



WPL GLOBAL IMMUNISATION STUDY











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Executive summary

The COVID-19 pandemic has brought about immense change in the way we live and conduct our lives. The ramifications have been felt acutely across all aspects of society and will be felt for many years to come.

Subsequently, the threat to global public health goes beyond that of a single pathogen. Interruption to health service delivery, in both the short and long-term, may reverse gains seen in infectious disease control and social mobility over the years.

One area of concern is in routine immunisation. Vaccines have been one of the most potent weapons which human kind has had against disease. They have enabled children and adults to survive, flourish and contribute to society as well as preventing diseases from spreading.

Disruption to vaccination programmes could be the cause of greater and more profound health crises which continue to cause suffering and hamper the progress of humanity. Despite the ongoing challenges, we now have a substantial opportunity to understand the impact that disruption to vaccination programmes has and continues to have and to implement lessons learned to strengthen their resilience in the future.

The objective of this survey on immunisation is to help understand the perspectives of members of the WPL network and their affiliates and their sentiment towards immunisation programmes. The results aim to illuminate the resilience of vaccination programmes in the context of COVID-19 disruption to equip political leaders with insight and actions on how to protect immunisation programmes for the greater good of global society.

A clear view of where we stand today can better support and contribute to the success of vaccination programmes tomorrow.

Research findings

On behalf of Women Political Leaders (WPL), supported by MSD, Ipsos conducted two focus groups and an online multi-country survey of women Parliamentarians and policy-makers between 12 November 2020 and 26 April 2021. Henceforth, these respondents are referred to as 'participants'.

Methodology and sample

Exploratory focus group	Ipsos interviewed a sample of n=10 participants across 9 countries who chose to take part in a 90-minute online focus group.
Online quantitative survey	Ipsos interviewed a sample of n=151 participants across 59 countries who chose to take part in an online 15-minute survey.
Plenary focus group	Ipsos interviewed a sample of n=4 participants across 3 countries who chose to take part in a 90-minute online focus group.

Full details can be found in Appendix 1.

Key observations

One clear global trend emerged from the participants in the research:

The majority of participants are aware of the issues and potential pitfalls that impact the success of vaccination programmes, but lack clarity over their role to contribute to the cause.

The majority of participants have a perception that vaccines and vaccination programmes are an important part of keeping their populations healthy. Of the participants who chose to take part in the survey, 96% considered having an effective vaccination programme for vaccine-preventable diseases to be important in their respective country¹ and 78% have considered that 'vaccines are able to reduce the morbidity/mortality from infectious diseases' to some or a great extent.¹¹



- Many acknowledge the issues of disruption of vaccination programmes brought about by the pandemic but aren't necessarily fully aware of the ramifications. Of the participants who chose to take part in the survey, 66% agreed that the 'avoidance of healthcare settings due to perceived risk of COVID-19 meant some appointments for routine vaccination have been missed' but only 37% disagreed that 'all missed routine vaccination appointments will not have been rescheduled'ⁱⁱⁱ
- They have strong personal confidence in vaccines and see wider vaccine hesitancy as a cause for concern, although it isn't always a priority. Of the participants who chose to take part in the survey, 94% are personally confident in vaccines ^{iv} but only 31% have actively engaged in policy for 'creating and sustaining effective vaccination programmes for vaccine-preventable diseases' over the last 12 months ^v
- Participants in the sample do not necessarily see themselves as messengers to activate change as they're likely wary of the general lack of public trust in politicians. Of the participants who chose to take part in the survey, only 25% believe that the general public trusts politicians to tell the truth^{vi}

i Source Ipsos. QC1. To what extent do you consider having an effective vaccination programme for vaccine-preventable diseases in your country to be important or not? % who selected 'Very important/fairly important' of a 5-point scale. Base: All WPL network and their affiliates who chose to participate n=101

ii Source Ipsos. QC3. To what extent, if at all, have you considered the following statements as benefits of vaccines in an official capacity? % who selected 'To a great extent' of a 5-point scale. Base: All WPL network and their affiliates who chose to participate n=101

iii Source Ipsos. QE1. To what extent do you agree or disagree with the following statements? % who selected 'Tend to disagree/strongly disagree' of a 5-point scale. Base: All WPL network and their affiliates who chose to participate n=82

iv Source Ipsos. QD2. To what extent would you say you, in your political role, are confident in the science of vaccines, or not? % who selected 'Very confident/fairly confident' of a 4-point scale. Base: All WPL network and their affiliates who chose to participate n=97

v Source Ipsos. QB3. Which, if any, of the following policy topics have you actively engaged in over the last 12 months? % who selected 'creating and sustaining effective vaccination programmes for vaccine-preventable diseases' from a multi-select pre-coded list of 10 policy areas. Base: All WPL network and their affiliates who chose to participate n=121

vi Source Ipsos. QA4. For each of the following groups, please tell me if you think the general public generally trusts them to tell the truth, or not. % who selected 'trust to tell the truth' for 'Politicians' Base: All WPL network and their affiliates who chose to participate n=151

Recommended actions

The COVID-19 pandemic presents a unique opportunity to truly consider the role that vaccines can play in society and to implement policy that benefits not only the rollout of COVID-19 vaccines, but policies that strengthen the entire routine immunisation programme across the life course.

When the term 'vaccination' is mentioned, the image of a small child receiving a vaccine to protect against disease usually comes to mind first. The eminent success of vaccines is their ability to provide immunity against vaccine-preventable diseases. But this disease protection extends beyond the direct health benefits for individuals, it can also have profound and holistic benefits in creating a more equal global society.

Vaccines are for everyone; they are administered across the life course with their protective reach spanning infectious and non-communicable diseases such as cancer. By preventing disease, vaccination can enable everyone in society to participate to their full potential. If we start to consider vaccines as a means to mitigate the economic burden of disease through lost productivity and health service need whilst concurrently vaccines as a way to provide equal social opportunities, their value is exponential.

Whilst participants in the research may not feel like trusted voices in the vaccination arena, they still have a central and critical role to play. To protect and maintain the success of vaccination programmes moving forward, focusing on mitigating disruption and improving resilience, this study offers the five following recommended action:

1.Develop an understanding of how vaccines can contribute to addressing government priorities such as health inequality and reducing burden of disease within the local context

- a. Consult with National Immunisation Technical Advisory Groups (NITAGs) on the role you can play in supporting vaccination programmes
 b. Consider data that can be collected and reported to monitor the ongoing impact of vaccination within communities
- c. Coordinate a group of public health and social experts to examine the link be tween vaccination and socioeconomic inequality to provide an evidential basis for discussion around the value of vaccination to society

"This is a set of actionable recommendations where every women political leader can find her own agenda and promote the issues in a resonant and specific way." Participant, Europe



2. Strengthen health systems that support national routine immunisation programmes across the life-course and address challenges to vaccine distribution and administration

a. Identify alternative locations for vaccination services and consider expanding personnel resource to provide widespread access

b. Foster international collaboration to ensure an environment of stable and transparent trade policies for the movement of vaccine supplies

c. Prioritise the implementation of a policy for catch-up vaccination to minimise routine disruption, that includes guidance on eligibility and minimum intervals between vaccine doses

3. Improve data systems to monitor vaccine administration, identify populations at high risk for vaccine preventable diseases and support catch-up vaccination efforts

a. Develop mechanisms to identify and follow-up on missed vaccinations
b. Use digital technologies, including digital information systems, to ensure vaccination programme monitoring

4. Allocate short-to medium-term health sector financing for routine immunisation programmes across the life-course

a. Build political will and increase public awareness through special hearings and committees to garner strong consensus and financial support for specific policy vaccination measures

b. Align domestic and donor funding to coordinate a sector-wide response and restore vaccination to pre-pandemic coverage rates

c. Engage with decision-makers at the national and local levels to identify evidence-based approaches to resource allocation and determine how domestic and external financing will be utilised

5. Improve trust in public health by promoting the benefits of vaccination

a. Tailor communication strategies at the local level to promote acceptance and address misinformation regarding vaccination

b. Assess local root causes of hesitancy, foster a dialogue and engage trusted community members to help deliver data-driven messaging that highlights the importance, safety and efficacy of routine vaccination

An urgent platform from which to advance change

The COVID-19 pandemic has resulted in widespread disruption to routine immunisation programmes and is presenting new challenges with the rollout of COVID-19 vaccination. We, as a global society, must now leverage this spotlight on vaccination to consider how to increase resilience of vaccination programmes moving forward.

The current issue and threat

In short, the disruption and ongoing challenges mean that fewer people are getting vaccinated (non-inclusive of COVID vaccination) leaving individuals and communities vulnerable to vaccine preventable diseases. In the first half of 2020 the delay or suspension of vaccination programmes is estimated to have negatively affected around 80 million children under the age of one globally [1]. And it is not just the initial impact that is worrying; at present immunisation services continue to feel the strain in terms of managing supply and maintaining demand [2] [3]. Over a third of countries are still reporting disruption to immunisation services by about 20% compared to 2020 levels [4]. This threatens decades of global progress to help people live healthier and longer lives and attain equitable vaccine coverage.

The disruption came at a time when many vaccination programmes were not reaching target coverage rates. Vaccine hesitancy and the role of trust are well-documented; when populations doubt safety and efficacy, lack trust in the system or feel like vaccination is not an important priority for them, vaccination rates fall [4]. Infrastructure challenges highlighted by the COVID-19 pandemic affect access to vaccination, even for routinely recommend vaccines, particularly in low- middle-income countries [5]. The pandemic has therefore exacerbated many of the issues that already affected routine immunisation service uptake, with hesitancy sentiment and access barriers being key examples.

Vaccination is viewed as one of public health's 'best buys' in the sense it also mitigates the economic burden of disease [6]. It is estimated that for every \$1 invested into vaccination programmes around \$44 is saved in healthcare costs, lost productivity and long-term disability in low income countries [7]. People value living healthier and longer lives, and the benefits that vaccines bring in this regard can only be recognised if there is equitable and broad coverage globally.



Potential repercussions if threat not addressed

This perfect storm created by COVID-19 contributes to an increase in unvaccinated or under-vaccinated individuals (non-inclusive of COVID vaccination), which increases the likelihood of vaccine preventable disease outbreaks [8] [9]. In turn, increases in morbidity and mortality from these diseases are to be expected, threatening to widen the health and social equality gap further [10] [11] [12] [13].

If we continue the current trajectory of sub-par vaccine uptake, then these trends will only worsen. Sustainable and effective routine immunisation programmes act as a key platform for supporting the recovery of vaccination coverage rates plus the implementation of future vaccination programmes [14]. As deployment of COVID-19 vaccines by governments is happening as quickly as possible around the world, returning all vaccination to stable levels will help contribute to an increase in resilience of vaccination programmes today and potentially help protect against potential threats in the future.

Beyond health, the potential continued threat to vaccination programmes also has implications for broader development goals in society. Participants in this survey are aligned with the general public on issues of importance for social development in terms of policy topics they have engaged with over the last 12 months. In a general population survey amongst adults, the COVID-19 pandemic currently tops the list of what worries the world, with unemployment and poverty and social inequality consistently rank in second and third place [15]. By helping populations lead healthier and longer lives, this goes part way in ensuring they are able to contribute and participate in society equitably.

Vaccinations play a key role in preventing disease and have altered the course of common diseases; for example, since 1988 there has been a 99% reduction in poliovirus cases [17] with Africa being declared free of wild poliovirus in 2020. A healthy child has the best chance of completing school and lifting families from poverty. Parents whose children have the best chance of healthy life have less children which also helps to alleviate poverty. Parents who survive preventable disease are able to contribute to the workforce and raise children. If existing vaccines were available to every child in the world's 72 poorest countries, the savings over a decade would total \$145 billion in productivity loses and \$6.2 billion in treatment costs [18] [19].

The opportunity to apply lessons learnt

Global engagement in the issues surrounding vaccination programmes, in part encouraged by the pandemic, presents an opportunity to do things differently in the future. We have an opportunity to further collaborate across society and leverage political will to expand the conversation around the value of vaccination, build public trust and help facilitate investment in and access to sustainable vaccination services.

The goal is to learn from the COVID-19 crisis to increase resilience of vaccination programmes to mitigate the impact of future crises. Mitigating disruption and its impact whilst also assuring and strengthening existing services, such as routine vaccination, will lead to population improvements in health, the economy and in society.

One of the first steps is to understand the lessons that need to be learnt. The research findings set out in this publication gives insight into how political leaders participants are currently fulfilling their role in contributing to the success of vaccination programmes and highlights what theypolitical leaders can do in the future.

"We want Women Political Leaders to think beyond their own countries and integrate international solidarity when promoting this platform of immunisation." Participant, Europe





Project overview

On behalf of Women Political Leaders (WPL), and in collaboration with healthcare company MSD, Ipsos conducted two focus groups and an online multi-country survey with women Parliamentarians and policy-makers between 12 November 2020 and 26 April 2021. Henceforth, these respondents are referred to as 'participants'.

1. Exploratory focus group with a WPL advisory board

Objective: To discuss the sentiment of participants in the research towards vaccination and their perspectives on the resilience of vaccination programmes to help inform curation of the quantitative research tool.

Sample: Ipsos interviewed a sample of ten WPL respondents across nine countries who chose to take part in a 90-minute online focus group. The participants have expertise, association or background in health and vaccination policy.

2. Quantitative online survey amongst the WPL network

Objective: To understand the views of members of the WPL network respondents on vaccination programs as well as their importance during the pandemic and for the future.

Sample: Ipsos interviewed a sample of n=151 respondents of the WPL network and their affiliates across 59 countries who chose to take part in an online 15-minute survey. To participate, respondents needed to be a parliamentarian or contactable through the WPL secretariat.



	All valid responses	Africa (Africa + Eastern Mediterra- nean)	Europe	Latin America*	Asia Pacific (South East Asia + West- ern Pacific)
Section A	151	25	84	20	18
Section B	121	21	66	16	15
Section C	101	18	55	14	11
Section D	97	17	52	14	11
Section E	82	14	45	10	10
Section F	78	13	44	10	8
Section G	77	13	43	10	8

*Note that the US was excluded from fieldwork due to conflicting timelines with the 2020 Presidential election at the time of fielding.

Note on inclusion of all valid responses

Participants were able to complete the survey in their own time and at their own discretion. We provided individual links to respondents to allow them to exit and re-enter the survey at the same point. This meant that some respondents did not complete the survey in full but may have progressed part of the way through.

Where respondents partially completed the survey, we have included valid responses for that section. For example, if a respondent completed the survey up to half way through section F, their response was included in the survey up to Section E. When reading this data, please ensure you make note of the bases at each section as these will change.





3. Plenary focus group with the WPL advisory board

Objective: To present back the initial findings from the quantitative survey to understand the potential impact of the results and recommendations that they could inform.

Sample: Ipsos interviewed a sample of leaders four WPL respondents from three countries who chose to take part in a 90-minute online focus group. Attendees of the exploratory focus group were contacted again by WPL via email to invite them to participate in a follow-up session. Of the original ten, four participated in this follow up session.

Qualitative research is designed to be illustrative and tells us what people think and why they do so. Qualitative research is reflective of the views of any given population rather than being representative. Throughout the report we have made use of verbatim comments to exemplify a particular viewpoint. It is important to be aware that these views do not necessarily represent the views of all participants.



The Findings

The impact of COVID-19

The impact of the COVID-19 pandemic on vaccination programmes has been unprecedented. We now have a substantial opportunity to integrate lessons learnt in order to establish an effective foundation for the future of vaccine policy and communications by strengthening preparedness of political leaders. Using COVID-19 as a real-world example we are to point to areas of strength and potential opportunities for political leaders to have greater impact.

Of the participants surveyed, 61% agreed that 'some routine immunisation appointments may have been missed due to the need to self-isolate during the COVID-19 pandemic' and 66% agreed that 'the avoidance of healthcare settings due to perceived risk of COVID-19 means that some appointments for routine vaccinations have been missed^{Will}. But there is confidence that the perceived need for vaccines would not have waivered amongst the public – only 30% of surveyed participants agreed that 'some routine vaccination appointments may have been missed due to reduced confidence in vaccines during the COVID-19 pandemic^{Vill}.

A potential blind spot for participants is around the need for catch-up programmes and emphasising that even if a vaccine has been missed it can still be received at a later date. Whilst 52% are prepared with their planning to ensure current national vaccination programmes are not further disrupted by mass COVID-19 vaccination, only 37% disagreed that 'all missed routine vaccination appointments will not have been rescheduled'vii.

Despite 59% of surveyed participants saying they are prepared in 'communication to increase public confidence in COVID-19 vaccines' and 56% are prepared for 'communication to increase public confidence for all other vaccines (COVID-19 aside)'^{vii}, if the services are not offered or encouraged then it could weaken these communication efforts.

It's stated that procurement of COVID-19 vaccines will not detract from funding for routine immunisation services and there's belief that current infrastructure can accommodate both programmes:

• 66% agreed that 'procurement of COVID-19 vaccines will not detract from funding for non-COVID vaccines currently on the national vaccination programme for adults'

vii Source Ipsos. QE1. To what extent do you agree or disagree with the following statements? % who selected 'Tend to agree/strongly agree' of a 5-point scale. Base: All WPL network and their affiliates who chose to participate n=82



- 66% agreed that 'procurement of COVID-19 vaccines will not detract from funding for non-COVID vaccines currently on the national vaccination programme for children''

- + 66% agreed 'there is adequate cold-chain storage to be able to store all vaccines safely' $^{\rm ix}$
- 59% agreed 'there is adequate stock of equipment to administer all vaccines e.g. needles, syringes etc.'' $^{\mbox{\tiny VX}}$

- 67% agreed 'there are systems in place to track and store individual immunisation history i.e. who has received which vaccines and at what point in time'x

Whilst it's important for political leaders to acknowledge demand side factors, they must be realistic about supply side factors too. The survey data above shows that surveyed participants agree that vaccine stock levels, cold-chain storage and administration equipment is all in place, but this needs to be confirmed in practice.

From the participants we spoke to, there's appetite to ensure that vaccination programmes are a success. Of the surveyed participants, 92% agree that 'once a COVID-19 vaccine candidate has been approved and licensed in my country, I'd be happy to receive this vaccination personally^{rxi}. It's indicated that success cannot rely only on positive perceptions of vaccines, programmes need to be able to logistical deliver in practice.

"The results show that there is still a lot to be done by political leaders to promote immunisation programmes in our countries. In this sense, the Coronavirus pandemic has made this task even more important. The pandemic has shown us the importance of vaccination in preventing disease spread causing irreparable damage to society." Participant, LATAM

viii Source Ipsos. QE2. Thinking about the rollout of potential COVID-19 vaccines (currently approved and/or potential future candidates), please rate how prepared or not you believe the relevant central government department responsible for health in your country is in each of the following areas.' % who selected 'Fairly well prepared/very well prepared' of a 5-point scale. Base: All WPL network and their affiliates who chose to participate n=82

ix Source Ipsos. QE5. To what extent do you agree or disagree with each of the following statements relating to the logistics of the rollout of COVID-19 vaccinations in your country? % who selected 'Tend to agree/strongly agree' of a 5-point scale. Base: All WPL network and their affiliates who chose to participate n=82

x Source Ipsos. QE6. To what extent do you agree or disagree with the following statements? The statements relate to willingness to receive a COVID-19 vaccine. Please note this question does not refer to any

How well do participants understand the case for vaccination

From the development of the smallpox vaccine in the 1790s to the current SARS-Cov-2 vaccine, the role of vaccines in eradicating or significantly reducing the burden of infectious diseases and saving lives is undeniable[16]. This sentiment is echoed by the surveyed participants, of whom 96% consider having an effective a vaccination programme for vaccine-preventable diseases to be important in their respective country ^{xi} [Figure 1].

Figure 1: Perceived Importance of national vaccination programmes - % Importantxi



QC1. To what extent do you consider having an effective vaccination programme for vaccine-preventable diseases in your country to be important or not? % 'Don't know/prefer not to say/not at all important/not very important/fairly important/very important' Base: Respondents of WPL and their affiliates who chose to take part in this survey: n=101

xi Source Ipsos. QC1. To what extent do you consider having an effective vaccination programme for vaccine-preventable diseases in your country to be important or not? % who selected 'Fairly important/very important' of a 5-point scale. Base: All WPL network and their affiliates who chose to participate n=101

However, despite the vital role of vaccines, when wider political topics are brought into perspective, the need for immunisation becomes adrift amongst other issues. Of the participants surveyed, only 11% selected 'growing vaccine hesitancy amongst the population' as one of the top 3 biggest threats to public health from a list of 10 options. This is versus 53% who selected the 'incidence of non-communicable diseases such as cancer, obesity, diabetes and heart diseases' as a top 3 biggest threat, 48% for 'mental health and wellbeing' and 40% for 'primary healthcare provision that is not sufficiently wide-reaching for the population' from the same list of 10 pre-coded options^{xii}.

Understandably, participants are currently most actively engaged in affairs relating to recovery from the pandemic. Over the last 12 months 69% have actively engaged in policy topics relating to 'economic recovery following the impact of the COVID-19 pandemic', 59% in 'access to education and equal opportunities for social mobility' and 57% with 'reducing the number of people living in poverty'. In contrast, only 31% have engaged with 'creating and sustaining effective vaccination programmes for vaccine-preventable diseases' ^{xiii}.

Section Conclusions

These findings highlight that there is belief in the need for vaccines and vaccination programmes, and participants do place importance on this. Whilst vaccination programmes themselves as seen as important and foundational to health, in the context of other political priorities the value of vaccination likely becomes diluted. Due to wider equity issues (including the impact of the pandemic), it may be possible that participants have not fully considered the overall impact vaccines have on health, the economy and society, to be able to wholly comprehend the case for vaccinations.

"I would like to maybe make just a few remarks that the importance of education is very present here, especially the education of politicians because we can see from the study that they are not aware of some of the important issues... This is a very important (issue) where we can influence and act somehow to improve this..." Participant, Europe

xii Source Ipsos. QB1b. Nowadays, what do you currently consider to be the biggest threats, if any, to public health in your country, aside from COVID-19. You may select up to three. % who selected 'growing vaccine hesitancy', % who selected 'mental health and wellbeing', % who selected 'insufficient primary healthcare provision' from a pre-coded list of 10 threats to health. Base: All WPL network and their alfiliates who chose to participate n=121

xiii Source Ipsos. QB3. Which, if any, of the following policy topics have you actively engaged in over the last 12 months? % who selected 'creating and sustaining effective vaccination programmes for vaccine-preventable

How compelled do participants feel to act to boost awareness of the importance of vaccination?

Surveyed participants were also asked how important vaccination programmes are for the population at different ages across the life span, and the responses indicate a slight variation in perceived importance [Figure 2]. The highest perceived importance is placed on immunisation programmes for infants aged 0 -2 years. The perceived level of importance then decreases for older children and adults (children aged 3-12 years, adolescents aged 13- 18 years and adults aged 19 – 64 years) before increasing in importance again for adults aged 65+ years. This finding is a further example of a potential gap in understanding the full range of benefits vaccination can offer across the entire life course of an individual.

Figure 2: Importance of vaccination programmes for different age groups - % 'Very Important'



QC2. To what extent do you consider having a vaccination programme against vaccine-preventable diseases your country to be important, or not, for each of the following age groups? %'Very important'

To speak further on this point, participants were also asked to what extent they have considered the health, social and economic benefits of vaccines in an official capacity. When looking at the health benefits of vaccination there is general understanding of the role of vaccines to combat infectious diseases. 78% of the participants surveyed have considered to a great extent that 'vaccines help to eradicate disease', 78% have considered that 'vaccines are able to reduce the morbidity/mortality from infectious diseases' and 70% have considered that 'getting vaccinated helps to generate herd immunity for all from infectious disease' xiv.



However, there is a decreased understanding of the wider health benefits; only 35% of participants have considered to a great extent in an official capacity that 'vaccination mitigates the rise of antimicrobial resistance', 15% that 'vaccines have the potential to prevent cancers' and 29% that 'vaccines can prevent diseases beyond the specific infections they are designed to target i.e. secondary infections' (i.e. influenza vaccines can prevent secondary complications such as pneumonia)^{kiii} [17].

Similarly, when looking at the range of benefits to society recognized by surveyed participants, the wider societal benefits of vaccination, such as the potential to help create a more equal society are not as well recognised. Of the participants surveyed, 76% have considered to a great extent that 'vaccines have the potential to improve life-expectancy' and 74% that 'vaccines act as an impactful leveller to reduce the impact of infectious disease' but only 50% have considered that 'vaccines have the potential to play a role in creating an equal society' and 36% have considered that 'vaccination programs help to drive the empowerment of women by reducing gender inequality' ^{xiii}.

The findings also suggest that the economic benefits of vaccines such as being cost effective, minimising economic impact on families, and increasing productivity gains, are less likely to be considered in comparison to health and societal benefits. Of participants surveyed:

- 60% have considered to a great extent that 'in the long run, vaccines help to save costs for government departments by being a cost-effective public health intervention' $^{\rm xiii}$
- 57% have considered to a great extent that 'vaccinations help to minimize the economic impact of illness on families' $^{\rm xiii}$
- 51% have considered to a great extent that 'vaccinating the population can lead to productivity gains in society' xiii

Section Conclusions

In essence, the far-reaching impact of vaccination is not consistently recognised, and reducing this knowledge gap could be key to further engaging political leaders to champion vaccination and inspire actions toward raising awareness of the importance of vaccination programmes. Part of the knowledge gap may be attributed to a lack of data and evidence that consistently points to this wider value of vaccination. Qualitative research findings from this study indicate that some participants acknowledge their lack of understanding and would welcome support from the scientific community to help them to champion the case for vaccination.

xiv Source Ipsos. QC3. To what extent, if at all, have you considered the following statements as benefits of vaccines in an official capacity? % who selected 'to a great extent' from a 5-point scale. Base: All WPL network and their affiliates who chose to participate n=101

"I would be more motivated if] the science is clearly articulated and is able to be offered in a way that is accessible to all. Both in message and form of information." Participant, Western Pacific region.

Participants in our study have also mentioned their desire for more information on how vaccines are developed, their safety considerations and effectiveness data in order to reach their personal goals of being an adequate vaccination champion and feel even more confident to counter vaccine hesitancy sentiments.

"I would be prepared to defend vaccination programmes if scientists gave us the certainty of the reliability and effectiveness of these vaccines." Participant, Africa.

How well positioned do participants feel to counter vaccine hesitancy sentiment?

As well as highlighting their own need for better support from the scientific community, participants recognise that the public is more likely to perceive the scientific community as the most trusted source of information about vaccines [Figure 3]. Additionally, only 25% of the participants surveyed believe that the general public trusts politicians to tell the truth^{xvi}. There is a suggestion that recognition politicians are among the lowest on the index of public trust is only reinforced through participant's lack of appreciation of the important role they can play in supporting awareness of trust in and access to vaccination. This is despite 92% of surveyed participants agreeing that it is the 'government's responsibility to ensure the public receives all necessary vaccines'^{xv}.

"With the role of politicians, (I) expected that most politicians would not feel that comfortable in promoting vaccination, thinking that it would backfire, as politicians they are not the most trusted persons in general society. It's always the healthcare professionals and of course the academics." Participant, Europe.

xv Source Ipsos. QD1. To what extent do you agree or disagree with the following statements? 'It is the government's responsibility to ensure the public receives all necessary vaccines' % who selected 'Tend to agree/strongly agree' from a 5-point scale. Base: All WPL network and their affiliates who chose to participate n=97

xvi Source Ipsos. QA4. For each of the following groups, please tell me if you think the general public generally trusts them to tell the truth, or not. % who selected 'Trust to tell the truth', % who selected 'Do not trust to tell the truth' and % who selected 'Don't know' for each of 10 codes from a pre-coded list. Base: All WPL network and their affiliates who chose to participate n=151



Figure 3: Perception of who the public trusts to tell the truth (in general)



QA4. For each of the following groups, please tell me if you think the general public generally trusts them to tell the truth, or not. Base: Respondents of WPL and their affiliates who chose to take part in this survey: n=151

Additionally, when asked about their own confidence in the science, safety and efficacy of vaccines in the context of public use, surveyed participants typically rated high levels of confidence in the above aspects. Of the participants surveyed, 94% are 'confident in the science of vaccines' ; 92% agree that 'vaccinations go through a rigorous process in order to determine whether they are effective for public use' and 94% agree that 'vaccinations go through a rigorous process in order to determine whether they are safe for public use' ^{xviii}.

xvii Source Ipsos. QD2. To what extent would you say you, in your political role, are confident in the science of vaccines, or not? % who selected 'Very confident/fairly confident' from a 5-point scale. Base: All WPL network and their affiliates who chose to participate n=97

xviii Source Ipsos. QD1. To what extent do you agree or disagree with the following statements? % who selected 'strongly agree/tend to agree' from a 5-point scale for 'vaccinations go through a rigorous process in order to determine whether they are safe for public use'. Base: All WPL network and their affiliates who chose to participate n=97

Section Conclusions

The majority of participants surveyed view themselves as imperfect messengers to convey information about vaccinations and counter vaccine hesitancy sentiment. The participants believe that professionals from the scientific community are not only better equipped to address questions or concerns that the public may have, but also that scientific and healthcare professionals are viewed as a trusted and important source of information on vaccines. Whilst politicians are not ranked high in terms of public trust the focus group participants recognised that they can still wield significant, positive influence by using their visibility and reach to reinforce messages coming other credible and trusted sources, such as healthcare professionals.

"If politicians try to set an example by taking the vaccine first then the public say we look out for ourselves before them but if we don't take the vaccine then the public question whether the vaccine is safe" Participant, Europe.

Through which channels can participants create impact for vaccination?

The pandemic appears to have had a positive impact on the current perceived importance of vaccination programme policy against vaccine-preventable disease, especially compared to the importance placed on vaccination programme policy by WPL respondentswho responded to our survey two years prior to the outbreak [Figure 4].

Of participants surveyed, 93% said that vaccination programme policy against vaccine-preventable disease is currently 'very important' in their country and a similar proportion (93%) expect that it will be 'very important' two years from now . 42% of participants selected 'creating public trust in vaccination' as the key focus for vaccination programme policy moving forward .

xix Source Ipsos. QF4. Please rate how important a vaccination programme policy against vaccine-preventable diseases in your country is at the following points in time. % who selected 'Very important' from a 5-point scale. Base: All WPL network and their affiliates who chose to participate n=78

xx Source Ipsos. QF6. Which of the following areas, if any, in your opinion, should be the key focus of vaccination policy against all vaccine-preventable diseases in the future? % who selected 'creating public trust in vaccination' from a single-select pre-coded list of 8 policy areas. Base: All WPL network and their affiliates who chose to participate n=78

Figure 4: Perceived importance of vaccination programme policy over time - % 'Very important'xix

Respondents of WPL and their affiliates who chose to take part in this survey: n=78



QF4. Please rate how important a vaccination programme policy against vaccine-preventable diseases in your country is at the following points in time. '% Very important'

Considering our findings that participants in the research are wary of actively countering vaccine hesitancy, political leaders could potentially engage in efforts to implement more education and outreach programmes on vaccination. Closely related to this, the sample of WPL members agree that information systems which record, and track vaccinations should be implemented and improved in the future.

Of the participants surveyed:

• 94% agree that 'more education and outreach programmes on vaccination should be implemented'

- 88% agree that 'information systems which record and track vaccinations should be implemented' $^{\mbox{xxi}}$
- 87% agree that 'information systems which record and track vaccinations should be improved' $^{\mbox{\scriptsize xi}}$
- 88% agree that 'promotion of the value of vaccination should extend beyond health benefits' $^{\rm xxi}$
- 75% agree that 'community champions of vaccination should be created in all local communities'^{xxi}

xxi Source Ipsos. QF5. Considering vaccination programmes against all vaccine-preventable diseases in the future, to what extent do you agree or disagree with the following statements? % who selected 'Tend to agree/strongly agree' from a 5-point scale. Base: All WPL network and their affiliates who chose to participate n=78



Section Conclusions

These steps would help to ensure vaccination across the life-course becomes truly embedded in national immunisation programmes [18]. Additionally, we earlier pointed out the impact COVID-19 has had on delays in accessing healthcare services, including routine vaccinations There is also room for engagement in this space to champion helping people safety return to care, catch up on missed appointments and clear backlogs of un and under immunised children and adults.

Furthermore, there may be opportunity for political leaders to engage with 'community champions'; people within the community who already hold high trust, who may be better placed to address vaccine hesitancy issues amongst the local population. This would facilitate involvement from political leaders without them needing to tackle the issue publicly themselves. This intervention received strong support from political leaders in non-European regions, where there are potentially fewer healthcare workers per capita which illustrates the need for a local champion to engage on a more personable level and motivate and empower their communities.





What's next: Recover and maintain immunisation programmes

The Multi-Country Survey on Immunisation results highlight that participants believe the key focus of vaccine policy moving forward should be centred around creating public trust in vaccination. Generating trust in vaccination requires confidence to be built across four key areas: the product, the programme, the policy and the provider.

- Product: Ensuring there is confidence and understanding in the rigorous standards of independent scientific evaluation applied to all stages of the development and approval of every vaccine
- Programme: Ensuring there is confidence and understanding of the importance of vaccination and the protective benefits that vaccination can offer through building trust in every aspect of the vaccination ecosystem and the disseminating of accurate information through credible and impactful channels such as community champions
- Policy: Developing and enacting evidence-based policies that allow for vaccines to be authorised, procured, and delivered effectively where needed.
- Provider: Safeguarding healthcare infrastructure, particularly in the community, to ensure there are adequate and capable services and personnel, to effectively recommend, administer and communicate around safety and efficacy of vaccines to the public

Whilst surveyed participants may feel like imperfect messengers to directly speak out about vaccine sentiment issues, political leaders still hold a critical and central role to contribute towards building and supporting the foundations for public trust in vaccination. The recommendations outlined below can all enhance trust by strengthening the pillars of product, programme, policy and provider. As elected leaders with a mandate and authority, political leaders can act to equip and support systems and society to build confidence.

1: Develop an understanding of how vaccines can contribute to addressing government priorities such as health inequality and reducing burden of disease within the local context

Gain a thorough knowledge of how vaccinations can contribute to supporting governments meet goals of poverty reduction, reduced inequality and reduce future burden of disease. A report by John Hopkins University found that for every \$1 invested in vaccination in Gavi eligible countries (94 lowest income countries), the governments have a return on investment averaging \$44 per dollar invested gained through averting healthcare costs, lost wages, lost productivity and long-term burden of disability [7]. Analyses have also concluded the same for developed countries; vaccination protects health which in turn has a wealth of economic and societal value for populations in the short and long-term [19]. Vaccination programmes provide rapid and sustained return of investments globally.

To complement recommendations 2-5 below, it would be beneficial for political leaders to feel comfortable in their knowledge and able to point to evidence that vaccination programmes should be prioritised due to their value economically and in achieving a healthy, equitable society.

- Consult with National Immunisation Technical Advisory Groups (NITAGs) and managers of the National Immunisation programme (NIP) to be briefed on the benefits of vaccination with your country or region and the role you can play in supporting these
- Convene and coordinate a group of health and social experts to examine the link between vaccination and socioeconomic inequality to provide an evidential basis for discussion around the value of vaccination to society
- Consider data that can be collected and reported to monitor the ongoing impact of vaccination within communities
- Convey findings of this research to your colleagues and the wider public to communicate the value of vaccination and lessons learnt from the COVID-19 pandemic

"People have mostly forgotten what the benefits of vaccines are. Women Political Leaders can communicate more around disease outbreaks within their own communities to emphasise why vaccines are so important.

The media focuses on adverse effects of vaccination but forgets to highlight the successes vaccines have contributed to in disease eradication. It's a cause and effect relationship – if we fail to vaccinate a certain percentage of the population, we could have outbreaks that cause suffering in communities not only in terms of health, but also in terms of economic and long-term development." Participant, Europe



2: Strengthen health systems that support national routine immunisation programmes across the life- course and address challenges to vaccine distribution and administration

Strengthening the infrastructure of routine immunisation services, both for children and adults throughout their life-course, can alleviate access issues and promote service efficacy, which in turn reassures the public that when they seek vaccination when required to at any age, it will be attained.

• Expand access to vaccination through innovative mechanisms to optimise service delivery. [20] [21] Identify alternative locations for vaccination services and consider expanding scope of practice for health professionals to maximise access to vaccination services. [22] [21] [23]

• Review vaccine stock levels on a quarterly basis (at a minimum) and improve monitoring and forecasting to ensure stock-outs do not pose a barrier to routine vaccination programmes. [24] [20]

• Implement policies that support robust supply chains and free flow of supplies during emergencies to reduce distribution disruptions. [25] International collaboration should foster an environment of stable and transparent trade policies [25] to ensure sustained movement of vaccination programme supplies.

• Administer routine vaccination services safely to reduce the spread of infectious diseases, working to ensure continuous operational capacity and adequate human resources. [26] [20]

• Following disruptions in routine immunisation programmes, prioritise the implementation of a policy for catch-up vaccination that includes clear guidance on eligibility criteria and minimum intervals between doses for series vaccinations. [27] Identify best practices to ensure optimal coverage for all age groups, including adolescent and adult populations.

"Strengthening the capabilities of health workers and ensuring you have the proper strategies to mitigate the extent to which they are overworked. When enacting policies, it needs to speak to them. We need to reinforce the numbers, give adequate training and consider a quality work environment. They are the ones who will be carrying out these campaigns on the ground." Participant, Africa 3: Improve data systems to monitor vaccine administration, identify populations at high risk for vaccine preventable diseases and support catch-up vaccination efforts

At a population level, monitoring of specific vaccination uptake can highlight areas that may require further strengthening, focus or promotion to boost coverage rates. This information system can contribute towards provider service efficiency and product procurement planning strategies.

• Develop mechanisms to identify and follow-up on missed vaccinations [28], including developing micro-plans and dashboards to continually assess the need for catch-up strategies [8].

• Use digital technologies, including digital information systems, to ensure vaccination programme monitoring [24].

"For data collection, let's try and involve community-based actors. They are so important in terms of identifying the audiences and following up with these audiences to maintain vaccine uptake." Participant, Africa





4: Establish sustainable health sector financing mechanisms to fund routine immunisation programmes across the life-course

For vaccination service providers to effectively perform their role, they in part rely on adequate financial resources from policy budget allocations being strategically invested to in turn promote public will and uptake. Strategic investment relies on collaboration across a multitude of stakeholders.

• Plan for and ensure an increase in budgetary allocations for vaccination programmes in upcoming budget cycles to support national routine immunisation programmes and additional costs incurred by the pandemic [29].

• Align domestic and donor funding to coordinate a sector-wide response [30] and restore vaccination to pre-pandemic coverage rates.

• Build political will and increase public awareness through special hearings and committees to garner strong consensus and financial support for specific policy measures [31], including vaccination.

• In addition to regularly updating budgetary space for health assessments [32], engage with decision-makers at the national and local levels to identify evidence-based approaches to resource allocation and determine how domestic and external financing will be utilised [33].

"International commitment. We talk about national priorities, but we need to expand this thinking. We need more international solidarity to ensure vaccination becomes a real human right in an equitable global society. There are international commitments that are still not met, and I'd like to see these strongly adhered to in terms of financing through international aid and sharing information. Let's fight for it." Participant, Africa

5: Improve trust in public health by promoting the benefits of vaccination

Whilst the key foundation to promoting trust relies upon effective and wellresourced vaccination services, it is these services that become the interface to the public at a local and community level. Healthcare providers can work with community stakeholders to address any public sentiment issues and convey accurate information around vaccines.

• Train healthcare workers to minimise COVID-19 spread [20] and reassure patients they can use health services safely [34].

• Tailor communication strategies at the local level to promote acceptance and address misinformation regarding vaccination [20].

• Assess local root causes of hesitancy and engage trusted community members to help deliver data-driven messaging that highlights the importance, safety and efficacy of routine vaccination [35] [36].

"Women Political Leaders need to drive recruiting and onboarding healthcare workers and other community actors to promote the benefits of vaccination to communities. We need to be mindful that many populations will not have indepth medical understanding, so the messages need to be clear and simple. Antivaccination movements have enacted this style of impactful messaging effectively, but unfortunately they are promoting misinformation." Participant, Europe



WPL Women Political Leaders

Appendix 1: Research technical note

On behalf of Women Political Leaders (WPL), supported by MSD, Ipsos MORI conducted two focus groups and an online multi-country survey amongst the WPL network and affiliates between 12 November 2020 and 26 April 2021. Respondents associated with WPL are women in political office. Detailed criteria of the sample and methodology can be found below.

Exploratory Focus Group

Ipsos interviewed a sample of n=10 political leaders across 9 countries who chose to take part in a 90-minute online focus group.

A pool of n=13 persons of the WPL network were identified as being eligible for the advisory board due to their expertise, association or background in health and vaccination policy.

This pool was invited by WPL via email to participate, in the focus group. 10 then confirmed they were willing and able to attend the focus group on the 12th November 2020.

Fieldwork Date: 12/11/2020

Quantitative Survey

Ipsos interviewed a sample of n=151 parliamentarians across 59 countries globally who chose to take part in an online 15-minute survey. To participate, respondents needed to be a parliamentarian or contactable through the WPL network. Recruitment from the database meant that only females were contacted but the inclusion of representatives of the contacted parliamentarian completing the survey on their behalf was permitted. These representatives included males and non-parliamentarians. Note that the US was excluded from fieldwork due to conflicting timelines with the 2021 election at the time of fielding.

Participants were validated of their political role and job title during screening – 'Please can you confirm your current position or job title?'

Fieldwork Dates: 09/12/2020 to 15/03/2021

	All valid re- sponses	Africa (Africa + Eastern Mediterra- nean)	Europe	Latin America*	Asia Pacific (South East Asia + Western Pacific)
Section A	151	25	84	20	18
Section B	121	21	66	16	15
Section C	101	18	55	14	11
Section D	97	17	52	14	11
Section E	82	14	45	10	10
Section F	78	13	44	10	8
Section G	77	13	43	10	8

*Note that the US was excluded from fieldwork due to conflicting timelines with the 2020 Presidential election at the time of fielding.

Note on inclusion of all valid responses

Participants were able to complete the survey in their own time and at their own discretion. We provided individual links to participants to allow them to exit and re-enter the survey. This meant that some participants did not complete the survey in full but may have progressed part of the way through.

Where participants partially completed the survey, we have included the valid responses for that section. For example, if participants completed the survey up to half way through section F, we included their responses to the survey up to Section E. When reading this data, please ensure you make note of the bases at each section as these will change.

Plenary Focus Group

Ipsos interviewed a sample of n=4 parliamentarians across 3 countries who chose to take part in a 90-minute online focus group. Attendees of the group on the 12th November 2020 were contacted again by WPL via emaill to invite them to participate in a follow-up session. Of the original ten, four were able to confirm their attendance.

Fieldwork Date: 26/04/2021

Qualitative research is designed to be illustrative and tells us what people think and why they do so. Qualitative research is reflective of the views of any given population rather than being representative. Throughout the report we have made use of verbatim comments to exemplify a particular viewpoint. It is important to be aware that these views do not necessarily represent the views of all participants.



References

[1] WHO, "3. At least 80 million children under one at risk of diseases such as diphtheria, measles and polio as COVID-19 disrupts routine vaccination efforts, warn Gavi, WHO and UNICEF," [Online]. Available: https://www.who.int/news/item/22-05-2020-at-least-80-million-children-underone-at-risk-of-diseases-such-as-diphtheria-measles-and-polio-as-covid-19disrupts-routine-vaccination-efforts-warn-gavi-who-and-unicef. [Accessed October 2020].

[2] R. Nelson, "COVID-19 disrupts vaccine delivery," The Lancet Infectious Diseases, vol. 20, no. 5, p. 546, 17 April 2020.

[3] K. Abbas, "Routine childhood immunisation during the COVID-19 pandemic in Africa: a benefit–risk analysis of health benefits versus excess risk of SARS-CoV-2 infection," The Lancet Global Health, vol. 8, no. 10, pp. e1264-e1272, 2020.

[4] A. de Figueiredo, C. Simas, E. Karafillakis, P. Paterson and H. Larson, "Mapping global trends in vaccine confidence and investigating barriers to vaccine uptake: a large-scale retrospective temporal modelling study," The Lancet, vol. 396, no. 10255, pp. 898-908, 2020.

[5] O. Wouters, K. Shadlen, M. Salcher-Konrad, A. Pollard, H. Larson, Y. Teerawattananon and M. Jit, "Challenges in ensuring global access to COVID-19 vaccines: production, affordability, allocation, and deployment," The Lancet, vol. 397, no. 10278, pp. 1023-1034, 2021.

[6] GAVI, "Value of vaccination: Cost-effective," February 2020. [Online]. Available: https://www.gavi.org/vaccineswork/value-vaccination/costeffective. [Accessed May 2021].

[7] S. Ozawa and ., "Return On Investment From Childhood Immunization In Low- And Middle-Income Countries, 2011–20," Health Affairs, vol. 35, no. 2, pp. 199-207, 2016.

[8] WHO, "Maintaining essential health services: operational guidance for the COVID-19 context: interim guidance," 1 2020 June. [Online]. Available: https://apps.who.int/iris/handle/10665/332240. [Accessed October 2020].

[9] GAVI, "8. Use of Gavi Support to Maintain, Restore and Strengthen Immunisation in the Context of COVID-19," 2020. [10] S. Khetrapal and R. Bhatia, "Impact of COVID-19 pandemic on health system & Sustainable Development Goal 3," Indian Journal of Medical Research, vol. 151, no. 5, pp. 395-399, 2020.

[11] S. Chandir, D. Siddiqi, H. Setayesh and A. Khan, "Impact of COVID-19 lockdown on routine immunisation in Karachi, Pakistan," The Lancet Global Health, vol. 8, no. 9, pp. e1118-e1120, 2020.

[12] M. Hossain, F. Abdulla, M. Karimuzzaman and A. Rahman, "Routine Vaccination Disruption in Low-Income Countries: An Impact of COVID-19 Pandemic.," Asia Pacific Journal of Public Health, vol. 32, no. 8, pp. 509-510, 2020.

[13] A. Adamu, R. Jalo, D. Habonimana and C. Wiysonge, "COVID-19 and routine childhood immunization in Africa: Leveraging systems thinking and implementation science to improve immunization system performance," Int J Infect Dis, vol. 98, pp. 161-165, 2020.

[14] C. Weller, "While we wait for a COVID-19 vaccine, let's not forget the importance of the vaccines we already have," 2020.

[15] T. Gebrekal, "What Worries the World – April 2021," April 2021. [Online]. Available: https://www.ipsos.com/en/what-worries-world-april-2021#:~:text=In%20April%202021%2C%2045%25%20say,and%20Turkey%20 (%2B11%20points).. [Accessed May 2021].

[16] A. Markel and M. Stern, "The History Of Vaccines And Immunization: Familiar Patterns, New Challenges," Health Affairs, vol. 2, no. 3, 2005.

[17] C. Plotkin and S. Rodrigues, "Impact of Vaccines; Health, Economic and Social Perspectives," Frontier Microbiology, 2020.

[18] J. Tate, "The life-course approach to vaccination: Harnessing the benefits of vaccination throughout life," Vaccine, vol. 37, no. 44, pp. 6581 - 6583, 2019.

[19] M. Toumi and W. Ricciardi, "The Economic Value of Vaccination: Why Prevention is Wealth," J Mark Access Health Policy, vol. 3, 2015.

[20] WHO, "Immunisation as an Essential Health Service: Guiding Principles for Immunisation Activities during the COVID-19 Pandemic and Other Times of Severe Disruption," Accessed November 2020. [Online]. Available: https://www.who.int/publications/i/item/immunization-as-an-



[21] P. Rawal, J. Rak, E. Docteur and L. Zawistowich, "Expanding Community-Based Immunization To Meet Today's Vaccine Challenges," Health Affairs, [Online]. Available: https://www.healthaffairs.org/do/10.1377/ hblog20200820.465392/full/. [Accessed October 2020].

[22] H. Hamid, T. Mallhi and M. Naseer, "The COVID-19 pandemic threatens the Expanded Program on Immunization: recommendations for sustaining vaccination goals," Drugs Ther Perspect, vol. 36, pp. 523-525, 2020.

[23] A. M. Association, "HHS declaration on pharmacists' scope of practice & COVID-19," [Online]. Available: https://www.ama-assn.org/practice-management/scope-practice/hhs-declaration-pharmacists-scope-practice-covid-19. [Accessed October 2020].

[24] GAVI, "Use of GAVI to Support, Maintain, Restore and Stregnthen Immunisation in the Context of COVID-19," [Online]. Available: https://lnct. global/wp-content/uploads/2020/11/Gavi-Guidance-immunisation-during-COVID-19.pdf. [Accessed November 2020].

[25] A.-P. E. Cooperation, "Statement on COVID-19 by APEC Ministers Responsible for Trade," [Online]. Available: https://www.apec.org/Meeting-Papers/Sectoral-Ministerial-Meetings/Trade/2020_trade#:~:text=We%2C%20the%20Asia%2DPacific%20Economic,losses%20due%20to%20the%20pandemic.&text=We%20will%20work%20closely%20to,any%20unnecessary%20barriers%20to%20trade.. [Accessed November 2020].

[26] UNICEF, "Immunisation Coverage: Are we losing ground?," [Online]. Available: https://data.unicef.org/resources/immunization-coverage-are-welosing-ground/. [Accessed November 2020].

[27] CDC, "Interim Operational Considerations for Public Health Management of Healthcare Workers Exposed to or with Suspected or Confirmed COVID-19: non-U.S. Healthcare Settings," [Online]. Available: https://www.cdc.gov/

[28] CDC, "Operational Considerations for Routine Immunization Services during COVID-19 in Non-US Settings Focusing on Lower-Middle Income Countries," [Online]. Available: https://www.cdc.gov/ coronavirus/2019-ncov/global-covid-19/maintaining-immunization-services. html. [Accessed October 2020].

[29] A. Suwantika, C. Boersma and M. Postma, "The potential impact of COVID-19 pandemic on the immunization performance in Indonesia," Expert Rev Vaccines, vol. 19, no. 8, pp. 687-690, 2020.

[31] T. Curristine, L. Doherty, B. Imbert, F. Sheik Rahim, V. Tang and C. Wendling, "Budgeting in a Crisis: Guidance for Preparing the 2021 Budget," 2020.

[32] A. Gheorge, K. Chalkidou, A. Glassman, T. Lievens and A. McDonnell, "COVID-19 and Budgetary Space for Health in Developing Economies | Center For Global Development.," Centre for Global Development, 2020.

[33] K. Chalkidou and C. Krubiner, "What COVID-19 Should Teach Us About Smart Health Spending in Developing Countries," Center for Global Development, 2020.

[34] UNICEF, "Immunisation coverage: Are we losing ground?," 2020.

[35] K. Bliss, J. Morrison and H. Larson, "Call to Action: CSIS-LSHTM High-Level Panel on Vaccine Confidence and Misinformation," Center for Strategic & International Studies, 2020.

[36] M. Jalloh, E. Wilhelm, N. Abad and D. Prybylski, "Mobilize to vaccinate: lessons learned from social mobilization for immunization in low and middle-income countries," Hum Vaccin Immunother, vol. 16, no. 5, pp. 1208-1214, 2020.

[37] WHO, "WHO and UNICEF warn of a decline in vaccinations during COVID-19," 15 July 2020. [Online]. Available: https://www.who.int/news/ item/15-07-2020-who-and-unicef-warn-of-a-decline-in-vaccinations-during-covid-19. [Accessed April 2021].07-2020-who-and-unicef-warn-of-a-decline-in-vaccinations-during-covid-19. [Accessed April 2021].

[38] E. Oster, "Does increased access increase equality? Gender and child health investments in India," Journal of Development Economics, vol. 89, no. 1, pp. 62-76, 2009.

[39] D. Bishai, M. Koenig and M. Ali Khan, "Measles vaccination improves the equity of health outcomes: evidence from Bangladesh," Health Economics, vol. 12, pp. 415-419, 2003.

WPL GLOBAL IMMUNISATION STUDY







