respondents highlighted access, logistics, and financing issues, particularly the failure to deliver vaccines and supplies regularly. They also underscored the need for more funds to pay employees at alternative times and *“to plan and execute vaccination actions, due to poor management organization, hindering spending monies from the ordinances”*.

Figure 2 summarizes the barriers to implementing HQVA using the MP, identified by multipliers at the state and municipal levels.

Figure 2. Barriers to implementing HQVA, through the MP, at the state and municipal levels



Source: Prepared by the authors.

However, some respondents from small municipalities in the states of São Paulo and Santa Catarina pointed out that “*we did not have significant implementing barriers*”. In contrast, others reported how they overcame the barriers by clarifying the importance of systematizing the work.

Discussion

The articulation between PHC and epidemiological surveillance to increase vaccination coverage is discussed repeatedly². A PHC that is robust, widespread, and with well-established work processes is crucial to achieve this goal. In the discussions on the MP, the need for teams to plan immunization actions was stressed, besides criticism of the lack of a culture of joint planning. The precarious human resources, the high turnover of professionals, and the lack of specialized technical support are significant challenges to be overcome⁷.

Planning and evaluating actions to overcome fragmented and bureaucratic practices, including immunization actions, is essential in PHC⁸. As the scope of work in PHC expands, complexity increases and challenges the organization of its practices, which is especially true when considering the complexity of the territories in a continental country like Brazil, which is full of inequalities. Therefore, critical reflection on these processes is essential, as they require skills in using instruments that facilitate work transformation⁸. Furthermore, the importance of joint work between epidemiological surveillance and public health sectors to conduct the situational and epidemiological diagnosis of each territory⁴ is underscored.

During the Primary Care Quality Improvement and Assessment Program, studies stressed the importance of public policies that induce changes in organizational culture and work processes in PHC^{9,10}.

In this sense, this study's respondents considered that the MP can induce reviewing and reorganizing work processes allowing, including in committees, for the joint discussion of relevant aspects of difficulties and sharing of successful experiences. This moment is propitious for integration, with the possibility of improving the teams' work process, facilitated by two strategies respondents consider important for modifying the work process: Situational Diagnosis and Continuing Health Education.

Regarding situational diagnosis, implementing the MP requires recognizing local realities, considering the territory as the locus of immunization practice, and analyzing health needs. Thus, the situational diagnosis should be the starting point for health territories, especially regarding immunization actions⁴. According to the respondents, the MP provided quality time, with a protected schedule for organizing the stages, allowing for a situational diagnosis with the stakeholders involved in the processes.

Planning actions in health services is more successful when it considers territorial needs, and situational diagnosis is an important tool for a comprehensive analysis of health conditions¹¹, encouraged by managers to understand reality through health indicators, local infrastructure, access to services, and epidemiological profile¹². Building the situational diagnosis requires effective participation and mobilization of the several stakeholders involved, not only health professionals. The MP suggests creating a committee with broad social participation¹³, contributing to the methodology's potential.

From the perspective of continuing health education, teaching-learning processes promote personal, social, and cultural development, with the learner's active participation¹⁴. Based on meaningful learning, continuing health education transforms workers' practice, considering their previous knowledge and everyday problems to build new knowledge¹⁵. In this sense, professionals at the state level

recognize workshops as an opportunity to involve different individuals in vaccination based on recognizing their local realities.

By participating in the workshops, professionals committed to being multipliers in their municipalities to spread the MP throughout the national territory to ensure HQVA. Notably, the role of professionals as multiplier agents strengthens communities technically and politically, allowing for more explicit recognition of their priorities, more assertive decisions, and the collective construction of strategies to improve health conditions¹⁶.

Based on the workshops and the replication of content in the municipalities, it was possible to reevaluate the processes from the perspective of municipal professionals. Sensitization strategies were outlined for specific realities, with information shared with professionals and the population aligned with their realities. This perception reinforces the assertiveness of the workshop methodology, which included moments for analyzing the local health situation with the support of specific tools, defining strategies and actions for vaccination within and outside the city, and communication and social mobilization activities⁴.

Another point highlighted by participants is the coordination of the three government spheres in planning and implementing immunization actions. Although municipalities are responsible for vaccinating the population in the SUS, this occurs in technical and financial cooperation with states and the Federal Government. Comprehensive health care must be guaranteed through actions and services organized in a regionalized and hierarchical network. In a system with political and administrative autonomy of the three government spheres, the decentralized responsibilities impose the need for complex coordination and cooperation between the federated entities to ensure the implementation of effective and resolute health policies¹⁷.

Within the scope of the coordination between the three management levels, the formation of the HQVA Coordination Committee

stands out as a strategy to include vaccination in the country's political agenda. The Committee aimed to facilitate coordination between government sectors, community stakeholders, technical managers, and professionals directly linked to operationalization. Furthermore, respecting each level's competencies, the Committee was responsible for negotiating and mobilizing resources and defining activities for all the process stages. The Ministry of Health coordinated the Committee nationally and the Health Secretariats were responsible for the coordination in the states and municipalities⁴.

As a result, the MP workshops play a crucial role in strengthening coordinated immunization actions between municipalities, states, and the Federal Government. The municipal professionals' recognition of the importance of collaborative work in implementing the MP is noteworthy. Participants at both levels acknowledge the need for coordination with other sectors for successful HQVA, favored by the workshops and Committees.

Finally, professionals point to the specific financial resource for vaccination as an element that enhances the MP implementation. The Ministry of Health established this funding through Ordinance GM/MS N° 8444 in July 2023. It was an exceptional and temporary funding incentive intended for multi-vaccination actions in municipalities, states and the Federal District, with specific powers of the Ministry of Health, states, and municipalities for implementing multi-vaccination actions.

Regarding the challenges of implementing the MP, professionals point out elements that permeate external issues, such as human resources, development issues in all its stages, logistics, and inputs. Notably, although the MP is a process used in immunization in recent decades in countries in the Americas, this process is not sufficiently documented, and systematized⁴, and the Brazilian experience is still in its infancy. It is believed that many of the problems listed by the participants will gradually be minimized as the MP moves from

being a tool for planning immunization actions to forming a government policy because the management tools provided for in the MP cover aspects that must be overcome. Used critically, with the participation of the several stakeholders involved in vaccination strategies, these tools can be an important subsidy for planning and monitoring actions and increasing vaccination coverage in the country.

The lack of human resources was the principal difficulty for routine vaccination actions and other activities. Some important issues include the increasing PHC work complexity, with a significant growth in team activities and responsibilities⁷. On the other hand, the municipalization process faces challenges in some municipalities in the planning of the local health system and the health workers' management policy¹⁸, which, combined with the Fiscal Responsibility Law¹⁹, has resulted in weak employment relationships for health professionals, leading to high worker turnover and discontinued services to the population or work overload^{20,21}.

Final considerations

The analysis of the facilitating factors for implementing the MP for HQVA reveals that the methodology and content addressed in the workshops mobilized the stakeholders involved and supported immunization actions at the local level, where vaccination actions occurred. The systematization of knowledge of the local reality, through situational diagnosis, facilitated the outlining of specific strategies for the different contexts of the country. The coordination and cooperation between the municipal, state, and local levels allowed an exchange of experiences and knowledge toward successful proposed actions.

On the other hand, the barriers and challenges presented point to the importance of creating a structured planning culture based on practical management tools and devices to identify problems and establish systematized

actions. In this sense, the MP emerges as a viable possibility, articulately involving the three government spheres and allowing partnerships with the community at large.

A limitation of this study is that aspects that characterize the participants' regions, states, and municipalities were not used for data analysis, which may hamper the understanding and application of the identified results.

Collaborators

Araújo ACM (0000-0003-1558-9789)* contributed to data collection, analysis, and interpretation and final approval of the version to be published. Matozinhos FP

(0000-0003-1368-4248)* contributed to data collection, analysis, and interpretation; writing the article and its critical review; and final approval of the version to be published. Nascimento LMD (0000-0002-8490-3914)*, Ferraz CC (0009-0008-3253-5460)*, and Diniz LCPB (0009-0002-2505-7110)* contributed to the collection, analysis and interpretation of data. Duarte ED (0000-0001-8170-7523)* contributed to the work's conception and design, writing the article and its critical review, and final approval of the version to be published. Fernandes EG (0000-0001-6907-7063)* contributed to the collection, analysis, and interpretation of data and final approval of the version to be published. ■

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