
January 14, 2021

The Independent Scientific Advisory Group for Emergencies (SAGE)

The Independent SAGE Report 30

Maintaining adherence to protective behaviours during vaccination roll-out

Summary and recommendations

www.independentSAGE.org
[@independentSAGE](https://twitter.com/independentSAGE)
YouTube: IndependentSAGE

Submitted to The UK Government and the People of Great Britain & Northern Ireland by Sir David King, former Chief Scientific Adviser, UK Government, Chair of Independent SAGE

Maintaining adherence to protective behaviours during vaccination roll-out

Summary and recommendations

The roll-out of the new Covid-19 vaccines is welcomed. But it is not a 'silver bullet'.

There are two main reasons why adherence to protective behaviours is still required.

First, the vaccines will increase the likelihood of preventing illness from developing in individuals, but the extent to which they prevent transmission of the virus from asymptomatic carriers is not yet known and is unlikely to be known for several months.

Second, even if the vaccines do prevent transmission, we are unlikely to achieve population immunity. Even with 90% real-world efficacy for the vaccine, the new variants of the virus would require about 90% of the population to be vaccinated, and the Department for Health and Social Care estimate that take-up will not be higher than 75%.¹

Therefore, public adherence to protective behaviours – hand-cleansing, physical distancing, wearing face-coverings, use of ventilation, self-isolation – is likely to remain crucial for the foreseeable future. Research evidence suggests that some people who have been vaccinated might reduce their adherence to protective behaviours. In the context of the more transmissible B1117 variant of the SARS-CoV-2 virus, such a reduction in adherence is likely to lead to greater spread, further harmful variants, and many more people ill, hospitalised, suffering from long-COVID, and dead.

We recommend the following key actions to help with public adherence:

For policymakers:

- Develop a **communication campaign** that explains the role of vaccination in combination with other necessary measures and **promotes protective behaviours as part of an overall strategy**.
- **Ensure the campaign** clarifies that, while vaccines will relieve pressure on NHS and greatly reduce deaths, Covid remains a serious public health risk that requires a Find Test Trace Isolate & Support system.
- Prepare for, and take action to promote, **adherence to COVID-19 protective behaviours** as the vaccine programme is rolled out, particularly among those who have been vaccinated.

For people who have been vaccinated:

Communications from government and public health agencies to those who do not feel personally under threat should:

¹ DHSC (2020, January 11) UK COVID-19 vaccines delivery plan.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/951284/UK_COVID-19_vaccines_delivery_plan.pdf

- Stress the continued need to adhere to the guidelines and regulations on protective behaviours for **others**, for **those who are more vulnerable** (and who are still vulnerable until **everyone** is safe), and for our **communities**.
- Clearly explain the criteria that will enable people to transition stepwise to physical contact with others not in their household than is currently recommended.

In communications to those unconvinced by the measures, the messaging should be:

- **Transparent about any uncertainty** to earn trust^{2 3}
- **Co-created**, for example by involving ‘community champions’,⁴ with those communities where adherence is most likely to be an issue because of perceiving their risk to be lower in the light of the vaccination programme.⁵
- **Communicated consistently by trusted sources** who are believed to have knowledge and are distanced from distrusted political figures.^{6 7} Such people could include local medical and public health professionals, community champions, employers, and representatives of schools, further and higher education institutions.
- **Mobilise communities at a local level.** Communities with higher levels of social cohesion are likely to respond to implementation efforts more readily, suggesting a need not only to focus on individuals but also communities (9, 18).

Communication to everyone should:

² Wright, L., Steptoe, A., & Fancourt, D. (2020). What predicts adherence to COVID-19 government guidelines? Longitudinal analyses of 51,000 UK adults. *MedRxiv*. doi: <https://doi.org/10.1101/2020.10.19.20215376>

³ Van Der Bles, A. M., van der Linden, S., Freeman, A. L., & Spiegelhalter, D. J. (2020). The effects of communicating uncertainty on public trust in facts and numbers. *Proceedings of the National Academy of Sciences*, 117(14), 7672-7683.

⁴ SPI-B (2020, October 22). Role of Community Champions networks to increase engagement in context of COVID-19: evidence and best practice, 22 October 2020 <https://www.gov.uk/government/publications/role-of-community-champions-networks-to-increase-engagement-in-context-of-covid-19-evidence-and-best-practice-22-october-2020>

⁵ SPI-B (2020, October 22). Positive strategies for sustaining adherence to infection control behaviours <https://www.gov.uk/government/publications/spi-b-positive-strategies-for-sustaining-adherence-to-infection-control-behaviours-22-october-2020>

⁶ Boynton MH, O'Hara RE, Tennen H, Lee JGL. (2020). The Impact of Public Health Organization and Political Figure Message Sources on Reactions to Coronavirus Prevention Messages. *Am J Prev Med*. 27:S0749-3797(20)30371-8. doi: 10.1016/j.amepre.2020.08.001

⁷ Royal Society. COVID-19 vaccine deployment: Behaviour, ethics, misinformation and policy strategies. Royal Society & British Academy, 21 October 2020.

- Emphasise the continued **effectiveness** of measures such as hand-cleansing, wearing face-coverings, and at least 2m physical distancing.
- Strengthen collective commitment to **groups norms**. This refers to the sense that continued adherence to behavioural mitigations as the vaccine rolls out are **valued** by the whole community and **prevalent** in the community.⁸ This would involve working with the mass media to reflect the evidence of continued high levels of adherence and not to focus overly on the exceptions.
- Be available in multiple formats, be repeated and sustained and also be flexible to adapt to emerging evidence.

Background

Concerns over the roll-out of the Covid-19 vaccination programme have mainly focused on the logistics and timing of vaccine delivery.⁹ But potential unintended behavioural consequences are also important, as they could undermine the benefits of vaccination: reduced adherence could offset at least some of the benefits of vaccination by increasing infection rates,¹⁰ particularly in the early months, before there is a high degree of coverage.¹¹ One possible unintended consequence is the risk of reducing adherence to other protective behaviours such as hand-cleansing, face covering, physical distancing, limiting contact with others, and self-isolation. Adherence might decline if people feel less of a need for protection, if they think they others are no longer vulnerable or contagious, or if the rules and guidance become less salient to them as attention focuses more on the vaccine – as recent survey data has suggested.¹² Indeed, recent UK government messaging has highlighted the positive prospects for the vaccination programme to the detriment of all other important measures (such as Find, Test Trace, Isolate & Support),¹³ which were not mentioned at all.

⁸ Despite some fluctuations in public adherence, overall levels have remained very high throughout the pandemic. Reicher, S., & Drury, J. (2020, January 7). Pandemic fatigue? How adherence to covid-19 regulations has been misrepresented and why it matters. *BMJ Opinion*. <https://blogs.bmj.com/bmj/2021/01/07/pandemic-fatigue-how-adherence-to-covid-19-regulations-has-been-misrepresented-and-why-it-matters/>

⁹ Majeed A, Molokhia M. Vaccinating the UK against covid-19. *BMJ*. 2020 Nov 30;371:m4654. doi: 10.1136/bmj.m4654

¹⁰ Vilches TN, Jaber-Douraki M, Moghadas SM. Risk of influenza infection with low vaccine effectiveness: the role of avoidance behaviour. *Epidemiol Infect*. 2019 Jan;147:e75. doi: 10.1017/S0950268818003540.

¹¹ Rajaraman R, Sun Z, Sundaram R, Vullikanti AK. Network effects of risk behavior change following prophylactic interventions. *PLoS One*. 2013 Aug 1;8(8):e64653. doi: 10.1371/journal.pone.0064653

¹² YouGov. YouGov/SKY Survey Results. December 2020 https://docs.cdn.yougov.com/8jj48ajo8c/SKY_Vaccine_201203.pdf

¹³ Independent SAGE (2020, June 18). Final Integrated Find, Test, Trace, Isolate, Support (FTTIS) response to the Pandemic. Independent SAGE report 5. https://www.independentsage.org/final_fttis_june2020/

The influence of these factors might vary across different sectors of society – the YouGov polling data suggests adherence will be a greater issue for young people.¹⁴ Younger people will be last to be vaccinated; they may be less likely to die from infections, but can still suffer from long Covid. Moreover, the concern that protective behaviours might be undermined throughout the population applies to everyone irrespective of age. While they are getting vaccinated first, older people may accept more people into their home and wash their hands less. The risk is not just onward transmission but becoming infected themselves.

Possible adverse behavioural effects resulting from vaccine roll-out: Reduction in adherence to protective behaviours

‘Risk compensation’ refers to a process in which a risk reduction in one aspect of someone’s life results in that person taking greater risks in related areas.¹⁵ In principle it is possible that being vaccinated against COVID could lead people to feel they need to adhere less to rules and guidance aimed at preventing transmission of the virus.

The evidence for risk compensation across different health protective behaviours is mixed. Here, we consider evidence in relation to vaccination, as we cannot generalise from different behaviours and contexts. A systematic review of 20 studies on the roll-out of the human papillomavirus vaccine found no evidence that vaccination resulted in an increase in risky sexual behaviour.¹⁶ However, sexual behaviours have different motivations from COVID-19 protective behaviours and the context is different.

For other infectious diseases, there is some evidence of risk compensation for some behaviours after vaccination. A longitudinal study of behaviour following Lyme disease vaccination found that **those vaccinated were subsequently less likely to adhere to two of five preventive behaviours.**¹⁷ Another longitudinal study, particularly relevant for current concerns, found that those given the flu vaccine **changed their behaviour to interact with more people, in larger groups, in the two days following receipt of the vaccine than beforehand.**¹⁸

¹⁴ YouGov. YouGov/SKY Survey Results. December 2020
https://docs.cdn.yougov.com/8jj48ajo8c/SKY_Vaccine_201203.pdf

¹⁵ Pless, B. (2016). Risk compensation: Revisited and rebutted. *Safety*, 2(3), 16.

¹⁶ Kasting ML, Shapiro GK, Rosberger Z, Kahn JA, Zimet GD. Tempest in a teapot: A systematic review of HPV vaccination and risk compensation research. *Hum Vaccin Immunother*. 2016 Jun 2;12(6):1435-50. doi: 10.1080/21645515.2016.1141158

¹⁷ Brewer NT, Cuite CL, Herrington JE, Weinstein ND. Risk compensation and vaccination: can getting vaccinated cause people to engage in risky behaviors? *Ann Behav Med*. 2007 Aug;34(1):95-9. doi: 10.1007/BF02879925

¹⁸ Reiber C, Shattuck EC, Fiore S, Alperin P, Davis V, Moore J. Change in human social behavior in response to a common vaccine. *Ann Epidemiol*. 2010 Oct;20(10):729-33. doi: 10.1016/j.annepidem.2010.06.014

There is also some evidence that risk compensation is possible in the context of a Covid-19 vaccine roll-out. A national survey carried out in early December 2020¹⁹ found that 50% of those surveyed said that after receiving the vaccine they would still follow whatever coronavirus rules or restrictions were in place as strictly as they were before getting a vaccine. But **29% said that they would adhere less strictly than before, with 18-24-year-olds most likely to say this; 11% said that they would ‘probably no longer follow whatever coronavirus rules or restrictions were in place once I had been vaccinated’.**

A national poll the day after UK vaccine roll-out had begun²⁰ found that **22% said they believed that those who had been vaccinated ‘should not be subject to any more coronavirus restrictions’, a view most likely to be held by younger than older people.**

Research from other areas of public health suggests that there is also a danger of adverse behavioural effects of vaccination roll-out among those who have not (yet) been vaccinated. Where relatives, friends, neighbours, or work colleagues have been vaccinated, this may foster a spurious sense of safety among those not yet vaccinated. Where those who have been vaccinated themselves reduce adherence to protective behaviours, such decreases can easily become seen as normative within their circle, leading others in their network -- including those without vaccination -- to do the same.^{21 22}

Maintaining protective behaviours: Communication strategies

Multiple forms of communication will be needed to maintain adherence to protective behaviours during vaccine rollout. Governments should invest in mass media campaigns that are co-created, tested with the public prior to roll out, adequately resourced and sustained. Communication materials should be developed in a range of formats suitable to the needs of different communities and should be updated or modified if new evidence emerges as vaccine rollout proceeds.

For communication strategies to be effective, they should be from a trusted source, should be clear and should provide actionable guidance.²³ Communication strategies

¹⁹ YouGov. YouGov/SKY Survey Results. December 2020 https://docs.cdn.yougov.com/8jj48ajo8c/SKY_Vaccine_201203.pdf

²⁰ YouGov. YouGov Health Survey Results. December 2020 <https://yougov.co.uk/topics/health/survey-results/daily/2020/12/08/d6bc9/1>

²¹ Neville, F. G., Drury, J., Reicher, S., Choudhury, S., Stott, C., Ball, R., & Richardson, D. C. (2020). Self-categorization as a basis of behavioural mimicry: Experiments in The Hive. *PLoS ONE* 15(10): e0241227. <https://doi.org/10.1371/journal.pone.0241227>

²² Lakin JL, Chartrand TL. Using nonconscious behavioral mimicry to create affiliation and rapport. *Psychological Science*. 2003;14(4):334–9. <https://doi.org/10.1111/1467-9280.14481>

²³ Independent SAGE (2020, November 13). UK government messaging and its association with public understanding and adherence to COVID-19 mitigations: Five principles and recommendations for a COVID communication reset. Independent SAGE report 22. <https://www.independentsage.org/uk-government->

should also be informed by psychological predictors of adherence to the behavioural regulations, which include: perceived risk,²⁴ perceived susceptibility to pandemic disease,²⁵ perceived efficacy of the measure,²⁶ solidarity with others,²⁷ identification with the family,²⁸ national identification,²⁹ referent group norms,³⁰ empathy with vulnerable groups,³¹ and normative pressures from the mass media and the government.³²

Communication strategies should therefore focus on effectiveness of and need to continue with other protective behaviours while the vaccine programme is being rolled out,³³ given the uncertainty about protection from infection or transmission. This rationale should be framed in terms of solidarity motives and shared norms (e.g., 'do it for your community'), and by combining images and words.

Communication strategies also need to take into account that those with lower incomes or education and from minority ethnic groups on average have lower intentions to undergo COVID-19 vaccination.³⁴ In part these differences reflect higher

[messaging-and-its-association-with-public-understanding-and-adherence-to-covid-19-mitigations-five-principles-and-recommendations-for-a-covid-communication-reset/](#)

²⁴ Majid U, Wasim A, Bakshi S, Truong J. Knowledge, (mis-)conceptions, risk perception, and behavior change during pandemics: A scoping review of 149 studies. *Public Underst Sci.* 2020 Nov;29(8):777-799. doi: 10.1177/0963662520963365

²⁵ Bish A, Michie S. Demographic and attitudinal determinants of protective behaviours during a pandemic: a review. *Br J Health Psychol.* 2010 Nov;15(Pt 4):797-824. doi: 10.1348/135910710X485826

²⁶ Clark, C., Davila, A., Regis, M., & Kraus, S. (2020). Predictors of COVID-19 voluntary compliance behaviors: An international investigation. *Global Transitions, 2*, 76-82.

²⁷ Gidengil CA, Parker AM, Zikmund-Fisher BJ. Trends in risk perceptions and vaccination intentions: a longitudinal study of the first year of the H1N1 pandemic. *Am J Public Health.* 2012 Apr;102(4):672-9. doi: 10.2105/AJPH.2011.300407

²⁸ Vignoles, V. L., Jaser, Z., Taylor, Z., & Ntontis, E. (in press). Harnessing shared identities to mobilise resilient responses to the COVID-19 pandemic. *Political Psychology.* <https://psyarxiv.com/g9q5u/>

²⁹ Van Bavel, J., & Boggio, P. (2020). National identity predicts public health support during a global pandemic. <https://psyarxiv.com/ydt95/>

³⁰ Tuncgenc, B., El Zein, M., Sulik, J., Newson, M., Zhao, Y., Dezechache, G., & Deroy, O. (2020). We distance most when we believe our social circle does. <https://psyarxiv.com/u74wc/>

³¹ Pfattheicher, S., Nockur, L., Böhm, R., Sassenrath, C., & Petersen, M. B. (2020). The emotional path to action: Empathy promotes physical distancing during the COVID-19 pandemic. *Psychological Science* <https://doi.org/10.1177/0956797620964422>

³² Seale, H., Dyer, C.E.F., Abdi, I. et al. Improving the impact of non-pharmaceutical interventions during COVID-19: examining the factors that influence engagement and the impact on individuals. *BMC Infect Dis* 20, 607 (2020). <https://doi.org/10.1186/s12879-020-05340-9>

³³ Clark, C., Davila, A., Regis, M., & Kraus, S. (2020). Predictors of COVID-19 voluntary compliance behaviors: An international investigation. *Global Transitions, 2*, 76-82.

³⁴ E. Robinson, A. Jones, I. Lesser and M. Daly, "International estimates of intended uptake and refusal of COVID-19 vaccines: A rapid systematic review and meta-analysis of large nationally representative samples," *MedRxiv*, 2020 <https://www.medrxiv.org/content/medrxiv/early/2020/12/03/2020.12.01.20241729.full.pdf>

mistrust in government amongst marginalised communities:³⁵ if these are not addressed, current inequalities are likely to be increased further.

³⁵ Y. Witter (2020) Test and Trace Programme and the needs of BAME Communities. The Ubele Initiative. <https://static1.squarespace.com/static/58f9e592440243412051314a/t/5f15bc00b1722b16b0151046/1595259905533/Test+and+Trace+Programme+and+the+needs+of+BAME+Communities+-+report.pdf>

indie_SAGE