

BNMS Guidance for Covid-19 Recovery phases

With thanks to the Nuclear Medicine staff at Sandwell and West Birmingham Hospitals

This document should be read in conjunction with the [BNMS guidance for the Covid-19 pandemic](#) and the [Royal College of Radiologists Covid-19 interim guidance for restarting elective work](#).

Introduction:

As the country prepares to reduce some of the restrictions associated with lockdown, hospitals will be able to start the process of booking patient appointments currently on their waiting lists. This 'recovery phase' needs to be carefully planned as the process is not straightforward.

When planning appointments, the significant level of anxiety amongst patients should not be underestimated; many departments will have seen a decrease in referral and attendance rates as a result of some or all of the following:

- Patients concerns about visiting hospital – departments may have experienced high DNA rates even for current appointments of high priority (red) studies
- Patients shielding or in self-isolation
- Patients developing symptoms of Covid-19 and being unable to attend.

Before starting the booking process, a number of factors should be considered to help the process go as smoothly as possible and to assure the safety of both staff and patients:

- Proximity of the nuclear medicine department to hospital entrance –a direct route to the Nuclear Medicine department which avoids Covid-positive and query positive areas should be identified.
- Flow of known COVID-19 patients in and out of department and their separation from other patients and staff not essential to their scans / post-patient cleaning of the scanner; separation is usually achieved by time rather than location in Nuclear Medicine.
- Size of the waiting room to accommodate social distancing – and some patients will need a carer or guardian. Other waiting areas and car waiting may help expand the available space.
- Supply of Radiopharmaceuticals
- Staffing levels
- Availability of transport and interpreter services should be confirmed

Booking of appointment should be in line with the organisational and national priorities, and different hospitals will move towards a normal service at different rates. This is expected, and at all times this must be guided by local needs and the safety of staff and patients.

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Waiting Room Capacity and Social Distancing

Nuclear Medicine patients can be required to remain in the department and the time depends on the test. It can range from relatively short (MAG3 Renogram, for example) or it could be much longer. Some tests require extra visits. So the waiting room occupancy is a major constraint to the number of patients in the department at any one time.

Currently, the smaller number of bookings for urgent patients means that they can be spread out throughout the day and social distancing is not a significant practical problem. This will not be the case when departments enter the 'recovery phase'. Capacity of waiting rooms will be a significant limiting factor when rebooking appointments. Social distancing will be in place for some time to come, and will result in a significant reduction in the capacity of waiting rooms – both hot and cold – by about 50% or more.

Children should not attend the department unless they are patients. In order to maintain the principles of social distancing, while it may not be possible for all patients, adults should come alone unless they need a carer who should come from the same household.

The layout of waiting room chairs should be planned to give at least 2 metres space between individual chairs, and it would be useful to have some sets of chairs (as pairs) for those bringing carers. Demarcation of the layout using tape will bring about consistency and hopefully prevent unapproved re-arrangement. Layouts may need to be set out to accommodate special circumstances for example when a prisoner is being accompanied by wardens to the department.

If there are other waiting areas which could be used this may need to be considered. With a 2m spacing, other areas could be suitable for patients both before and after injection. This waiting area does not necessarily need to be adjacent to the department, but should be risk assessed from both an infection control and radiological point of view. If the patient has a mobile phone, they could be contacted when they need to come to the Nuclear Medicine department for their scan.

If the patient has travelled by car they could be asked to wait there during any significant uptake phase if they are able to park nearby. This would keep them isolated and may be practical if they are able to park nearby, particularly in summer months. They could then walk back to the dedicated patient toilet in good time if necessary, and could be contacted by phone to return to the department for their scan.

Rationale for booking patient appointments:

The first step in rebooking any postponed appointments is to collect and analyse the information on the types of studies which are waiting to be booked using the traffic light system proposed in the BNMS guidance for Nuclear Medicine during the Covid-19 pandemic, which can also be found in Table 1 below.

Table 1: Traffic light system to assist with the decision making process for most Nuclear Medicine

Red	Amber	Green
Do not cancel or rebook unless patient at risk	Discuss with clinician if there is a need to cancel/rebook.	Rebook without need for discussion with a clinician
Book all new referrals	New referrals to be discussed	Do not book new appointments
F-18 FDG new cancer	F-18 FDG follow up	2 phase bones and non-oncology Whole body bone
F-18 FDG sepsis	Ga-68 DOTATATE follow up	Amyloid DPD
Ga or F-18 PSMA/F-18 Choline new cancer	Ga or F18 PSMA/F-18 Choline follow up	Benign I131 thyroid therapy
Ga-68 DOTATATE (staging / therapy decision)	Ga-68 PSMA follow up	C13 UBT
GFR	Lung VQ	Colonic Transit
GI bleed	Mag3	CSF studies
In-111 Pentetreotide (Octreoscan)	MIBG pheochromocytoma	Dacrosintigraphy
Lu-177 DOTATATE	MPS routine (SOB)	DMSA
Lung perfusion	MUGA - cardiac	Gastric Emptying
Meckels	Parathyroid (bear in mind cessation of drug therapy in lead up)	HIDA
MPS acute chest pain	Platelet	I-123 Ioflupane (DaTSCAN)
MUGA Oncology	Thyroid Tc-99m/ I-123 (paeds)	Lymphoscintigraphy
Oncology Bones	White cell (also consider FDG)	MIBG heart
Radium-223		Morphine HIDA
SLN		Platelets
99mTc-EDDA/HYNIC-TOC (Tekrotyd)		Proctoscintigraphy
Y90-SIRT		Red Cell Mass
		Salivary
		Se-75 /Tauroselcholic acid (SeHCAT)
		Small bowel transit
		Thyroid Tc-99m/ I-123 (adults)
		TI-201 hibernation

There are a number of parameters which factor into the decision on which patient appointments to schedule first. Clearly, clinical need must be paramount. It was suggested in the previous BNMS guidance that the tests be assessed using the following guidelines:

- Tests in Green category can be deferred (i.e. postponed) and possibly held in a queue until the situation is clear and/or rebooked as and when needed.
- Amber appointments must be discussed with a clinician before if considering cancelling/rebooking. Note: patients may have had withdrawal of some of their existing drug treatment, and this should be considered when making the decision on whether to postpone or not (for example, thyroid and parathyroid scans when using I¹²³)
- Red appointments should not be cancelled as they are deemed essential, unless under extreme circumstances.

Those patients in the backlog and any new referrals which fall into the 'red' urgent category should continue to take priority during the recovery phase. The tests within the 'amber' group should be considered next, with patients in the 'green' category being less clinically urgent and therefore able to wait a little longer if necessary.

However, because of the restrictions around social distancing in waiting areas and the complex nature of Nuclear Medicine studies - where patient may be injected then have to wait some time before scanning – a combined approach may be the best way forward. This would include urgent patient appointments and some which are less urgent (and possible in the green category above) in order to make the best use of the time and equipment available. Previous booking schedules are unlikely to apply, and so careful planning of scanning days will be needed, almost day by day. It is suggested that the following be considered alongside test urgency:

- It may not be possible to avoid aerosol producing tests. If they are urgently required, previous BNMS guidance for the covid-19 pandemic and local PPE policy should be followed.
- The schedule for opening up hospital clinics and surgery lists should be taken into account if known. It may be difficult to ascertain this for all studies, but it is important that hospital departments communicate and collaborate. For example, ideally availability of parathyroid surgery should be considered when making the decision to start routinely booking parathyroid Nuclear Medicine studies.
- Tests which can be injected and immediately scanned, such as MAG3 tests could be considered as they will have minimal impact on waiting room distancing restrictions. An example could be a 'renal day' where DMSA injections are carried out in the morning, with MAG3 studies then taking place, and the DMSA scans taking place in the afternoon. Care would still be needed with bookings to ensure appropriate use of the waiting areas in the morning, however
- SeHCATs do not require Radiopharmacy, so might be suitable for out of hours (for the 7 day measurement) or weekends to free up camera time during normal hours.
- Extended day working may need to be considered both for the backlog and also going forward. This will generally depend on the capacity of available waiting rooms.
- In the initial phase, if departments are less busy than usual, it may be appropriate to book those studies which take up a lot of camera time but don't require the patient to sit in the waiting room for long – for example, HIDA studies.
- If Radiopharmacies are quieter than usual, booking of Red Cell Mass studies may be worth considering, particularly if waiting times are long as is sometimes the case.
- Any other studies with a long patient waiting time could be considered.

In summary, departments need a flexible workplan approach, perhaps updated on a weekly basis. Regular meetings to review incoming referrals and what has come off the waiting list should be held.

Appointments for Radioiodine Therapy:

It is currently unclear whether appointments for radioiodine therapy can go ahead. The risk of them going on to develop symptoms and having to be admitted remains. Possible approaches to this could be a risk-based approach with patient testing before their appointment.

Patient Booking Process:

Before starting to contact patients, it is important to identify a way for them to access the department which is separate from that used by Covid-19 positive or query positive patients. This can then provide reassurance for patients when contacted that they will be safe, and will be coming directly to the Nuclear Medicine department.

Scanning of Covid-19 positive patients may have a significant impact on the outpatient booking capacity. Positive inpatients should not be brought down for a scan while there are Covid-19 negative patients still within the department, unless it is practical to completely isolate both groups. The booking schedule may need to consider having time towards the end of the day for Covid-19 positive patients where the whole department can be set aside, ensuring all outpatients have left the department. This time also needs to account for the radiopharmaceutical shelf life, so may be 3pm. An alternative is to scan inpatients at the beginning of the day, before outpatients arrive. The guidance described in the previous BNMS guidance should be followed for scanning Covid-19 positive or query positive patients in terms of cleaning and allowing time between patients.

As advised in the guidance for running Nuclear Medicine departments during the pandemic, patients should be contacted prior to the study to ask whether they have any symptoms, or are self-isolating for any reason – i.e. a system of partial booking should be employed. This allows relevant enquiries to be made, as below. When speaking to patients, it is important to be mindful that they may be very frightened, may not have left the house for some time, or may be bereaved. Sensitive communication is very important. Also, it is important to establish if they are in the vulnerable category or are self isolating. Patients may assume we know this status, and so may assume that we are saying it is safe for them to come out of isolation.

- Enquire regarding their vulnerable status, and if they are self-isolating as a consequence. It may be that they are not prepared to come out of self isolation, or should not come out, so this needs to be ascertained at the outset.

Otherwise -

- Explaining the rationale regarding commencing routine activity
- Clarifying the concept of non-Covid sites in the hospital to alleviate anxiety.
- Ensure that screening questions re Covid-19 symptoms are asked, and that the patient understands that if any signs or symptoms develop then they should not attend. They could arrange to be tested, or contact the department once they are 48 hours symptom free in order to re-arrange their test.
- If an appointment is made, stress that it is very important that they do attend, or contact the department so that their imaging slot can be given to someone else.
- Emphasize the need to attend alone due to social distancing where practical. Only an essential accompanying relative (not a child) or carer should attend with the patient.

Departments need to set aside time and staff to contact the patient, understand their requirements for visiting, and accommodate them where possible.

Any patients who have developed symptoms should be asked to contact the department once they are 48 hours symptom free in order to arrange their test.

If the patient has been referred for an urgently required test and they are shielding, their referrer should be contacted to discuss whether the patient needs to come to have their test.

Patients in the vulnerable category and others who don't want to come to hospital for their test at this time should be informed that the request will be held by their referring clinician. They should be advised to contact them to discuss their test when they are ready to come to hospital. The request should then be sent back to the referrer for consideration of a future date when appropriate. This allows accurate data on waiting times to be maintained as well as reassuring the patient.

If the appointment requires a radiopharmaceutical to be specifically ordered in, the patient should be contacted before the radiopharmaceutical is ordered to confirm they intend to come for their appointment, as well as the day before to check for any symptoms.

Restrictions around social distancing mean that current booking schedules will not work, and the possibility of cancellations at short notice will mean that bookings may need constant adjustments on a day by day basis.

Radiopharmaceutical Supply:

Where generator sizes have been reduced, these should be reviewed as necessary.

It is expected that other non-technetium products will remain available, but the days on which they can be delivered may be altered as companies alter work schedules to fit around reduced availability of staff.

Once the patient has confirmed they will be attending, the radiopharmaceutical can then be ordered; however caution should still be exercised. If the patient does go on to develop symptoms, the radiopharmaceutical will have to be discarded. This possibility should be borne in mind when arranging the test. Departments must ensure monthly environmental limits are not exceeded.

Staffing:

As we come out of lockdown, there is a risk that the virus will start to spread again, and this may affect staff. Any contingencies for staff in the Nuclear Medicine or Radiopharmacy departments will therefore need to remain.

Think carefully about how to support the staff working in the Nuclear Medicine department. Some may have been furloughed and be keen to return to work. Others may have worked additional shifts or volunteered for work in HDUs and ITU and may be fatigued. Some may be bereaved or have had to deal with very stressful situations at home and work. Be mindful and put in place the option for people to take time off at short notice and obtain any required psychological and counselling support offered by the employer.

Look at carefully planning annual leave over the next 6-12 months – particularly as many staff will no longer be able to go on holidays which had been planned. It should also be considered that in the months ahead, staff may be required to work extra to clear the backlog of scans so large amounts of accrued leave will be unhelpful.

Social distancing between staff should also be reviewed during the recovery phase and employers have a duty of care in this regard. As departments become busier, space in control rooms should be

as much as possible to allow operators to be spaced 2 metres apart. Some departments may need to consider de-cluttering their rooms, removing and relocating unnecessary items such as chairs and cupboards. The wearing of surgical facemasks should be considered in clinical areas if social distancing at 2m is not deemed possible.

Cameras:

Where Nuclear Medicine departments have more than one camera, one of them could be identified for Covid-19 positive or query positive patients. An important factor in bringing in outpatients is assuring them that will be in non-Covid areas and not mixed with Covid-19 positive patients. However, for single camera departments, or if it is impractical to reserve one camera just for Covid-19 positive patients, separation should be achieved through time rather than separate camera rooms. There may also be some studies which can only be done on one of the cameras, which also limits the segregation.

IT:

There may be reduced IT support for Image Exchange Portals. Departments should check with their PACS/IT departments to ensure this facility is still available and at what capacity.

PPE and Patient Contact:

Local policies for PPE should be followed. The previous BNMS guidance should be referred to for further information and checked against the latest guidance from Public Health England. The local stocks of PPE should be considered before expanding services that will require PPE.

It is possible that staff may not be comfortable being close to a patient while they are positioning them under the camera, as this can often require quite close contact. Consideration could be given to use of additional PPE, such as a visor to give additional protection. Use of a face mask for the patient may be another thing to consider, since patients are breathing directly onto the camera surface.

Reception staff should have adequate PPE, and Perspex shields should be used where possible. Appointment letters / cards should not be handled by staff, but read through a Perspex shield.

Hand sanitisers and other methods of hand cleansing should be freely available to patients, their carers and staff. All patients should be invited to wash their hands when they arrive in the department and just before going into the clinical or imaging rooms. Some staff may want to wear face masks. Though the evidence for their use remains unclear, anyone wearing a face mask should not be asked to remove it unless it is required as part of the test.

Cleaning:

Recommendations for cleaning after imaging potentially Covid-19 positive patients can be found in the BNMS guidance for departments during the Covid-19 pandemic.

Major camera manufacturers have since produced guidance on how to decontaminate their equipment and these can be found here:

<https://cleaning.gehealthcare.com/>

<https://www.siemens-healthineers.com/en-uk/press-room/press-features/pf-covid-19.html>

<https://www.philips.co.uk/healthcare/medical-specialties/covid-19/precision-diagnostics-addressing-covid>

The recovery phase is around bringing in Covid-19 negative patients (i.e. those who have confirmed they do not have symptoms) for their tests. Having only outpatients without symptoms attending the department makes the risk lower. However, this does not rule out asymptomatic patients who are likely to be infective up to 5 days prior to being symptomatic, so cleaning in waiting and patient areas remains very important.

Fortunately, the practicalities of dealing with radioactive contamination also help in dealing with potential Covid-19 contamination. Waiting room chairs should already be wipeable, and these should be cleaned and disinfected 3-4 times a day or even between each patient if possible. A system of ensuring patients return to the same chair may be helpful.

Areas commonly touched by patients' hands without PPE, such as door handles, should also be cleaned regularly.

It is known that the virus is particularly susceptible to surfactants – these readily break down the lipid layer. They also help cut through grease which may be above the virus. Surfactant together with a 'wiping' action is known to be a good way of cleaning surfaces hence detergent wipes may be the optimum method, rather than alcohol-based sprays.