RECAP (**Re**mote **C**OVID-19 **A**ssessment in **P**rimary Care): a learning system approach to develop an early warning score for use by primary care practitioners[1]

IMPORTANT NOTE. This document specifically intended for EMIS primary care practices considering taking part in the data linkage evaluation phase of the RECAP study. It provides headline information and a summary of rationale and objectives.

For the complete study protocol, including a description of the early warning score, research references, and participation and regulation details please download the full protocol (pdf 23 pages) and refer to the FAQs on the study website.

RATIONALE

Early warning scores (EWSs) are used quite a bit in medicine these days. For example, the National Early Warning Score (NEWS2) is used in hospital to alert nurses and doctors to someone who is deteriorating and may need urgent assessment and treatment. It consists of things like pulse, blood pressure, respiratory rate, oxygen saturation level and conscious level. The more abnormal these features are, the sicker the patient is likely to be. NEWS2 isn't used much outside hospital, and it isn't COVID-19-specific. We have developed an EWS that is both COVID-19-specific (RECAP) and that can be used by GPs when having phone conversations or video consultations with patients worried about their symptoms.

In the first phase of the study, the RECAP score was refined through a consensus method called Delphi. In this, a sample of 50 front-line clinicians (recruited through our own networks – almost all GPs but some nurse practitioners and paramedics) were invited to comment on the choice of items, the wording of items, and the proposed scoring system. We now have a refined version of the RECAP score and are ready to proceed to validation.

We have developed an EMIS template and propose to evaluate the EWS by data linkage in 100 primary care practices

AIM

To validate the RECAP V0 early warning score for use in GP-patient consultations (mainly by phone or video) in the context of COVID-19, as quickly as possible, followed by development and validation of a data-driven score (RECAP V1)

OBJECTIVES

With a view to supporting multiple validation studies undertaken in parallel and contributing to an open data repository, the objectives of this project are:

- To define the parameters for a minimum study protocol (consisting of cohort eligibility, consent for data linkage, data elements collected, data linkage for outcome ascertainment).
- To develop data definitions and standards for the RECAP score and any additional required elements using SNOMED codes, in order to enable a set of data definitions to be built into current healthcare data collection systems.

[1] The study will adhere to the principles outlined in the UK Policy Framework for Health and Social Care Research. It will be conducted in compliance with the protocol, the Data Protection Act and other regulatory requirements as appropriate.

- To collect data via groups of GPs, both locality-based e.g. a CCG, and cohort-based e.g. part of Royal College of GPs Research Surveillance Centre sentinel network.
- Using data linkage, to follow cohorts of patients to three predefined outcomes: hospital admission, ITU admission, and death.
- To collect qualitative data on clinicians' experiences using the RECAP score.

RESEARCH QUESTIONS

1. What is the sensitivity, specificity, and positive and negative predictive value of the RECAP score as used in the primary care assessment of COVID-19 patients?
2. How feasible and safe is the use of this score in this context?
3. Does the RECAP score add value over clinical judgement, and is it more accurate than other early warning scores e.g. NEWS2?
4. What is the performance and validation of a revised RECAP score?
5. How was GP experience using of the revised RECAP score?

OUTCOMES

The RECAP study is part of a programme led by Professor Trish Greenhalgh, funded by ESRC and NIHR as part of the COVID-19 scheme, on Remote-by-default care. The team is exploring the rapid shift from face-to-face to remote consultations in primary care with a view to understanding what works, when and how and offering insight for policymaking and support for infrastructure and digital innovation in the NHS.

Outcome measures for RECAP are: *Admission to hospital* and *Admission to ITU and Death*. We anticipate that the validated RECAP score will have higher sensitivity and specificity than currently-used scores, thereby allowing sicker patients to be transferred promptly to hospital while less sick ones can avoid the risk of infection with an unnecessary trip to hospital.

PROCESS

The study will take place using routine care for patients with suspected COVID-19 being seen and managed in primary care. We are not undertaking any interventions or additional study procedures, simply ensuring that routine data is collected in health record systems in a reliable and consistent way. Analysis will take place on already agreed record linkage in existing secure environments. We will record consent to record linkage as part of the template as an additional safeguard. The consent to linkage question is supported by a link to an on-line information sheet for patients.

GPs and Practices will take part in the quantitative study by virtue of their membership of a Primary Care Organisation (PCO) (CCG, PCN) that is using the RECAP templates as part of their locality COVID-19 management plan OR because they are part of a research network (RCGP Research and Surveillance Centre).