PHE Paper for SAGE - Community surveillance following the lifting of restrictions

Introduction

PHE has a range of surveillance schemes based in the community, mostly established for surveillance of influenza. In line with pandemic plans, these schemes have been stepped up during the COVID response and, where appropriate, have been amended to provide COVID specific outputs. A brief summary of the on-going systems and the current developments are described below. These systems are expected to continue long term and should be able to monitor the impact of lifting restrictions.

Syndromic surveillance systems

NHS data collected on a daily basis and reported through a weekly surveillance report and includes.

- Emergency department attendances with respiratory syndromes.
- General Practice (GP) in hours and out of hours attendances
- NHS 111 calls for a range of respiratory symptoms

FluSurvey: weekly voluntary reporting of symptoms by self-recruited cohort. Previously used for seasonal influenza now adapted for COVID-19.

All-cause mortality – reported daily from General Register Office and analysed by region and age to detect excess on a daily and weekly basis

Specific surveillance systems

Primary care surveillance

The Royal College of General Practitioners (RCGP) network of around 500 sentinel practices, linked to the denominator of patients registered, are reporting1

- GP consultations for influenza like illness (ILI) and lower respiratory tract infection (LRTI)
- sentinel swabbing from around 100 participating practices of patients presenting with ILI or LRTI to monitor positivity rates over time, age and geography

Outbreak surveillance

Reports of respiratory outbreaks in key settings (schools, prisons, care homes etc) from local health protection teams. Reporting includes both confirmed and suspected COVID-19 outbreaks.

Serological-surveillance

The PHE Sero Epidemiology Unit has been collecting anonymised age stratified residual sera from PHE laboratories since 1987. Samples are archived and stored at Manchester PHE and tested for a range of pathogens. As undertaken in the 2009 flu pandemic, target samples numbers have been increased by requesting supplemental samples from biochemistry laboratories, to provide 1000 samples per month for monitoring of cumulative incidence at each time point. Over 800 samples have been received so far.

Since 2018, this survey collection has been enhanced by collection of serum samples through the RCGP network, mainly taken from those aged >10 years having blood collection for other purposes (such as health checks). Over 400 samples have been received so far.

[1] https://publichealth.jmir.org/2020/2/e18606/

Digital surveillance systems

Web-based monitoring of trends in coronavirus related search queries via google using an established analytical approach developed by UCL.

Recent developments

Primary care surveillance

In response to the changes in primary care working, where most patients are now being assessed over the telephone, the system is rapidly moving to self-sampling, with samples being sent and returned by post to PHE Colindale. In addition, PHE are recruiting more practices, through RCGP and the Specialist Microbiology Network, to undertake virologic testing– the aim is to generate 1000 samples per week.

We expect just over 200 practices to be swabbing by week 14. The main current limitation on this roll out is the supply of swabs for the kits, and the logistics of kit preparation, despatch and return. PHE is currently piloting a web-based kit ordering system for GPs and/or patients.

Mortality surveillance

Daily excess all-cause mortality is being supplemented by additional analysis using ONS death registrations. PHE Knowledge and Intelligence teams are assisting in developing excess deaths analysis, adjusting for delays in registration. This will allow more rapid monitoring of a broader range of more detailed outcomes such as pneumonia specific mortality and mortality by place of death (hospital, care home and home).

Community surveillance

PHE is actively working on two enhancements to existing systems to provide further information on transmission. Both developments are currently limited by the supply of swabs for the kits, and the logistics of kit preparation, despatch and return:

> Flusurvey: A one off exercise to undertake self-swabbing of London based participants and their household contacts. Around 600 participants have been sent sampling kits and asked to return them regardless of symptoms. Further surveys could be considered.
>
> NHS 111: PHE are working with NHS 111 to identify patients with certain symptoms consulting NHS111 online. The site would direct a sample of them to order a self-sampling kit by post.

Serological surveillance

Because of concerns about the representativeness of the SEU residual serum collection, since last year, PHE was already working with the National Immunisation Schedule Evaluation Consortium (NISEC) to supplement the collection of serum from children and young adults, using a formal sampling approach. The “What’s the Story” group have agreed to submit serum collected in February and March for COVID testing. In addition, the principle investigators have recently received an NIHR grant to enhance this collection, but are waiting for this to be approved as a priority ‘National Public Health Emergency’ study so that recruitment can continue. Current limitations are the availability of a sensitive and specific assay, and some early suggestions that the detectable immune response may be absent, delayed or short lived.

Further discussion on the additional serum collections being investigated and on assay validation are shown in the attached paper on community infection rates.

PHE Surveillance Cell, 06/04/2020