

From vaccine hesitancy to vaccine uptake: The role of communication

Thomas Abraham



Image: ChatGpt

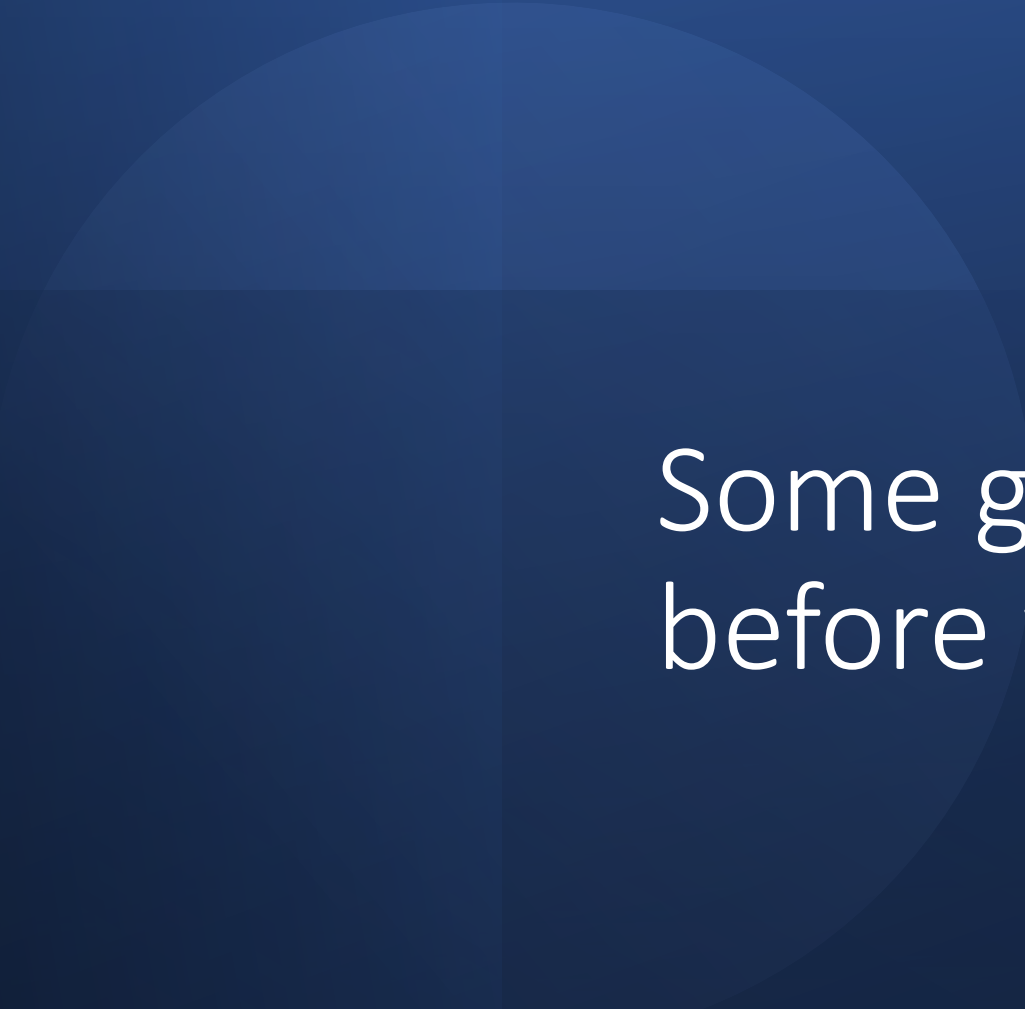
1. What we will talk about this afternoon

- Ideas and beliefs about vaccines circulate in the online world, but are shaped by the wider political, social and cultural environment in which we live.
- What we chose to believe or not believe is rooted in deeper ideas about who we are and the values we hold.
- Communication is the bridge health agencies use to address vaccine hesitancy: vaccine hesitancy can also arise from poor public health communication.
- To communicate successfully, we need to understand not merely the drivers of vaccine hesitancy, but also how to listen to and talk to the public and address their concerns (which in many cases are genuine concerns).

2. What we will do

1. Look at two examples of how political and social beliefs, as well as perception of risk determine our attitudes to vaccines.

2. Try a communication exercise to try and convert data on why people are vaccine hesitant to messages.



Some general observations
before we begin

Something to keep in mind: we communicate in a noisy, busy environment



In today's world, no one narrative can dominate.



The internet made everyone an expert, and globalised information flows allow people to access information from everywhere.



Individuals and groups in society make their own risk assessments and choices based on their values and perceptions.



Health communicators need to be a strong presence in this environment.



“We live in a new type of social order, where systems of expertise and science have lost their monopoly on truth...In a de-traditionalized society we are all to some extent experts.”

(Hobson-West, P., 2003. [Understanding vaccination resistance: moving beyond risk](#) *Health, Risk & Society*. 5(3), 273-283)

How does the discussion today fit in with the models and frameworks we looked at yesterday?

- These are all different lenses we can use to look at people's beliefs and behaviour with respect to vaccines.

The 5 C model

Confidence: Trust in vaccines and the system

Complacency: Not at risk from the disease

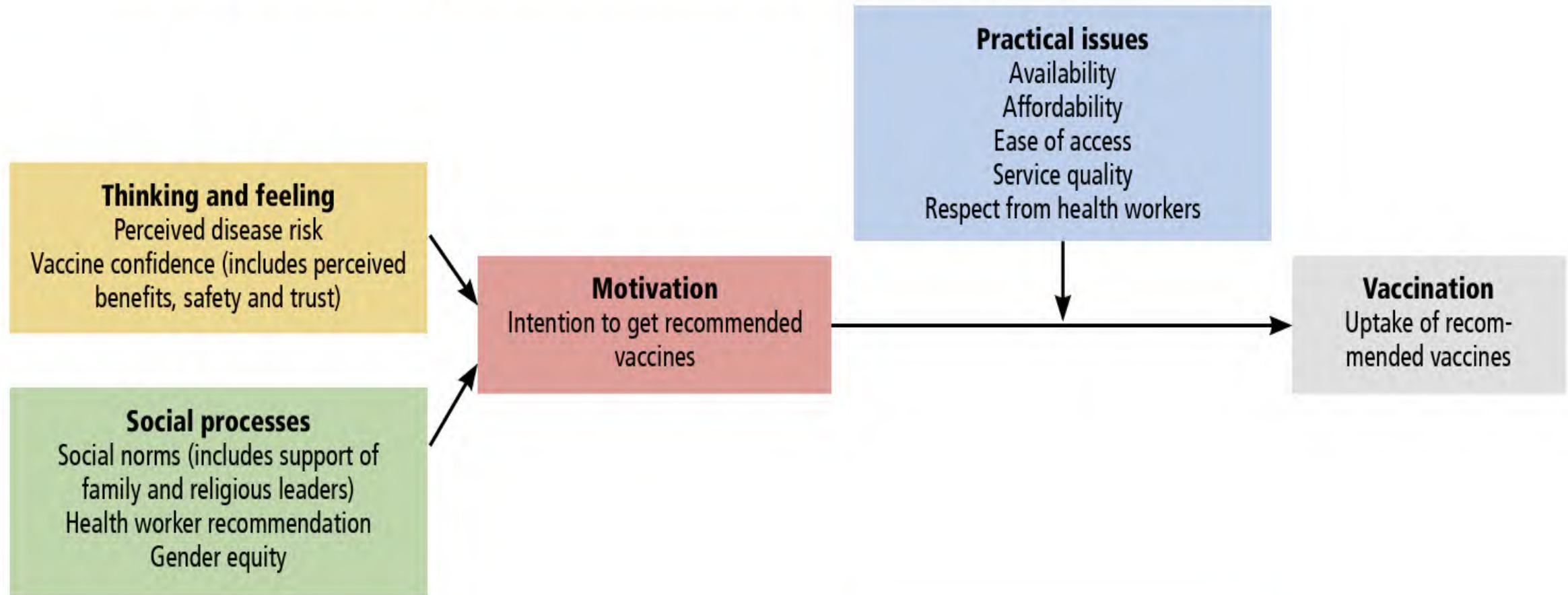
Constraints: Difficulties in accessing vaccines

Calculation: Active information seeking and decision taking

Collective responsibility: Responsibility to others to get vaccinated

Figure 1 **The WHO behavioural and social drivers of vaccination framework**

Figure 1 **Cadre OMS des facteurs comportementaux et sociaux de la vaccination**



The multiple roots of vaccine hesitancy: Polio eradication in Nigeria and Pakistan

The Global Polio Eradication Initiative

- In 1988, the World Health Assembly (which is the annual meeting of all WHO member countries) passed a resolution calling for polio to be eradicated by 2000.
- The Global Polio Eradication Initiative, a partnership of the WHO, UNICEF, the US CDC, Rotary International and the Gates Foundation, was created to achieve this goal of a polio free world.
- The strategy was to immunise children across the world; if a sufficient proportion of the world's children were immunised, the polio virus would no longer be able to transmit and would die out.

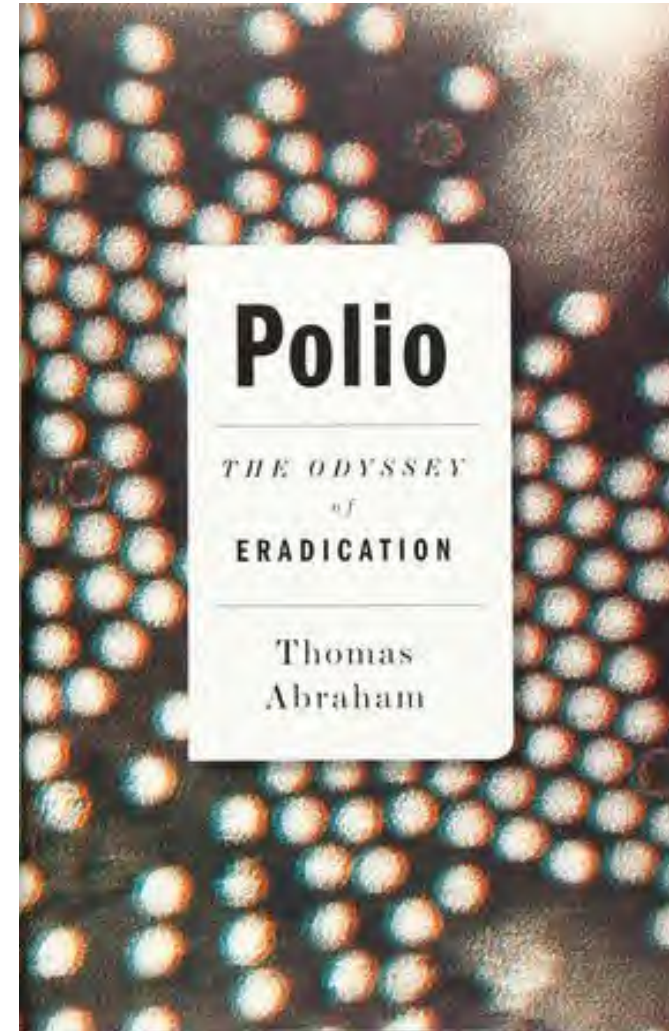
Twenty six years after the eradication deadline, the poliovirus still exists.

As of July 26:

- Afghanistan : four WPV1 cases and 7 WPV1-positive environmental samples
- Central African Republic (CAR): one cVDPV2 case
- Nigeria: two cVDPV2 cases and one cVDPV2-positive environmental sample
- South Sudan: one cVDPV1-positive environmental sample.
- The numbers are very small. So why is this an issue?

I wanted to find out
why polio persisted

I travelled to Nigeria and
Pakistan, two of the polio
hotspots to see what was
happening (and later wrote a
book on the polio eradication
campaign).



The politics of polio eradication

- The global polio eradication campaign got trapped in the geo-political turmoil of the world after the 9/11 attacks.
- In 2003 Muslim religious leaders in northern Nigeria, banned polio vaccination, as the polio eradication campaign was seen as a campaign funded by wealthy western countries.
- They said the vaccine was meant to make girls sterile so the Muslim population reduced, and was the west's revenge for the 9/11 attacks.
- This suspicion also built on an earlier incident when Pfizer had tested an experimental meningitis vaccine in Nigeria that was said to have caused the death of 11 children and left many others disabled.

Nigeria polio vaccinators shot dead in Kano

🕒 8 February 2013



In Pakistan

- Polio eradicators were targeted as western spies and killed.
- The CIA had used a secret operation with a fake HPV vaccination programme to try and find Osama Bin Laden in Pakistan.
- Vaccinators funded by a fake NGO were sent house to house in a part of the country where Bin Laden was hiding to try and find him.
- This caused a huge backlash against the polio programme, and vaccinators were targeted and killed.

SOUTH & CENTRAL ASIA

Attacks on Pakistan polio teams kill vaccinator, 2 police officers

By Ayaz Gul

December 16, 2024 11:58 AM

➔ Share



These are two extreme examples

- You can argue that this was not really vaccine hesitancy at all: it was fear of getting killed that prevented people from getting vaccinated.
- But vaccination is often a political act.
- When the government recommends vaccination people who refuse are often making a political statement: a lack of trust in the government.
- Similarly, vaccine acceptance is often a reflection of trust in the government and authorities.

The politics of anti vaccination activism

- “..If the state can tag, track down and force citizens against their will to be injected with biologicals of unknown toxicity today, there will be no limit on which individual freedoms that State can take away in the name of the greater good tomorrow.”
- *Barbara Loe Fisher, Co founder and President of the National Vaccine Information centre.*

Deeper reasons for hesitancy in Nigeria and Pakistan

- In terms of morbidity, polio was a minor disease compared to the other diseases that were killing children: diarrhoea, respiratory diseases, measles.
- Yet all the attention and all the resources were focused on polio eradication.
- Polio eradication was a global priority; It was not really a national priority.
- People could not understand this: nobody asked them what their health needs were.

Polio vaccinators went to people's homes to deliver vaccines.

This was not the case for other immunisations, and people wondered why.





This is Sabiu, a farmer from Kano, Nigeria

- He had refused vaccination for his children several times.
- When I asked why, he said when his children fell ill, he would have to walk a few kilometres to the main road, take a bus to the nearest town, and visit doctor who would charge a lot of money.
- Why could not the government help with this rather than only polio?
- “Why only polio, polio all the time?” he asked.







In Gadap,
Karachi
(Pakistan)





There was a huge gap between what people needed and what they received.

- This created suspicion: why was there this emphasis on polio? Perhaps it was after all a western plot against Muslims.
- This led to vaccine refusal and hesitancy.
- There was a response to the social and economic environment in which people lived.

The polio communication strategy

- Ignored these deeper reasons and did not respond to any of the questions that people were asking.
- Instead messages were put out emphasizing the importance of polio eradication which people were not listening to.



"پاکستان وگتې... ماسره یوځای پولیو ته ماتې ورکړې!" شاید آفریدی



د پولیو څخه د بچ کیدو د راتلونکې مهم څخه بشپړه گټه ترلاسه کړې!
د ټیم بدنې ته تر پینځو کالو پورې هر ماشوم ته د پولیو څخه د بچ کیدو دوه څاڅکي ضرور ورکړې.

پولیو ختم کړې، هره حده پورې لارښی!



NATIONAL POLIO CAMPAIGN

24 25 26 October
2011

Let Everyone Help!



2 Polio Drops!
Every Child – Every Time

Polio teams will visit door to door in order to
vaccinate children under 5 year old against Polio
If for any reason your child is missed then visit your nearest
Vaccination Center, Basic Health Center or Hospital to Vaccinate them against Polio

Remember! It is necessary to vaccinate children under 6 months
against Polio even if the child is ill or asleep.



MINISTRY OF
INTER-PROVINCIAL
COORDINATION
GOVERNMENT OF PAKISTAN



مجھے ہمارے بچوں کی پرواہ ہے
اسی لئے میں ہوں ایک صحت محافظ

جب تک ہر بچہ پلایو سے محفوظ نہیں ہو جاتا تاہم اسے تمام بچے خطرے میں ہیں تو جب تک ہمارے
 اہل خانہ و گزرگاہیں ۵ سال تک کے بچے کو ہر بار پلایو کے قطرے لازمی پلاؤ گیں۔

کیونکہ ہم ایک دوسرے کی زندگی سے خیرے ہوئے ہیں





مجھے ہمارے بچوں کی پرواہ ہے
اسی لئے میں ہوں ایک صحت محافظ

جب تک ہر بچہ پلایو سے محفوظ نہیں ہو جاتا تاہم اسے تمام بچے خطرے میں ہیں تو جب تک ہمارے
 اہل خانہ و گزرگاہیں ۵ سال تک کے بچے کو ہر بار پلایو کے قطرے لازمی پلاؤ گیں۔

کیونکہ ہم ایک دوسرے کی زندگی سے خیرے ہوئے ہیں




The good news is that change did happen.

- I went to Pakistan a year later and saw crowds of people in front of health centres, where children got vaccinated for polio.







What had changed?

- The polio programme began listening and responding to community needs
- Integrated health camps where polio vaccine was only one of a range of medicines that were offered not merely to children, but to mothers as well.
- People were far less hesitant about polio vaccine. They saw it as part of a wider package of health interventions.

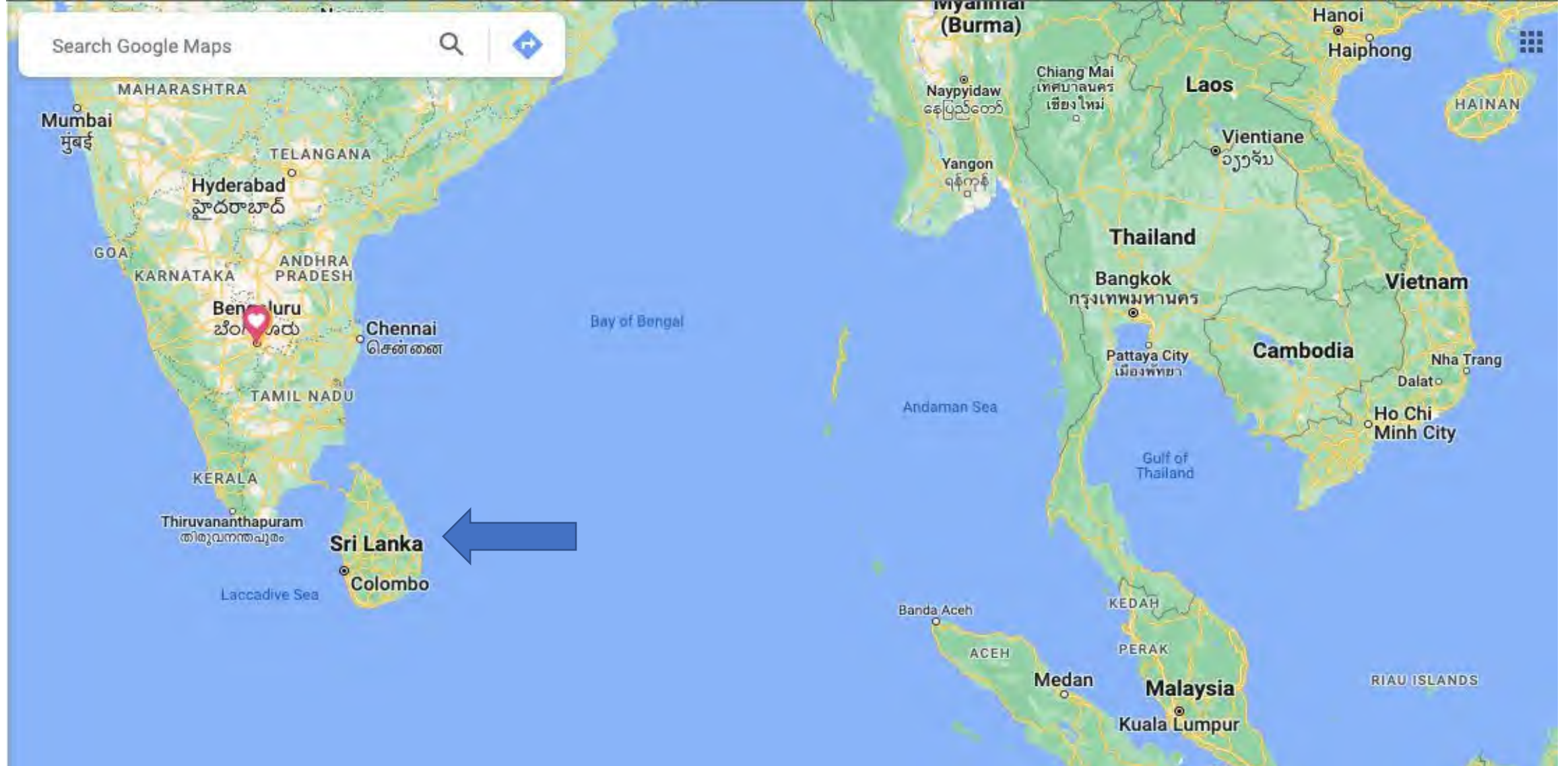
Some lessons

- To remove vaccine hesitancy, public health must listen to people's concerns and worries and respond to their needs.
- The questions that people ask about vaccines are not because they are misinformed or disinformed, but because they have genuine questions that need to be answered openly, honestly and transparently.

Questions and discussion

A case study from Covid-19

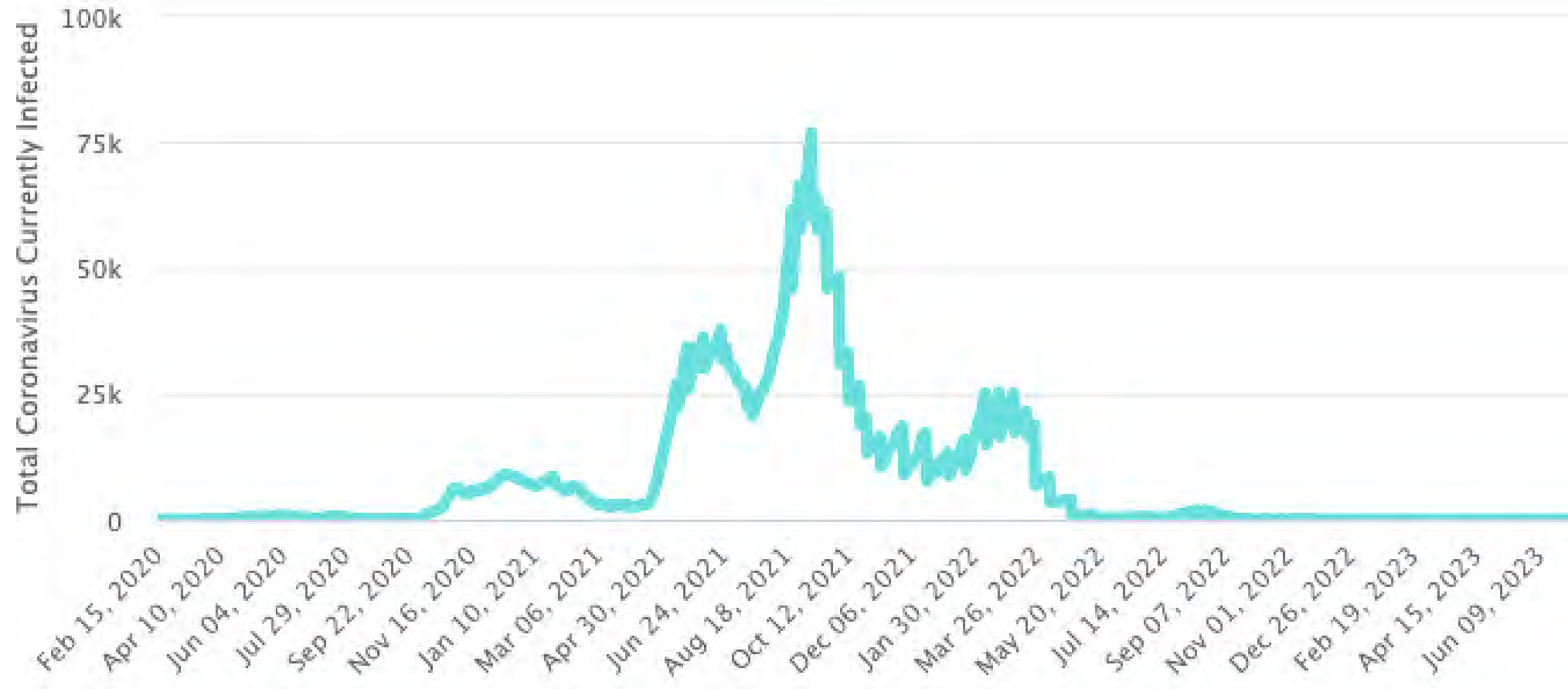
- From January 2022- April 2022 I was a consultant at the WHO office in Sri Lanka, where amongst other things I worked on trying to increase vaccine uptake.
- This was a new experience: I had worked on developing guidelines for communication, run training programmes etc. for the WHO.
- This was the first time I had to implement some of these guidelines.
- It was an interesting experience.



Sri Lanka's Covid-19 experience

- The first confirmed case of COVID-19 was reported on 27th January 2020. This was a Chinese tourist who had arrived in Sri Lanka about two weeks earlier. No further spread detected.
- The second case was in March 2020. This was a Sri Lankan tour guide working with Italian tourists. This spread locally leading to the first wave.

Covid-19 in Sri Lanka



Source; Worldometer

Sri Lanka's Covid vaccination drive

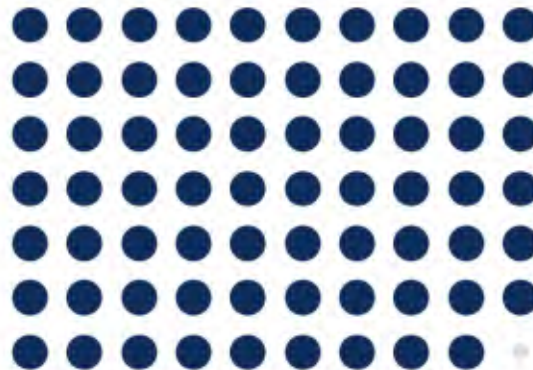
- As in most parts of the developing world, supplies rather than demand were the problem at first.
- Sri Lanka began vaccination in late January 2021 with a donation of 500,000 AstraZeneca vaccines, manufactured in and donated by India. A further 264,000 doses were received through Covax, after which supplies dried up.
- From end March 2021 China supplied over 1 million doses of Sinopharm vaccine, though roll out was delayed because of lack of regulatory approval.
- Sri Lanka also purchased Sputnik-V vaccines from Russia and Pfizer vaccines. Moderna was added to the mix at a later stage.

Covid vaccine coverage Sri Lanka

**Percentage of total
population vaccinated
with a complete primary
series of a COVID-19
vaccine**

Sri Lanka, 31 December 2023

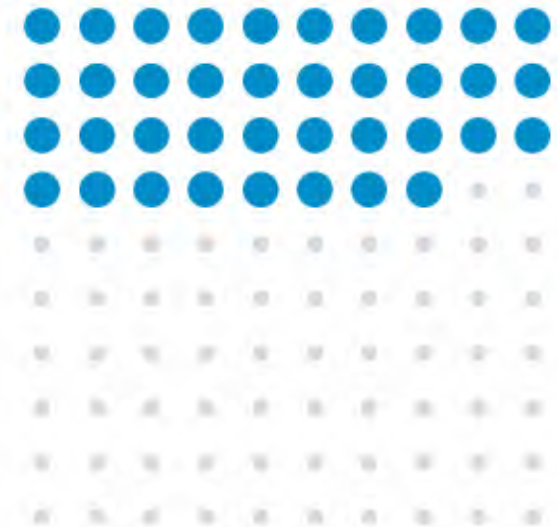
69%



**Percentage of total
population vaccinated
with at least one booster
dose of a COVID-19 vaccine**

Sri Lanka, 31 December 2023

38%



The situation in early 2022

- Between 50-60 percent of the population had received two doses of vaccine.
- The omicron wave was causing a spike in cases; there were worries that hospital capacity would not be able to cope with the numbers.
- It was important to increase vaccine up take; but there were public concerns.
- Step 1 was to understand public concerns.

Some public concerns

1. The majority of people surveyed were very concerned about*

- Vaccine brands
- Side effects
- Duration of protection

2. People wanted

- More details about the vaccine
- Advice of family doctor
- Advice of health workers

*RWijesinghe MSD, Weerasinghe WMPC, Gunawardana I, Perera SNS, Karunapema RPP. Acceptance of COVID-19 Vaccine in Sri Lanka: Applying the Health Belief Model to an Online Survey. *Asia Pacific Journal of Public Health*. 2021;33(5):598-602

One issue of public concern: Multiple vaccines with different rates of efficacy

- Sinopharm vaccine, which was the main vaccine used in Sri Lanka was perceived to be “not as good” as other vaccines such as Pfizer and Moderna; Therefore, people were reluctant to take a second dose.
- News reports based on clinical trial data showing the superior efficacy of the Pfizer and Moderna vaccines had been widely publicized and these were widely perceived as the best vaccines to have.
- “Western countries used mRNA vaccines”: perception was that the Chinese vaccine was a cheap vaccine for poorer countries .

Pfizer, Moderna vaccines are 90% effective after two doses in study of real-life conditions, CDC confirms

Report on essential workers is one of the first to estimate protection against any infection, regardless of symptoms



By [Lena H. Sun](#)

March 29, 2021 at 12:28 p.m. EDT



- From the Washington Post newspaper

[nature](#) > [news](#) > [article](#)

NEWS | 14 October 2021

China's COVID vaccines have been crucial – now immunity is waning

Billions of shots of China's CoronaVac and Sinopharm vaccines have been given globally, but studies have questioned the length of protection they offer.

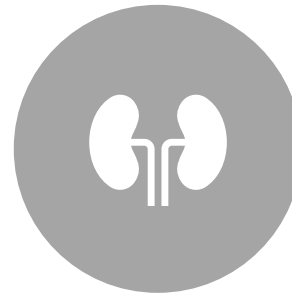
[Smriti Mallapaty](#)



These were all excellent vaccines: Vaccine efficacy against the original Wuhan strain



BBIP (Sinopharm) VE
of 78.9% against
symptomatic disease;
severe disease /
hospitalization 78.5%



Moderna: VE in
preventing
symptomatic disease
93% ;severe disease/
hospitalization 95%

Two other issues that made people think about getting vaccinated

Effectiveness:

- Vaccine rollout occurred during the Delta and Omicron waves when vaccine effectiveness was less than during the first wave.
- Vaccine protection against infection and mild illness was moderate, and members of the public noticed that getting vaccinated did not prevent infection/illness. The vaccines continued to protect against severe illness and hospitalization.

Safety and side effects:

- Anecdotally, those who received mRNA vaccines reported side effects such as pain in the shoulder, fever etc. that kept them away from work for a day or two or more: this tended to discourage people who could not take time off work.
- Also, reports of more serious side effects.

Small study points to possible cause of myocarditis following mRNA vaccination in young men

Researchers observed elevated levels of immune molecules that, in rare cases, could trigger inflammation in the heart.



News about adverse events

Researchers find a higher than expected risk of myocarditis in young men after full vaccination.



Give this article



Would you characterise these reports of myocarditis as

- Rumours: (statements whose truth cannot be verified)
- Misinformation: (false or inaccurate information spread accidentally)
- Disinformation: (Deliberate spreading of misinformation)
- None of the above.

Points to remember

- It is easy to dismiss public concerns about vaccines as being due to misinformation, disinformation and rumours.
- But very often, public concerns are based on facts.
- To address these concerns, we need to explain these facts and put them in perspective. We should not dismiss it all as misinformation or disinformation.

Public health agencies responded to these concerns in the way they always do:

“These vaccines are safe and effective; Please get vaccinated. The risk of any side effects is far less than the benefits.”

This did not
answer the
questions
people were
asking

- If the vaccine is effective, then why are people still getting Covid after vaccination? What do you mean when you say effective?
- If the vaccine is safe, why does it have these side effects? What do you mean when you say safe?



Illustration: ChatGPT

Let us look at the language public health agencies used to talk about the risk of myocarditis

US CDC

- Myocarditis and pericarditis **have rarely been reported**. When reported, the cases have especially been in **adolescents and young adult males** within several days after mRNA COVID-19 vaccination (Pfizer-BioNTech or Moderna).
- More often after the second dose
- Usually within a week of vaccination
- **Most** patients with myocarditis or pericarditis who received care responded well to medicine and rest and felt better quickly.
- Patients can **usually** return to their normal daily activities after their symptoms improve.
- Those who have been diagnosed with myocarditis should consult with their cardiologist (heart doctor) about return to exercise or sports.

Advice from the UK

- There have been **rare** cases of inflammation of the heart (myocarditis) reported after Covid-19 vaccination. **Most** people who had this recovered after rest and simple treatment.

Hong Kong

- Members of the public are advised to avoid strenuous exercise one week after Cominarty* vaccination. They should seek immediate medical attention if they develop symptoms indicative of myocarditis or pericarditis such as acute and persisting chest pain, shortness of breath, or palpitations following vaccination.

*Cominarty is the brand name under which the Pfizer vaccine was marketed in Hong Kong

Safe or not safe?



Illustration: ChatGPT

The gap in perceptions of risk between the public and public health

- From the point of view of public health, the risk of myocarditis, or any of the other serious adverse events reported from the use of Covid vaccines is small.
- These were rare events (40.6 cases of myocarditis per million second doses among males and 4.2 cases per million among females have been reported as of 11 June 2021 in persons 12-29 according to the US VAERS). From the perspective of vaccine safety, it is correct to say that Covid vaccines are safe.
- The public assesses risks based on the quality and nature of the risk, not quantitatively.

The public perspective

- Myocarditis and pericarditis seems to be quite a serious conditions and quite serious risks.
- The risk of Covid seems to be more of a known risk.
- Also, from the point of view of the public, there is no knowing who will develop a serious adverse event and who will not: the risk to individuals is real and it is a worry for individuals.
- The benefits of vaccination are societal: the risks are individual.
- Public health decision makers need to understand and address these worries.

Can you think of better
ways to communicate this
risk to the public?

Key points to remember

- It is difficult for public health agencies to talk about vaccine risk; there is the danger that this will result in reducing vaccine demand.
- But for the public, it is important to understand and decide to accept this risk.
- Vaccine confidence arises when people understand and accept the risks and the benefits of a vaccine: this is the task of communication.

Questions

Part 2: An exercise

Let's come to
Hong Kong during
Covid-19.



Covid epidemiology Hong Kong

- From 23 January 2020 when the first case was identified in Hong Kong until 25 September 2022, Hong Kong went through five waves of Covid.
- Hong Kong had many potential vulnerabilities: an international travel hub, dense population, and closeness to Wuhan where the pandemic began.
- Using the experience and lessons learned from SARS in 2003, the Hong Kong authorities protected the population well during the first four waves through international travel restrictions, testing, quarantining and social distancing: a zero covid policy.

Until the Omicron wave

- This fifth wave was devastating.
- By March 2022, Hong Kong recorded the highest number of deaths per 100,000 people (3.73) in the world.
- Singapore by comparison had at the same time 0.17 deaths/100,000
- Major cause of the high death rates were low vaccination rates amongst the elderly.
- Almost 90% of those who died had not received two doses of either Cominarty or Sinovac vaccines.

Coronavirus: how raging fifth wave exposed Hong Kong government's 'poor leadership' and 'inability to deliver'

Criticism has rained down on government from state-backed newspapers, ex-officials, business moguls and lawyers over its slow response and handling of crisis

Experts point to its inability to plan ahead, coordinate civil servants and departments, disseminate information and offer solutions even with help from Beijing

Reading Time: 8 minutes

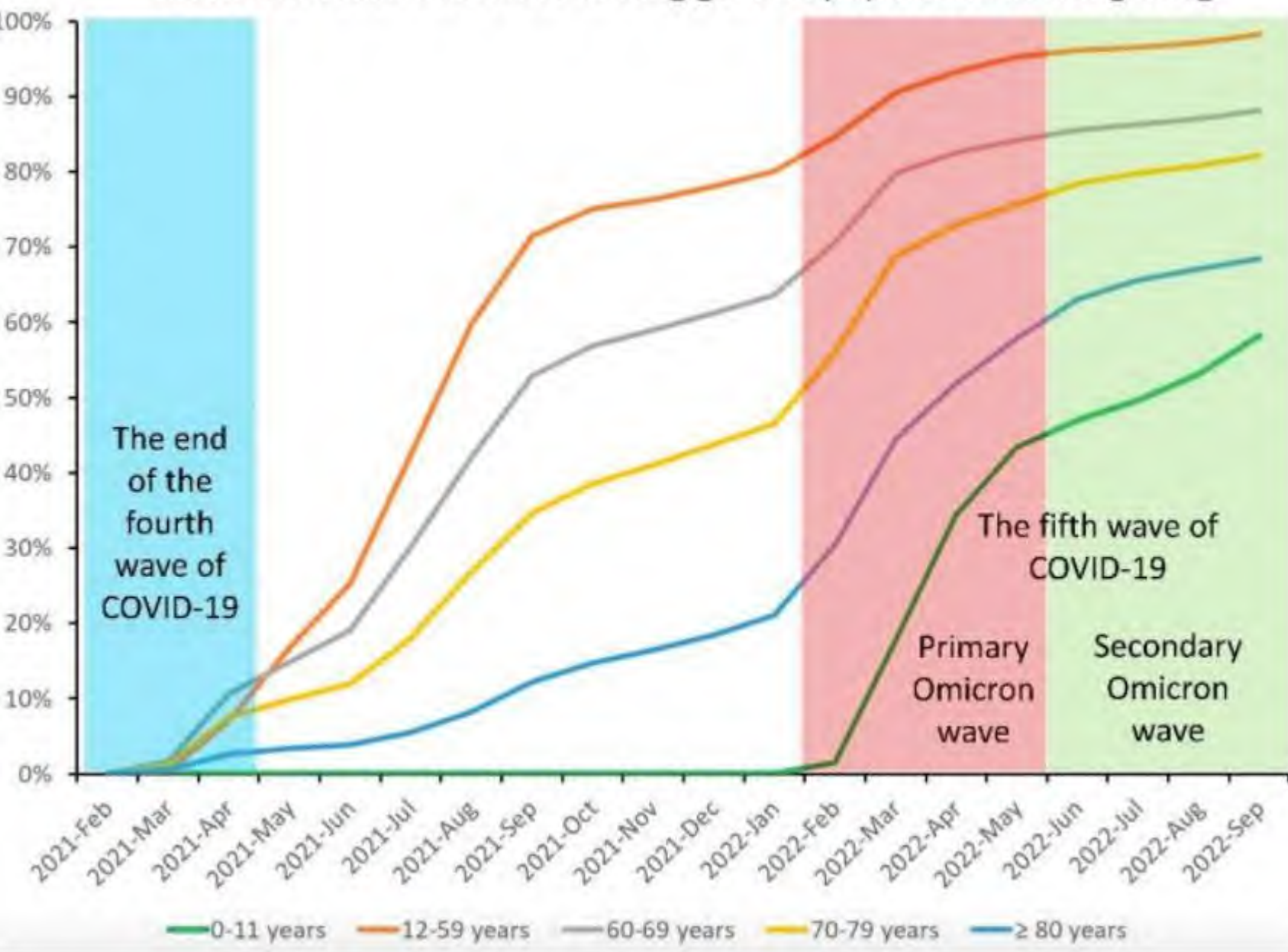
Why you can trust SCMP 



Listen 



COVID-19 vaccination rate among general population in Hong Kong



- Yuan, J., Xu, Y., Wong, I.O.L. *et al.* Dynamic predictors of COVID-19 vaccination uptake and their interconnections over two years in Hong Kong. *Nat Commun* **15**, 290 (2024). <https://doi.org/10.1038/s41467-023-44650-9>

Coronavirus: first-dose vaccination rate among Hong Kong elderly plunged 85 per cent in past 3 weeks, data shows. Should we be worried?

Trend raises questions about whether health care system would be stretched further if social-distancing rules eased

Social workers and doctors say reduced rate could be due to elderly missing appointments because of infections, or fear of going out and catching virus

Reading Time: **4 minutes**

Why you can trust SCMP 



Listen 



 **SCMP**
PLUS

A brand-new platform that
enables you to unpack China's
complexities

The CHP admitted that

- “In the whole control strategy, including vaccination, we haven’t focused all our manpower and minds on handling high-risk groups at the early stage of the pandemic,” Dr Leung Chi-chiu of the Centre for Health Protection Hong Kong
- March 2022 community service groups and later the government started offering door to door vaccination services in apartment buildings and care homes.
- But this did not help either

Coronavirus: family members' objections pose roadblock for Hong Kong's home vaccination service, up to 20 per cent of bookings cancelled last minute

Hong Kong Council of Social Service says it has encountered cases where a booking was made but a relative shows up on appointment day to voice disapproval

Other cancellation reasons include elderly residents testing positive for Covid-19, or reporting high blood pressure

Reading Time: **3 minutes**

Why you can trust SCMP 



Listen 



Hong Kong's high fatalities in the 5th wave

- Due to poor communication between public health and the public.
- There was no shortage of vaccines.
- There was a well- organized system for administering vaccines.
- If there was vaccine hesitancy and poor uptake of vaccines, it could only be due to poor communication.
- Let us try and understand what the elderly were thinking.

A study by the University of Hong Kong found*

- Insufficient social support: Participants received low support for their decision making from doctors, family and government.
- From doctors: None of the participants received doctors' recommendation/advice to get vaccinated unless they initiated the conversation with doctors.
- Only one participant received a firm recommendation from their doctor.
- *"I proactively asked about vaccine related issues twice...for the first time the doctor asked me not to get vaccinated and wait a while due to my blood issue...For the second time, he said my blood turns to normal but told me I should decide on my own.*

Interesting insights into doctor patient communication

- *“When I asked him (the doctor) ‘how is my illness?’, he was annoyed and unhappy. I am also worried about asking too many questions, which may make him feel unhappy... I would rather just take the medicine the doctor prescribed for me without asking questions...”*
- *“I never think about discussing (vaccine-related issues) with the doctor... Because I do not know much about this field, and I am not good at communicating... If I discuss with the doctor, I am afraid that the next medical consultation will be interrupted”*

Lack of support from children

- *“My daughter did not give me any response... I think she prefers a free choice, depending on my own decision. I think she has no opinion.”*
- *“I asked my son to take me to (the vaccination venue), maybe he was not available... If my son accompanies me to get vaccination, then I will go with him...”*
- *“If you take your old parents to take a vaccine and they really have some bad consequences, as their child, you won’t get peace...I understand their difficulty.”*

Lack of support from government

- Information from government was perceived as confusing and insufficient, prompted a feeling of being ignored and not involved in the vaccine decision making process.
- *The government should show more concern and care for the elderly, telling us more vaccine related information ... We can only learn from the news through television and radio ... We know little about other aspects about the vaccines... There are two types of vaccines available, one is Sinovac, and another is BioNTech. I don't know which one is better, or which one is more suitable for the older people."*

Fatalistic attitude about ageing and death

- *“No matter alive or dead, (my life) has already come to an end... nothing scares me”*
- *“Young people’s physical function is definitely different from mine...They don’t have big health issues, of course they can take a vaccine...But I am different, I am fear of taking one (vaccine)”*
- *“It is inevitable when the COVID-19 virus comes... I will go with my flow.”*
- *“(The pandemic) is a natural phenomenon... The earth has so many rubbish that need to be cleared out...So this is God’s intention, some people should be wept out (from the pandemic) ... it is unavoidable...”*

Impact of news of adverse events following vaccination

- *“I watched TV news earlier saying that some old people died due to their chronic illnesses (after taking vaccination), I also suffer from chronic illnesses...”*
- *“One of my schoolmates is an asthma sufferer, he had already got vaccinated and afterwards he fainted on the street one day... Then I am more worried about vaccination after knowing about his faint... and thus I am not willing to get vaccination...”*
- *“HKSAR government is absurd...they claimed that vaccination has nothing to do with any consequences, even the two death cases were not relevant to vaccination... I do not believe in such statement.”*

Doubts about vaccine efficacy, safety, side effects

- *“Some people took two doses of vaccines but still got infected...then why should I take the vaccine?”*
- *“To be honest, I don’t fully believe vaccines can provide enough protection for me...Because even I take one, I still need the second dose and the third dose...”*

Low perceptions of risk

- *“At this age, I am not worried about this virus... because I can actually suffer from any illnesses...So I would just go with flow.”*
- *“I do not find this COVID-19 pandemic severe... During SARS, nothing happened even though I did not wear masks...People at my old age cannot worry too much.”*
- *“I read the news reports worldwide...the probability of getting infection is so high! But Hong Kong is totally different, so I don't feel worried in Hong Kong.”*
- *“I am not too worried about the COVID-19 pandemic, since I have done well in my personal hygiene, and I avoid going to crowded places.”*

Let us try to get our hands dirty and

- Create messages that can be placed on posters to increase Covid vaccine uptake amongst the elderly, based on what has been learned from the survey we looked at.

- We see that several of the reasons given by the elderly for not getting vaccinated have complex social roots: eg the feeling of being abandoned by children, of the government not caring for them, difficulty in communicating with doctors. You can ignore these for now.
- Focus on one of two issues in messages: low perceptions of risk, and doubts about vaccine safety and efficacy.

Some general messaging principles

- Messages should be clear, concise and free of jargon.
- Contain specific actions: ie, something people can do, a behaviour they can adopt, or even information they can share
- Be empathetic in tone (commonly understood as the ability to understand and share the feelings and emotions of others).

Form groups of 4 or 5

- Create a poster to address low perceptions of risk, or to address vaccine safety and efficacy (or do two posters if you feel inspired).
- When you write these messages, use the language and tone you would if you were talking to an elderly relative of yours.

慎防—「叮」防蚊防蟲我至醒

Beware of **stings**

Protect ourselves from vector-borne diseases



穿寬鬆、淺色的長袖
上衣及長褲

Wear loose, light-coloured
long-sleeved tops
and trousers



於外露的皮膚及衣服
塗上含避蚊胺成分的
昆蟲驅避劑

Use DEET-containing
insect repellent on
exposed parts of the
body and clothing

Main message

Action points

You can use
this layout.
If you are
feeling creative
you may use
AI for visuals.

Here is some information about vaccine safety and efficacy for the BioNTech vaccine

- <https://www.who.int/news-room/feature-stories/detail/who-can-take-the-pfizer-biontech-covid-19--vaccine-what-you-need-to-know>
- [Link to elderly study in Hong Kong.](https://ssrn.com/abstract=4078966)
<https://ssrn.com/abstract=4078966> or <http://dx.doi.org/10.2139/ssrn.4078966>

References

- **Temporal changes in factors associated with COVID-19 vaccine hesitancy and uptake among adults in Hong Kong: Serial cross-sectional surveys** Xiao, Jingyi et al. The Lancet Regional Health – Western Pacific, Volume 23, 100441 June 2022

- Wong SC, Au AK, Lo JY, Ho PL, Hung IF, To KK, Yuen KY, Cheng VC. Evolution and Control of COVID-19 Epidemic in Hong Kong. *Viruses*. 2022 Nov 14;14(11):2519.
- Siu, J.Ym., Cao, Y. & Shum, D.H. Perceptions of and hesitancy toward COVID-19 vaccination in older Chinese adults in Hong Kong: a qualitative study. *BMC Geriatr* **22**, 288 (2022). <https://doi.org/10.1186/s12877-022-03000-y>
- Yuan, Jiehu and Lam, Wendy Wing Tak and Xiao, Jingyi and Ni, Michael Yuxuan and Cowling, Benjamin J. and Liao, Qiuyan, Why Do Chinese Older Adults in Hong Kong Delay or Refuse COVID-19 Vaccination? A Qualitative Study Based on Grounded Theory (April 8, 2022). Available at SSRN: <https://ssrn.com/abstract=4078966> or <http://dx.doi.org/10.2139/ssrn.4078966>