

Vaccine access and uptake



SUMMARY

- Vaccine uptake can be a 'default' or a proactive decision, and can be influenced by a range of factors, including how people understand and weigh up benefits and risks; where they receive information and guidance about vaccines; personal beliefs or values; and practical considerations.
- Public health authorities use different strategies to increase participation in vaccination programmes, including information or educational campaigns; and incentivised programmes or policies that make vaccination mandatory or a condition of access to institutions, services, or employment.
- Ethical considerations for public health authorities include promoting good health and reducing the burden of disease; balancing individual, community and wider public interests; fair and effective use of public resources; and international obligations and global health security.

INTRODUCTION

Most countries have vaccination programmes as part of their public health agenda, with support from global agencies.¹ Vaccines targeting more than 20 life-threatening diseases are currently in use, some reaching over 85% of their target population.² However, vaccine coverage is highly uneven at a global level.³ There are also concerns about a loss of confidence and a decline in the uptake of vaccines where they are available and have previously been

widely accepted. Declining confidence in vaccines, sometimes referred to as 'vaccine hesitancy', has been declared a major health threat by the WHO.⁴

This briefing note explores factors influencing the access and uptake of vaccines; the different approaches taken by public health authorities to promote vaccines; and the ethical considerations that arise in this context.

AIMS OF VACCINATION PROGRAMMES

Public health programmes often aim for the uptake of vaccines to be high enough that infectious diseases can be eliminated at the community level, commonly referred to as herd or community immunity.⁵ As a significant portion of a population becomes immune to an infectious disease, the risk of spread from person to person decreases,

indirectly protecting those who are not immune.⁶ For example, after the UK introduced a vaccine against type C meningococcal disease in 1999, cases of the disease decreased by over 90% in vaccinated groups, but also by around 66% in non-vaccinated groups, as transmission was reduced.⁷

FACTORS INFLUENCING VACCINE UPTAKE

Whether or not people take up the offer of a vaccine, for themselves or their children, can be a 'default' or a proactive decision, influenced by a range of factors.

BENEFITS

For individuals, the most direct benefit of vaccination is the protection from infection and disease for themselves and the people they are close to, and the knowledge of having such protection. Where vaccination reduces transmission of disease, individuals might value the opportunity to help protect others in their wider network or community. In some cases, particular groups are offered a vaccine that offers more protection to others than to themselves. For example, a vaccine is offered in pregnancy that can give the baby immunity against whooping cough, and all children are offered vaccines against rubella which poses more serious risks in pregnancy, and against mumps which can reduce sperm count and fertility.⁸ Taking part in collective efforts to prevent diseases as a wider public good might also be considered a benefit to individuals.⁹ One early study of attitudes to a potential COVID-19 vaccine found that perceptions of the risk of COVID-19 to others were associated with an intention to get vaccinated, suggesting that altruism plays a role in vaccine decision making.¹⁰

RISKS AND UNCERTAINTY

The risk of diseases and their effects are key factors in motivating vaccination uptake.¹¹ However, real and perceived risks are also key factors motivating people to reject the offer of vaccination. Though a high degree of safety and efficacy is required before vaccines are approved and offered in the wider population, some risks and individual variation in responses to vaccines remain, as is recognised in the UK by the existence of a Vaccine Damage

Payment Scheme for individuals who have become severely disabled as a result of vaccination.¹²

How people understand and interpret risks, for example of side effects that are rare but severe, can vary. Incidents that coincide with vaccination, but where the causality is not immediately clear, can also cause concerns that linger even after evidence that the vaccination was not responsible has emerged. Public health communication around emerging risks where evidence is limited can be challenging. This was evident in the different approaches taken by European countries in response to reports of blood clots after receiving the Oxford/AstraZeneca COVID-19 vaccine, with some suspending use of the vaccine on the grounds that this was a precautionary measure, while others proactively sought to reassure the public of the safety of the vaccine.

Given that vaccines are generally offered to healthy people, and that many diseases being vaccinated against will be unfamiliar (particularly where vaccines have contributed to keeping infection levels low), some might consider the risk of disease worth running or conclude that risks or possible side effects associated with vaccination are a greater threat to them.¹³

Particular uncertainty can arise around new vaccines. The pace at which COVID-19 vaccines have been developed and approved for use has been a source of concern for some. This may have been exacerbated by public messaging that aimed to manage expectations of how quickly a vaccine might be developed in the early stages of the pandemic, and then failed to make clear how the compressed timescale was made possible.¹⁴ However, according to the Office for National Statistics, positive vaccine sentiment has increased significantly in the UK during the first three months of the COVID-19 vaccine rollout.¹⁵

Some individuals who are generally critical of vaccination emphasise longer-term unknowns about vaccines, the limits of safety trials or, more generally, the limits of scientific knowledge about health and the body.¹⁶

A cultural shift towards a more individualised view of medicine and healthcare might also be reflected in the way people make decisions about vaccines. For example, people might attach greater significance to factors specific to them or their child(ren), such as personal circumstances, family history, and their previous interactions with the healthcare system. 'One size fits all' programmes based on large-scale scientific studies might not be perceived as reassuring or relevant for those taking this view.¹⁷

INFORMATION AND INFLUENCES

Where people source or receive information about vaccines and the framing or accessibility of this information can be a significant factor in their decision about whether or not to take them up.

Studies have found that people who received information about diseases and vaccines from official sources, particularly healthcare professionals or others in community support roles, were more likely to think vaccines were safe and to be vaccinated.¹⁸ The extent to which this information is tailored to communities might be important: for example, whether such information is provided in accessible formats; or translated into minority languages (see box 1: practical considerations and barriers).

Historically, traditional news media has been particularly influential. A significant drop in uptake of the MMR vaccine in the UK in the early 2000s was linked to media coverage of claims, subsequently shown to be incorrect, that the vaccine was responsible for autism in some children.¹⁹ Similar links have been made between media coverage of vaccine controversies and low levels of confidence in vaccines in France.²⁰ However, recent studies have found that relying on mainstream media for news is generally associated with positive attitudes to vaccines.²¹ The extent to which stories are being reported by specialist medical or science journalists might have an impact on how vaccine stories are covered in non-specialist media.²²

The internet, social media platforms, and messaging applications have enabled rapid global sharing of

vaccine-related content, including public health information and views. Social media encourages private users to actively participate in creating and circulating influential messaging. This can help to inform users, but can also contribute to rapid distribution of misinformation or contradictory messages, including between friends, family, or members of a community.²³ Internet trolls and bots have been found to promote negative and polarised messages around vaccination as a way to incite political discord, or as clickbait to distribute malware or commercial content.²⁴ Research has shown that exposure to misinformation on social media can cause confusion and anxiety about vaccines and lead people to delay or refuse vaccination.²⁵

TRUST

A global survey of vaccine confidence levels found that higher levels of vaccine uptake in 43 countries were associated with trusting healthcare workers more than family, friends or other non-medical sources for medical and health advice.²⁶

Levels of trust can vary across different groups in society. For example, recent studies of vaccine intentions in an ethnically diverse community in the UK with high levels of deprivation found that there was a general lack of trust in the Government and the local council, but strong levels of trust of the NHS, local hospitals and schools.²⁷ Given that most vaccines are delivered by GPs or nurses, trust in primary care might be particularly important. Vaccine hesitancy among people from some minority ethnic backgrounds during the roll out of COVID-19 vaccines has been linked to a lack of trust resulting from systemic racism and discrimination, historical abuses such as the Tuskegee syphilis study, under-representation of minorities in vaccine research, and negative experiences in the healthcare system.²⁸

A lack of trust can relate to suspicions about motives and interests driving vaccination programmes, such as perceptions of the influence of pharmaceutical companies.²⁹ Trust can be affected by previous interactions with healthcare systems, for example, where people have experienced inequality of access to, and quality of, healthcare.³⁰ Some view vaccination as an attempted 'quick-fix' technical solution which fails to address deeper structural social and cultural problems that affect health and disease, such as inequalities of wealth, housing, and education.³¹ Some individuals and groups critical of vaccination question the value of trust in the

context of vaccination programmes, and frame it as herd mentality or the unquestioning acceptance of mainstream views, contrasting this with ‘free thinking’, taking responsibility for one’s own health, and informed parenting.³²

Trust can also be damaged by safety incidents relating to vaccines and how these are communicated.³³ For example, in 2017 the dengue fever vaccine Dengvaxia was found to pose a potential risk to people who had not previously been exposed to dengue after it had been administered to more than 800,000 children in the Philippines as part of a vaccination campaign targeting a severe dengue epidemic.³⁴ This was met with public outrage, and was followed by significantly reduced uptake of routine vaccines against other diseases recommended by the national immunisation programme, as well as of Dengvaxia.³⁵

OTHER VALUES AND ATTITUDES

Social norms might be significant in affecting people’s decisions, for example in communities

where vaccination is seen as the normal thing to do.³⁶ Religious and philosophical beliefs and values can also influence decisions, for instance, through obligations to protect life or ideas around the purity of the body.³⁷ Some are concerned that processes or materials in, or involved in the production of, some vaccines might conflict with their diet, personal values or religious teachings. Religious and animal rights organisations in the UK have issued statements to address such concerns and encourage their followers to accept vaccines when they are offered.³⁸ Ideas about naturalness are sometimes invoked as a reason to reject vaccination, for example in preferences for natural immunity or for natural risks over ‘artificial’ ones.³⁹

PRACTICAL CONSIDERATIONS

Vaccine uptake can be affected by practical considerations or barriers (see box 1). These might be common across the population or affect particular groups or local communities more than others.

BOX 1. BARRIERS AND PRACTICAL CONSIDERATIONS⁴⁰⁻⁴⁵

Surveys of healthcare professionals, parents and those eligible for adult vaccinations in the UK have found that common barriers to vaccination include:

- the timing, availability, and location of appointments;
- childcare duties, particularly for larger families;
- forgetting appointments;
- costs associated with vaccination, such as transport or taking time off work;
- accessibility of information, including language barriers and the use of digital systems and media that not everyone has access to;
- physical accessibility of facilities where vaccines are offered and accessibility of transport;
- changing address frequently, common among ethnic minorities including travelling communities, which can result in inaccurate or incomplete NHS records, or being homeless.

Ways to address these barriers and improve access to vaccines might include:

- issuing appointment reminders such as by text or phone, and ensuring that IT systems used by general practices are set up to flag patients with

- outstanding vaccinations;
- offering additional or more flexible appointments, such as after work hours, or walk-in clinics;
- offering and signposting vaccines in a more diverse range of locations, such as pharmacies, hospitals, community centres or pop-up facilities in other locations such as high streets or supermarkets. In 2007 for example, a London Council launched the ‘spotty bus’ in response to a local measles outbreak. This mobile immunisation unit offered MMR vaccines in school playgrounds and supermarket car parks, vaccinating almost 1,000 children;
- encouraging professionals from across the healthcare system to make use of any opportunity to offer or discuss vaccinations. For example, delivering vaccines during routine midwife visits, or routinely using GP reception interactions as an opportunity to check whether vaccinations are up-to-date;
- ensuring that healthcare professionals have sufficient information and training to be able to respond to questions or concerns about vaccines.

STRATEGIES TO INCREASE VACCINE UPTAKE

Measures aiming to promote vaccine uptake can be implemented by both public bodies and private players, and can include education, information campaigns and community engagement, or policies that aim to incentivise vaccination or penalise those who do not get vaccinated.

EDUCATION AND INFORMATION CAMPAIGNS

Public education and information campaigns can aim to support informed choice about vaccines, to address misinformation or concerns, and promote positive messaging around vaccination.⁴⁶

Healthcare workers can play a key role in delivering information, guidance, and advice about vaccines. However, this group themselves can also have concerns about vaccines and surveys have found that many healthcare staff report a lack of confidence in addressing concerns raised by patients. Time pressures and workload can also prevent healthcare professionals from being able to develop a trusting relationship with patients and discuss concerns in depth.⁴⁷

Some religious organisations have taken an active role in promoting vaccination. An example is the campaign run by the British Islamic Medical Association (BIMA) to promote the influenza vaccine in Muslim communities.⁴⁸

There have been attempts to enrol celebrities to influence vaccination uptake in the general population or in particular groups, and some evidence that this can be influential in groups that are undecided about vaccination.⁴⁹ In the UK, high-profile British Black and Asian individuals, including comedians Adil Ray OBE and Sir Lenny Henry, have appeared in videos and signed an open letter encouraging Black, Asian, and minority ethnic communities to get the COVID-19 vaccine.⁵⁰

INCENTIVISED AND MANDATORY VACCINATION

Most countries provide vaccines free of charge or the costs may be covered through health insurance schemes. Some countries give parents incentives

for vaccinating their children, for example, cash rewards or increased welfare benefits, or give health professionals incentives relating to their vaccine coverage rates. The Nuffield Council on Bioethics has previously noted that incentives could be appropriate provided their financial value is not so high that they might lead people to take decisions they might not otherwise have taken.⁵¹

In some cases, vaccination might be required for travel, or to access private or public institutions. For example, some countries only allow entry to those who have a certificate to prove they have received a yellow fever vaccine.⁵² In a number of countries, parents are required to have their child vaccinated against certain diseases unless they qualify for an exemption. The penalties for those who do not comply vary from restrictions on school attendance for unvaccinated children to fines or prison sentences for their parents.⁵³

While the UK Government has stated that it is not planning to make COVID-19 vaccines compulsory, in February 2021 it announced a review of proposals to introduce immunity or vaccine passports as a condition of access to cultural venues or events, or a condition of employment - for example, for care and healthcare workers.⁵⁴ It is likely that proof of a COVID-19 vaccination will be required by some countries for entry. The ethical issues raised by immunity certification have been explored separately in a policy briefing and discussion paper by the Nuffield Council on Bioethics.⁵⁵

COMMUNITY ENGAGEMENT

There is some evidence that local and community engagement initiatives can help reveal and overcome practical barriers to vaccination (see box 1), and enable trusted individuals and local authorities to evaluate claims and misinformation that circulate about vaccines.⁵⁶ Involving citizens in vaccine review and approval processes, or even at the stage of identifying priorities for research, could help to address the concerns of historically marginalised communities and promote trust in vaccine development.⁵⁷

ETHICAL CONSIDERATIONS

Decisions about whether and how to implement vaccination programmes, and about whether or not to be vaccinated, can involve a complex negotiation of the various interests and concerns of individuals and families, the communities they are embedded in, and the public good. This section sets out some of the key ethical considerations for vaccination programmes.

PROMOTING GOOD HEALTH AND REDUCING THE BURDEN OF DISEASE

Vaccination is considered to be one of the most effective public health interventions to reduce the burden of infectious disease.⁵⁸ Vaccinations can protect against diseases for which there is no effective treatment or cure and which can cause death and disability. They can also prevent or reduce transmission, stopping outbreaks from becoming endemic, and are sometimes pursued as the most effective, or least intrusive, way to bring an end to major epidemic outbreaks.⁵⁹

By reducing illness, vaccination can reduce healthcare costs and loss of education or productivity in the population.⁶⁰ Vaccines are also thought to have significant broader economic impact, for example, by improving financial security, leading to increased investment and improved political and economic stability.⁶¹

ADDRESSING HEALTH INEQUALITIES

Vaccines can help reduce health inequalities, for example, by protecting those who might be more likely to suffer from severe illness and its effects.⁶² In countries where healthcare is not freely provided by the state, vaccines can help prevent or reduce healthcare costs that would otherwise be borne by individuals and families.⁶³

However, inequality of access to, and uptake of, vaccines persist at global and national levels, and lower vaccination uptake in some groups can further exacerbate health inequalities. This has prompted calls for governments to address access issues and factor social determinants of health and existing health inequalities into epidemic preparedness plans.⁶⁴ A 2021 WHO declaration on vaccine equity called on all countries to work together in solidarity to ensure health workers and older people in all countries are offered COVID-19 vaccines as a matter of priority.⁶⁵

BALANCING INDIVIDUAL, COMMUNITY, AND WIDER PUBLIC INTERESTS

Factors that might be considered in programmes that aim to increase the uptake of vaccines include weighing up choice and individual and relational autonomy alongside individuals' responsibilities to others (including to children or others that lack capacity to consent to vaccination) and the wider public good. These are not necessarily competing interests; for example, individual interests can be motivated by altruism or solidarity with others, and vaccination motivated by self-interest can benefit the wider community.⁶⁶

Some argue that the threat of infectious disease and the potential collective good of population immunity could justify mandatory vaccination.⁶⁷ A 2007 Nuffield Council on Bioethics report on public health concluded that policies to mandate vaccination might be justified given the state's role in promoting public health and minimising risks of harm to others, but that this would depend on the risks associated with the vaccine; the seriousness of the threat of disease (and whether disease eradication might be within reach); and whether there is evidence that a mandate would be more effective than other measures to encourage voluntary vaccination.⁶⁸

FAIR AND EFFECTIVE USE OF PUBLIC RESOURCES

Cost and cost-effectiveness are considerations for governments deciding whether to approve and provide vaccines. In the UK, the Joint Committee on Vaccination and Immunisation (JCVI) advises the Government on whether and how to implement vaccination programmes, with cost-effectiveness as a key criterion, in the same way that the National Institute for Health and Care Excellence (NICE) evaluates the cost-efficiency of medical interventions. In practice, this means that vaccines that are effective against diseases might be rejected or restricted on the basis that the economic cost outweighs the predicted economic benefit.⁶⁹ What should be included in this evaluation (e.g., whether and how the weighting of quality-adjusted life-years (QALYs) should be used) is a matter of debate.⁷⁰

INTERNATIONAL OBLIGATIONS AND GLOBAL HEALTH SECURITY

Infectious diseases spread between nations through international travel and trade, and their incidence can also be affected by other factors that transcend national borders such as antimicrobial resistance, climate change, and conflict. In response to this, vaccination is a component of global agreements such as the International Health Regulations (IHR) 2005, a legally binding agreement between 196 countries (including all WHO member states) to work together for global health security.⁷¹ This is

also a rationale for the UK's role as a major funder of Gavi, a public-private partnership of national governments, international agencies, NGOs, and the private sector to improve access to new and under-used vaccines for children in the world's poorest countries.⁷²

The Nuffield Council on Bioethics' policy briefing on fair and equitable access to COVID-19 treatments and vaccines highlighted the importance of global solidarity and the moral responsibilities of governments to ensure fair and equitable access to vaccines beyond their own borders.

CONCLUSIONS

- Vaccination programmes are a highly effective public health intervention and have the potential to further improve population health and health security, but their success depends on high levels of public participation.
- Whether or not people take up the offer of a vaccine, for themselves or their children, can be a 'default' or a proactive decision, influenced by a range of factors.
- Initiatives to remove practical barriers and factors that make vaccines less accessible or convenient for local communities have been shown to increase vaccine uptake.
- Trust in those developing, offering, and promoting vaccines - and in government and the health system more widely - plays a key role in decisions about vaccines.
- Communities that experience inequity and marginalisation might have lower levels of confidence in vaccines, potentially resulting in a lower uptake in these groups.
- Governments have a responsibility to act to reduce health inequalities including by ensuring equitable access to vaccines within and beyond their borders, particularly in areas with poor access.

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