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Guidance on SARS-CoV-2 antigen testing for asymptomatic healthcare workers (HCW) and patients in non-surgical oncology in the UK

This guidance is for testing of non-surgical oncology healthcare workers (HCW) and asymptomatic patients attending oncology departments for elective (non-emergency) treatment. Though several of the links provided are to useful NHS England (NHS-E) web pages, the guidance covers the whole of the United Kingdom.

This guidance does not cover patients:

- With symptoms or radiological imaging consistent with COVID infection
- Admitted as an emergency
- With non-malignant haematological conditions
- On bone marrow transplant and cellular therapy units (see guidance from the British Society of Blood and Marrow Transplantation and Cellular Therapy).

This guidance was written by Tom Roques and Ruth Board and approved by the organisations and groups whose logos are shown below. It will be reviewed and updated when new information is available.

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1. Summary

1.1 **The rationale for testing asymptomatic HCW and patients** in non-surgical oncology is:

- To reduce the risk of nosocomial (hospital-acquired) transmission between HCW and patients and to provide confidence that these risks are minimised. This will help reduce spread to other hospital areas or staff groups and will minimise HCW absence due to sickness.
- To reduce the risk of harm to pre-symptomatic or asymptomatic patients with COVID-19 who are receiving treatment likely to cause immunosuppression.
- To reduce the risk of harm to pre-symptomatic patients with COVID-19 who would need to delay anti-cancer treatment if they develop symptoms. This is particularly important in people receiving a course of curative radiotherapy where gaps in treatment may reduce cure rates.

1.2 **Excellent adherence to Infection Prevention and Control (IPC) procedures is paramount.** No testing protocol will ever detect all carriers of COVID-19.

1.3 **Oncology departments must develop local testing protocols with the advice of public health, infection control and microbiology departments, taking into account this guidance.** No testing of HCW or patients may be appropriate when the prevalence of COVID-19 infection is very low and when patients at risk of serious infection are shielding.

1.4 **The resources required for a local testing programme should be considered before implementation.** These will include the personnel needed to organise, collect, report and act on test results.

1.5 **The optimal local testing regime for patients will vary depending on the prevalence of COVID-19 infection at any one time and in any one location.** A prioritisation scheme for patient testing is suggested in Table 1.

1.6 **A testing programme for asymptomatic HCW should focus on groups at highest risk of nosocomial transmission.** Any testing will need to be repeated weekly.

1.7 **Local protocols should be reviewed, adapted and revised regularly depending on the prevalence of COVID-19**. Changes should be discussed with public health, infection control and microbiology departments. New developments such as point-of-care testing and antibody serology testing will help refine local testing protocols.

1.8 **There must be systems in place to learn from results of testing and to adapt guidance accordingly.**

2. Background

2.1 NHS-E guidance for urgent and planned care during COVID-19 advocates a scientifically guided approach to testing HCW and patients. It recommends:

- That testing and isolation should be determined locally for day-case interventions, based on patient and procedural risk
- Enhanced planning and protection for patients who are clinically extremely vulnerable (shielded) from COVID-19
- Additional available NHS testing capacity should be used to test asymptomatic frontline HCW routinely and strategically as part of infection prevention and control measures. Local health systems should work together with their labs and regions to agree the use of available capacity.

2.2 Patients having certain anti-cancer therapies are classified as clinically extremely vulnerable because COVID-19 illness may be more serious in people who are immunosuppressed. Patients still need to attend hospital for treatment.

2.3 Cancer treatment sites should be COVID-protected as much as possible. A testing programme may complement good IPC procedures. There is therefore a need for extra guidance to support cancer departments to consider a testing programme for HCW and patients to reduce nosocomial transmission.

2.4 Excellent adherence to IPC guidance is paramount in reducing healthcare-associated infections, including nosocomial transmission of COVID-19. Departments and HCW should:

- Follow national IPC guidance
- Use appropriate Personal Protective Equipment (PPE). This is designed to mitigate nosocomial transmission
- Review facilities and treatment schedules to minimise infection risk, for example in waiting areas and chemotherapy units
- Minimise HCW movement between clinical areas of differing risk – for example, separating elective and emergency care pathways
- Ensure good hand and respiratory hygiene, and keep hands away from the face
- Declare all COVID-like symptoms, however mild, and avoid clinical areas if symptomatic
- Practice physical distancing at all times including when not in clinical areas
- Clean any shared equipment frequently, such as phones and other communication devices, desktops, keyboards, door handles.

2.5 Outcomes from COVID-19 infection in cancer patients are worse in haematological malignancies, with the use of systemic cytotoxic chemotherapy and in the presence of metastatic disease. The evidence for outcomes of patients on immunotherapy and targeted therapies is less clear but some of these treatments can alter the normal immune response.

2.6 Other factors thought to increase the risk of serious infection include advanced age, male gender, non-white ethnicity, uncontrolled diabetes, obesity, severe asthma and deprivation. Asymptomatic COVID-19 infection in any patient may risk nosocomial transmission to more vulnerable patients and HCW.

2.7 The point prevalence of asymptomatic carriage of SARS-CoV-2 in UK HCW has been measured at between 5– 20% according to the timing, place of work and prevalence of infection in the community. Many asymptomatic carriers do have mild symptoms when questioned carefully. Up to 50% of HCW in some hospital areas may now have positive antibody responses to the virus.

2.8 The most common COVID-19 test is a nasopharyngeal swab to detect viral ribonucleic acid (RNA) by a reverse transcriptase–polymerase chain reaction (RT-PCR). A positive result detects viral RNA and not necessarily viable virus. The false-positive rate is very low (<1%). When the prevalence of COVID-19 is low, false positive tests may still exceed true positives. The false-negative rate is mainly related to swab technique. Initial reports suggested false-negative results of up to 30% but a more accurate figure is believed to be 10–20%.

2.9 No testing plan will be able to capture 100% of HCW. HCW and patients may contract COVID-19 in between tests.

2.10 Many variables remain the subject of significant uncertainty: the risk to patients of contracting COVID-19 when immunosuppressed, the prevalence of COVID-19 in HCW and asymptomatic patients, the risk of pre-symptomatic transmission and whether previously infected seropositive people can act as vectors.

3. Suggested testing strategy and prioritisation

3.1 Testing patients

Elective inpatient admissions

3.1.1 Admissions for elective cancer care should be minimised where possible by using day procedure units, chemotherapy infusion devices and so on.

3.1.2 All elective patients should be tested for COVID-19 no more than 72 hours before admission. The results must be available before admission. This includes patients having brachytherapy, inpatient systemic anti-cancer therapy (SACT), molecular radiotherapy or other procedures.

3.1.3 Where clinical circumstances allow, patients should shield for 14 days prior to admission.

3.1.4 Patients who fulfil the criteria of being clinically extremely vulnerable (shielded) from COVID-19 should be advised to follow the latest national and local guidance.

Outpatient attendance for SACT

3.1.5 Patients receiving SACT should follow the latest advice on shielding if they are considered clinically extremely vulnerable.

3.1.6 All patients should be screened for symptoms before each attendance as a negative test in advance does not preclude infection on the day of therapy.

3.1.7 All patients receiving SACT should be tested before they start a new treatment course. The timing of testing will be dependent on local turnaround times and the lead time for SACT ordering but should be no more than 72 hours before treatment. The test results should be available before treatment.

3.1.8 If testing availability is limited, priority should be given to patients at highest risk of serious COVID-19 infection. See Table 1.

3.1.9 Consider testing patients before each cycle of SACT or each month when on continuous therapy. The number of positive tests is expected to be very small, especially when patients are shielding.

3.1.10 A separate visit for testing should be avoided where possible, either by a self-testing programme at home or by combining attendance for testing with routine pre-treatment blood tests.

Outpatient attendance for external-beam radiotherapy

3.1.11 Patients receiving radical radiotherapy for lung cancer should be advised that they are clinically extremely vulnerable and should follow the latest advice on shielding.

3.1.12 All patients should be screened for symptoms before each attendance as a negative test in advance does not preclude infection on the day of therapy.

3.1.13 All patients receiving radiotherapy (except for emergency treatment) should be tested before their first radiotherapy fraction. Testing should be no more than 72 hours before the first fraction. Consider also testing patients before their first planning appointment.

3.1.14 If testing capacity is limited, consider prioritising those patients having category 1 treatment where a gap in treatment might adversely affect outcome.

3.1.15 Consider testing patients each week if they are having a long course (more than three weeks) of radiotherapy. The number of positive tests is expected to be very small, especially if patients are shielding.

Outpatient attendance for other reasons

3.1.16 Departments should risk assess the pathways of patients attending for outpatient appointments, day-case procedures, imaging and other tests. Consider testing patients who are spending a prolonged time in close proximity to HCW in the department. Follow other guidance (for example, from radiology) where available.

Table 1: Suggested prioritisation for testing patients

Priority	Who
1	Elective inpatient SACT or radiotherapy (including molecular radiotherapy, brachytherapy)
2	Patients starting a new course of SACT who have any of the following: • A haematological malignancy • Treatment likely to cause immunosuppression or alter the immune response • Other significant risk factors including metastatic disease or those listed in 2.6
	Patients starting a new course of radiotherapy
3	Patients starting a new course of SACT who are not included in the groups listed in priority 2
	Patients having subsequent cycles of SACT
4	Patients having a long course (more than three weeks) of radiotherapy – re-test each week

3.2 Testing HCW

3.2.1 Use a daily symptom screening checklist for all HCW to ensure that people with symptoms do not come to work.

3.2.2 Any HCW with symptoms suggestive of COVID-19 should self-isolate, regardless of symptom severity.

3.2.3 Consider routine testing of HCW for COVID-19 every seven days if sufficient local capacity exists.

3.2.4 As the utility of antibody serology increases, antigen testing may increasingly focus on sero-negative HCW.

3.2.5 The suggested testing frequency may decrease or increase depending on understanding of virus behaviour, antigen testing capacity, the availability and specificity of antibody testing and other factors.

3.2.6 Priority for testing should be given to HCW caring for patients on wards where SACT is administered and to HCW delivering outpatient treatment where physical distancing measures are not possible such as radiotherapy and SACT.

4. Implementation, data collection and shared learning

4.1 Local health systems should work with their local testing laboratories and cancer alliances or other regional networks to agree the use of available capacity.

4.2 Hospitals should develop clear standard operating procedures and pathways for testing, checking results and recording outcomes. Positive test results should be shared with general practitioners (GPs) and local public health services to facilitate contact tracing. The following will need to be considered:

Patient testing

- Where the testing is carried out.
- How to collate results from different testing environments (cancer centre, other hospital, primary care, home).
- How to alert patients to positive or negative results.
- What to do with indeterminate results.
- How to adjust treatment for positive results. NHS-E is producing guidance on this topic so it is not considered in this document.

HCW testing

- Where the testing is carried out.
- How to test all HCW regularly (shift patterns, locum/casual staff, holidays).
- What advice to give HCW who test positive, including about contact tracing.

4.3 All hospitals should keep comprehensive records of HCW and patients who are tested for COVID-19. These should include whether symptoms subsequently develop in previously asymptomatic HCW and patients. These data will serve as a resource for monitoring local and regional levels of COVID-19 in the asymptomatic population and will help inform future guidance.

4.4 Hospitals are strongly encouraged to register with the UK coronavirus cancer monitoring project to collate data on all cancer patients who are COVID-19 positive.

4.5 Delays or alterations to anti-cancer treatment should be recorded and audited. For radiotherapy, departments are strongly encouraged to submit data to the COVID RT project

4.6 Departments should develop information leaflets about COVID-19 testing procedures for HCW and patients.

4.7 People who decline COVID-19 testing should be counselled about the risks to them and to other patients and HCW.

4.8 Data from testing programmes should be audited locally and fed back to local public health teams and primary care teams on a regular basis.

4.9 Data should be captured nationally and fed back to all cancer centres. Discussions are underway with the UK Coronavirus Cancer Monitoring Project team about the best way to achieve this.

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