

Brand inequity in access to COVID-19 vaccines

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In anticipation of a safe and effective COVID-19 vaccine being available in 2021, COVAX was launched as a mechanism to ensure equitable supply of and access to COVID-19 vaccines to all countries in the world.¹ Despite the initial commitment and global enthusiasm, there has been global inequity in access to vaccine doses in low- and middle-income countries (LMICs). Many high-income countries (HICs) and wealthy economies signed bilateral agreements with vaccine manufacturers to ensure doses were available to their citizens.² This has resulted in health workers and at-risk populations in LMICs largely being unvaccinated, with approximately <5% of eligible population in LICs being vaccinated.³ Complex reasons are driving inequities in vaccine supply and access including purchasing power, intellectual property for vaccine development, exports bans on vaccine ingredients, cold-chain and distribution logistics and have been discussed elsewhere.^{4,5}

Implementation of COVID-19 vaccination programs led to divergent vaccination policies,⁶ following reports of vaccine-related thrombosis with thrombocytopenia syndrome (TTS), temporally associated with the first dose of the AstraZeneca vaccine.⁷ Many HICs acted on clinical guidance and modified their vaccine policies based on the local COVID-19 epidemiology and risks vs benefits of vaccination with AstraZeneca compared with infection with SARS-CoV-2. Due to an association between age and TTS, many countries either introduced age-based cut offs in settings with low incidence of COVID-19 (for example Australia) or discontinued the use of AstraZeneca (for example Denmark) on the basis that the risk of blood clotting from the vaccine itself was greater than that from natural SARS-CoV-2 infection.⁶

Many of these vaccine recommendations from regulator and advisory bodies were guided by the scientific evidence to prevent vaccine-related severe health outcomes in their own population. Policy recommendations are often based on the precautionary principle in public health,⁸ but these divergent policies, if not well communicated can have unintended consequences like

increase in vaccine scepticism and reduced vaccine uptake.^{6,9}

Amongst the Pacific Island Countries and Areas (PICs), as of 8 November 2021, most countries except Fiji and Papua New Guinea had zero local cases of COVID-19 (Table 1). Many PICs (Fiji, Kiribati, Pitcairn Islands, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu) have relied on the AstraZeneca vaccines for persons aged ≥ 18 years. Despite low COVID-19 incidence, these countries were unable to apply age-based recommendations for AstraZeneca because other vaccine types were unavailable. The best option for them was to vaccinate their populations with the vaccine available.

Over time, these safety signals and relatively lower vaccine effectiveness for AstraZeneca (one of the main vaccines available to countries under COVAX) have led to 'brand inequity'. When a country decides a certain vaccine is not safe for a sub-population or particular age groups, people living in LMICs may wonder why they are being offered a vaccine deemed unsafe for people of the same age group in their local setting. The assumption that LMICs will be grateful for any vaccine that they receive may underestimate the concern and knowledge individuals have for the protection of themselves and their community. Vaccine safety considerations should be equal for all. Vaccine recommendations are no longer a national conversation. Vaccine information is global in its reach and consequence.

People living in LMICs and their governments have limited supply and limited vaccine brand options contributing to vaccine inequity. The PICs are one example, who did not have the choice or options to implement similar policies, and used the AstraZeneca vaccine available through COVAX and other means like bilateral donations.¹⁰ Few LMICs could secure necessary financing to directly purchase vaccines to implement their preferred vaccination strategy.¹¹ The system is inequitable and unjust. COVAX which was established to prevent vaccine inequity, fell short in achieving its aim for solidarity and equity.¹

There is an urgent need to increase the global vaccine supply and distribution through COVAX. While donating excess doses in the short term would help, longer term solutions around support for waiving intellectual property and, technology and knowledge transfer to increase vaccine production in LMICs should be

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Pacific Island Countries and Areas	Vaccine brand in use	Population*	Median age [^]	Total reported confirmed COVID19 cases 01 April 2021**	Total reported confirmed COVID19 cases 08 November 2021**	Total cases per 1000 population as on 08 November 2021**	Percentage population fully vaccinated (all ages)**
American Samoa ¹	Moderna, Johnson&Johnson, Pfizer/BioNTech	55197		0	5	0.1	56.3
Australia	Moderna, Oxford/AstraZeneca, Pfizer/BioNTech	25788217	37.9	29333*	182870	7.09	67.4*
Cook Islands	Pfizer/BioNTech	17564		0	0	0.0	66.8
Federated States of Micronesia ¹	Moderna, Johnson&Johnson, Pfizer/BioNTech	115021	24.4	0	0	0.0	35.9
Fiji	Oxford/AstraZeneca Moderna ²	896444	27.9	67	52298	58.3	63.2
French Polynesia	Johnson&Johnson, Pfizer/BioNTech	280904	33.6	18633	46755	166.4	52.4
Guam ¹	Moderna, Johnson&Johnson, Pfizer/BioNTech	168783	31.4	7810	18688	110.7	72.2
Kiribati	Oxford/AstraZeneca, Sinopharm/Beijin	119446	23	0	0	0.0	9.4
Marshall Islands ¹	Moderna, Johnson&Johnson, Pfizer/BioNTech	59194		4	4	0.1	35.1
Nauru	Oxford/AstraZeneca	10834		0	0	0.0	66.9
New Caledonia	Pfizer/BioNTech	285491	33.6	121	11486	40.2	56.9
New Zealand	Pfizer/BioNTech	5122600	37.9	2501*	7776	1.5	64.8*
Niue	Pfizer/BioNTech	1618		0	0	0.0	71.1
Northern Mariana Islands ¹	Moderna, Johnson&Johnson, Pfizer/BioNTech	57557		159	360	6.3	60.8
Palau ¹	Moderna, Johnson&Johnson, Pfizer/BioNTech	18092		0	8	0.4	86.9
Papua New Guinea	Oxford/AstraZeneca, Sinopharm/Beijin	8947027	22.4	6475	31479	3.5	1.2
Pitcairn Islands	Oxford/AstraZeneca	67		0	0	0.0	70.1
Samoa	Oxford/AstraZeneca, Pfizer/BioNTech ²	198410	21.8	1	1	0.0	42.5
Solomon Islands	Oxford/AstraZeneca, Sinopharm/Beijin	686878	19.9	19	20	0.0	5.2
Tokelau	Pfizer/BioNTech	1350		0	0	0.0	71.7
Tonga	Oxford/AstraZeneca, Pfizer/BioNTech ²	105697	22.4	0	1	0.0	35.2
Tuvalu	Oxford/AstraZeneca	11792		0	0	0.0	49.9
Vanuatu	Oxford/AstraZeneca, Sinopharm/Beijin	307150	21.1	3	5	0.0	11.2
Wallis and Futuna	Moderna	11246		418	454	40.4	51.6

Table 1: COVID—19 cases and vaccination status in Pacific Island Countries and Areas, 5 November 2021.

* source: Hannah Ritchie, Edouard Mathieu, Lucas Rodés-Guirao, Cameron Appel, Charlie Giattino, Esteban Ortiz-Ospina, Joe Hasell, Bobbie Macdonald, Diana Beltekian and Max Roser (2020) - "Coronavirus Pandemic (COVID-19)". Published online at OurWorldInData.org. Retrieved from: 'https://ourworldindata.org/coronavirus' [Online Resource] Data extracted 26 October 2021.

** source: Secretariat of the Pacific Community, Pacific Data Hub - "Stat Data Explorer". Published online at stats.pacificdata.org Retrieved from: 'https://stats.pacificdata.org/?tm=covid&pg=o' [Online Resource] Data extracted 11 November 2021.

[^] United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. Rev. 1 Retrieved from:https://population.un.org/wpp/Download/Standard/Population/ [Online Resource] note: countries or areas provided in this data set included only those with 90,000 inhabitants or more in 2019.

¹ US-Affiliated Pacific Islands (USAPI).

² Vaccines for persons aged <18 years.

considered to increase supply.^{11,12} COVAX needs a level playing field. Without a rapid upsurge in the production of a greater variety of vaccines and increased supply of vaccine doses into COVAX, vaccine brand inequity is real and will have consequences for controlling the pandemic.

Declaration of interests

MS conceptualised the study, SM curated and analysed the data, MS and SD wrote the original draft. All authors reviewed and edited manuscript.

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