#VacinaMare campaign: addressing vaccine inequity in socially vulnerabilised communities

Amanda A. Batista-da-Silva,[a,b] Leonardo S. L. Bastos,[a,b] Luna E. Arouca,[c] Thiago W. Gonzaga-da-Silva,[d] Silvio Hamacher,[a,b] Fernando A. Bozza,[e,f,g,**] and Otavio T. Ranzani[h,i,*]

[a]Department of Industrial Engineering (DEI), Pontifical Catholic University of Rio de Janeiro (PUC-Rio), Rio de Janeiro, Brazil
[b]Tecgraf Institute, Pontifical Catholic University of Rio de Janeiro (PUC-Rio), Rio de Janeiro, Brazil
[c]Associação de desenvolvimento Redes da Maré, Rio de Janeiro, Brazil
[d]Rio de Janeiro Municipal Health Department, Rio de Janeiro, Brazil
[e]D'Or Institute for Research and Education (IDOR), Rio de Janeiro, Brazil
[f]National Institute of Infectious Disease Evandro Chagas, Oswaldo Cruz Foundation (INI-FIOCRUZ), Rio de Janeiro, Brazil
[g]Comprehensive Health Research Centre (CHRC), NOVA Medical School, Universidade NOVA de Lisboa, Lisbon, Portugal
[h]Barcelona Institute for Global Health, ISGlobal, Hospital Clinic-Universitat de Barcelona, Barcelona, Spain
[i]Pulmonary Division, Heart Institute (InCor), Hospital das Clinicas HCFMUSP, Faculdade de Medicina, Universidade de Sao Paulo, Brazil

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The global distribution of vaccines is inequitable, with a clear gap between high- and low- and middle-income countries (LMICs).[1] It is well known that vulnerabilised populations[2] in both income groups face significant challenges in accessing the healthcare system, aggravated by geographic barriers, financial constraints for commuting, or difficulties taking time off from work.[3] These challenges associated with vaccine distribution delays in LMICs impact vaccine uptake adherence. As expected, the related gap and challenges tend to increase during outbreaks and pandemics. Additionally, Brazil has initiated the vaccination campaign with a strategy focused on age prioritisation, which increased the likelihood of delayed vaccine coverage in the favelas (slums), a socially vulnerabilised community characterised by a predominantly young population. Besides, moments of vaccine shortages still amplified the hiatus.[4] Aiming to reduce vaccine distribution and uptake disparities, the *#VacinaMare* project targeted to anticipate and achieve 100% coverage of the primary series of the COVID-19 vaccine in the *Conjunto da Maré*, in Rio de Janeiro, Brazil.

Brazil is a country with high inequality between regions and within municipalities, like many other countries in Latin America. It started the national vaccination campaign against COVID-19 on January 17th, 2021, and during the roll-out. In addition, Latin America has dealt with a slower uptake in socioeconomically disadvantaged regions.[5] Municipalities with higher per capita Gross Domestic Product, higher educational levels, and a lower proportion of the Black population displayed higher vaccination coverage rates.[3]

On the other hand, in the city of Rio de Janeiro, the *Conjunto da Maré*, a neighbourhood comprised of a vulnerabilised community (~140,000 inhabitants[6]) and one of the largest complexes of favelas in the country, received several community-based interventions. The initiatives covered local surveillance, telehealth assistance, social support and risk communication since the beginning of the pandemic, as observed in other favelas across Brazil, resulting in massive community-engagement from the population.[7] The Vacina Maré project was one of the community-based interventions aimed to protect the population and still respond to the resident's demands about the effectiveness of the vaccine.[8] The campaign execution counted on more than 1,800 volunteers, involving research institutions, non-governmental organisations (NGOs), private funders, and local government (Health and Education Secretaries).

From July 29th to August 1st, 2021, the four-day campaign targeted residents not covered by age-based prioritisation (aged 18 to 33). 31,238 residents received their first vaccine dose,[9] of which 27,727 individuals were aged between 18 and 33 years, and another 3511 were outside the target age and were catching up on their vaccine schedule. Notably, the Maré adult population achieved 100% vaccination coverage for the first dose during the campaign's initial phase, anticipating the vaccination coverage of the municipality's remaining in approximately one month. In the second phase (October 14th to 16th, 2021), where the gap between Maré and the remainder of Rio de Janeiro city was wider, the campaign reversed the decreasing trend, with the coverage for the second dose reaching 76% with 15,282 doses applied (Fig. 1A), surpassing the coverage of the rest of the city of Rio de Janeiro.

When evaluating the intervention effect, Maré presented a higher weekly number of vaccine doses compared to the remainder of Rio de Janeiro city during

*Corresponding author. Barcelona Institute for Global Health, ISGlobal, Barcelona, Spain.
**Corresponding author. National Institute of Infectious Disease Evandro Chagas, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil.
E-mail addresses: otavio.ranzani@isglobal.org (O.T. Ranzani), fernando.bozza@ini.fiocruz.br (F.A. Bozza).

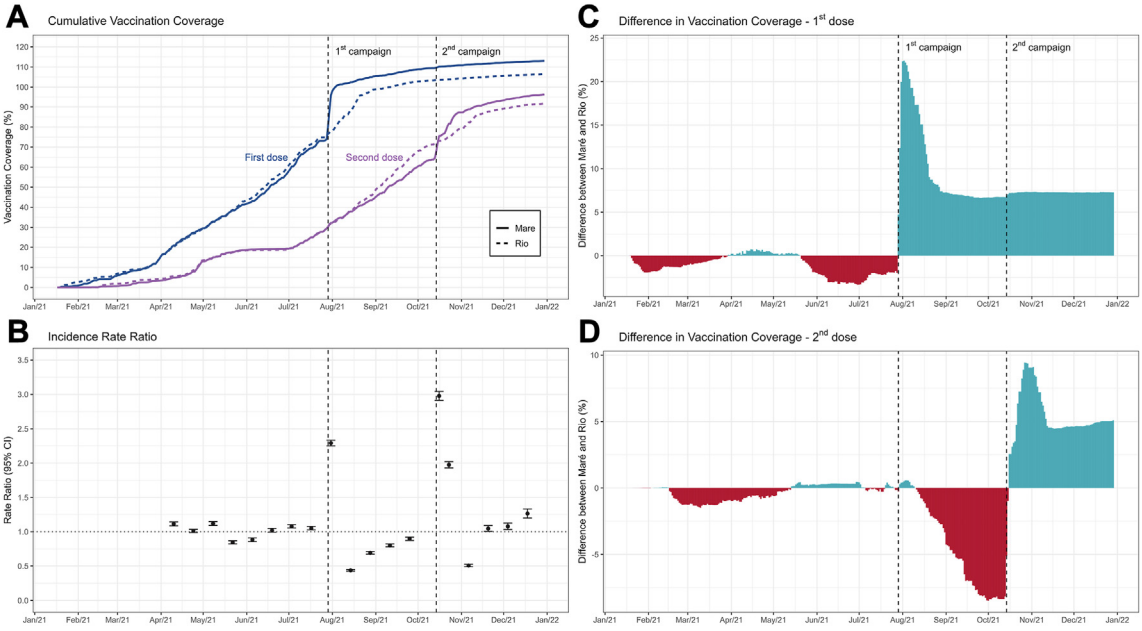

Fig. 1: Vaccination Coverage dynamics from Maré and the other neighbourhoods of Rio de Janeiro city: (A) Cumulative daily vaccination coverage to each dose adjusted by age and sex using Rio de Janeiro municipality population estimate in 2021 by the Ministry of Health as the reference[10]; (B) Incidence rate ratio of doses applied obtained from a Poisson Regression model analysing biweekly cumulative doses, the model contains an interaction term between region (Maré/Rio) and two-weeks categories, using the reference as the doses from 17th Jan to 31st March, to allow stability in the comparison; (C) Difference between Maré and Rio vaccination coverages[9] (i.e., absolute coverage in Maré minus absolute coverage in other neighbourhoods of Rio de Janeiro city) for first dose and (D) Difference between Maré and Rio vaccination coverages for second dose. The dashed lines represent the campaign steps' onset.

the campaign weeks: 2.3 (95% CI. 2.24 to 2.33) times greater during the campaign's first phase and 3.0 (95% CI, 2.91 to 3.04) times for the second phase (Fig. 1B). This resulted in an absolute difference in vaccine coverage from −3.33%, in the most significant gap before the first phase, to the peak in favour of Maré of +22.4% (Fig. 1C). During the second phase, the absolute difference was from −8.48%, the greatest gap before the second phase, to the peak in favour of Maré of +9.43% (Fig. 1D).

Therefore, a possible way to decrease the inequity once the vaccines are available is to organise massive campaigns focusing on vulnerabilised communities. We highlight multi-actors' necessity in such campaigns, including engagement and mobilisation actions linked to civil society participation. These campaigns must also comprise locally adapted actions, facilitating the vaccine uptake by creating several vaccination sites geographically distributed within the community and close to the population's daily life (e.g., schools, markets, and social, cultural and sports centres), covering working and non-working time frames. Favelas, slums, and shantytowns across Latin American countries presented a high mortality rate during the first year of the COVID-19 pandemic, so a campaign focused on this target population once vaccines become available may contribute to protecting socially vulnerabilised individuals in future epidemics.

Contributors

All authors equally contributed to this commentary.

Declaration of interests

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