In late 2019, a novel coronavirus was isolated from a cluster of patients presenting with viral pneumonia in Wuhan, China. With increasing global population movement, there has been a great deal of concern regarding the possibility that this new virus may spread and reach pandemic levels. While the initial cluster of patients were believed to have caught the virus from the wet “seafood market” in Wuhan, there have since been multiple reports of person-to-person transmission and it has reached multiple countries in virtually all continents, with new countries affected reported almost daily. Primarily COVID-19 spreads in a similar way to flu.

The imposed Wuhan quarantine bought the world time to prepare for Covid-19. With the increasing case numbers, there has been a greater focus on infection control measures, particularly in hospitals where there is potential for spread of the virus not just between patients but also to staff members in healthcare. These measures can be implemented not just at hospital level, but also regional or even national level. There have been articles on how radiology departments can exercise caution to reduce the risk of an outbreak in their unit, but still little advice has been given in the nuclear medicine setting. Whilst there are similarities, there are also pertinent differences between the subspecialties regarding the urgency of our scans and therapies tend to be outpatient, electronic studies, and the new studies are usually in in-patients who would have been screened for COVID-19 on the wards before being transferred for scans. Unfortunately for us, in general there is no portability in our SPECT and PET scanners, not to mention the need for patients to be injected with radiopharmaceuticals. The option of reducing patient transport by portable machinery is limited to us in nuclear medicine departments.

**Patient arrival, waiting area**

On arrival and registration with the department, patients should be encouraged to self-declare if they have travelled to a country where COVID-19 has been known to have spread, particularly if they are symptomatic. A notice at the reception desk for patients to self-declare would be helpful. Large departments dealing with outpatient or provider to provider referrals, should consider thermal screening using mass screening systems that measure the skin temperature at high-speed using thermal imaging and temperature measurement equipment as used in airports. Healthcare staff should recognise the symptoms of COVID-19 infection, including fever, dry cough, fatigue and dyspnoea. However they should also be aware of the fact that there are asymptomatic carriers of the virus and a good contact history is of use. It may be prudent to ensure the waiting area has access to hand washing facilities and tissue boxes and masks are within easy reach so that waiting patients may sit at enough distance, as the risk of transmission increases within three feet.

When such patients are identified they should be placed in a separate waiting area if available and the appropriate consultations to infectious diseases should be sought. Given current knowledge, the patients should don a face mask and MERS epidemics, that have given rise to advice and measures in the current outbreak. We present suggestions for nuclear medicine departments to follow, based on a typical patient ‘journey’ through our departments.

Nuclear Medicine is slightly fortunate in that the majority of our scans and therapies tend to be outpatient, elective studies, and the new studies are usually in in-patients who would have been screened for COVID-19 on the wards before being transferred for scans. Unfortunately for us, in general there is no portability in our SPECT and PET scanners, not to mention the need for patients to be injected with radiopharmaceuticals. The option of reducing patient transport by portable machinery is limited to us in nuclear medicine departments.
suggest that senior clinicians and/or management take a more proactive stance to advise staff that they should not come to work if they are not well.

If COVID-19 becomes more endemic, larger nuclear medicine departments may consider segregating staff into teams so as to reduce the potential of transmission of virus between healthcare providers causing a catastrophic inability of the department to function.

There are an increasing number of reports of CT findings of COVID-19 associated pneumonia10, and recently a short article regarding incidental findings suggestive of COVID-19 seen on the CT component of PET/CT studies11. In this respect, it becomes even more vital for nuclear medicine reporters to be vigilant and scrutinize the lung windows on each and every CT component as such patients may be asymptomatic and unwittingly transmitting the virus. The imaging findings, while suggestive and appear similar to previous viruses such as MERS or SARS, are non-specific and may be seen in other conditions. Upon identification of potential cases with the appropriate clinical context of acute illness and contact history, relevant patient management and contact tracing should be instituted.

Key points:
- Robust screening process for outpatients in line with hospital policy should be in place.
- Develop clear escalation pathway to ensure cases are identified in a timely manner.
- Training for all staff members to ensure maximum compliance and vigilance.
- Display posters to promote hand washing and good respiratory hygiene measures within the department. Combine this with other communication measures such as briefings at meetings and information on the intranet to promote hand-washing.
- All camera gantries, blood pressure cuffs, surfaces (desks & tables) and image viewing station mice and keyboards should be wiped with disinfectant regularly and after every contact with suspected patients.
- Place sanitizing hand rub dispensers in prominent places around the workplace. Make sure these dispensers are regularly refilled.
- Environmental services staff members who clean all departmental areas during and out of work hours must be specifically trained for professional cleaning of potentially contaminated surfaces after each high-risk patient contact.
- Communicate and promote the message to staff to stay at home even if they have just mild symptoms of COVID-19.
- Develop a contingency and business continuity plan if one of your staff becomes sick with COVID-19.

Conclusion
Although there are many issues raised for nuclear medicine practice by the current COVID-19 outbreak, if
adequately prepared with PPE, nuclear medicine departments can contribute to mitigate the impact on patients and staff. The experience of preparing for this virus will help in improving readiness if there are new outbreaks in the future.

Conflict of Interest:
All authors declare no conflict of interest.

Reference
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