Briefing note for NPHET: Study to investigate COVID-19 infection in the Irish population (SCOPI)

01.05.2020

Estimation of population age-specific immunity or past exposure to SARS-CoV-2 is one of the actions in Ireland's National Action Plan in response to COVID-19. The Department of Health National Public Health Emergency Team (NPHET) has asked HSE to proceed with plans to undertake a population sero-prevalence study. This work is being carried out jointly by HPSC and NVRL, in collaboration with the Central Statistics Office and Department of Health.

This document provides a summary outline of the study, including the design, sample size, and the proposed timeline for commencement. It also describes ongoing North-South collaboration in this work. It includes a request that NPHET and other key champions within HSE would emphasise to the public the importance of sero-prevalence studies in informing the public health response, so that the highest possible response from the public to the call to participate can be obtained.

Summary outline of the study

This work is based on the World Health Organization (WHO) "Population-based age-stratified sero-epidemiological investigation protocol for COVID-19 virus infection", adapted for use in the Irish population. This standardised approach will enable comparison between countries.

The study design comprises:

- A cross-sectional prospective study of the Irish population in two geographic areas (Dublin – higher incidence and Sligo – lower incidence) which will be repeated over time, at intervals to be determined by the evolution of the pandemic and other logistical factors.
- A serial sampling study among the subset of participants who are found to be antibody positive, if they consent to serial sampling at 3 months, 6 months and 12 months.

A random sample of individuals aged 12-69 years in Dublin and Sligo will be obtained. We are currently investigating whether this can be taken from the HSE Primary Care Reimbursement Service (PCRS) database. If this is possible, the methodology unit of the Central Statistics Office (CSO) will supply code to the PCRS statistical unit to select a nationally representative sample. We estimate that the required sample size to be 1600 for Dublin, and 1000 for Sligo.

Each randomly selected individual will be contacted by letter asking them if they would like to take part in the study, and will receive an information leaflet describing what participation in the study involves and who to contact. If they consent to take part in the study, they will be asked to complete a short questionnaire by phone and will also receive an appointment at a time convenient to them to visit the location where blood sampling will be undertaken**.**

This study aims to be as representative of the Irish population in the sampled areas as possible. The invitation letter will include information in several languages to indicate to recipients that interpretation services are available if required and how to access them. HSE interpretation services will be used to provide information for these individuals.

Those who have been advised to 'cocoon' will be excluded from the serological testing component of the study, as travelling to the sample testing locations poses a potential health risk to them. They will be included in the questionnaire aspect of the study.

Sample testing locations will be established by the HSE in the two selected areas where the study is being undertaken. Options for suitable sites are currently under investigation. On arrival at the test centre, the team (administrative personnel and nurse phlebotomists) will obtain written consent for sampling. A venous serum sample will be collected from each person by the nurse phlebotomist.

Specimens will be transported to the National Virus Reference Laboratory (NVRL) for testing within 72 hours. Serum samples will be screened, and confirmed if necessary, at the NVRL for the qualitatative detection of SARS-CoV-2 IgG using validated "in house" assays or verified commercial assays to detect SARS-CoV-2 IgG.

For those participants who are found to be SARS-CoV-2 antibody positive, arrangements will be made for repeat sampling 3, 6 and 12 months later, if the participant agrees. This will require new consent at this stage.

Samples will be stored in the NVRL for a period of 2 years and then will be destroyed**.** Samples will only be used for SARS-CoV-2 related research, and only by members of this research team, during this time.

Response rates and eligibility rates will be calculated. The antibody results, age, sex and geographic area of all participants will be used to calculate an age-specific prevalence of antibodies to SARS-CoV-2, with a 95% confidence interval, in the sampled populations. The relationship between the presence of antibodies to SARS-CoV-2 and reported symptoms or previous diagnosis of COVID-19 will be examined.

The participants will be informed of their individual results by letter, explaining that it is not a diagnostic test designed to confirm current infection for an individual, but a test designed to estimate COVID-19 infection at a population level. It will be explained that the presence of antibodies may not equate to immunity from future SARS-CoV-2 infection. They will be advised to continue to follow all social distancing and hygiene measures recommended by the government. The participant's GP will also be informed.

Anonymised results will be shared with NPHET to inform the national pandemic response. The HSE HPSC will also share anonymised results with WHO to add to global knowledge on the spread of COVID-19.

Ireland is currently participating in ECDC and WHO networks established to enable sharing of protocols, and results.

This cross-sectional survey will be repeated at one or more time points during the pandemic, with a different sample of participants. The interval will be determined by the evolution of the pandemic and other logistical factors.

A steering group has been established to oversee the design and operation of the study. The membership and terms of reference are set out in Appendix A.

The study is being funded by the HSE. HSE will arrange for indemnity for the study, and liaise with the State Claims Agency to put in place arrangements for cover for compensation in the event of a claim.

This proposal is being submitted to the National COVID-19 Research Ethics Committee for ethical approval. We are aiming for it to be submitted in time for consideration by the NREC at its weekly meeting on 13th May. Subject to NREC approval, the study will commence at the end of May.

North South Collaboration

There is keen interest in close North-South collaboration for this work. Northern Ireland is continuing to plan for a residual sera study.

An ONS household study was launched in England last week, in the pilot phase targeting 20,000 households (all ages over 2 years), with a questionnaire and a swab for all participants, with blood sampling of one adult family member for antibody testing. There are already plans to extend this to Northern Ireland. They are considering the option of an all-island approach, possibly using the ONS study. A mapping exercise of our study protocol against what is known of the ONS one is being planned to compare and contrast.

Two members of the Steering group from Northern Ireland are members of our steering group, and one member from our group attends their steering group meetings.

Communicating support for sero-prevalence surveys in informing public health COVID-19 response

We feel strongly that these studies are a critically important component in informing the public health response. Participation by the public will be greatly influenced by support from key influential public health and clinical leaders. If leaders are seen by the public as champions for this work, highlighting their importance, this will greatly support a high participation rate.

Appendix A

Study to investigate COVID-19 infection in the population of Ireland (SCOPI)

Steering Group

Terms of reference

1. To provide expertise and advice that will contribute to and strengthen the design of the national population study so that it achieves its purpose
2. To support the project team in preparing for the National Research Ethics Committee submission
3. To advise on financial, legal, and ethical matters related to the study
4. To oversee the implementation of the study
5. To promote and explain the study purpose to external stakeholders
6. To oversee the interpretation and reporting of the findings of the study, and encourage their use to support the public health response to the COVID-19 pandemic

Name		**Body**
Dr Derval Igoe	Specialist in Public Health Medicine (Chair)	HPSC
Dr Cillian de Gascun	Virologist and Director	NVRL
Dr Jeff Connell	Assistant Director, Principal Clinical Scientist	NVRL
Dr Siobhan O'Sullivan	Chief Bioethics Officer	DOH
Dr Mary Keogan	Clinical Lead, National Clinical Programme for Pathology & Consultant Immunologist	HSE Beaumont Hospital
Michele Tait	COVID19 Operations Team, Office of the Chief Operating Officer	HSE
Fiona O'Callaghan	Statistician	Central Statistics Office
Paul Crowley	Senior Statistician	Central Statistics Office
Dr Janice Bailie	Assistant Director R&D	Public Health Agency, Northern Ireland
Dr Frank Kee	Director of UKCRC Centre of Excellence for Public Health Research (NI), Deputy Director for the Centre for Public	Queens University Belfast

	Health	
Dr Margaret O'Sullivan	Specialist in Public Health Medicine	HSE South
TBC	General Practitioner	ICGP
Dr Laura Heavey	Study Coordinator, Specialist Registrar Public Health Medicine	HPSC
Dr Lelia Thornton	Specialist in Public Health Medicine	HPSC
Dr Patricia Garvey	Surveillance Scientist	HPSC
Dr Aoife Colgan	Surveillance Scientist	HPSC