



Special Report

Best Practices for Vaccine Communications: Lessons Learned on Preparedness and Policy Implications From India, Indonesia and the Philippines

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About Asia-Pacific Immunization Coalition (APIC)

To tackle the issue of vaccine confidence and the resilience of immunisation programmes in the region, the Asia-Pacific Immunization Coalition (APIC) has recently been formed to protect and sustain the hard-fought vaccination gains and build confidence in new vaccines and resilient immunisation systems that are well resourced, sustainable, equitable and integrated into the wider national healthcare system. The coalition aims to achieve this by using an evidence-informed approach to advocacy, activities and research to instil the value of vaccines among consumers, policymakers and other health stakeholders.

The coalition is hosted within the NUS Yong Loo Lin School of Medicine's Centre for Behavioural and Implementation Science Interventions (BISI) and is co-chaired by Professor Tikki Pangestu, a visiting professor at NUS Medicine, and Professor Heidi Larson, director of the Vaccine Confidence Project at the London School of Tropical Hygiene and Medicine (LSTHM) and visiting professor at NUS. Other founding members of the coalition include thought leaders and experts from the Asia-Pacific region representing diverse fields of public health policy, immunisation advocacy, behavioural science, implementation research and infectious diseases.

Executive summary

The significance of vaccine hesitancy for the COVID-19 global public health emergency is now well understood. The ability of government and its institutions to minimise and counter vaccine hesitancy has become an economic and political imperative, as well as an urgent public health priority.

Communication preparedness is a critical policy tool to achieve this end — one that is no less essential than other elements of pandemic response such as vaccine planning, procurement and the logistics of delivery. This report formulates a framework, LISTEN (see page 6), for best practices in vaccine communication preparedness, highlighting implications for three Asian countries — India, Indonesia and the Philippines — in light of their COVID-19 vaccine rollout experience. Best-practice benchmarks are derived from various countries, including those with similar population sizes and low-to-middle-income economies.

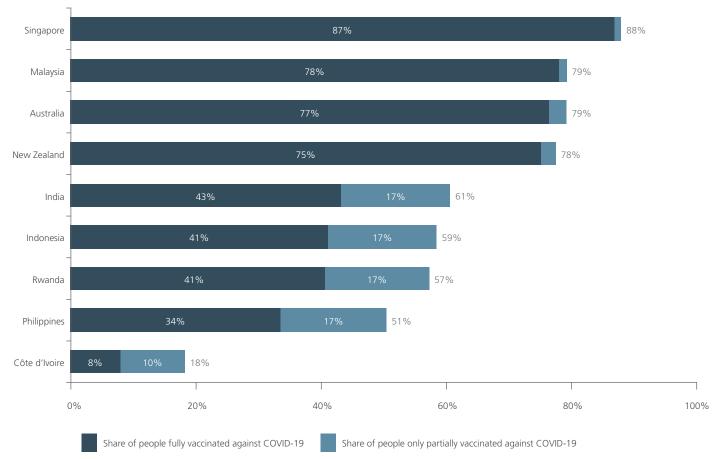
Drawing on the expertise of opinion leaders as well as reviewing best practices among countries with high vaccine acceptance rates of 60%-80%,¹ the report defines six clear and actionable COVID-19 vaccine communications best practices under the LISTEN framework. It is extrapolated that the communication preparedness best practices are applicable to all routine adult and adolescent immunisation programmes. Finally, the importance of key enablers such as technology, public-private partnerships and behavioural science expertise is elucidated. It is hoped that the best practices identified will help inform the development of relevant communication policies to ensure accurate and impactful information on vaccines in the future.

Introduction

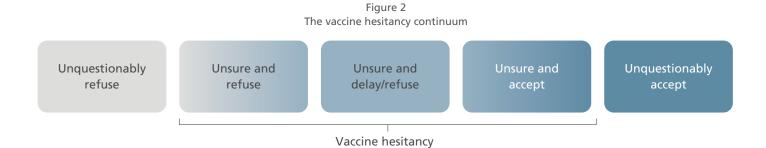
Since the first reported case in December 2019, the COVID-19 pandemic has resulted in nearly 247 million confirmed cases and 5 million deaths globally as of October 31, 2021.² The health crisis spurred a global response to create safe and effective vaccines with unprecedented speed. These vaccines have since demonstrated their ability to reduce infection, hospitalisation rates and morbidity from COVID-19, and consequently aid in stimulating economic recovery. However, the benefits of COVID-19 vaccines can only be accrued if there is public demand for the vaccines (see Figure 1). Furthermore, the cost of vaccine development and procurement, the investment in logistics in geographically challenging countries, and the effort in reorganising healthcare systems to make vaccine services available will be squandered if there is a significant delay in acceptance, or outright refusal, of vaccines. Vaccine hesitancy was a challenge even before the pandemic and was identified by the World Health Organization (WHO) as one of the top 10 global health threats in 2019.³ While vaccine hesitancy is relatively lower in Asia compared with other regions, it remains a critical issue that continues to be exacerbated by the pandemic, especially among certain subgroups and/or areas in low- and middle-income countries.⁴ In order to have a successful vaccination rollout and ensure high vaccination coverage, there is an urgent need to develop and implement effective communication strategies to ensure that the promise of COVID-19 vaccines is met, to help drive public demand and to address the ever-increasing problem of vaccine hesitancy.

Figure 1 Share of people vaccinated against COVID-19, December 31st, 2021

Alternative definitions of a full vaccination, e.g. having been infected with SARS-CoV-2 and having one dose of a two-dose protocol, are ignored to maximise comparability between countries



Source: Our World in Data



Vaccine hesitancy (see Figure 2) refers to a delay in acceptance or refusal to receive available and accessible vaccines.⁵ Vaccine hesitancy is influenced by public confidence in the vaccine, trust in government, the convenience with which the vaccine can be accessed, and any widespread complacency about its relevance, safety and efficacy (see Figure 3).⁶ Communications strategies can overcome issues with vaccine confidence and complacency if they address public concern about vaccine safety and side effects, any lack of confidence in healthcare leaders and healthcare workers (HCWs), and the negative influence of social media and other technology platforms.⁷ Timely and accurate communications can also bolster public awareness of the convenience with which vaccines can be accessed, including from new vaccination centres or new segments of healthcare professionals such as pharmacists who are licensed to provide vaccines. The paper reviews key findings on COVID-19 vaccine communication preparedness, including gap analysis and best practices in relation to communication and engagement (e.g. public and HCW hesitancy surveying), HCW training, and public communications strategies, including at the local level.

The paper examines the vaccine communication experiences of Indonesia, India and the Philippines in the second section. The third section reveals the LISTEN framework, highlighting aspects of successful communications implementation in the Asia-Pacific and African countries. This is followed in the fourth section by an assessment of the applicability of the LISTEN framework to routine immunisation more broadly. The article concludes with a discussion of the vaccine communication imperatives for policymakers and the key enablers for the attainment of best practices.

Figure 3 The 3C model of vaccine hesitancy

Vaccine convenience is the extent to which physical availability, affordability, geographical accessibility and the ability to understand (language and health literacy issues) impede vaccination. This aspect is mainly addressed by successful vaccine procurement, logistics and delivery, though communications is a key enabler.⁵

Vaccine confidence connotes trust in the effectiveness and safety of vaccines and the healthcare system that delivers them. Clear and consistent communications and engagement nurture trust between the public and the healthcare system.⁵

Complacency exists where the perceived risks of vaccine-preventable diseases are low and vaccination is not deemed a necessary preventive action.⁵

Observations on COVID-19 communication preparedness in Indonesia, India and the Philippines

Globally, every nation has struggled with its COVID-19 vaccine communication preparedness and implementation. This paper highlights the experiences of three Asian nations in confronting the devastating, complex and fast-moving COVID-19 pandemic. In Indonesia, India and the Philippines, the challenges of coordinating communications across national and regional governments and multiple stakeholders have undercut messaging aimed at reducing vaccine hesitancy. In each country, communications guidelines were not always sufficiently tailored to local sensitivities, and the execution of HCW training was not sufficient for the huge task of countering the tide of anti-vaccination narratives.

In the first few months of the pandemic, the Indonesian government appears to have viewed COVID-19 more as an economic threat than a public health crisis.8 The lack of evidencebased leadership allowed COVID-19 misinformation to spread and take root. Furthermore, a general lack of coordination, monitoring and evaluation between ministries and other stakeholders resulted in inconsistent messaging and created an environment in which vaccine hesitancy was able to grow.⁹ The formation of national and local task forces for COVID-19 alleviated some of the concerns around the management of COVID-19 in Indonesia. For example, the establishment of an official COVID-19 spokesman and regular media press releases helped the public get up-to-date and trusted information.¹⁰ Still, gaps persisted at the local level where local health units were often hindered by insufficient resources and the lack of a tailored plan. Additionally, there were neither formal metrics to monitor nor an established feedback mechanism to track vaccine communication effectiveness and hold stakeholders accountable.

In India, the central government had put in place a detailed communications strategy guide with action items for the central government, as well as at state and district levels.¹¹ The communications guide drew from India's experience in tackling polio and had significant consideration for demand-side dynamics that would impact vaccine uptake. This was supported by strong commitments at the national level, with mammoth training and capacity-building efforts in parallel. India also leveraged the support of immunisation partners — for example, The United Nations Development Programme, Bill & Melinda Gates Foundation, Gavi, WHO, United Nations Children's Fund (UNICEF), JSI Immunization Technical Support Unit, Clinton Health Access

Initiative — at the national level and various others at the state level to administer the needed training and education, and for social mobilisation. The success of these efforts is evidenced by the fact that immense vaccination drives are underway, with over 1 billion doses delivered as of October 2021.

However, it seems plausible that variation exists in actual implementation phases across India's large federal system. States may differ in terms of vaccine education, monitoring, evaluation and levels of accountability, or even on the success of the communications strategy. More accurate and timely data on such variations could better inform the overall national strategy moving forward. In this regard, there are also learnings to draw from specific states that have excelled in their communication preparedness, which is further elaborated in the next section.

In the **Philippines**, communication lapses stemmed from the lack of accountability and coordination to counter misinformation. The number of Filipinos willing to get vaccinated against the coronavirus was measured at a low of 16% in February 2021, although this subsequently rose to 43% by the following June.¹² The Philippines' detailed communications strategy guide included the requisite information, education and communication (IEC) materials.¹³ Implementation, however, was lacking, as uncoordinated action plans were variously interpreted by local units operating without proper monitoring and evaluation.

There was limited outreach into local communities, with local governments constrained by manpower and budget limitations. Culturally, people are more likely to trust their neighbours and local community than public health officials. Exacerbating the trust issue, the Philippines has experienced a flood of vaccine misinformation. In addition, influence of politics in the vaccination programme¹⁴ and the health authorities' inability to tamp down vaccine falsehoods fuelled vaccine hesitancy, which has remained persistently high at 47%.

Key opinion leaders in each of these three countries are cleareyed about the potential areas of improvement in communication preparedness. Global pandemics afford policymakers the opportunity to look to other countries for inspiration and sharing on communications practices that could be adapted to their countries' unique circumstances.

Best practices on COVID-19 vaccine communication preparedness

Drawing on the experiences of countries that have achieved a measure of success in minimising vaccine hesitancy, this paper presents a framework for best practices in COVID-19 vaccine communication preparedness. We acknowledge that some countries are much more resource-constrained than others, and the paper also includes best practices from developing countries and middle-income countries that achieved remarkable successes, with much to emulate in the policies of Rwanda and Côte d'Ivoire, for example. However, no country can claim an unblemished record in its response to the immense challenges of the COVID-19 pandemic. The framework and analysis presented aim to showcase best practices across individual elements of vaccine communication preparedness.

The LISTEN best-practice framework

The framework summarises the best practices that collectively comprise an effective COVID-19 vaccine communication and engagement plan.

- Longitudinal survey to understand vaccine hesitancy drivers
- Integrated and consistent messaging
- Suitable local engagement plan
- Targeted use of media and communications ambassadors
- Education of key messengers
- Near real-time/real-time misinformation monitoring and legal provision

Best Practice No. 1: Longitudinal survey to understand vaccine hesitancy drivers

A clear understanding of the reasons and drivers for vaccine hesitancy among the public as well as HCWs is essential. New Zealand's monthly online public sentiment opinion surveys inform its vaccine communication campaign design and implementation.¹⁵ The country's ongoing survey research provides deep insight into pandemic- and vaccine-related issues across all population segments, enabling the government to tailor national communications and engagement tactics to changing circumstances and sentiments. For example, longitudinal public surveys revealed that community factors, such as protecting others and striving for herd immunity, are most effective in motivating younger New Zealanders to get vaccinated.¹⁶ Survey feedback shaped the core themes of empathy and inclusiveness. The government's daily COVID-19 briefings used nuanced, empathetic messaging:

- The "team of five million" slogan (New Zealand's total population) emphasised the shared responsibilities of every citizen¹⁷
- Instead of an instruction to "wash your hands," the chosen message was "washing and drying your hands kills the virus," to underscore individual agency and encourage participation¹⁸

Augmenting the broad-based surveys, targeted post-vaccination surveys and qualitative research on specific audiences and issues were conducted (e.g. Māori sentiment towards the COVID-19 vaccine).¹⁹ All the while, the government's Behavioural Insights Team continuously updated its analyses and refined its communications advice.

Best Practice No. 2: Integrated and consistent messaging

Timely, consistent and transparent communications across different levels of government reinforce messaging to the public. In Singapore, a clear legal framework and emphasis on a whole-of-nation approach through a coordinated multi-ministry government task force helped raise public awareness and elevate public trust.²⁰ Proactive rather than reactive communication helped the Malaysian government and ministries craft relevant messaging. As the pandemic evolved, the Malaysian government formulated specific messages and accompanying IEC materials for the different pandemic phases, progressing from the preparation phase to the early- and late-containment phases and, finally, the recovery pandemic phase.²¹

Best Practice No. 3: Suitable local engagement plan

It is important to adapt the communications plan to community dynamics while involving local stakeholders. This may include voices from religious, community and civil society leaders, potentially even at a neighbourhood level, to understand the local context and unmet needs. In New Zealand, lead agencies such as the Ministry for Pacific Peoples are employed to understand local needs through a series of discussions between local communities and clinicians.²² Input from local stakeholder conversations is used to create tailored communications that fit the local context, rather than having a top-down approach that expects the public to willingly follow orders.²³

Tailoring the plan to local community dynamics includes identifying vulnerable population groups and understanding their unmet needs. For example, in Australia, culturally and linguistically diverse communities have separate implementation plans that ensure the development of communication materials in consultation with experts from the targeted communities.²⁴ However, while local plan adaption exists, there is still room for improvement in Australia to further engage first nations people, who remain comparatively undervaccinated.

Singapore's deep and real-time engagement with grassroots public opinion enabled more timely and effective vaccine communication. Volunteers from the People's Association and Silver Generation Ambassadors, a 3,000-strong volunteer organisation, conducted home visits to address the concerns of seniors, who may be more vulnerable to misinformation.²⁵

In India, the state of Uttar Pradesh rolled out a cluster strategy to accelerate holistic vaccine delivery. Cluster strategy involves microplanning for an identified cluster, including intensive mobilisation activities conducted by a public awareness team that involves the village heads (Gram Pradhans), Accredited Social Health Activists and Anganwadi workers. The multidisciplinary task force comes together with door-to-door efforts and conveniently located vaccination centres to drive last-mile vaccine acceptance and accessibility.²⁶

Best Practice No. 4: Targeted use of media and communications ambassadors

Information, education and communication (IEC) materials should be distributed using multiple channels and different formats, with the messaging tailored to the stakeholder groups and formulated around the progressive phases of the pandemic.²⁷ Malaysia's public awareness campaign crafted key messages around awareness and behaviour for each phase of the pandemic. The messaging was delivered in different formats (e.g. infographics, slides, banners) and subsequently distributed through a variety of channels (e.g. TV and radio spots, billboards, and social media posts). In the preparation phase, the messaging focused on COVID-19 information and preventive measures. In the late-containment phase, key messages revolve around maintaining a healthy lifestyle and adjusting to living in a new normal. Health authorities developed similarly relevant, targeted messaging for the early-containment and recovery phases. Crucially, campaign effectiveness and engagement were closely monitored and evaluated. The IEC materials used to convey the public health messages and support the behaviour change strategy were measured by the number of uploads, for instance. And a

COVID-19 Content Analysis Team was convened to identify the latest trends in social media usage and reporting.

In Malaysia, multi-stakeholder engagement at the national and local levels ensured that the voice of the people was heard and concerns addressed at all layers of society. Religious leaders were co-opted to amplify the government's messaging.²⁸ The religious affairs minister publicly reassured Muslims that the COVID-19 vaccine is permissible; the ulama (religious scholars) reinforced the messaging at the community level.²⁹ Corporate Malaysia, equally anxious that their customers get immunised, pitched in as sponsors of the vaccination drive. Companies like Lifebuoy, Antabax, AEON, Grab and Mydin helped arrange town hall meetings, webinars, training and education sessions.³⁰

While the role of religious leaders, government officials and HCWs as communication ambassadors is important, it is critical to also identify and leverage other voices, including those of celebrities, social media influencers and local peer groups (e.g. neighbourhood association leaders) to help raise awareness and generate public support for vaccinations.³¹ At the same time, queries and questions about vaccines should be directed to credible sources of information (e.g. ministry of health (MOH), WHO, Centers for Disease Control and Prevention).

In India, culturally relevant IEC materials helped ease vaccine hesitancy among the tribal villagers in Dharni (a township in East Maharashtra). Communication took place via a series of videos and plays in the local language/dialect that people were most comfortable and familiar with. Additionally, the speaker was also a member of the tribal community, as communications created by and coming from members of the community were more trusted and effective.³²

Best Practice No. 5: Education of key messengers

The education of HCWs and the institutions of government on the importance of communications, in addition to the scientific content, can help curb misinformation and deliver successful vaccine rollouts. For example, in Rwanda, communication was made a priority in the HCW training module, incorporating interpersonal communication skills to help physicians more persuasively address and help overcome vaccine hesitance.³³ The Rwandan government worked closely with non-governmental organisations (NGOs) and other bodies (e.g. UNICEF, WHO, International Federation of Red Cross and Red Crescent Societies, University of Global Health Equity) to develop and implement risk and communication training for all HCWs, including hospital directors, doctors, nurses, data managers, surveillance officers, and religious and community leaders.³⁴ Furthermore, education efforts that engender a greater appreciation for cultural and religious sensitivities in the country can drive greater communications effectiveness.

Best Practice No. 6: Near real-time/realtime misinformation monitoring and legal provision

The COVID-19 pandemic has been accompanied by an infodemic of misinformation and fake news that has proliferated via digital and physical environments. The resulting impact on the public of not identifying trustworthy sources of information and reliable guidance has been severe. Multipronged efforts are required to mitigate infodemics, such as measuring and monitoring the spread of misinformation, detecting and understanding the impact of the spread, and responding and deploying interventions that protect against the infodemic.³⁵

Key vaccine engagement metrics therefore require close monitoring and continuous re-evaluation. In Côte d'Ivoire, near real-time media monitoring was facilitated by engaging and training community contributors who reported misinformation. Once processed through an online health information system, the findings are shared with the national Risk Communication Technical Working Group.³⁶ Appropriate calibrated risk communication and community engagement measures are deployed to counter the misinformation.

Additionally, a multisector partnership such as Vaccine Demand Observatory could complement existing MOH capacity to implement real-time data monitoring. The partnership currently involves UNICEF, the Public Goods Project and Yale Institute for Global Health, with the aim to help four West African countries develop, implement and manage locally appropriate tailored systems (e.g. field infodemic manager) for understanding and responding to misinformation and disinformation.³⁷

Finally, regulation- or law-based provisions for taking punitive action against those who spread misinformation and fake news may be considered in order to curb and deter the spread of misinformation. In Singapore, the MOH's continuous efforts to monitor and debunk falsehoods are backed by the Protection from Online Falsehoods and Manipulation Act (POFMA), colloquially known as the fake news law. POFMA pushes back against online falsehoods using correction orders or, in serious cases, "stop communication" or "disabling directions."³⁸ The Singapore government actively works with popular social media sites such as Facebook to prevent the spread of misinformation.

Implications for routine immunisation

The COVID-19 pandemic has brought into sharp focus the need for countries to develop effective, integrated, evidence-based communication strategies to drive awareness of the value of vaccines, drive public demand for vaccination and reduce the impact of misinformation, particularly via social media and other digital platforms.³⁹ Pre-COVID-19, anti-vaccination messaging was primarily targeted to parents and focused on creating doubt about the safety and efficacy of paediatric and adolescent vaccines. More recently, opposition to vaccines has taken on more political overtones related to the trade-off between societal responsibility and personal choice. Diseases long thought to be near eradicated are re-emerging in developed and developing countries (e.g. vaccine-preventable diseases such as measles and polio). In this context, the relevance of the LISTEN framework for routine immunisation of adults and adolescents is readily apparent. The potential barriers of a lack of knowledge and education, access, and data monitoring apply to routine immunisation more broadly (see Figure 4).⁴⁰

Figure 4					
How the LISTEN framework can address routine vaccine communication roadblocks					

Knowledge	Lack of national guideline and implementation	Limited education on vaccine benefits, efficacy and safety	Lack of ongoing awareness campaigns
education	• Lack of national adult immunisation guideline due to heterogeneous adult population and complex risk factors (e.g. age, immunology, comorbidity)	 Poor communication of VPD* burden, disease risk versus vaccine side effects, and safety and efficacy of the vaccine has led to poor appreciation of the benefits of vaccines and, consequently, low uptake 	• Lack of sustained investments in public health educational programmes
	 Lack of dedicated implementation team/committee, development of key performance indicators (KPIs) and targets for adult immunisation rates 		
\bigcirc	Lower access to vulnerable groups	Insufficient infrastructure	Low affordability
Access	• Vaccination coverage of vulnerable and at-risk populations (e.g. native population, migrant workers, specific genders) is significantly lower than other groups	• Lack of structured infrastructure and dedicated access pathway has limited the uptake of adult immunisation	• Financial difficulty and affordability have impacted the access to adult immunisation
Data and monitoring	Lack of data reporting and monitoring		
	Lack of reliable and current data to monitor adult vaccination coverage to build a response	•	Addressable by LISTEN

*VPD: Vaccine-preventable disease

Source: Immunisation Coalition, "Enhancing adult vaccination coverage rates in Australia" 2021; E. de Gomensoro, et al. "Challenges in adult vaccination" 2018; T.M. Doherty, et al. "Adult vaccination as part of a healthy lifestyle: moving from medical intervention to health promotion" 2019; R. Dash, et al. "Towards adult vaccination in India: a narrative literature review" 2020; A.T. Bach, et al. "Addressing common barriers in adult immunizations: a review of interventions" 2019; L.E.K. research and analysis

LISTEN for implementing and integrating national immunisation guidelines

The LISTEN framework can help pinpoint weaknesses in national vaccine preparedness guidelines and implementation roadmaps. Besides having robust national immunisation guidelines with clear recommendations for groups with risk factors (e.g. age, immunocompromised, comorbidity),⁴¹ governments should establish dedicated task forces or expert technical groups to drive the implementation and integration of communications across different administrative levels. National guidelines should include policies and communication strategies to tackle misinformation using real-time social listening methods.

LISTEN for championing holistic vaccine education

To disseminate information on vaccine benefits, efficacy and safety, governments should engage HCWs on the safety and efficacy of vaccines to champion routine vaccination across the life course; healthcare providers should already be routinely assessing their patients' vaccine requirements. Government education is also required to help politicians and civil servants understand the disease burden of vaccine-preventable diseases and its economic impact in order to prompt and drive policy intervention for adult immunisation.⁴² A functional adverse events following immunisation (AEFI) monitoring and reporting system must be in place so that any adverse events are investigated in

a timely fashion and the risks of such occurrences can be calmly communicated to HCWs and the public.

LISTEN for building effective public awareness campaign efforts

There is also an enduring need to build public awareness campaigns through the targeted use of media and communications ambassadors to engage the public and drive acceptance of routine vaccination by all segments of society. Additionally, IEC materials should be communicated through important stakeholders such as religious, community and civil society leaders to engage the appropriate audience — for example, using in-school seminars and digital media to connect with adolescents and younger adults, and connecting with older generations through their caretakers or using a door-to-door approach.⁴³

LISTEN for improving access for vulnerable groups

To reduce vaccine hesitancy overall, and especially among vulnerable groups, it is advisable to conduct regular longitudinal surveys on public and HCW attitudes to routine immunisation. Survey analysis of the needs of vulnerable groups (e.g. financial, information sources, access to infrastructure) must occur in the audience's frame of reference to ensure that the underlying message is not lost in translation.⁴⁴ In addition, the use of local ambassadors to address communities' specific concerns can be very effective.

Conclusion and call to action

Effective communication and engagement to alter public, government and HCW perceptions can achieve a significant and immediate impact on vaccine hesitancy, in addition to laying the groundwork for future pandemic preparedness. The six best-practice elements of the LISTEN framework can likely drive greater effectiveness in the vaccine communication efforts of India, Indonesia and the Philippines. Of course, every country has a unique socioeconomic environment and cultural context, a complex convergence of knowledge, language, habits, lifestyles, attitudes, beliefs, politics and customs. Vaccination hesitancy campaigns should reflect the local context and be cognisant of prevailing public attitudes towards vaccines and the justification for their use. A top-down approach without consulting or coordinating with local stakeholders can result in mistrust that persists between central government and local governments and their constituents.

Similarly, governments and ministries should be sufficiently selfaware to appreciate whether they are appropriately organised for the optimal design and implementation of coordinated whole-of-government vaccine hesitancy campaigns. The effective implementation of prepared vaccine communications guidelines remains a serious governance gap for many countries, often due to a lack of accountability, inadequate structured monitoring and evaluation of programmes, and the absence of skilled teams dedicated to attitudinal research. HCW training on addressing people's hesitancy should be a higher priority, with communications training in such programmes including modules on interpersonal communication and behavioural skills.

An understanding of the underpinnings of vaccine hesitancy is a fundamental prerequisite for a robust and sustainable vaccine ecosystem. Longitudinal surveys of the general public or HCWs across different population segments such as gender, income and geography are essential. Without such research, shifts in public sentiment can be missed and messaging misaligned with grassroots sentiments. Usually, some form of social listening is needed. It should be accompanied by the clear structure and coordination needed to combat misinformation.

Vaccine communication preparedness, especially in budgetconstrained economies such as those of India, Indonesia and the Philippines, will require concerted capacity building that fully leverages technology (for conducting surveys, social listening and data monitoring), public-private partnerships (with enterprises and NGOs that claim outreach expertise and those that offer valuable resource support) and behavioural science expertise (see Figure 5). More research is needed on the net cost-benefit of investing in vaccine communication preparedness versus the health and economic hardships that come with high levels of vaccine hesitancy.



Technology

- Real-time data monitoring for vaccine records, as it informs communications strategy
 - Where digital vaccination records are unavailable, ensuring that data monitoring and disease surveillance systems (e.g. AEFI system) are properly implemented, operational and utilised is critical in collecting data to inform communications strategy
- Official government communication channels (e.g. WhatsApp, Facebook, Telegram, social media) to provide accessible and trusted information
- Social listening capability to capture misinformation in real time and form fast, cohesive responses
- Monitoring of public vaccine sentiments through big data text analytics and artificial intelligence, which can identify trends in sentiments covering a large proportion of the population

Figure 5 LISTEN best-practice enablers



Public-private partnership

- Involvement of the private sector to be stewards of the vaccination campaign, leveraging their role as employers and their marketing skills to amplify messages/broaden communications efforts (e.g. Alliance for Advancing Health Online (AAHO): Vaccine Confidence Fund is a partnership between industry, social media and global health organisations)
- Private-sector support to supplement additional resources such as manpower and funding to conduct outreach activity and training led by NGOs or civil societies (e.g. UNICEF) to drive demand generation at the local level
- Additionally, funding from industry participants could enable research projects to understand how certain aspects of online communications could affect health and resiliency (e.g. AAHO has given grants to three research projects in India and one in Southeast Asia)
- A technology company could capitalise on its expertise to counter the spread of misinformation and help the government formulate timely responses (e.g. collaboration between Facebook and WHO)

Behavioural sciences expertise

 Specialised behavioural teams to provide insights to government bodies on crafting key messages that focus on empathy and building trust at the local level

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