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Protege *Paranaíta*. Credit: Paranaíta Municipal Health Department

In this issue:

Successful and award-winning experiences presented by Brazilian states and municipalities

Brazil is a vast country with over 200 million inhabitants and a public, universal, and free health care system. In the 35 years since its creation, the Unified Health System (SUS) has made important progress, including achieving high vaccination coverage for a large number of vaccine-preventable diseases.[1] Immunization actions in the country are coordinated by the National Immunization Program (PNI), created 50 years ago by the Ministry of Health. The PNI has achieved sustainable results over decades, as SUS services have expanded. It has progressively increased the number of vaccines, as well as population coverage. Its activities are carried out in a robust service network that includes routine vaccination services[2] and campaigns, as well as the Reference Centers for Special Immunobiologicals (CRIE), which serve people with special clinical conditions.[3]

Despite these strengths, Brazil has not been unscathed by a worldwide phenomenon that has resulted in lower immunization indicators, including those for the surveillance of vaccine-preventable diseases. In 2019, this complex situation led the World Health Organization to define low vaccination coverage as one of the top ten global public health challenges.[4] Under Brazil's unique federal arrangement, the SUS offers national coverage but is decentralized. The federal government, 27 state governments (including the Federal District), and 5,570 municipal governments work together through the Ministry of Health, the National Council of Health Secretariats (CONASS), and the National Council of Municipal Health Secretariats (CONASEMS).

In health, all spheres of management have complementary roles at every stage of the process from financing, standardization, planning, and implementation of actions to health surveillance and policy/program monitoring and evaluation. In terms of immunization policies, this configuration implies shared, networked implementation with the involvement of the three levels of government.[5]

This organizational wealth is expressed in different ways, including the way in which the health secretariats (municipal and state management entities) often carry out innovative experiences on their own. One of the roles of the entities that coordinate such a wide-ranging network is to identify situations that merit greater visibility—and to share those experiences—so that people faced with similar problems can better address them. The organizations that represent health managers at the state and municipal levels—CONASS and CONASEMS, respectively—play an important role in this regard. These councils have shared (tripartite) agreements with the Ministry of Health. They also foster horizontal collaboration between the different actors in the field of public health.

In this context, the Pan American Health Organization (PAHO) office in Brazil is supporting CONASS and CONASEMS initiatives by compiling a set of experiences to be published as a supplement to the PAHO Immunization Newsletter. In partnership with CONASS and CONASEMS, six successful experiences in municipalities from different regions of the country were

1 Castro MC, Massuda A, Almeida G, Menezes-Filho NA, Andrade MV, de Souza Noronha KVM, Rocha R, Macinko J, Hone T, Tasca R, Giovanella L, Malik AM, Werneck H, Fachini LA, Atun R. Brazil's unified health system: the first 30 years and prospects for the future. Lancet. 2019 Jul 27;394(10195):345-356. doi: 10.1016/S0140-6736(19)31243-7. Epub 2019 Jul 11. PMID: 31303318.

2 Fernandes J, Lanzarino NM, Homma A, Lemos ERS. Vaccines. Rio de Janeiro, RJ Editora Fiocruz, 2021.

3 Brazil. Ministry of Health Secretariat of Health Surveillance Department of Immunization and Communicable Diseases. Manual dos Centros de Referência para Imunobiológicos Especiais [digital version in Portuguese only]. – 5. ed. – Brasília: Ministry of Health, 2019.

4 World Health Organization. Immunization agenda 2030: a global strategy to leave no one behind. Geneva: WHO; 2019. Available at: https://www.who.int/teams/immunization-vaccines-and-biologicals/strategies/ia2030.

5 Domingues CMAS, Maranhão AGK, Teixeira AM, Fantinato FFS, Domingues RAS. 46 anos do Programa Nacional de Imunizações: uma história repleta de conquistas e desafios a serem superados. Cad Saúde Pública [Internet]. 2020;36:e00222919. Available at: https://doi.org/10.1590/0102-311X00222919.

selected from among some 900 proposals. Three experiences carried out by state governments were also selected from among 50 proposals. The selected experiences were presented at managers' events, such as the CONASS Technical Chamber on Surveillance, held in May 2023, and the CONASEMS XXXVII National Congress of Municipal Health Secretariats, held in July of the same year. Reports were also presented at the XXV National Immunization Conference, held in September 2023 by the Brazilian Immunization Society (SBIm), one of the world's largest events on the subject.

The reports presented in this Immunization Newsletter were written directly by professionals involved in the experiences presented here. They reflect the vivacity of a robust, creative health system that, since its creation, has fed on the energy of people behind the scenes who work every day to protect all lives and guarantee universal and comprehensive access to health, which is recognized by Brazil's Federal Constitution as a right of all people and a duty of the State.

While it is important for these nine experiences to be shared more widely in Brazil, they can also contribute to discussions in other countries of the Americas. Although the health systems of the 35 countries and 15 territories of the continent have very different characteristics, the active role of workers and managers at the local level is inherent to health work everywhere. Recognizing vital work in such different contexts reveals the potential for innovation wherever one may be working. The aim is to create a dynamic that leads to increased vaccination coverage everywhere people need to protect themselves from vaccine-preventable diseases, and to foment the reporting and sharing of many other experiences. This will help bring immunization to every corner of the Americas, leaving no one behind. Have a good read!

Authors and editors: Francieli Fontana Sutile Tardetti Fantinato, Lely Stella Guzmán-Barrera, and Luciano Gomes. •

Opportunities and challenges to achieving increased vaccination coverage, from the perspective of managers and workers in the Unified Health System in the Brazilian state of Minas Gerais

Despite significant advances in vaccination over the decades, especially with the expansion of primary health care (PHC) coverage, Brazil has not reached the recommended vaccination coverage targets since 2016, a situation exacerbated by the COVID-19 pandemic. Cooperation between academia and health services can help us to understand this problem and act to eliminate its causes. Accordingly, the Minas Gerais State Health Department and the Center for Vaccination Studies and Research at the Federal University of Minas Gerais School of Nursing joined forces for an action-research project aimed at implementing and evaluating strategies to increase vaccination coverage in children under 2 years of age in the state.

Action research was conducted in the catchment area of eight health regions where a previous study showed a downward trend in vaccination coverage.[6] The workshops were held between March and June 2022, with 515 participants from 160 municipalities, including managers, health professionals, and coordinators of epidemiological surveillance, primary care, and immunization, as well as representatives of the Council of Municipal Health Departments.

The workshops were held in four stages: 1) motivational welcome for the participants; 2) contextual orientation to raise participants' awareness of low vaccination coverage, financial resources, and project objectives; 3) planning session in which guiding questions were used for discussions and to split the municipalities into working groups and start building municipal action plans; and 4) integration/results session to share successful experiences and present the action plans developed by the groups. All workshops were recorded and transcribed; contents were organized in MAxQda software for subsequent Bardin content analysis.[7] These categories were identified in the analysis: facilities for local immunization processes; differences and problems with information systems for analyzing vaccination coverage; strategies to achieve vaccination coverage; and challenges in achieving vaccination coverage.

A highlight in the "opportunities for local immunization processes" category was the coverage provided by the Family Health Strategy, whose teams carry out active searches and analyses of the local vaccination situation. The setup of vaccinations rooms and cold chain equipment was also highlighted.

A category that sparked much discussion was "the information system and discrepancies with the coverage presented by teams". Many questions focused both on the need to update the system and to organize a system that can capture data from different programs, such as the Ministry of Health's e-SUS program and other private programs acquired by municipalities.

In relation to "strategies presented by the municipalities", the discussions pointed to the importance of teamwork, permanent education, and actions aimed at the general public, especially in terms of providing quality information on immunobiologicals. This included a discussion of events supposedly attributable to vaccination or immunization (ESAVIs) and the importance of vaccination. Health fairs, fun activities for children, active case searches, and house-to-house vaccination are among the activities that municipalities use the most. Participants mentioned the following challenges, among others: lack of training (39.7%), lack of qualified human resources to work in vaccination rooms (27.2%), fake news (9.6%), lack of structure (7.4%), other health professionals' lack of commitment or knowledge in relation to vaccination (5.9%), and concomitance of routine vaccinations and COVID-19 vaccination (5.1%). Other issues included politicization, lack of appreciation of nursing, and partnerships (5.1%). Among the most problematic issues involved investment in the training and development of nursing teams to guarantee quality work.

Analysis of the talks given during the workshops showed that despite the efforts made by municipalities to increase vaccination coverage, it is difficult for them to reorganize their work processes to promote high-quality, successful immunization practices. These findings demonstrate the importance of rethinking the organization of training processes in universities, so that they emphasize health surveillance, immunization, and PHC activities. Partnerships between health services and educational institutions play an important role in fostering research and interventions that support the development of strategies to improve vaccination coverage, with the aim of preventing the reintroduction of eliminated and controlled diseases in Brazil.

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6 Souza JFA, Silva TPR da, Silva TMR da, Amaral CD, Ribeiro EEN, Vimieiro AM, et al. Cobertura vacinal em crianças menores de um ano no estado de Minas Gerais, Brasil. \Ciênc saúde coletiva [Internet]. 2022Sep;27(9):3659–67. Available at: https://doi.org/10.1590/1413-81232022279.07302022.

7 Lachtim, S. A. F., Palhoni, A. R. G., da Silva, T. P. R., Ribeiro, E. E. N., Souza, J. F. A., Coelho, V. M. R., Soares, A. C., & Matozinhos, F. P. Estratégias cooperativas para melhorar a cobertura vacinal em crianças no Estado de Minas Gerais. Arquivos de Ciências da Saúde da UNIPAR [internet]. 2023; 27(9), 5310–5323. Available at: https://doi.org/10.25110/arqsaude.v27i9.2023-026.

Leopoldina workshop, 26-27 Sep 2023. Credit: Observatory for Vaccination Research and Studies, Federal University of Minas Gerais and Minas Gerais State Health Department

100 Questions about Vaccines

Vaccines are key elements in ensuring individual and collective health against various vaccine-preventable diseases. On this complex issue, health professionals need to provide information that makes everyone aware of the importance of getting vaccinated. The COVID-19 pandemic shed light on the vast amount of misinformation and false information about vaccines, leading a large part of the population to question their effectiveness and hesitate to get vaccinated, thus reducing vaccination coverage.

Faced with low vaccination coverage rates since 2016 (according to data from the State Health Department and the Ministry of Health) and the need for strategies to mitigate this and return to satisfactory levels, the state of São Paulo created the "100 Questions about Vaccines" (*Vacina 100 Dúvidas)* campaign.

The campaign seeks to strengthen vaccination in the state of São Paulo and increase coverage levels. It is also a tool to raise public awareness about the importance of vaccines, reduce misinformation, and address vaccine hesitancy.

The campaign's slogan reflects the intention to tackle the 100 most frequently asked questions about vaccination. In Portuguese, the slogan contains a play on words that suggests that people will no longer have any doubts about vaccines.

In a joint effort between the government of the state of São Paulo and the Department of Health, a website (http://www.vacina100duvidas.sp.gov.br) was developed to address the 100 most frequent queries about vaccines on internet browsers, providing people in the state with access to clear, objective information.

The information refers to the vaccines in the basic schedule, such as polio, meningococcal C conjugate, MMR (measles, mumps and rubella), yellow fever, pentavalent (diphtheria, tetanus, pertussis, hepatitis B, and invasive diseases caused by haemophilus b), chickenpox, HPV, BCG (tuberculosis), and COVID-19.

An extensive digital advertising campaign was also developed, focusing on Meta's social networks (Facebook and Instagram), Google, websites/portals (such as UOL, Globo, Exame, Folha, and Valor Econômico) and outdoor digital media (e.g., screens in bus and subway terminals).

A multiplatform campaign was launched on 7 March 2023 at an event at the Butantã Institute. The event also included the inauguration of the Vaccine Museum, the first cultural facility in Latin America dedicated to the subject. Zé Gotinha, the mascot of the National Immunization Program, also made an appearance.

By May 2023, 141 news items on the subject had been spontaneously published in the media (including the main national media), with repercussions in all parts of the state. On social networks and portals, 419.8 million impressions were recorded; and 14,049 radio spots were played on 336 stations in 120 cities.

Just one month after the "100 Questions" campaign was launched, there was a significant increase in coverage of the vaccines that make up the basic schedule, such as the BCG vaccine, which rose from 79.3% to 83.1%. Coverage of the meningococcal C and pentavalent vaccines rose, respectively, from 75.5% and 74% in February to 81.3% and 85.2% at the end of March; polio vaccine coverage went from 74.4% to 85.9%; and for yellow fever, coverage increased from 64% to 82.6%. Coverage of the first and second doses of MMR increased, respectively, from 76.1% to 89.9% and from 62.6% to 71.9%. Synergy between the "100 Questions" campaign and the influenza vaccination campaign has led to a gradual increase in vaccination coverage in the state. Vaccination coverage in early July was 44.5%, rising to 49.5% in August and 51.9% in September. Coverage of other vaccines on the basic schedule also increased compared to figures for the end of 2022: pneumococcal vaccine, from 79% to 82.3%; rotavirus, from 77.2% to 79.8%; and hepatitis A, from 74.6% to 83.4%.

The multi-platform campaign has become an extremely important tool for combating false information about vaccines, helping to increase public trust in immunobiologicals and raising public awareness of vaccines as powerful tools to mitigate the risks of infectious diseases and promote health.

The use of technologies to reduce misinformation and increase health surveillance actions is an essential and effective strategy for greater health security in the population. The success of this campaign shows how the Unified Health System (SUS) is increasingly using technology to combat misinformation, reduce vaccine hesitancy, and increase vaccination coverage in the state of São Paulo.

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"100 Questions about Vaccines" (Vacina 100 Dúvidas) campaign. São Paulo

Overcoming the challenges of distributing COVID-19 vaccines in Amazonas state: a report on the experience

Among its objectives, the National Immunization Program (PNI) seeks to integrate the entire process of transporting immunobiologicals over long distances while maintaining a stable temperature, in accordance with current regulations. For vaccination strategies and actions to be successful, it is essential to have quality cold chain management of vaccines and related supplies throughout the country.[8]

Tackling COVID-19 required new organizational standards for health services.[9] In immunization, the great challenge posed by the novel coronavirus was how to redefine priority goals and actions in order to maintain routine vaccination and immunization campaigns, and how to mobilize resources to achieve services that would meet the demands and that could be accessed by the entire population.[10]

Amazonas is the largest state in Brazil, covering 1,559,225.881 km^2, representing 40.7% of the Northern region and 18.4% of the country's territory. It has national and international borders, and an estimated population of 3,941,175.[11] Its enormous size and hard-to-reach locations pose challenges to the timely provision of health services to the entire population of Amazonas.

Amazonas is very diverse in terms of the way of life of its population and its environmental, social, and cultural characteristics. It is home to the largest indigenous population in the country, who live in large aquatic environments dominated by rivers, lakes, streams, paranás, and flood plains. These places lack adequate basic sanitation, contributing to the spread of numerous diseases.[12] Access to vaccines is difficult in rural, indigenous, and riverside areas, which often makes it difficult to comply with the PNI vaccination schedule.[13]

In order to make vaccine distribution feasible, it was essential for state-level managers and civil servants to collaborate in an integrated manner with municipalities, control entities, and civil society, seeking new action strategies to overcome challenges in the availability of immunobiologicals for the COVID-19 vaccination campaign. It should be noted that there was a health crisis in the state at the time (due to the second wave of the pandemic) and no commercial transportation (air, land, or river) was operating.

8 Carvalho, LP; Diehl, JE. Análise da cadeia de suprimentos de vacina no Brasil. Revista Tecnológica da Fatec Americana, vol. 09, n. 02, July/December 2021.

9 Silva, BS; Souza, KC; Souza, RG; Rodrigues, SB; Oliveira, VC; Guimarães, EAA. Structural and procedural conditions in national immunization program information system establishment. Rev Bras. Enferm. 2020; 73 (4): e20180939.

10 Domingues, CMAS. Desafios para a realização da campanha de vacinação contra a COVID-19 no Brasil. Cad. Saúde Pública. 2021; 37(1):e00344620.

11 IBGE. Brazilian Institute of Geography and Statistics. Census 2022: Population and Households - Initial Results - Updated 27/10/2023.

12 Rodrigues, PMA. Homens e Mulheres nas Beiras: etnoeconomia e sustentabilidade no Alto Rio Solimões. Dissertation (Master's Degree in Environmental Sciences and Sustainability in the Amazon). 143 f. Universidade Federal do Amazonas, Manaus, 2008.

13 Dias, JL; Moisés, M; Nascimento, MIN; Nascimento Júnior, EP. Os desafios na avaliação e distribuição das vacinas para o Programa Estadual de Imunização do Amazonas em 2020. Ciência da Saúde no Mundo Contemporâneo: Interdisciplinaridade 2 / Igor Sombra Silva (org.). – Rio Branco: Stricto Sensu, 2020. 240-247.

This is a descriptive report on how the challenges were met in the distribution of vaccines and supplies to municipalities in the state of Amazonas.

The challenge of distributing immunobiologicals for the COVID-19 vaccination campaign in Amazonas began with their arrival, given the large volume that needed to be stored. The state's strategy was to rent two refrigerated containers (+2° C to +8° C) with temperature monitoring and 24-hour security.

Given the epidemiological scenario the state was facing at the time, a task force was organized with engagement from all federal spheres, with the aim of making vaccines available to the municipalities as quickly as possible. The state immunization management team received and stored all the vaccines and immediately began the process of preparing them for shipment to the municipalities in the interior of the state. Remote training was given to all professionals working in vaccination rooms across the state, enabling them to correctly receive and handle the COVID-19 vaccines.

Since it was urgent to get the vaccines to the municipalities as quickly as possible, distribution was exclusively by air, in coordination with the military air transportation department of the Government of Amazonas. Distribution strategies were meticulously planned, taking into account hard-to-reach areas and the specific needs of each municipality. The aim was to complete the distribution within five days. On the first day (18 January 2023), 40,072 doses were distributed to the municipality of Manaus; on the second day, following uninterrupted 24-hour work, 43 municipalities received 169,100 doses; on the third day, doses were sent to 13 more municipalities; on the fourth day, five municipalities were reached; and on the fifth day, the remaining municipality received its first shipment of COVID-19 vaccines, completing the distribution. In total, 248,859 doses were distributed, and the vaccination campaign began simultaneously throughout the state.

Given the challenges to vaccine distribution in Amazonas, due to its vast territory, limited access routes (mostly by river), and adverse weather conditions, it is an intrinsically complex process to ensure access to vaccines in the state. Maintaining the cold chain—which is essential for preserving the integrity of immunobiologicals—is especially challenging in these circumstances. Continuous efforts must be made to ensure that vaccines reach their final recipients with their properties intact.

It is of the utmost importance to document and share experiences related to the distribution of immunobiologicals, in order to provide fresh perspectives on how to approach this challenge. It is clear that the collaboration of various stakeholders was key to overcoming the obstacles. Sharing knowledge not only offers professionals valuable insights into the specificities of the places they serve and the common difficulties they face; it also facilitates innovation in designing practices that can be adapted and expanded to different areas of action. As well as revealing new perspectives and improving the effectiveness of vaccination operations, these actions also strengthen the ability to respond to future challenges through a more comprehensive and effective approach to public health.

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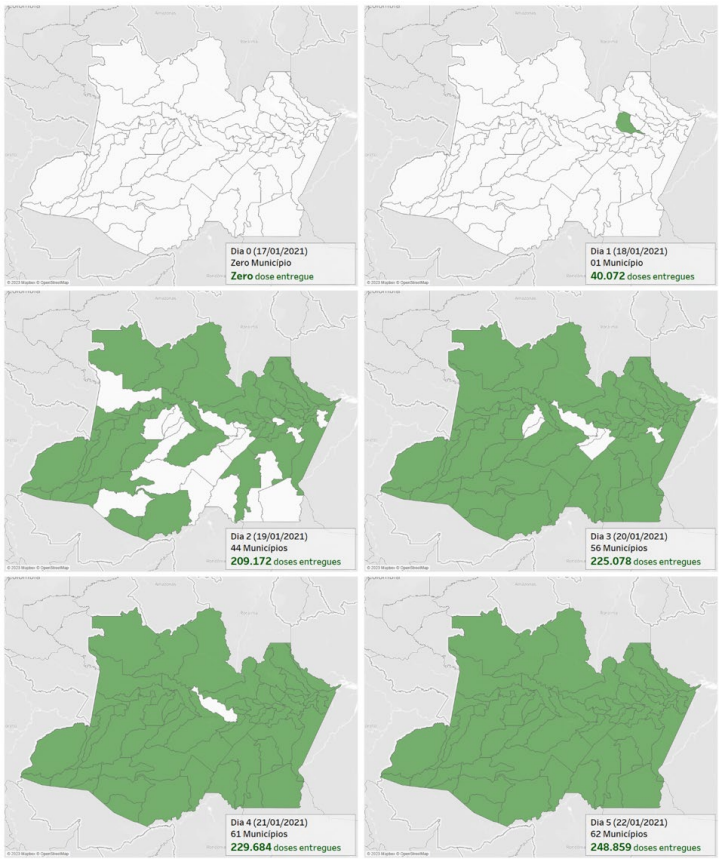


Progress map: COVID-19 vaccine distribution campaign. Credit: Amazonas Health Surveillance Foundation - Dr. Rosimary Costa Pinto

COVID-19 vaccination campaign. Credit: Municipal Health Department of Manacapuruv, Amazonas

Imuniza Barcarena: the road to regaining vaccination coverage

Located in the state of Pará, in the Northern region of Brazil, 15 km from the capital city of Belém, the municipality of Barcarena (population 126,650) has the highest primary health care coverage (92%) among the municipalities in the Tocantins health region. The 6th Regional Health Center (shared with the municipalities of Igarapé Miri, Moju, Tailândia, and Abaetetuba) has its headquarters here. Located in a port area, Barcarena borders on other municipalities and has a transient population; as a result, it absorbs considerable demand from outside its service area.

In the municipality, vaccination is organized by 29 health units strategically located in various areas, including headquarters, villages, roads, and islands. These units offer routine vaccinations to the population every day from 7am to 3pm. In some locations far from urban centers (e.g., on islands and along roadways) people also receive on-site vaccinations during regular campaigns, with specific schedules that facilitate access and guarantee access to immunization.

Despite the efforts of the municipal health department, there is low demand for vaccination, resulting in a significant drop in vaccination coverage. In 2021, only 60.9% of children under 1 year of age were immunized with the pentavalent vaccine, while 63.5% received the inactivated polio vaccine (IPV). The national target for both is 95%.

A strategic committee was established to coordinate efforts to overcome this situation. The committee was made up of technicians from various municipal health departments and sectors: health care, primary care, surveillance, immunization, and planning. Meetings were held on a weekly basis to assess vaccination coverage using computerized immunization records extracted from the Ministry of Health's information systems, and then to identify determining factors and propose actions for improvement. In its reports, the strategic committee identified the obstacles faced by the teams, such as people not being aware of the full vaccination schedule, parents not accepting and/or avoiding vaccination due to the fake news that spread during the pandemic, the difficulties faced by community health workers (CHWs) in their active searches, and problems with production records. Once the situation had been determined, strategies were tailored to the reality of the municipality's 29 basic health units.

These strategies included: 1) Training for the teams (especially CHWs), who were provided with technical information to raise awareness in families; 2) Active searches for unvaccinated people previously identified in the health services; 3) After-hours vaccination, given the difficulties in accessing the services during office hours; and 4) Assessment by trained technicians of vaccination records in the information systems, to avoid loss of information that could affect results. The goal was to focus on the pentavalent and IPV vaccines, which are related to specific national funding policies for primary health care (Previne Brasil program) and surveillance (Program for Assessment of Health Surveillance Actions) and are also part of the UNICEF Seal (an initiative that has no effect on funding but whose indicators—including vaccination indicators—must be met by municipal administrations).

After the interventions, there was a significant increase in coverage of the prioritized vaccines. In 2022, there was a 26.46% increase in the number of administered pentavalent doses compared to the previous year, resulting in 87.45% vaccination coverage; and a 23.68% increase in IPV coverage in the same period, reaching 87.19% coverage.

The creation of the strategic committee led to discussions on the implementation of assertive initiatives, since prevention permeates all levels of care and it is necessary to capture users throughout the network. The training of the CHWs was also a highlight, as they are our main link to the community. Although we still have not reached the recommended targets for each vaccine, we believe that improving and investing in proven, effective strategies will help the municipality of Barcarena to meet these targets and guarantee that its population is protected. It should be noted that the municipal administration has diversified the committee's composition and has adopted an intersectoral approach. Representatives of the departments of Education and Social Assistance have been included in periodic discussions and have helped develop an educational tool to evaluate external vaccination records (currently in implementation).

Contributions from: Brenda Pires Brandão, Adelson Silva Soares, Wiviane Cristina da Costa Miranda, Amanda Mayara Negrão Gonçalves Magno, Rutilene Socorro Maria da Silva, Milvea Franciane Ferreira Carneiro, Eilane Cristina de Sousa Morais Coelho, and Jessica Cristina Meireles Costa.

Imuniza Barcarena. Credit: Barcarena Municipal Health Department

Imuniza Barcarena. Credit: Barcarena Municipal Health Department

BCG in the Maternity Ward

Developed by the Municipal Health Department of Curvelo, Minas Gerais, the "BCG in the Maternity Ward" project was made possible by the health surveillance sector in partnership with the maternity unit of the Imaculada Conceição Hospital Complex (CHIC). Among the main objectives of the program, which began in 2021, is to protect newborns against tuberculosis and reduce the spread of vaccine-preventable diseases by expanding BCG vaccine coverage. The program offers doses of the vaccine to newborns in the first 12 hours of life, as recommended by the Ministry of Health.

Design and implementation of the project began with the enactment of Law No. 8080 of 19 September 1990, which establishes the conditions for health promotion, protection, and recovery, the organization and operation of public health services, and epidemiological surveillance by the Unified Health System (SUS).

The municipality of Curvelo is the hub for the Minas Gerais central micro-region, with a maternity service of reference for nine other municipalities. The maternity ward is located within CHIC, an institution that offers comprehensive maternal and child care to a population of approximately 186,000.

The health surveillance sector was seeking strategies to improve the monthly BCG vaccination coverage indicator, which in 2021 stood at 79.6%, according to data from the National Immunization Program Information System (SIPNI). Offering the BCG vaccine to newborns in the first hours after birth, while still in the maternity ward, effectively increased its coverage in the municipality. In this context, the CHIC maternity unit proved to be the right place to carry out the project.

The municipal health department provides the CHIC maternity ward with a trained nursing technician to carry out the vaccination procedures; in return, CHIC provides its physical infrastructure and the maternity ward's service flow. With this model, there is no additional cost for either party, guaranteeing the financial sustainability of the project.

Since implementation began, systematic monitoring has been carried out, based on indicators that reflect the achievement of strategic targets and objectives. The main indicator is a comparison of BCG vaccination coverage before and after project implementation. In addition, an interactive quality-focused management tool called PDCA was implemented, with four management phases: PLAN, DO, CHECK, and ACT. Actions were monitored mainly through the use of specific evaluation forms for each phase of the process in each sector.

According to SIPNI data for 2022, implementation of the project resulted in: a monthly increase of approximately 32% in BCG vaccination coverage; promotion of equitable, universal access to the vaccine for 99% of live births in the CHIC maternity ward; and BCG vaccination offered immediately after birth, ensuring that the newborn's immune system is stimulated as early as possible.

The use of vaccine doses has also been optimized, since those not used in the maternity ward are reallocated to the medical assistance post, avoiding waste. In addition, the zero cost of implementing and maintaining the project reflects the efficient management of public resources.

Other results include a more human, welcoming treatment of puerperal women. Through the project, they have access to the vaccine in the comfort of the maternity ward, and do not need to travel to another health unit in the first few days after giving birth. Also worth noting are universal access to health services at all levels of care and comprehensive care, reflected in the link between maternity care and BCG vaccination through the municipal health service.

Through actions taken in the "BCG in the Maternity Ward" project, vaccination coverage has increased, ensuring that newborns are immunized against severe forms of tuberculosis and reducing the risk of spreading and worsening disease. At the same time, these actions represent a sustainable public project that does not entail additional costs for any of the partners involved.

BCG in the Maternity Ward project. Credit: Curvelo Municipal Health Department

To ensure the continuity and success of "BCG in the Maternity Ward", some important aspects should be considered in future efforts:

1. Seek institutional adjustments so that vaccination can be offered on weekends;
2. Create strategies to share the indicators of increased vaccination coverage recorded after the start of the project, so that they can be appropriated by all those involved. This will bring more clarity, direction, and strength to the project and to municipal public health policies;
3. Ensure that the people of Curvelo get to know the project, in order to extend its reach.

Finally, we want to share this successful experience with other municipalities and encourage them to implement their own "BCG in the Maternity Ward" project, respecting the specificities and needs of each territory.

Contributions from: Rejane Pimenta do Prado Costa. •

BCG in the Maternity Ward project. Credit: Curvelo Municipal Health Department

Mobilizing the population to increase vaccination coverage: the experience of the Protege *Paranaíta* program

Paranaíta is a municipality of 11,671 inhabitants in the north of the state of Mato Grosso, in the Central-West region of Brazil, 830 km from the capital city of Cuiabá, and bordering the state of Pará. The name Paranaíta means "rivers that roll over stones" (Paraná: a flowing river branch, separated by an island; Ita: a Tupi-Guarani word meaning "stone"). According to information provided by the municipality, the place name pays homage to the state of Paraná, where most of the population came from, plus the suffix "ita". Paranaíta's main economic activities are livestock farming, agriculture, dairy farming, and retail trade. Recently, two hydroelectric power plants were built, namely the Teles Pires power plant and the São Manoel plant. In the health sector, the municipality has a vaccination room in each of four Family Health Strategy units, one of them in a rural area (Assentamento São Pedro). The vaccination rooms are open Monday to Friday, 7 a.m. to 11 a.m. and 1 p.m. to 5 p.m. in urban areas, and on Wednesdays in rural areas. All vaccines on the national vaccination schedule are available.

Based on an analysis of data from surveys and information systems, municipal health workers identified the need to strengthen immunization by encouraging the population to get involved and attend vaccination events. Since 2021, these professionals have been developing and implementing a project to increase vaccination coverage: the Protege Paranaíta (Protect Paranaíta) program.

The program was created through municipal legislation. The team of health technicians designed a logo for the program, consisting of a red heart with two angel wings; in the center of the image, "Protege Paranaíta" is written. The phrase and symbol were disseminated throughout the city in different communication strategies. In addition, t-shirts with the campaign logo were made for all civil servants; on Fridays, more than 600 municipal employees wear them during public service hours to draw the community's attention. The program also got children under 15 involved by creating the "Vaccination Champions" category, which was widely publicized in schools. In this category, everyone who kept their vaccination booklet up to date throughout the year was eligible for prizes that included scooters, bicycles, and smartphones; and prizes of R$ 500 (about US$ 100) were awarded every two months. Through the Department of Education, vaccination cards were requested from schools; and with the help of CHWs, letters were issued to inform parents of their children's vaccination status and the need for children to be up to date with their vaccinations to enroll. Also, awards were given to teachers with the highest number of students with up-to-date cards.

In 2022, the program created an adult award category, with a focus on COVID-19 vaccination. In this modality, "protectors" (people responsible for convincing others to get vaccinated) competed for prizes of R$ 1,500 (about US$ 300) every two months; at the end of the year, everyone up to date with their COVID-19 vaccinations competed for four prizes of R$ 5,000 (about US$ 1,000). In addition, PHC teams carried out active case searches, outreach immunization, house-to-house vaccinations, extended hours, mobile services, and events such as Anarriê da Vacinação, with bouncy castles, popcorn, peanuts, and fishing.

The Protege Paranaíta program has had a significant effect both in terms of mobilizing the population and increasing vaccination coverage. A total of 2,362 school children were approached after nurses and CHWs studied their vaccination cards. When they identified cards that were not up to date, the Health Department sent letters (more than 500 of them) to the respective families, letting them know which vaccinations needed to be updated and instructing them to get this done at the health center. In 2022, 11 children received "Vaccination Champions" awards and seven adults were recognized as "Protectors". Coverage of routine polio vaccination improved to 100.5% in 2022, and to 100.9% in the vaccination campaign, compared to 94.13% in 2021. For the second dose of MMR vaccine in children aged 12 months to 4 years (the first dose is given at 12 months of age), a result of 103.7% was achieved in routine vaccination and 101.7% in the campaign. The routine vaccination rate the previous year was 95.74%.

Protege *Paranaíta*. Credit: Paranaíta Municipal Health Department

Protege *Paranaíta*. Credit: Paranaíta Municipal Health Department

As a result of these advances, in 2020 the municipality received an award of R$ 80,000 (about US$ 16,000) from the Mato Grosso (MT) State Health Department for the second-best performance in the state's influenza and COVID-19 vaccination campaigns. In 2021, it won first place in the Imuniza Mais MT program, receiving the Silver Seal prize of R$ 120,000 (about US$ 24,000) for its performance in all vaccines on the national vaccination schedule. In 2022, it again won first place and received another R$ 120,000. The resources from the state awards were used to cover the municipal awards as part of Protege Paranaíta. In this way, the municipality was able to share the awards with the population.

Among the aspects that facilitated the project, it should be noted that the municipality has a municipal vaccination plan that outlines and organizes actions to be taken. In addition to the hard work done by the municipality's health workers and administration, other important factors included the use of social media to effectively disseminate information about vaccination, and the fact that 100% of municipal civil servants wore the Protege Paranaíta t-shirt on Fridays. The population became engaged in the implementation of the program, taking a leading role along with health professionals in the search for unvaccinated people. Protege Paranaíta has become a municipal brand. It is recommended that various incentives be created to increase and maintain the population's engagement not only in Paranaíta, but in other municipalities that require greater social participation in vaccination.

Contributions from: Jeane De Souza Pinheiro and Andréia Fabiana dos Reis, photographs. •

Shared functions in immunization care: strategies for achieving high vaccination coverage in the municipality of Pato Branco, Paraná

Located in the southwest of Paraná, a state in the southern region of Brazil, Pato Branco is a municipality of 91,836 inhabitants that is a hub for services in the micro-region, with a special focus on the health and education sectors. The city has a well-structured health system, with 23 Family Health Strategy teams distributed in 14 basic health units, achieving 100% coverage. In total, there are 13 public vaccination rooms and five private ones.

Recognizing the need to improve its work in vaccination, the municipal health department set up a municipal immunization office in 2020 to implement immunization actions and improve work processes in the health care network.

A situational diagnosis (demographic, economic, and geographic profile) of each territory/population was carried out jointly with health surveillance and PHC teams through on-site visits to health services. These visits did not have a predefined itinerary and were conducted by immunization and PHC coordinators with the aim of consulting health teams about the specific needs and challenges in each area.

Until 2021, vaccination coverage was calculated only at the municipal level; areas with pockets of susceptibility could not be identified. To improve monitoring strategies, indicators were systematically calculated for each team, making it possible to identify susceptible geographical areas and guide active searches for unvaccinated people.

Online scheduling of the next vaccine dose in the electronic medical records system and the use of child monitoring forms by community health workers proved to be comprehensive and effective approaches that improved immunization management and daily active searches for unvaccinated people.

Given the need to guarantee user access to the municipality's vaccination rooms, different initiatives were promoted: alternative opening hours, multi-vaccination campaigns on weekends, drive-thru vaccination, awareness-raising activities for all professionals in the network, and house-to-house and school vaccination.

Monitoring of doses administered (in the electronic medical records system) and analysis of information transmitted to the federal system were important strategies for improving vaccination coverage. If any errors were identified, the information was corrected and then re-exported.

Finally, to strengthen the care network as a whole, partnerships were sought with various public, philanthropic, and private institutions that provide vaccination services. In the public vaccination rooms, protocols were established and information about good vaccination practices was provided; in the private vaccination rooms, technical support was offered for quality data entry in information systems. In hospitals, support was provided for the implementation of protocols, training, and vaccination in neonatal and pediatric care units. Private doctors were given information on how to keep up to date, as well as guidance on the vaccines recommended for each age group by the National Immunization Program (NIP). Partnerships were established with educational institutions to integrate teaching and service, using vaccination rooms as a practical setting for health training. In addition, discussions were held with institutions with a view to broadening curricular content on the NIP.

With regard to the indicator established by the Previne Brasil federal funding program (proportion of 1-year-old children vaccinated in PHC against diphtheria, tetanus, pertussis, hepatitis B, Haemophilus influenzae type b infections, and poliomyelitis), coverage in the municipality rose from 68% in the first four-month period of 2022 to 86% in the second four-month period and 95% in the third. This was the best result in the state of Paraná and fifth best nationally, among cities in the 50,000-100,000-population range.

Strategies that have strengthened shared immunization care and helped achieve high vaccination coverage include improved access, communication, and information; coordination between primary care and health surveillance; surveillance of vaccination coverage in each catchment area; professional training; an intersectoral approach; scheduling online appointments in a dedicated system; support and supervision of work processes; and on-site work with health teams.

We recommend raising awareness and permanently mobilizing the population and workers directly involved in immunization through closer communication and the implementation of an intersectoral working group to promote discussion on strategies for universal and equitable access to vaccination services.

Contributions from: Emanoeli Agnes Stein, lead author and coordinator of the immunization sector; Elys Regina Cecatto Albani, co-author and coordinator of the permanent education sector; Elizangela Greggio Vincensi, co-author and PHC coordinator; Luciane Bergamin, co-author and PHC coordinator.

Shared functions in immunization care in Pato Branco, Paraná.
Credit: Municipality of Pato Branco

Shared functions in immunization care in Pato Branco, Paraná. Credit: Vilson Bonetti

"Vaccination is for Grownups Too" project

The "Vaccination is for Grownups Too" project ("Vacina Também é Coisa de Gente Grande") was implemented in April 2022 by the Tucuns dos Donatos family health team in the rural area of Pedro II, a municipality in the northern region of Piauí state, 200 km from the capital, Teresina. This team covers a population of approximately 3,145 people in 30 rural communities, some as far as 70 km from municipal headquarters. The team's map is divided into eight micro-areas, home to approximately 2,130 people between the ages of 20 and 85, most of whom have low incomes.

During visits to the micro-areas, it was noticed that very few adults of any age had a vaccination card. Only a small proportion were able to show they were fully vaccinated. When the immunization information systems were analyzed and the patients who came to the unit for various clinical appointments were interviewed, it was observed that very little information had been obtained about vaccination of adults, including older adults. During the monthly team meetings, it became clear that this lack of information was the main factor that maintaining this situation. Knowledge was lacking not only among the population, but also among team members themselves. There were many challenges, including problems with patient flows, poor active search strategies, and inadequate data entry in the system.

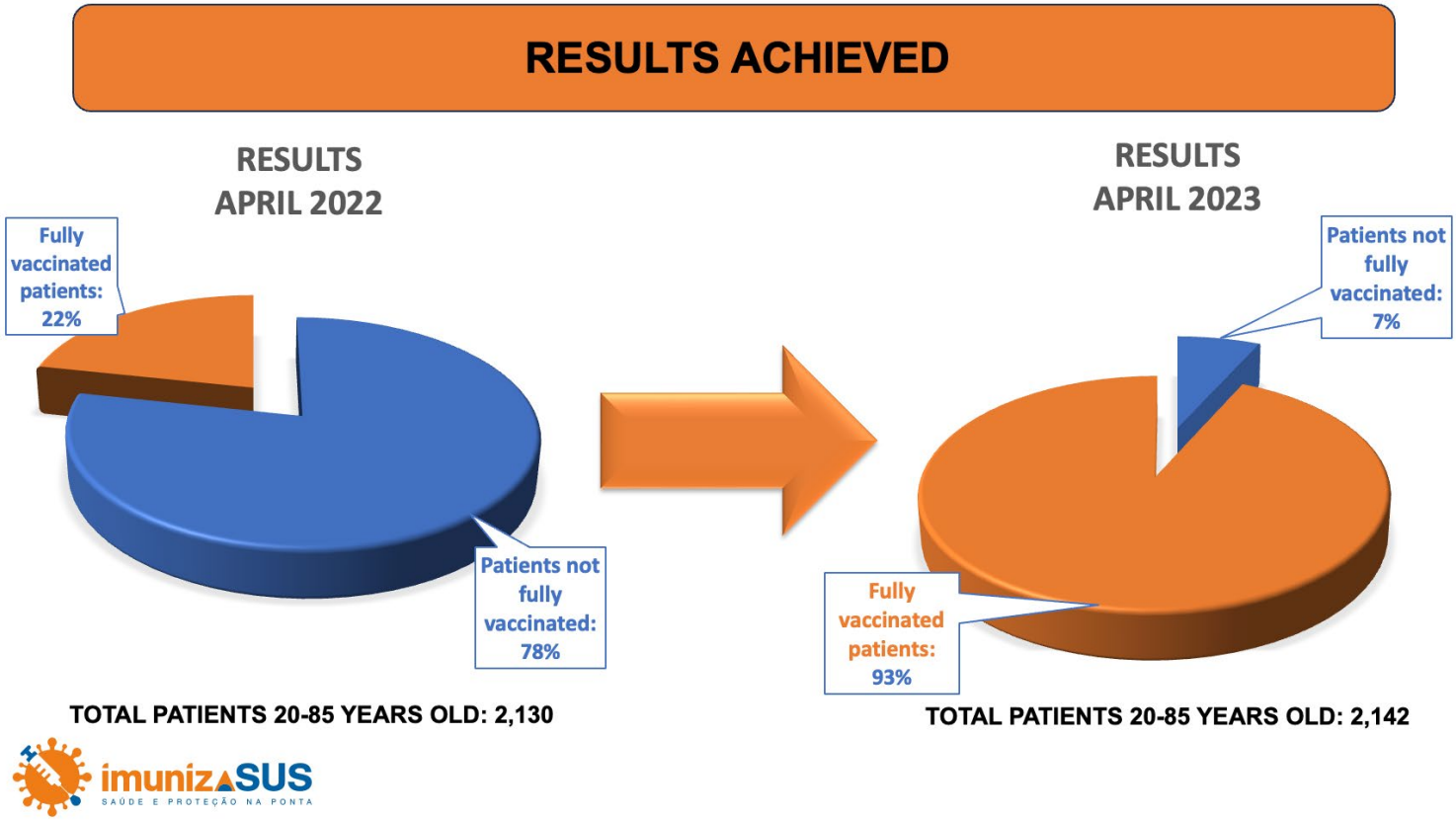
In order to establish strategies for strengthening vaccination and educational activities, the 17 team members received information on the Vaccination is for Grownups Too project, and continuing education activities on immunization actions were carried out in the adult population, so that everyone could take ownership of their role, both during appointments at the unit itself and during extramural activities. In addition, data was collected on the adult patients treated in each micro-area.

To spread the word in the community, information banners were printed and personalized t-shirts were made. These were worn by the team in meetings with community representatives, patients, and the general population served by the family health team. The meetings took place in the main schools, churches, residents' associations and rural settlements. At these meetings, it was emphasized that immunization is important in preventing diseases, and that an adult vaccination schedule has been established by the National Immunization Program. Those present had their vaccinations updated and were asked to continue completing their schedules at the health unit.

Immunization activities were carried out through decentralized visits to the eight micro-areas covered by the family health team, accompanied by active searches for unvaccinated individuals. For effective implementation of the immunization strategies, the vaccination status of the team's reference population was also assessed in order to identify unvaccinated people and reduce probable susceptibility.

As a result of these actions, the scenario has changed: in April 2022 only 22% of the population aged between 20 and 85 had completed their vaccination schedule, but by April 2023, this figure had risen to 93%.

Figure 1: Results achieved through implementation of the "Vaccination is for Grownups Too" project. Pedro II. Piauí. Brazil. 2022-2023



The team was very committed to the project. All members got involved in immunization actions for younger and older adults living in the area they cover, with significant results in terms of vaccination coverage. This successful experience can be expanded to other municipalities and family health teams, increasing not only vaccination coverage in the adult population, but also their knowledge about immunization, which was very helpful in the implementation of this project.

It is worth mentioning certain difficulties in collecting data due to changes in the information systems used by the Ministry of Health to record immunization data. In future work, data should come from a single source in order to reduce inconsistencies or nonconformities.

Contributions from: Manoel Messias Rodrigues da Silva and Kádja Karla Magalhães Barreto.

"Vaccination is for Grownups Too". Credit: Daniele Barroso

"Vaccination is for Grownups Too". Credit: Jéssica Gomes

A new approach to an old tool: Using school health programs to strengthen immunization actions

The northwestern region of the state of Rio de Janeiro is made up of 14 municipalities, three of which have carried out the initiatives presented here: Cardoso Moreira, Itaperuna, and Miracema. The population of northwestern Rio accounts for only 2.05% of the state's total, despite the size of the territory. It is the region with the lowest population density (56.48 people/km^2). Miracema has the second highest population density in the region (88/km^2), while Itaperuna has the third highest (87/km^2). These municipalities are the farthest from the state capital, which creates logistical difficulties for the area.

Throughout its territory, including in rural and hard-to-reach areas, Family Health Strategy units have vaccination rooms administered by primary health care teams, bringing vaccines closer to where people live and work. Despite the efforts of the National Immunization Program and the work of these municipalities to ensure that vaccines reach everyone, these 14 municipalities entered 2022 with low vaccination coverage, especially for yellow fever (42.99%), MMR2 (47.18%) and the DTP booster (48.59%). These results fell short of expectations, considering the technical capacity and actions carried out during the period.

Given this scenario, systematic meetings with the PHC and immunization teams were held to devise strategies to improve vaccination coverage. The main reasons why the population was not being vaccinated were identified, primarily vaccine hesitancy. This problem is due to the large amount of misinformation and fake news that circulates daily among users of the Unified Health System (SUS), as well as speeches by government leaders discouraging vaccination, especially during the COVID-19 pandemic. Recognizing this challenge, vaccine hesitancy was addressed as an important dimension to be tackled in these municipalities.

Under the School Health Program, a strategy that seeks to integrate and coordinate education and health policies and actions, initiatives were promoted with the participation of the school community, primary care teams, and public education teams. This program was considered a feasible vehicle for transmitting safe, timely, and effective information to as many people as possible through the use of social networks— i.e., the same platforms used for fake news. The initiatives were carried out in all three municipalities, but certain singular experiences merit specific mention.

The municipality of Miracema sought to strengthen direct communication with the population to reduce the hesitation of SUS users to get vaccinated themselves or have their children vaccinated, in light of the anti-vaccination movement that has taken hold in the country recently. To this end, the Saúde e Você ("Health and You") podcast was created to strengthen health actions. This strategy includes talks on health issues that are technical but communicated so that everyone can understand. The program is presented weekly by the municipal health department, with presentations and discussions on topics of interest led by municipal staff members with technical expertise in different areas. The first Saúde e Você podcast, presented on 3 March 2023, addressed the key importance of immunization, bringing the actual epidemiological scenario in the municipality to the attention of its population. Specific attention was given to the COVID-19 vaccination campaign, the bivalent vaccine, and the persistent myths and fake news about vaccination.

For its part, the municipality of Cardoso Moreira used the school health program to promote verification of students' vaccination cards in nurseries and schools. Once a student's vaccination status had been identified, health professionals indicated to their parents or legal guardian which vaccines were overdue, and referred the student to their respective health unit. In 2022, 613 vaccination cards for children aged 0 to 3 years were evaluated under the program. The work done in Cardoso Moreira's schools has helped to increase vaccination coverage among children. The vaccination rate for children under 1 year old was 103.68% in 2022. This percentage (which refers to fully vaccinated people as a proportion of the total number of people who needed to be vaccinated) is much higher than in previous years.

Saúde e Você podcast. Source: Municipality of Miracema, 2023.

School Health. Source: Municipality of Cardoso Moreira, 2022.

In the municipality of Itaperuna, an innovative tool has been added to the School Health Program and the partnership with the Guardianship Council: geoprocessing. Data from PHC was processed, using coordinates to map specific locations where there were situations of vaccine delay. Most important was the address of each individual, followed by the attribute under investigation (e.g., overdue vaccination) previously selected from the database. By linking this information to the Geographic Information System (GIS), points are generated on the map at the address of the individual who is overdue for vaccination. These points on the screen made it possible to visually identify areas and localities with an unusual number of absentees, and to see which unit they belonged to. The end result is a mosaic of information that helps the coordinator make decisions and define the best strategies. This project is still being implemented and analyzed, but the strategy is already helping to guide active searches, evaluate vaccination cards, and make appointments for updates. It therefore contributes to more effective and efficient health surveillance in the territory.

Implementation of the strategies described above has had positive results in reducing vaccine hesitancy in these municipalities. Vaccination coverage could be improved by SUS users adhering to existing health policies. In this sense, the hard work of the multi-professional team was essential, because the main tool used to expand vaccination coverage was already well known and used by the municipalities: the School Health Program.

Through a new approach that makes use of available technologies, municipalities have been able to devise strategies to combat fake news where it originates: in social networks. In addition, they have been able to geographically locate children who had miss vaccinations, using georeferencing to acquire their names and addresses. This shows that it is important for other initiatives to use education and communication to reach different audiences to address structural aspects of disinformation about vaccines and vaccination.

Video link: https://www.youtube.com/watch?v=a_DhFi6ouz0

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