Introduction
Global concern around childhood immunisation rates is growing. In July 2022, the WHO and UNICEF released the latest estimates of routine immunisation coverage finding that 25 million children are missing routine vaccines, an increase of 6 million since before the pandemic and the highest number since 2006. First-dose measles vaccine uptake is also at its lowest level since 2008, a worrying sign given the infectiousness of measles and the correspondingly high local-level vaccine uptake rates (>95%) required to achieve herd immunity. These statistics have led Catherine Russell, UNICEF Executive Director, to put the world on notice: “This is a red alert for child health.”

The Vaccine Confidence Project (VCP) has measured vaccine confidence across the world since 2010. Since the start of the COVID-19 pandemic, findings from our regular confidence monitoring point to settings and socio-demographic groups with decaying confidence, notably in Africa, but also among younger populations in high-income European countries; a particular concern given their role in vaccinating children. These confidence losses — likely due to a combination of dented trust in Governments and policymakers, misinformation, and COVID-19 vaccination policies — are particularly worrying given the recent burdens on healthcare. We need to expand current efforts to establish the precise regions, social groups, and factors driving low uptake. In particular, we need to differentiate between regions with low vaccine confidence from those with low vaccine access and work with local, national, and regional policymakers to address local needs. Supporting this pivot from looking at confidence in vaccines at a national level to a local level is the focus of our funding request.

Funding requests

Support for early-stage researchers

The VCP has generated substantial COVID-19 vaccine confidence data from across the Africa, the EU, UK, USA, and Asia. With additional funding resources for staff, we can generate significant further insights, especially at sub-national levels and these data can be combined with historic VCP data dating back to 2015 to provide more long-term trends in vaccine confidence across the world. These analyses would be vital for examining long-term sub-national trends in vaccine confidence and assist many of our policy partners such as the European Commission, Africa CDC, UNICEF, and GAVI better understand barriers to vaccines and where (and how) to target catch up immunisation activities.

The VCP have developed a world-respected team of researchers, many of whom are in the early stages of their careers and will be leading the field for decades to come. Funding is often difficult to access for Early Career Researchers, so support is catalytic for their career, giving them time and opportunity to gain further and larger grant funding. A multi-year commitment of two or more years would be particularly welcome, allowing for greater stability for both the VCP and its staff.

- The support of £90,000 would provide annual salary and research costs for a Research Fellow who would improve our ability to analyse the data we have collected, and will continue to collect.
Beyond supporting our essential staff, which is our highest priority, we would also welcome support for expanding our data collection activities. Our pivot to sub-national data collection has revealed local confidence hotspots in many parts of the world (see figure 1 and 2). This means that large-scale data collection for sub-national analyses is able to be completed for up to €30,000 in high-income countries and €50,000 in low-income countries. We have successfully deployed sub-national surveys and modelling approaches in the UK via our UK Vaccine Attitude Monitoring (UKVAM) survey involving 60,000 people in 174 different regions collected between 2020 and 2022 (figure 2). This large-scale approach allowed us to successfully predict — before COVID-19 vaccine rollout — COVID-19 vaccine uptake at fine spatial scales across the UK, establish the socio-demographic groups least likely to vaccinate, and evaluate potential backlash against vaccine passports in younger and ethnic minority groups. We see a particular need to conduct this work beyond the UK, and Belgium and France would be obvious areas of expansion in Europe given the relatively low vaccine confidence, stringent vaccination policies, and diverse populations. New subnational data collection in Europe would utilise our existing partnership with The University of Antwerp, as part of the European Regional Office of the Vaccine Confidence Project.

• The support of £50,000 would provide funding for one large-scale survey generating local insights or multiple smaller-scale national surveys for continued monitoring of global vaccine confidence
• The support of £200,000 would provide multi-wave funding for large-scale surveys to generate local insights and spatiotemporal trends in vaccine confidence or vaccine acceptance OR for a national surveys across a continent

We thank you for considering supporting the essential work of the Vaccine Confidence Project. To discuss any of our work further please contact: Prof. Heidi Larson: heidi.Larson@lshtm.ac.uk (Director, VCP); Dr. Alex de Figueiredo: alex.defigueiredo@lshtm.ac.uk (Statistics Lead, VCP), or Izzy Goldstein: izzy.goldstein@vaccineconfidence.org (Digital Communications & Campaigns).
**Figure 1 Declining trends in vaccine confidence sub-nationally across Africa**

We have worked with Africa CDC to deploy multiple surveys across the continent over the past 24 months to understand trends in vaccine confidence across sub-Saharan Africa. There is a mixed picture across Africa: while many countries appear to have improved perceptions towards vaccines, notably Kenya; there are many regions with declining confidence in the importance of vaccines for children and their safety, notably in South Africa.

**Figure 2 Successful forecasting of COVID-19 vaccine acceptance in the UK**

We have conducted large-scale surveys in the UK before and during COVID-19 vaccine rollout to predict COVID-19 vaccine uptake before rollout (above), assess the impact of vaccine passports on intent to accept COVID-19 vaccines (see here), as well as find the sub-national regions of the UK most susceptible to misinformation (manuscript is currently in review in Science, and we are happy to provide a copy on request).

We have worked with NHS England to communicate regions of the UK who would have low COVID-19 vaccine uptake and advise on specific barriers within different regions and communities. In many of these areas, notably large urban areas such as London, Birmingham, and Manchester, where low intent to accept COVID-19 vaccines was driven by younger groups, ethnic minority populations, and non-English speakers.