What is it? - This is a scoping of current evidence on vaccine hesitancy and the implications for uptake of a Covid-19 vaccine. It has been done very rapidly so that an early version could inform the work of PHA Comms. It may be updated as further evidence/capacity becomes available. New content will be highlighted in red.

Who is it for? - The briefing has been prepared as a resource for the PHA. It can be shared with colleagues in other Health and Social Care organisations, as well as stakeholders and those in partner organisations. It is not intended for issue to members of the public.

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KEY POINTS

- Vaccine hesitancy is the delay in acceptance or refusal of vaccines, despite availability of vaccine services. It is complex and context specific, varying across time, place and vaccines. It is influenced by factors such as complacency, convenience and confidence. Even before Covid-19, vaccine hesitancy has been increasing, fuelled by social media & reduced trust/confidence in governments.
- Prevalence of belief in Covid-19 misinformation is not common, but a substantial minority views it as highly reliable. Increased susceptibility to misinformation negatively affects people’s willingness to get vaccinated. Recent UK surveys indicate around 1 in 5 people say they are unlikely/unsure about getting a Covid-19 vaccination.
- Intention to be vaccinated is associated with: more positive general Covid-19 vaccination beliefs and attitudes; weaker beliefs that the vaccination would cause side effects or be unsafe; greater perceived information sufficiency to make an informed decision; greater perceived risk of Covid-19 to others but not oneself; older age; having been vaccinated for influenza last winter (2019/20).
- The most frequent reasons identified by those who would definitely/probably not get vaccinated or are unsure were: worry about side effects; vaccine not safe; wait until others have had it first; concern about the ingredients used in it; don’t trust the intentions behind wanting to vaccinate the public against Covid-19.
- Communications can’t influence everything – but it has a key role. This includes explaining how vaccines work, as well as how they are developed, from recruitment to regulatory approval based on safety and efficacy. Effective campaigns should also aim to carefully explain a vaccine’s level of effectiveness, the time needed for protection (with multiple doses, if required) and the importance of population-wide coverage to achieve community immunity. Other approaches may be required to address or counter experience of discrimination and environmental barriers.
- Credible and culturally informed health communication is vital in influencing positive health behaviours, as has been observed with respect to encouraging people to cooperate with Covid-19 control measures. This includes preparing the public and leaders of community, faith and voluntary organisations that are respected within various sectors of society and local communities, as well as the private sector, for a mass vaccination program with credible spokespeople, local engagement, accurate information and technological support.
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VACCINE HESITANCY

The World Health Organisation (WHO) defines vaccine hesitancy as delaying acceptance or refusing vaccines, despite availability of vaccine services. It is complex and context specific, varying across time, place and vaccines. It is influenced by factors such as complacency, convenience and confidence.

Even before the Covid-19 pandemic, vaccine hesitancy has led to decreased immunisation coverage in many parts of the world across several vaccine-preventable diseases, including measles, polio and diphtheria. Although vaccine hesitancy is not a new phenomenon, it is steadily spreading, accelerating through rapidly evolving technological changes.

The factors associated with vaccine hesitancy are highly context-specific. In places where vaccine-preventable diseases are no longer common, some individuals and health care providers have become complacent about the need for vaccination, leading to lower coverage. There is also a newer dynamic in which immunisation efforts are disrupted by “digital wildfires”—bursts of high social media activity which can reduce confidence in the safety of vaccines and trust in the governments promoting them.

Another perception focuses on the science of immunisation itself, given its language being deemed as elite and inaccessible, hiding truths around the real safety risks of vaccines and provoking public concerns that the real risks of vaccines outweigh their benefits.

The rush in the US to introduce mass vaccination for swine flu in 1976 backfired when more than 400 people became ill with Guillain-Barré syndrome (a rare problem where the body’s immune system attacks the nerves) after being vaccinated, leading to decades of concerns about immunisation safety. A 1998 Lancet article suggesting that the measles, mumps, and rubella (MMR) vaccine led to higher rates of developmental disorders in young children triggered a significant wave of vaccine hesitancy that persists, even though the research was afterward discredited and the article retracted.

THE ROLE OF MISINFORMATION

Shortly after the WHO reported the outbreak of Covid-19 in January 2020, misinformation about the virus, its causes and its treatments began to circulate and propagate through social media channels. Messages purporting to confirm the laboratory origins of the virus, rumours that 5G technology was a risk factor and beliefs that consuming large quantities of raw garlic was a certain cure were shared, retweeted and debated on such platforms as Twitter, Facebook, and LinkedIn. In February, the WHO declared the dissemination of misinformation about Covid-19 to be an “infodemic.”

Statements by President Donald Trump that a vaccine will be available in the US by the end of 2020, backed by nearly $11 billion in investments in select industry partners’ vaccine candidates, have stirred online rumours over the safety of any product developed as rapidly as “Operation Warp Speed” aspires to. Older narratives that vaccines can be used to sterilize young women have resurfaced alongside messaging that claims that the motives of those who invest in new vaccine research include inserting microchips into people’s bodies to control their behaviour.

An investigation into the prevalence of belief in Covid-19 misinformation and the role of belief in such misinformation in predicting relevant health behaviour (October 2020) found that, while public belief in misinformation about Covid-19 is not particularly common, a substantial minority views this type of misinformation as highly reliable in each country surveyed (Ireland, UK, US, Spain and Mexico). In addition, a small group of participants find common factual information about the virus highly unreliable.

The authors also found that increased susceptibility to misinformation negatively affects people’s self-reported compliance with public health guidance about Covid-19, as well as people’s willingness to get vaccinated against the virus and to recommend the vaccine to vulnerable friends and family. In all of the countries surveyed, higher trust in scientists and having higher numeracy skills were associated with lower susceptibility to coronavirus-related misinformation.
3  EVIDENCE OF FACTORS AFFECTING VACCINE UPTAKE

A paper published in 2018 identified three psychological propositions for understanding and intervening to increase uptake where vaccines are available and affordable:

- **thoughts and feelings** can motivate getting vaccinated - hundreds of studies have shown that **risk beliefs** and **anticipated regret** about infectious disease correlate reliably with getting vaccinated; **low confidence** in vaccine effectiveness and concern about **safety** correlate reliably with not getting vaccinated. The authors reported that, at that time, few randomized trials have successfully changed what people think and feel about vaccines and those few that succeeded were minimally effective in increasing uptake.

- **social processes** can motivate getting vaccinated - substantial research has shown that **social norms** are associated with vaccination, but few interventions have examined whether normative messages increase vaccination uptake. The authors noted that many experimental studies have relied on hypothetical scenarios to demonstrate that altruism and free riding (i.e. taking advantage of the protection provided by others) can affect intended behaviour, but few randomized trials have tested strategies to change social processes to increase vaccination uptake.

- **direct behaviour change interventions** can facilitate vaccination by leveraging, but not trying to change, what people think and feel - these interventions are the most plentiful and effective in the literature. To increase vaccine uptake, these interventions build on existing favourable intentions by **facilitating action** (through reminders, prompts and primes) and **reducing barriers** (through logistics and healthy defaults). These interventions also shape behaviour (through incentives, sanctions, and requirements).

A large-scale retrospective temporal modelling study (September 2020) mapped **vaccine confidence** in 149 countries between 2015 and 2019. **Confidence in the importance of vaccines** (rather than in their safety or effectiveness) had the strongest association with vaccine uptake compared with other determinants considered. When a link was found between individuals’ religious beliefs and uptake, findings indicated that minority religious groups tended to have lower probabilities of uptake.
A global survey of potential acceptance of a Covid-19 vaccine (October 2020) found that trust in government is strongly associated with vaccine acceptance and can contribute to public compliance with recommended actions. The authors concluded that addressing vaccine hesitancy requires more than building trust. Clear and consistent communication by government officials is crucial to building public confidence in vaccine programmes. This includes explaining how vaccines work as well as how they are developed, from recruitment to regulatory approval based on safety and efficacy.

Effective campaigns should also aim to carefully explain a vaccine’s level of effectiveness, the time needed for protection (with multiple doses, if required) and the importance of population-wide coverage to achieve community immunity. Instilling public confidence in regulatory agency reviews of vaccine safety and effectiveness will be important.

Credible and culturally informed health communication is vital in influencing positive health behaviours, as has been observed with respect to encouraging people to cooperate with Covid-19 control measures. This includes preparing the public and leaders of community, faith and voluntary organisations that are respected within various sectors of society and local communities, as well as the private sector, for a mass vaccination program with credible spokespeople, local engagement, accurate information and technological support.

The UK’s Covid-19 Vaccination Acceptability Study (CoVaccS), a nationally representative cross-sectional survey (preprint, published August 2020) found that:

- 64% of participants reported being likely to be vaccinated against Covid-19
- 27% were unsure
- 9% reported being unlikely to be vaccinated.

The authors found that personal and clinical characteristics, previous influenza vaccination, general vaccination beliefs and beliefs and attitudes about Covid-19 and a Covid-19 vaccination explained 77% of the variance in vaccination intention. Intention to be vaccinated was associated with:

- more positive general Covid-19 vaccination beliefs and attitudes
- weaker beliefs that the vaccination would cause side effects or be unsafe
- greater perceived information sufficiency to make an informed decision about Covid-19 vaccination
- greater perceived risk of Covid-19 to others but not oneself
- older age
- having been vaccinated for influenza last winter (2019/20).

The authors concluded that, despite uncertainty around the details of a Covid-19 vaccination, most participants reported intending to be vaccinated, but noted that actual uptake will likely be lower than intended uptake. They recommended that campaigns and messaging about a Covid-19 vaccination should emphasize the risk of Covid-19 to others and the necessity for everyone to be vaccinated.
The Policy Institute’s report *Coronavirus uncertainties: vaccines, symptoms and contested claims* (August 2020) describes findings from a survey of 2,237 UK residents. These include:

- Half of the population (53%) say they’d be **certain or very likely** to get a vaccine against Covid-19, if one becomes available, with one in five (20%) **fairly likely**.

- 1 in 6 people (16%) **say they are unlikely to or definitely won’t** get a Covid-19 vaccine, if one becomes available. This rises to even higher levels among different groups, such as those who:
  - believe face masks are bad for people’s health (37%)
  - believe masks do not reduce the spread of Covid-19 (34%)
  - strongly agree that too much fuss is being made about the pandemic (36%)
  - say they do not find coronavirus stressful (27%)
  - say they’re very much the kind of person for whom it’s important to make their own decisions (24%)
  - say they’re not at all the kind of person who follows the rules at all times (24%).

- Certain **behaviours and experiences** are also linked to being unlikely to get a potential vaccine, eg around a quarter of those who don’t wear face masks (24%) and those who have/had or think they’ve had Covid-19 (23%) say they probably or definitely won’t.

- Where people’s knowledge on the virus comes from is also a factor: 27% of people who get a great deal of their information on Covid-19 from WhatsApp say they are unlikely to or definitely won’t get a vaccine.

The study also found that some are still uncertain about what the **key signs** of Covid-19 are. Many know at least one of the three main symptoms of coronavirus (as identified by the NHS), with 81% recognising two – but **only 31% correctly recognised all three**.

A rapid online survey (preprint, July 2020) was carried out to evaluate **vaccine literacy** (VL) skills in the general Italian population and perceptions about candidate Covid-19 vaccines, as well as behaviour and beliefs about current vaccinations. Perceptions regarding future Covid-19 vaccines, along with beliefs about vaccination, were mostly positive and significantly associated with functional and interactive-critical VL scales.

A study into the willingness of UK adults at **high-risk of Covid-19** to receive a Covid-19 vaccine (preprint, July 2020) found that just over one in five (23.1%) of all those surveyed are unwilling or unsure whether they would receive a Covid-19 vaccine, including those at increased risk of Covid-19 morbidity and mortality. There are socio-demographic differences in willingness:

- individuals who were older (vs. younger)
- from white ethnic groups (vs. BAME groups)
- married or cohabiting (vs. single, widowed, divorced)
- unemployed (vs. in full or part-time employment)
- educated to degree level or above (vs. below degree level)
- a non-smoker or an ex-smoker (vs. a current smoker, for both comparisons)
- had not had Covid-19 (vs. has or has had COVID-19)

were **significantly more likely to be willing** to have a Covid-19 vaccine. Willingness did not vary between other socio-demographic or clinical groups, including high-risk group classification for both the individual and member of their household.
Research undertaken by PHE to explore motivations for and barriers to uptake of any potential Covid-19 vaccine and how these can be overcome (September 2020, unpublished) identified four population segments:

### Segment

<table>
<thead>
<tr>
<th>Characteristics</th>
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<tbody>
<tr>
<td><strong>Acceptors</strong></td>
</tr>
<tr>
<td>Majority population: Not demographically distinctive, can include people with long term health conditions (LTHC)</td>
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<tr>
<td>Ethnic minority: some younger across all ethnic groups and higher socio-economic groups (SEGs)</td>
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<tr>
<td>Health &amp; Social Care Workers (HSCW): Most majority population medical and care staff and a few ethnic minorities</td>
</tr>
<tr>
<td><strong>Waverers</strong></td>
</tr>
<tr>
<td>Majority population: Not demographically distinctive, can include LTHC</td>
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<tr>
<td>Ethnic minority: second generation across all groups, lower SEG</td>
</tr>
<tr>
<td>HSCW: Some majority population medical and care staff concerned about short vaccine trial period, a few ethnic minorities</td>
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<tr>
<td><strong>Doubters</strong></td>
</tr>
<tr>
<td>Majority population: More likely younger, mixed SEG; see selves as healthy, fit and low risk of viruses (or strong response to viruses) per se</td>
</tr>
<tr>
<td>Ethnic minority: some third generation Pakistani and Bangladeshi, lower SEG</td>
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<tr>
<td>HSCW: Some majority population medical and care staff</td>
</tr>
<tr>
<td><strong>Resistors</strong></td>
</tr>
<tr>
<td>Majority population: not seen in this sample (in other work, likely to be rejectors of vaccination per se)</td>
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<tr>
<td>Ethnic minority: Black African, Black Caribbean, and some Muslim older men</td>
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<td>HSCW: Not seen in majority population sample but evident in ethnic minority HSCWs</td>
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Barriers were identified for all audiences:

### Barrier

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<th>Characteristics</th>
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<tr>
<td><strong>Lack of information about benefits and potential risks</strong></td>
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<tr>
<td>Absence of clear and concise information fuels concern - most concerns are around safety and potential side effects of a vaccine - and those who are in at-risk groups are concerned about how a vaccine might affect them differently</td>
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<tr>
<td>Knowledge issues span both lack of understanding of benefits and fear of harm - both are essential to address but fear of harm is primary as benefits won't be considered unless fear is overcome. For some, once specific information about a vaccine becomes available, this can be addressed - others will require more persuading as other factors (such as misinformation) may be influencing their perspective</td>
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<tr>
<td><strong>Decreased sense of urgency since first lockdown eased</strong></td>
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<td>For some who are wavering as well as younger, and those who feel fit and healthy more generally, the drop in numbers of serious cases &amp; deaths has created the perception that the virus is less of a threat than it was</td>
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<tr>
<td>Research went into field in late August, when local lockdowns were not widespread, however lack of trust in decisions is also a factor here, and may be leading to a decreased sense of urgency even with local lockdowns</td>
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<tr>
<td>Other safety protocols (hand sanitising etc.) are seen to be working, so some are questioning how important is getting vaccinated (given concerns)</td>
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<tr>
<td><strong>Misinformation and mistrust are influencing potential uptake</strong></td>
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<tr>
<td>The majority population sample less likely to report conspiracy theories as an influence - though those with low sense of personal risk and any doubt are open to information that offers rational arguments against the vaccine (likely to be younger, healthier people)</td>
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<tr>
<td>Many respondents within the ethnic minority sample talk about the deluge of conspiracy theories circulating via social media</td>
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<td>Mistrust in the Government and voices of ‘authority’ is adding to resistance, with changing and conflicting messages creating confusion</td>
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<td><strong>Perceptions/experience of discrimination is a barrier for some ethnic minority communities</strong></td>
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<td>The higher risk of and from Covid-19 for some ethnic minority communities is raising alarm bells - there is an awareness of their higher risk of contracting and dying from the virus but the absence of a clear, concrete rationale for this higher risk is generating further mistrust in the Government</td>
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<tr>
<td><strong>Practical barriers have the potential to impact uptake</strong></td>
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<td>Less of an issue majority population sample and ethnic minority acceptors and waverers as once benefit is understood, there is a willingness to make the effort to overcome any practical issues</td>
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<tr>
<td>For other ethnic minority samples, convenience and ease of access the vaccine cannot be underestimated, and without multiple delivery points, practical factors will influence willingness to vaccinate</td>
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<tr>
<td>The current issues around accessing testing fuels concern about how easy it will be to get vaccinated</td>
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The authors noted that communications can’t influence everything – but it has a key role. Other approaches may be required to address or counter experience of discrimination and environmental barriers.
They recommended **key messaging** across all groups:

Source: PHE (unpublished)

There is both cross-over and variation in **trusted voices** that work well, meaning some have a role with all audiences and additional specific voices will have value for ethnic minority audiences.

**Suggested considerations for campaigns:**

![Diagram showing key messaging and trusted voices]

**Perceptions of the disease**
- **Vulnerability:** potential susceptibility to serious complications from COVID-19
- **Severity:** address the reduced sense of urgency by reminding people of risks of contracting the disease

**Perceptions of the behaviour**
- **Barriers:**
  - Primary: assurances around safety and side effects
  - Secondary: social proof (to reinforce safety message – key for mistrust)
- **Benefits:**
  - Primary: focus on protecting others
  - Secondary: helping return to normal

**Cues to action**
- **Credible voices:** scientists, HCPs
- **Motivating voices:** people like me, vulnerable people
- **Media channels:**
- **Audience specific targeting of messages**

*Loosely based on the ‘Health Belief’ model*

*Not a role for Comms to directly address*

Source: PHE (unpublished)
UK survey data on Covid-19 intended uptake (fieldwork mid-October 2020, unpublished) indicate that 74% definitely/probably would get vaccinated, 15% would definitely/probably not get vaccinated and 11% were not sure. The most frequent reasons identified by those who would definitely/probably not get vaccinated or are unsure were:

- I am worried about the side effects (45%)
- I don’t think the vaccine will be safe (32%)
- I would like to wait until others have had it first (29%)
- I am concerned about the ingredients used in it (28%)
- I don’t trust the intentions behind wanting to vaccinate the public against Covid-19 (26%)

The most frequent reasons FOR getting vaccinated were:

- It will protect me against getting Covid-19 (65%)
- It will ensure that society is able to function normally again (64%)
- It will protect people I come into contact with from getting Covid-19 (61%)
- It will protect the NHS (56%)

Preliminary results from a study undertaken by Kantar on attitudes and beliefs about a Covid-19 vaccine (unpublished) indicate the importance of:

- The perceived efficacy of a vaccine is a major driving factor in intended uptake
- The value of a ‘trusted advisor/trusted location’ is important for fence-sitters (eg invitation letter from GP, use of GP surgery as location for vaccination clinic)
- Public trust is vital
- There is a perception that the speed of vaccine development means that corners will have been cut and the vaccine is not safe/effective
- Self-efficacy and perception of risk differs significantly across age groups, eg younger people (under 35) tend of have doubts about seriousness of covid, feel risk is exaggerated