Highlight Notice: Covid-19 virus (SARS-CoV-2) research on transmission

Highlight Notice: Covid-19 virus (SARS-CoV-2) research on priority groups - transmission, risk factors and seroprevalence

Background

Research to understand the epidemiology of the disease, including its prevention and control will be critical for mitigating the severity of the COVID-19 pandemic. Rapid progress in addressing this depends upon a coherent and integrated response from researchers, industry, the health and care systems, and the public. To address this need UKRI and NIHR have launched a rolling call for rapid research proposals that addresses emerging priorities with potential to deliver public health impacts within 12 months, or sooner if feasibly and scientifically possible. Within this call there is already a highlight notice on ethnicity and COVID-19.

To help inform policy decisions about COVID-19, including possible decisions about infection prevention strategies and any relaxation of existing containment measures, there is an ongoing need to better understand the epidemiology of the disease, specifically:

- the transmission of disease;
- risk factors for both disease transmission and acquisition;
- levels of exposure to the COVID-19 virus within certain priority groups (SARS-CoV-2) i.e. seroprevalence.

These highlight notices identify two priority research requirements. Applications are invited in both the following areas:

1. Transmission of disease;
2. Priority groups - transmission, risk factors and seroprevalence.

HIGHLIGHT NOTICE: COVID-19 VIRUS (SARS-CoV-2) RESEARCH ON TRANSMISSION

New cases continue to occur in a variety of settings despite the containment measures. We need to understand better what is driving this continued transmission. This highlight notice identifies the need for further rapid research using epidemiological methods to determine risk factors for transmission, which groups are most likely to become infected (i.e. who is transmitting infection to whom?), and in what environments does transmission occur.

Research applications are invited to investigate the routes of transmission in different environments and groups.

Research could include:

- Enhanced ongoing surveillance studies to quantify and understand the mechanisms and drivers underlying continued transmission in a variety of settings.
- This could include case-control approaches identifying key risks of transmission in a range of settings and communities (including hospitals, care settings, workplaces and household transmission).
- This should draw on and be integrated with existing surveillance mechanisms, and work closely alongside Public Health England. It should involve multi-disciplinary integrated studies of empirical and molecular epidemiological approaches. It should result in rapid and accessible data published in a timely way to inform national and locally targeted response.
HIGHLIGHT NOTICE: COVID-19 VIRUS (SAR CoV-2) RESEARCH ON PRIORITY GROUPS - TRANSMISSION, RISK FACTORS AND SEROPREVALENCE

This highlight notice identifies a policy need for further research with children, healthcare and social care workers and nursing / residential care homes. Research in other groups and settings is also welcomed in this DHSC/UKRI call.

1. Groups at high-risk of infection

There is emerging evidence of potentially increased infection risk in health and social care workers in different roles, and among staff and residents of nursing and residential homes. Understanding the levels of infection (including asymptomatic) in these groups, relative to the general population, and the factors that are driving this will be critical for reducing transmission, morbidity and mortality. We are interested in proposals looking at transmission, exposure, risk factors for disease acquisition and seroprevalence in priority groups. Examples include:

- **Healthcare and social care workers:**
  - What are their risk factors for acquiring infection and for severity of disease? Is there any mechanistic basis underpinning these risks factors?
  - To what extent does transmission occur within these groups? What are the roles of health and care workers in propagating infection, both in nosocomial and community transmission?
  - What are the demographics, working patterns and working conditions of social care workers and how have these altered to reduce transmission?

- **Nursing home and residential home residents:**
  - What is the infection rate / seroprevalence in this group?
  - Is the infection rate in these groups higher compared to similar age-matched groups?
  - What are the risk factors for infection in these groups e.g. different care home characteristics and practices?

2. Understanding the role of children in transmission

More evidence is needed to inform policy decisions around exiting the lockdown measures. For example, what role(s) do children play in transmission of infection? While children generally show milder clinical courses than adults, their role in propagating infection (including via asymptomatic or mildly symptomatic disease) remains unclear. A confounding issue of transmission is drop-off and pick up from school by parents and carers. Studies to determine the role of early-years children, school-aged children, and adult teaching staff in transmission within educational institutions will be valuable in informing decisions about re-opening of schools. Furthermore, better understanding of asymptomatic transmission will be crucial in the modelling of transmission events and understanding the extent of immunity in the population.

**All applications should consider:**

Applicants should where possible take advantage of existing resources and data which may have been collected for other purposes, including existing population cohorts or clinical trial data.

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1 [https://www.hsj.co.uk/exclusive-deaths-of-nhs-staff-from-covid-19-analysed/7027471.article?mkt_tok=eyJpIjoiWm1NMFptTmlNakkkOWmpFeCIsInQiOiJWJSI5aGpoRWZXbmszUTNQXC85NFbVQlc2dmIRRGlNeiBSV2ttNnBITTRilMkvVaiIb4bDVuQmhdYkNhjRQaTU3QUVoTSfNMUWVzGRhZdTMIRicDBxQnhlN0tNWVpNXC93VriemNFV3BQVpLTIVGaFJ4iNwvZUd0cTZFYVBySkJmbiJ9](https://www.hsj.co.uk/exclusive-deaths-of-nhs-staff-from-covid-19-analysed/7027471.article?mkt_tok=eyJpIjoiWm1NMFptTmlNakkkOWmpFeCIsInQiOiJWJSI5aGpoRWZXbmszUTNQXC85NFbVQlc2dmIRRGlNeiBSV2ttNnBITTRilMkvVaiIb4bDVuQmhdYkNhjRQaTU3QUVoTSfNMUWVzGRhZdTMIRicDBxQnhlN0tNWVpNXC93VriemNFV3BQVpLTIVGaFJ4iNwvZUd0cTZFYVBySkJmbiJ9)
Transmission and seroprevalence studies are already underway, so proposals will be favoured that add value and ideally provide representative samples of the population including control groups where possible. Currently, the main routes for general population surveillance include routinely collected data e.g. via blood donation (NHSBT) and GP practices, and through specific COVID-19 seroprevalence studies commission by DHSC e.g. the DHSC/ONS survey. Furthermore, through the UKRI/NIHR call studies have been funded of children, a large household study ‘Virus Watch’ a focussed study of 200 healthcare workers and some testing of the Scottish population. Research that informs the number of asymptomatic cases, links to patient outcomes, routes of transmission, and informs thinking on policy making towards an ‘exit strategy’ are welcomed.

Applicants must have all the established collaborations and resources to carry out the proposal submitted. Groups proposing seroprevalence studies will need to provide evidence that they have access to assays of the required sensitivity, specificity and throughput for their target populations and studies at the point of application.

Research needs to be timely and reporting milestones should enable the enactment of evidence-informed policy to mitigate poor outcomes among groups in the short-term. Applicants should also describe how the outputs might “help inform policy decisions, including possible decisions about infection prevention strategies and any relaxation of existing containment measures.

This call supports NIHR’s single, national prioritisation process for COVID-19 research to prevent duplication of effort and ensure that the resources and capacity of health and social care systems are not exceeded. We are maintaining a live list of COVID-19 studies that have been given urgent public health research status by the Chief Medical Officer/ Deputy Chief Medical Officer for England\(^2\)