

## **Addressing the accumulating number of undiagnosed cases of cancer and CVD due to the COVID-19 epidemic in the context of health inequalities.**

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### **Background**

There is growing concern for the serious consequences for the lives of patients with cancer and cardiovascular diseases (CVDs) caused by delays in diagnosis and treatment resulting from the COVID-19 pandemic. This is a cause of major concern since cancer and CVDs are the two most common NCDs in UK population. In addition, many risk factors for cancer and CVD are unevenly distributed in the population with higher prevalence of common risk factors in low income and low socio-educational strata of the population. This raises the additional concern that the accumulating burden of undiagnosed and untreated cases of cancer and CVD may further increased the health inequalities already present before the COVID-19 epidemic.

In the UK, the normal pathways of GP referral of suspected cases of cancer and CVD for diagnostic investigation, specialist review and treatment has been seriously impeded by a number of factors, thought to include patients not willing to overload NHS, fear of getting infected, and reduced patient contacts due to the distancing measures introduced in GP practices activity.

At present, urgent two week-wait referrals for suspected cancer have fallen to 20 to 30 percent of the rate before the onset of the COVID-19 pandemic (1). Using colorectal cancer as a model we have estimated that 4 months delay will result in over 20 percent decrease in stage 3 survival and over 1,400 extra deaths in one year (2). Various policy decisions have further impacted negatively on the early diagnosis of cancer. An example is the cancellation of many diagnostic endoscopies and routine radiology investigations such as ultrasound scans. A&E data indicate that there has been a decrease in the number of patients presenting with a 40% reduction in attendances in A&E departments in England in March 2020 compared to March 2019.

If unmitigated, this situation will lead to an ever-increasing number of undiagnosed and untreated patients, many of whom will be seriously ill or incurable when finally diagnosed and treated. As the COVID-19 epidemic will continue to impact the NHS over the next months, the system will have to manage a major increase in demand because of the concurrent presentation of three types of cancer and CVDs cases:

- a- Undiagnosed cancer and CVD symptomatic cases that may come to the attention for the first time after the end of this first wave of the COVID-19 epidemic.
- b- Patients that will develop symptoms of cancer and CVDs during the next months.
- c- Patients diagnosed before the beginning of the epidemic, but who had their treatment postponed due to COVID-19.

It is expected that group c) patients will primarily be attended by specialised hospital services when it will be possible to resume close-to-normal operations. It is projected that an unknown proportion of groups a) and b) patients will develop complications that will bring some of them to present at A&E, however, we expect that the vast majority of the undiagnosed patients will need a GP contact in the first place.

We will design and test for feasibility an intervention study that will compare different and innovative approaches for identifying undiagnosed patients with symptoms that may indicate that they have cancer or CVD, but who did not contact their GP or did not present to the local A&E.

The intervention study will pay special attention to the multi-ethnic, multi-lingual and socially diverse characteristics of the London population. The results of this feasibility study can be available in two to three months from the start and will form the bases for developing a much larger scale intervention programme that would involve hundreds of GPs.

## Design

We will design a randomized intervention study that will compare the efficiency and the effectiveness (when fully implemented) of a protocol aiming at pro-actively identifying unknown cases of cancer and CVD. The study will randomize GP practices in two groups:

- 1- An **intervention group** that will use a pro-active protocol to contact patients to identify those who have suffered specific symptoms. In this group different contact methods will be tested, including sending text-messages and/or emails and/or phone calls with a link to a website with a short questionnaire on symptoms. The questionnaires will be based on adapted NICE guidelines and will be IT structured to facilitate the data collection and analyses. Text messages, emails and questionnaires may be adapted to different ethnic/language components of the London population to allow a comparison and evaluation of how patient contacts will be improved by tailoring them to the diversity of the population in different areas. The GPs, technically supported by the IT system, will select patients who reported pertinent symptoms and set up either virtual meeting or in-person examination where appropriate/possible. GPs would then refer those suspected to specialists or directly to specialised hospital services.

- 2- A **control group** that will continue work as usual, COVID-19 permitting. This group will record patient reporting symptoms that may signal an underlying cancer or a CVD.

Patients referred for specialist visit by the GPs participating in the study will be monitored via NHS number, with an ad hoc collaboration with West-London hospitals, including all those participating in the Imperial AHSC.

### **Primary outcomes**

#### *Feasibility study*

1. The number of GP referrals to hospital services, adjusted for size of GP practice and age distribution of patients registered with the GP, by study arm
2. The proportion of referred patients who consent to follow-up
3. Patient satisfaction with the GP contact
4. The above indicators/outcomes will be analysed by taking into account the sociodemographic and ethnicity indicators included in the study protocol.

#### *Main study*

1. Analyse the number of GP referrals to hospital services, adjusted for size of GP practice and age distribution of patients registered with the GP, by study arm
2. The number of cancers and CVDs ultimately diagnosed in each study arm
3. Patient satisfaction with the GP contact and referral process
4. The above indicators/outcomes will be analysed by taking into account the sociodemographic and ethnicity indicators included in the study protocol.

### **Plan of work:**

- Finalise the design and protocol of the study, including development of questionnaires, IT support and detailed plans for randomization and statistical analyses
- Test the protocol feasibility in ten (or more if possible) GP practices randomly allocating half to the intervention arm and half to the control arm
- Map the diagnostic pathway in the intervention and control arms using human factors system engineering approach and obtain the optimum design parameters for pathways in the subsequent main study
- Perform patient and public engagement surveys/events and obtain patient feedback for the design of final protocols. This is required for full scale study
- Conduct the statistical analyses of the feasibility study
- Finalise the protocol for a larger intervention study and submitting a proposal to UKRI or NIHR or another suitable funder
- As the situation caused by the COVID-19 epidemic for cancer and CVD patients, is likely to further exacerbate inequalities in patient care, we plan to take into considerations patient sociodemographic indicators in the study design and data analyses

### **Impact**

The main intervention study we propose will help to address two urgent needs:

- Plan how to take care of the backlog of undiagnosed cases without further postponing the diagnoses of newly presenting patients.
- Support optimization of resource allocation by estimating the number of undiagnosed cancer and CVD cases and developing innovative patient contact approaches.
- Provide indications on how to maintain open and active the chain going from tow-week referral to specialist diagnoses to hospital treatment for cancer and CVDs.
- In more general terms, the study will help to develop strategies that will increase efficiency and effectiveness of the process even beyond the immediate emergencies due to the COVID-19 epidemic.

#### References

- 1) [https://www.researchgate.net/publication/340984562\\_Estimating\\_excess\\_mortality\\_in\\_people\\_with\\_cancer\\_and\\_multimorbidity\\_in\\_the\\_COVID-19\\_emergency](https://www.researchgate.net/publication/340984562_Estimating_excess_mortality_in_people_with_cancer_and_multimorbidity_in_the_COVID-19_emergency)
- 2) Sud A. et al., Quantifying and mitigating the impact of the COVID-19 pandemic on outcomes in colorectal cancer. Submitted to Lancet Gastroenterology and Hepatology.