

Agenda Item 8

		THE HEALTH SCRUTINY COMMITTEE FOR LINCOLNSHIRE	
Boston Borough Council	East Lindsey District Council	City of Lincoln Council	Lincolnshire County Council
North Kesteven District Council	South Holland District Council	South Kesteven District Council	West Lindsey District Council

Open Report on behalf of United Lincolnshire Hospitals NHS Trust

Report to	Health Scrutiny Committee for Lincolnshire
Date:	15 September 2021
Subject:	United Lincolnshire Hospitals NHS Trust – Nuclear Medicine

Summary:

Nuclear medicine is a specialist imaging technique involving the administration of radioactive substances in the diagnosis and treatment of disease. This technique enables assessment of the function of organs, whereas most conventional imaging techniques, such as x-ray, look at anatomy.

Nuclear medicine services are provided United Lincolnshire Hospitals NHS Trust (ULHT) at Grantham and District Hospital, Lincoln County Hospital and Pilgrim Hospital, Boston. ULHT is proposing to develop options for the future service model for nuclear medicine in Lincolnshire, including exploring possible consolidation of the service to be delivered from fewer hospital sites in future.

Actions Requested:

The Health Scrutiny Committee for Lincolnshire is requested to consider whether it would support:

- (a) United Lincolnshire Hospitals NHS Trust in its development of a proposal for a future service model; and
- (b) a public engagement exercise by United Lincolnshire Hospitals NHS Trust on the proposal, to begin later in 2021.

1. Background

What is Nuclear Medicine?

Nuclear medicine is a specialist imaging technique involving the administration of radioactive substances (called radiopharmaceuticals) in the diagnosis and treatment of disease. The technique enables assessment of the function of organs, whereas most conventional imaging techniques (for example x-ray) look at anatomy.

The majority of radiopharmaceuticals are made daily in an aseptic facility known as a radiopharmacy. The radiopharmaceutical used is dependent on the part of the body that is being investigated. The most common tests performed in United Lincolnshire Hospitals NHS Trust (ULHT) are bone scans and heart scans. There are over 20 different tests that nuclear medicine can perform and they look at conditions as diverse as Parkinson's disease and delayed gastric emptying. The cost of these radiopharmaceuticals vary greatly from less than £1 to over £750 per patient.

After administration of the radiopharmaceutical, patients must wait for a time for the radiopharmaceutical to distribute in their bodies before they are imaged on a specialist camera called a gamma camera. This camera detects the radiation emitted from the patient to enable the organ of interest to be investigated. A gamma camera is similar in size to a CT scanner.

Regulation of Nuclear Medicine

Due to the fact nuclear medicine involves radiation, the technique is highly regulated and all staff have undergone extensive specialist training. This is to ensure the risk to the patient from the radiation is outweighed by the benefits of having the procedure. In addition a clinician is required to oversee the service and hold an ARSAC (Administration of Radioactive Substances Advisory Committee) Licence (Practitioner Licence). This licence lists the different diagnostic tests that can be performed under the practitioner. Only tests that the clinician has proven training and experience in are listed on this licence to ensure the test is diagnostic and the impact on the patient management is optimised. Each site also has an ARSAC licence which required a Medical Physics Expert (MPE) to oversee the service at that site, this also lists the tests that can be performed at that site.

2. The Nuclear Medicine Service at ULHT

Nuclear medicine services are provided by United Lincolnshire Hospitals NHS Trust (ULHT) at Grantham and District Hospital, Lincoln County Hospital and Pilgrim Hospital, Boston. The imaging is performed at all three sites, using five gamma cameras, with a new £1 million radiopharmacy having recently been opened at Lincoln County Hospital. This radiopharmacy provides radiopharmaceuticals for Grantham and Pilgrim hospitals, which are transported there on a daily basis.

The tables below show the current configuration of the nuclear medicine service in ULHT and the number of studies that are performed:

Current Configuration of the Service			
Sites	Lincoln	Grantham	Pilgrim
Number of Gamma Cameras	2	1	2
Age of Cameras (Years)	10 and 12	16	11 and 11
Annual Number of Patients (2019-2020) (1)	1,771	680	792
Annual Number of Studies (2019-2020) (1)	2,114	886	955
Radiopharmacy on Site (3)	Yes (2)	No (2)	No (2)

Notes

- (1) Patient numbers are different to number of studies as some tests require two visits.
- (2) Radiopharmacy was installed at Lincoln in 2019 and provides radiopharmaceuticals for both Grantham and Pilgrim.
- (3) Radiopharmacy needed daily to produce drugs for the scan)

The below tables show staffing and the geographical demand on the service:

Base of Current Staffing (whole time equivalents)			
Sites	Lincoln	Grantham	Pilgrim
Technologists	5.65	1.6	2.8
Clinical Scientists Provide support for the 3 sites.	2.8 (1.0 Medical Physics Expert)	0	0
Clinical Imaging Assistants	1.8 (also helps admin)+ 1 apprentice	1 (currently vacant)	0
Nurses	2.0	0	1.0
Admin	0.8	0	1.06
Total	14.05	2.6	4.86

Geographical Patient Demand for Nuclear Medicine				
Postcode	LN	NG	PH	Other
Patients	1,540	685	894	124
Percentage (%)	47	21	28	4

3. Challenges Faced by Nuclear Medicine Nationally

Due to the fact the nuclear medicine is a very specialist service, there are a number of challenges it faces nationally in particular with workforce. The following table shows some of these challenges.

National Challenges	
Challenge	Any Mitigations
Shortage of trained Clinical Technologists since the end of the National training program (on Governmental Migration Advisor list).	Apprentice scheme, but this requires individual departments finding the wage for the trainee. Each apprentice course is three years long.
Shortage of ARSAC Practitioners in addition to a national shortage of radiologists	None, in fact it is getting harder to get these licences.
Shortage of trained Medical Physics Experts. (takes approximately 10 years to become a consultant Clinical Scientist)*	None
Aged equipment with a requirement to replace 211 gamma cameras nationally in the next 5 years**	None
Problems with supply of radiopharmaceuticals and isotopes	Companies supplying the material have altered their process of delivery with additional cost to the company.

* British Nuclear Medicine Society (BNMS) Scientific Support for Nuclear Medicine guidance 2016

** Diagnostics: Recovery and Renewal paper Oct 2020 NHSE.

4. Challenges faced by the Nuclear Medicine Service in Lincolnshire

When we look at the service in ULHT the challenges for the service mirror those seen nationally:

Shortage of Technologists

Lincolnshire has struggled to recruit and retain clinical technologists over the last five years, as can be seen in the table below. This has been further impacted by the national training service for nuclear medicine clinical technologists ceasing, meaning there is now a national shortage of trained specialists in the country. Attempts to recruit abroad have been protracted (taking over a year) and unsuccessful in a couple of instances.

To ensure continuity of the service we have taken the decision to convert one of the full time posts to an apprentice post. A big problem with poor retention is that senior staff spend a long time training staff and then they leave. The process then must be started again with the new staff member, meaning senior staff cannot focus on developing services and bringing new techniques to the region. This is a particularly big problem in Grantham and Pilgrim as there are fewer staff to undertake the training of technologists to ensure they are proficient in all the required scanning and tasks required in each department. It would typically take 6-12 months to sign somebody off to be an independent operator who is able to perform all the required duties.

Sites	Lincoln	Grantham	Pilgrim
Technologists Posts (whole time equivalent)	5.65*	2.6**	2.8
Number of staff that have left in the last 5 years.	3	4	3
Longstanding Staff (More than Ten Years)	3	1.53	1
Fewer than Five Years to Retirement (60 years)	1	1	1

**runs the radiopharmacy (2 technologist staff daily) and the imaging of the service.*

*** 1 of these posts converted to an apprentice to try to train our technologist.*

Shortage of ARSAC Practitioners

Lincolnshire have two part time radiologists who hold an ARSAC licence (full list of all tests performed in ULHT) and one full time radiologist with a licence (limited list of tests permitted). Due to the fact that one of the radiologists does not have a full licence, to access some tests patients must travel to a different site to their local hospital. To get a full range of tests an ARSAC licence involves a lot of additional training. To get a test added to your site and practitioner licence required staff to be involved in all parts of the process at a site where they are being performed and also ensure that the site has the relevant permits to dispose of the products.

Shortage of Trained Medical Physics Experts

Lincolnshire nuclear medicine service has 1.0 WTE Clinical Scientists who can act as Medical Physics Experts (MPEs) (2 staff members who have other duties also). There is a legal requirement to have a specific number of MPEs in every service where radiation is utilised. The ideal number is based on a number of factors including number of investigations and cameras. Using European and national guidance of how many MPEs the department should ideally have is 2.44 WTE to be a well led, progressive department. The other clinical scientist within ULHT is training towards being a MPE but this is a long process, with approximately two more years to go.

Workload of Service

Lincolnshire workload demand has been static in the last five years, but the mix of tests performed has altered. The workload demand is only enough for three cameras within the county, however there are currently five.

Aged Gamma Cameras

The five gamma cameras in Lincolnshire are all over ten years old, which is the age where consideration of replacement is needed (Diagnostics: Recovery and Renewal paper Oct 2020 NHSE). The oldest camera is 16 years old.

Impact of Other Services

The development of the new Emergency Department at Pilgrim hospital will require the redevelopment of the building that currently houses the nuclear medicine department, and a new area will need to be identified and developed for the nuclear medicine service.

5. Case for change

Given the challenges faced by the Lincolnshire nuclear medicine service, it is important that we consider changing how we deliver the service to secure it for the patients of ULHT for the foreseeable future. The current situation in ULHT is that the staff and services are spread thinly, meaning that even low levels of staff absence impact on the amount of work the service can perform. The service normally books the patients based on the staff due to work on a set day. There is no spare capacity in the service so if a staff member is ill, this normally requires a camera load of patients to be cancelled, typically between four and ten patients, depending on the test being performed on that day.

Delivering the service across three sites means that some staff do not get experience of the variety of studies/techniques performed in the region (as not all the sites have a licence to perform all the tests/treatments). Obtaining this licence is not straight forward. Attempts to move staff around the region to allow them to perform a variety of tests has been problematic due to transport issues.

Currently the junior staff at the smaller sites do not have much peer support which means there is less opportunity for them to be involved in development and to raise suggestions for improvements of the service and also more gain experience of audit and projects.

The lack of Medical Physics Experts (MPE) within the region means that optimisation of the service and the ability to introduce new services into the county is limited, as they must repeat work on three sites. This also impacts on the amount of audit and governance that can be performed.

The fact that all the gamma cameras in Lincolnshire are over ten years old means they are more prone to be unreliable and require repair, impacting on cancellation of patient studies and a potential waste of radiopharmaceuticals. Due to the fact all these pieces of equipment are old the replacement parts and expert engineers are getting harder to obtain and two of the five systems have been served/due to be served end of life notices, meaning if they break repairs may not be possible. This means the services provided become vulnerable with potential long downtimes of some of the cameras.

At present, the utilisation of the equipment is not optimised. The British Nuclear Medicine Society (BNMS) guidance is that it would be appropriate to perform approximately 1,500 scans on each gamma camera. This means that, according to our level of demand, Lincolnshire should have three gamma cameras, whereas there are currently five.

6. Conclusion

The above illustrates that the challenges faced by the Lincolnshire nuclear medicine service are the same as those seen nationally. These include a shortage of skilled workers and the removal of most of the specialist training programmes, resulting in an aging workforce with a poor succession plans. This means the department must look to train staff internally, which in itself poses a challenge.

In additional to an aging workforce, the equipment is aged and not properly utilised. National guidance recommends the nuclear medicine workload within the county requires three gamma cameras, whereas the Trust currently has five. This puts added pressure on the medical physics experts, the establishment of which is underfunded according to European recommendations. Their role is to ensure the service is safe and responsive to new technologies.

The service cannot continue to guarantee a well-led service that provides the most up to date diagnostic procedures to patients if it continues to run on three sites, and we seek agreement for reviewing the service delivery model to ensure it continues to provide a sustainable service to the people of Lincolnshire.

7. Next Steps

We are proposing to develop options for the future service model for nuclear medicine in Lincolnshire.

Any proposed changes in service model will be subject to a formal public engagement process, to ensure our legal duty to involve is met. This will, if necessary, include a full formal twelve week public consultation on any service change, to enable patients and public to contribute to the development of the future service model.

ULHT is asking for Health Scrutiny Committee's support in developing the proposal for a future service model, and support for a public engagement exercise on the proposals, to begin later in 2021.

1. Background Papers

No background papers, as defined by Part VA of the Local Government Act 1972, were used to a material extent in the compilation of this report.

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