Effective ways to increase vaccination rates

What the evidence tells us

Effective ways to increase vaccination rates: what the evidence tells us

Policy makers worldwide are rightly concerned that vaccination rates for many diseases have stagnated and are now at risk of falling, especially in light of the significant disruption caused by COVID-19. This briefing summarises the evidence on what works (and what doesn't) for increasing vaccination rates. It sets out recommendations on what should be prioritised to ensure that populations are protected from preventable deadly infectious diseases.

Key recommendations

1. **Remove the practical barriers to vaccination and build resilient immunisation systems** – poor availability and access to immunisation services are still the biggest barriers for vaccination worldwide, both for the most vulnerable who lack access to basic healthcare services and in areas where vaccines are available but not convenient.

2. **Change the way we talk about 'vaccine hesitancy'** – this phrase is easily misinterpreted and can overemphasise the threat posed by low vaccine confidence. Instead, be specific about the different barriers that stop people getting vaccinated and what can be done to remove them.

3. **Strengthen the voices of healthcare workers in presenting vaccination as a social norm** – this works far better than trying to directly confront and alter sceptical attitudes through techniques such as 'myth-busting' which can actually risk exacerbating the problem.

4. **Address the research gap** – future research should prioritise understanding what works to increase vaccination rates in different contexts and why, with a focus on improving the evidence base for low- and middle-income countries.


Image:
Gavi/2018/Duncan Graham-Rowe

Introduction

With stalled progress on vaccination and the added challenges of COVID-19, increasing and sustaining vaccination uptake is an urgent priority.

1.5 million people a year still lose their lives to diseases that could have been prevented by vaccination.[1]

Successful immunisation at a country level requires that a certain percentage of the population is immunised in order for infectious disease pathogens to be controlled or to create what is termed 'herd immunity.' For some infectious diseases, such as measles, vaccination rates of 95% need to be achieved and maintained. But, while the world saw huge initial success in increasing vaccination rates between the 1980s and the 2010s, coverage for many vaccines has plateaued over the last 10 years with no vaccine exceeding 90% coverage globally.[2]

Figure 1:
Global trends in immunization coverage, 1980–2019
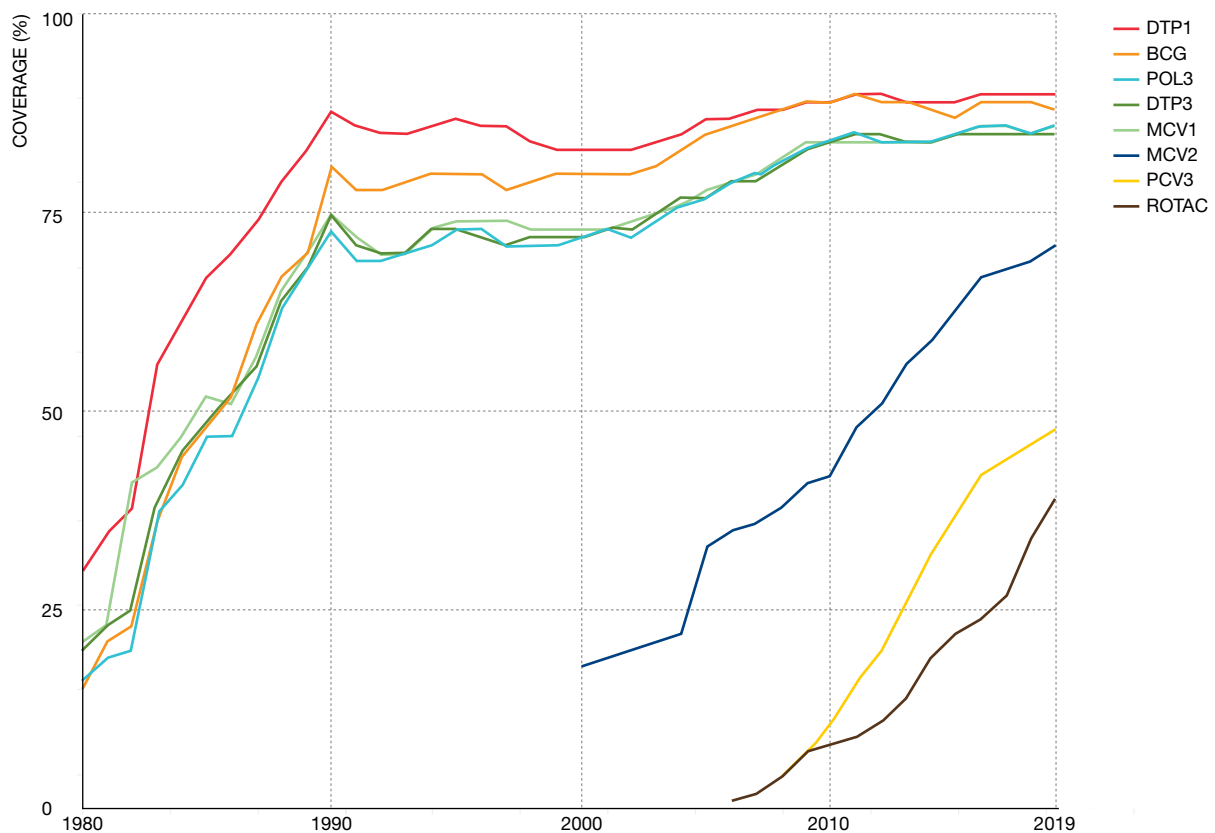
Source: WHO/UNICEF Estimates of National Immunization Coverage, 2019 revision. Coverage for many vaccines has plateaued over the last years before reaching optimum coverage rates

Now, COVID-19 presents a new threat to vaccination

In May 2020, data released by WHO, UNICEF, Gavi and the Sabin Institute warned that disruptions to immunisation services due to the pandemic were expected to place 80 million children at unnecessary risk of vaccine-preventable diseases.[3] Further data confirmed that in 85% of the countries surveyed, vaccination rates dropped in May 2020 compared to January-February 2020 with the most common reasons for disruption including a lack of personal protective equipment (PPE), travel restrictions, and strains on availability of health workers. 73% of countries also reported a decrease in demand, largely due to concerns about the risk of exposure to COVID-19 or practical barriers such as limited public transport and other physical distancing policies.[4]

There is a vital need not only to increase vaccination rates globally, but also to work hard at building resilience into our immunisation systems. Focus should be on maintaining routine immunisation levels globally in an urgent bid to prevent this pandemic from claiming many more lives through secondary outbreaks of other preventable diseases.

Disruptions to immunisation services due to the pandemic were expected to place 80 million children at unnecessary risk of vaccine-preventable diseases

Image:
GAVI/2017

1. Why removing practical barriers is the best way to increase vaccination rates

Three main factors affect whether or not people get vaccinated:

1. **Basic practical issues such as availability, accessibility, cost and convenience.**

2. **The social norms around us that influence our choices, such as whether our friends, family, and colleagues are vaccinated.**

3. **Our personal beliefs and what we think and feel about the risks and benefits of vaccination.[5]**

Crucially, these factors are also interlinked – when we come up against inconvenience and practical barriers that prevent us from getting a vaccine, this can directly feed into how we feel more widely about the relative benefit of vaccination compared to the level of risk from certain diseases and what 'normal' healthcare practices should involve.

Systemic inequalities remain the biggest barrier for immunisation

The majority of people are already motivated to vaccinate so we don't need to change their minds about this.[6]

What we need to do is to remove the barriers between motivation and action. Often these barriers are the result of much larger systemic issues relating to broader issues of poverty and inequality, weak and underfunded health systems, political and economic fragility, conflict and migration. All of these factors can make access to immunisation unobtainable, especially for vulnerable and hard-to-reach communities.

Two out of three of the world's children who don't receive any vaccines live below the poverty line and usually these children also lack access to other fundamental health and welfare services.[7]

Similarly, 40% of un and under-vaccinated children live in fragile or humanitarian settings.[8] *The devastating impact of instability was shown particularly clearly in the case of Ukraine where coverage dropped dramatically from 76% between 2012 and 2013 to just 23% in 2014 following the commencement of conflict.*[9] The core reasons for dramatic decreases in coverage like this include the closure and destruction of health facilities and the lack of health workers themselves, security problems around the transportation and storage of vaccines and equipment and a lack of planning and systems in place for providing for the displaced populations.[10]

This reminds us that any progress made on immunisation can easily be lost during periods of instability and that it is children living in some of the most vulnerable settings that make up the majority of those still missing out on vaccination. For these groups, low immunisation coverage is directly linked to, and compounded by, broader systemic issues.

Therefore, any effort that aims to increase global immunisation coverage must maintain an explicit focus on addressing context-specific barriers to the availability and accessibility of immunisation services for the most vulnerable at both a national and subnational level.

This must include placing the most-affected communities at the heart of our response, building resilience into every part of the immunisation system, and finding new ways to reach the excluded, the impoverished and the displaced. A key approach to this is investing in the collective efforts of organisations such as WHO, through their Tailoring Immunisation Programmes work; Gavi, the vaccine alliance; UNICEF and others, who through the Vaccination Demand Hub,[11] lead global efforts to make vaccines available, affordable, and accessible for the hardest to reach communities.

Even where immunisation services are available, practical barriers still make them hard to access

In addition to the wider systemic challenges that create barriers to access, there is an urgent need to rapidly and efficiently improve access in settings where vaccination services are broadly available but where other practical obstacles still prevent people from getting vaccinated.

One simple and effective action is to improve education and communication about when, where and how parents can vaccinate their children. Increasing vaccination can be as basic as ensuring that there are good reminder systems in place and that these come from a trusted source like a person's regular GP.

Phone call reminders, for example, have been shown to increase attendance at vaccination appointments by 18.4%.[12]

Even better is when these reminders also make it really easy for people to act on the information they receive.[13] A good example of this would be a telephone-based reminder system that allows people to immediately schedule an appointment at a time that works for them. These systems have been shown to increase vaccination coverage across multiple populations in high and low income settings, as well as across different types of vaccinations and various modes of delivery.[14] But they still aren't being implemented consistently – therefore, these simple but effective improvements highlight a clear opportunity to create change immediately.[15]

Other vital improvements to prioritise in settings where vaccination services are available, but vaccination coverage is not optimal, include removing cost barriers and improving the availability of immunisation services in convenient locations and at convenient times.

In a study in Colombia, for example, nearly half of respondents to a survey commissioned by The Expanded Programme on Immunisation indicated that they had recently faced circumstances making vaccination difficult or impossible – this included issues around the distance from health centres, a lack of vaccines due to stock-outs, and limited days or hours of operation.[16] These barriers are also often further compounded by gender-related challenges where women are disproportionately responsible for their children's healthcare but a lack of access to family income exacerbates challenges around transport costs. Additionally, household responsibilities combined with working hours can make short clinic opening hours impossible to meet.[17]

Similarly, a study in Australia has shown that passive under-vaccination accounts for 60% of those missing out on certain vaccines.[18] Again, this includes those who miss out on vaccines due to the inconvenience of clinic opening times, unawareness of what vaccines are needed at different ages, or simply forgetting the date of their appointment.

What is key here is the need to bridge the gap between motivation and action by listening to the real needs of the community.

Rather than attempting to address our thoughts and feelings about vaccines, these interventions work by breaking down practical barriers to vaccination to make it simple and convenient for everyone. This is an area where there are huge gains to be made, not only in increasing vaccination but also in strengthening health systems more broadly.

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2. Why 'vaccine hesitancy' is misunderstood and we must change the way we talk about it

Whilst access barriers remain the biggest threat to vaccination, there are increasing concerns about lack of confidence in vaccine safety and rising levels of misinformation – the passive sharing of false information, disinformation – the active dissemination of false information, and 'anti-vax' groups – those who actively refuse vaccination themselves and discourage others from vaccinating by promoting scientifically false messaging that depict vaccines as dangerous, unethical or immoral.

In connection, with these concerns, it is often cited that in 2019, WHO declared vaccination hesitancy to be one of the top 10 threats to global health. However, it is important to recognise that the WHO definition of vaccine hesitancy does not refer exclusively to the challenges of confidence, false information or 'anti-vax' communities.

Instead, the WHO statement intended to reflect a broad range of challenges where despite the availability of immunisation services, vaccination is delayed or missed not just due to a lack of confidence in vaccination but also as the result of wider practical issues as discussed above. [19]

These inconsistencies around the use of the term 'vaccine hesitancy' risk an over-emphasis on the need to address vaccine confidence despite a lack of evidence to suggest that this should be a priority.

Vaccine confidence isn't as big an issue as the media can suggest

For example, in the largest study of vaccine confidence to date, only six out of the 149 countries surveyed showed a decrease in the belief that vaccines are safe between 2015 and 2018, whilst confidence in vaccine safety actually increased in a separate six countries over the same period.[20]

More broadly, the Wellcome Global Monitor survey[21] found that worldwide, 92% of people surveyed agree that vaccines are important for children to have. Additionally, while the figures are slightly lower (79% and 84%) for safety and effectiveness, 92% of parents also report their children as having received a vaccination to prevent a childhood disease. This means that even among the parents who are sceptical, a lack of confidence hasn't stopped their children from receiving vaccines. As other evidence also shows, active refusal of vaccines still remains extremely rare at just 1-2% in high income countries. [22]

Equally we can see that, although Europe had particularly low confidence in vaccines compared to other regions it continues to maintain the highest vaccination coverage globally.[23] This shows how low confidence in vaccine safety does not consistently translate to lower vaccination rates.
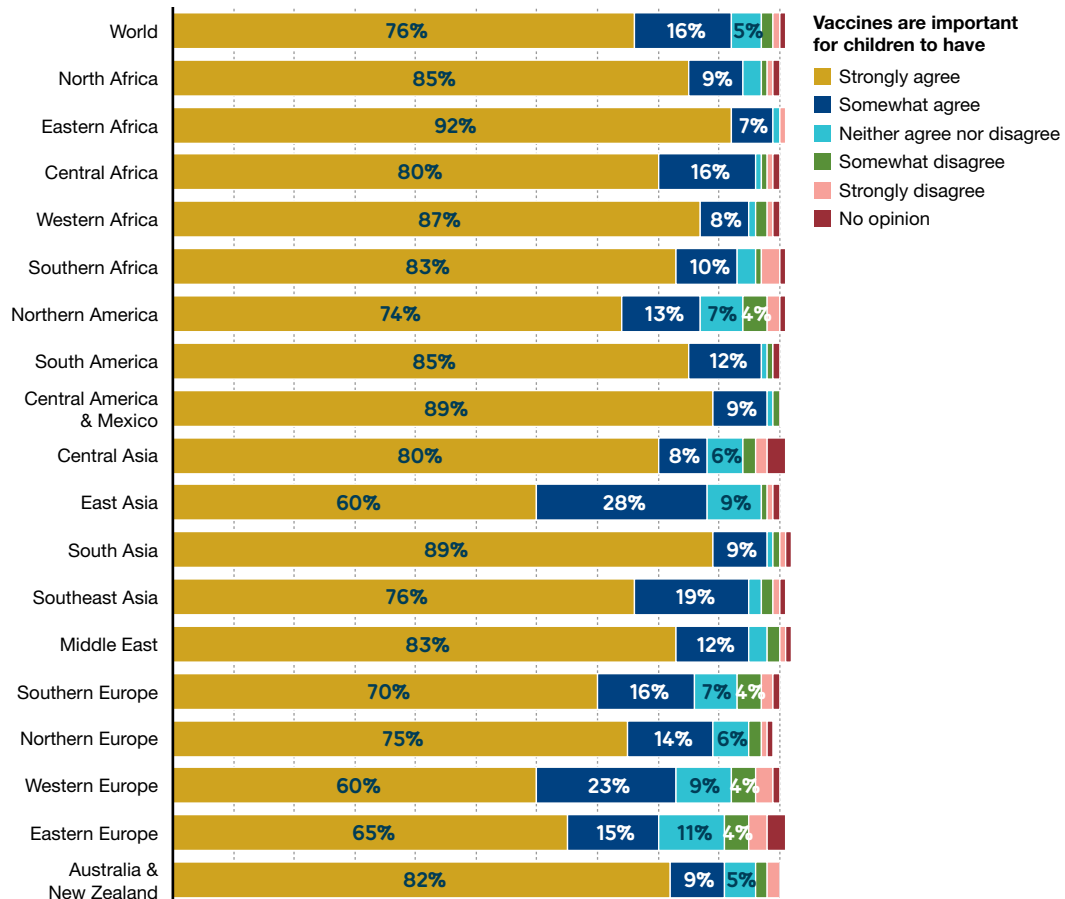
Therefore, it is important that we stop talking about 'vaccine hesitancy' in a way that over emphasises the threat from 'anti-vax' groups and low vaccine confidence and risks distracting us from addressing key practical barriers that prevent access. Instead, we must speak clearly and distinctly about the extent to which different factors affect immunisation and follow the evidence on how best to address them.

Active refusal of vaccines still remains extremely rare at just 1-2% in high income countries

Figure 2: Perceived importance of vaccines for children to have by region

Percentage of people who answered 'strongly agree', 'somewhat agree', neither agree nor disagree', 'somewhat disagree' 'strongly disagree' and 'no opinion'.

Do you agree, disagree, or neither agree nor disagree with the following statement?

Vaccines are important for children to have.

Vaccines are important for children to have
- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree
- No opinion

Region	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree
World	76%	16%	5%	
North Africa	85%	9%		
Eastern Africa	92%	7%		
Central Africa	80%	16%		
Western Africa	87%	8%		
Southern Africa	83%	10%		
Northern America	74%	13%	7%	4%
South America	85%	12%		
Central America & Mexico	89%	9%		
Central Asia	80%	8%	6%	
East Asia	60%	28%	9%	
South Asia	89%	9%		
Southeast Asia	76%	19%		
Middle East	83%	12%		
Southern Europe	70%	16%	7%	4%
Northern Europe	75%	14%	6%	
Western Europe	60%	23%	9%	4%
Eastern Europe	65%	15%	11%	4%
Australia & New Zealand	82%	9%	5%	

Challenging sceptical thoughts and feelings towards vaccines does not reliably increase vaccination

Even when working in communities where vaccine scepticism is prevalent, attempting to challenge these views directly is not an effective approach for improving uptake.

Current research shows that changing the views of those who are already critical of vaccines can be very difficult to achieve, and even where there is success in changing perceptions, this does not guarantee that people will take the next step in getting vaccinated. In fact, some interventions that attempt to directly change a person's views can often risk exacerbating the problem.[24]

For example, some attempts to challenge certain myths and false information being circulated about vaccines have led to increased memory of the myth itself rather than the correction.[25] This means that people can remain susceptible to misinformation even after they have acknowledged that the information is factually incorrect.

In fact, a recent evidence review from the UK Government Behavioural Insights Team found that most studies that had successfully changed the way people perceive the risks of vaccine preventable diseases did not demonstrate any subsequent positive impact on vaccination behaviour.[26]

Studies have shown that sharing information on vaccine myths rather than increasing propensity to vaccinate, can actually have the opposite effect. For example, while sharing information that corrected the myth connecting the MMR vaccine to autism was successful in reducing belief in the myth, it also reduced vaccination intent among parents who were already least favourable towards vaccines.[27] This highlights the clear need for caution in our approach to tackling misinformation and the importance of ensuring we only invest in interventions that are proven to work.

We do not recommend further investment into interventions that focus on directly challenging sceptical thoughts and feelings towards vaccines.

What about the future risks posed by misinformation? Why efforts should focus on building resilience to false information more broadly

Current evidence does not suggest that misinformation is having a significant impact on vaccination rates. For example, a recent report from the UK audit office 'found no evidence that anti-vaccination social media activity has had a major impact on vaccination uptake in England'.[28] However, there is considerable concern about specific instances where the circulation of false and misleading information could be at risk of disrupting future public health efforts, particularly in settings where trust in the government and science more broadly is low.

Recognising the potential impact of misinformation on the delivery of a COVID-19 vaccine and the success of health communication more generally, several organisations are now working to ensure the way information is shared and absorbed supports strong, effective and resilient public health communication as a whole. Therefore, while we do not recommend prioritising misinformation as a key focus for increasing vaccination, we encourage these wider efforts to focus on evidence-led approaches.

For example, a recent report from Wellcome and Shift helps us look beyond a reactive approach to tackling misinformation and offers a proactive framework focused on building a 'healthier internet' to reduce the volume and impact of false content.[29]
There are three main approaches for this:

1. Increasing the reach of positive and accurate health information including tactics to ensure that it breaks into echo chambers and reaches the right audiences.

2. Building resilience to misinformation and disinformation.

3. Implementing regulations and policy changes within the technology industry to better control the spread of false information.

Interventions to achieve this include promotion of techniques such as 'SIFT' which encourages those on the internet to 'Stop, Investigate the source, Find trusted coverage and Trace claims, quotes and media back to the original context.'[30] In addition to supporting the public to detect and resist misinformation, there is urgent need to support journalists in doing the same, with one study showing that more than 80% of journalists admit to falling for false information online.[31]

Another example that exemplifies a focus on building resilience is the development of a game where players learn common misinformation techniques and play at being 'fake news' producers. Tactics like this have proven to be successful in familiarising players with the various disinformation strategies and improving their ability to spot and resist sharing or being influenced by false information.[32]

Additionally, there are key changes that should be considered to control the type, flow and visibility of online information. This can include adapting algorithms and search rankings to detect, deprioritise and discourage false and misleading content. Other approaches would extend to the introduction of legislative and policy changes to mandate greater transparency in where information is coming from, as well as more direct attempts to regulate and ban certain types of content.

A recent example where this has been successful was in Pakistan where health authorities successfully lobbied Facebook to remove anti-polio vaccine videos following a jump in cases in 2019.[33] However, the effectiveness of these different approaches still requires further research and testing and it is essential that we are led by the evidence.

3. A better way to boost acceptance of vaccines is to use trusted voices to position vaccination as a social norm

There is clear evidence that people tend to do what they think is expected or common.[34] So, if the dominant conversation on vaccination focuses on the small minority of people who aren't getting vaccinated – even if that conversation is critical of those choosing not to get a vaccine – we again risk worsening overall vaccination uptake.

Instead, it is essential that we work to amplify messaging promoting the fact that vaccination is the most widely accepted health activity and that the vast majority of people are getting vaccinated. If we make it clear that getting a vaccine is normal and expected, this will encourage others to do the same. One of the best ways of doing this is to strengthen the voices of those who have the social power to help us position vaccination as normal.

Based on current evidence, the most impactful voice that can be leveraged to increase vaccination is the recommendation from a health worker.[35]

Globally, 84% of people say they trust medical and health advice from medical workers and 73% of people globally say they would trust a doctor or a nurse more than other sources for health advice, including family, friends, religious leaders and famous people.[36] On the other hand, those who trust other sources or their social circle more than doctors or nurses are less likely to vaccinate.

In line with this, a simple and proven way of increasing immunisation is to support health workers in making better recommendations to patients. For example, rather than asking "would you be happy for us to vaccinate your daughter?" a doctor or nurse could say "your daughter is due for her meningitis vaccine. We will provide this at the end of the visit." This presumptive approach has shown to be hugely effective in increasing uptake.[38] However, we know that many healthcare workers lack confidence in addressing fears around vaccination and lack accessible tools to support them in speaking effectively about vaccines.[39] Therefore, we must invest in ensuring that valuable evidence demonstrating effective health communication techniques is translated into accessible tools that can support healthcare workers to take effective action.

Image: GAVI/2013/ Christ Stowers

In some settings, there is also promise in identifying others with the social power to help position immunisation as a social norm and amplify narratives that support vaccination.

As recommended by the WHO Strategic Advisory Group of Experts on Immunisation, it is important to remember that all interventions to increase immunisation are most successful when they recognise context-specificity and prioritise people-centred trust-building approaches.[40]

For example, a study in Pakistan has shown that vaccination discussion groups with influential members of the local community were effective in increasing vaccine uptake.[41] Similarly, approaches that focus on identifying and empowering key community-level leaders have been identified as central to Rwanda's extraordinary success in increasing immunisation rates from less than 30% in 1995 to more than 95% in 2015. These approaches include engaging community health workers to educate communities to the importance of vaccinations; decentralising immunisation programmes so that they could be tailored at district and village-level; and holding leaders to account at both national and local level through target-based performance contracts.[42,43]

Figure 4:
Trusted sources of medical or health advice by region

Percentage of people who answered different sources of advice they trust the most.

Which of the following people do you trust most to give you medical or health advice? Your family and friends, a doctor or nurse, a religious leader, a famous person, a traditional healer [or country equivalent], other?
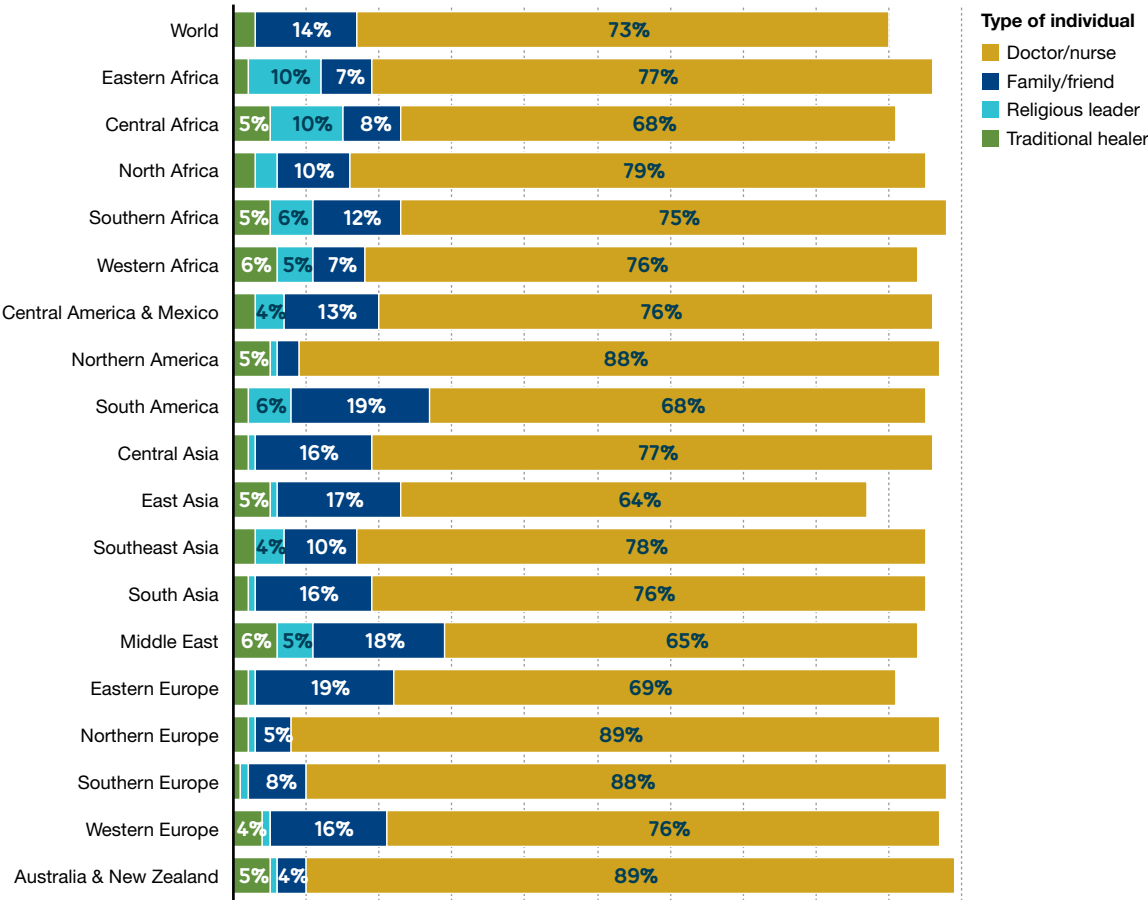
4. Funders must prioritise research focusing outside high-income countries that tests the effectiveness of interventions for increasing vaccination.

Much of the data that we have on what works to increase vaccination relies on research that is concentrated in the Americas, Europe and Australia. It is essential that in developing access and uptake strategies, governments and CSOs can draw directly on research that reflects different situations in different contexts. In many places, this research is lacking and therefore further research into access and uptake in low- and middle-income countries is vital.

When this research is carried out, one key priority should be to ensure that the communities it intends to affect are placed at the heart of the work itself.

Another key priority should be understanding why findings are context specific and why interventions may or may not work in that context. This will enable us to expand successful interventions so that no solution need be country or vaccine specific and reduce the need to test research in every country. This would help us build an evidence base for decision-makers that provides reasonable justification for trialling something that worked well in a country with common drivers and barriers to vaccination as in their own country.

Crucially, the focus of this research should be on testing interventions to determine their effectiveness, not just to change perceptions of vaccines, but to achieve our ultimate goal of increasing vaccine coverage and saving lives.

Image: Gavi/2013/Adrian Brooks

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