

**Counties Manukau
District Health Board**

**Nuclear Medicine
Health Services Plan**

February 2008

1.0 Current Service

Nuclear Medicine refers to imaging techniques that use radioactive substances to detect and treat disease. Auckland District Health Board provides the majority of Nuclear Medicine services to the population of CMDHB through their Radiology Department. Bone scans are the most common nuclear medicine procedure in New Zealand representing just over 50% of service load and equate to about 3 per 1,000 population per annum. This is a consistent level to other developed countries. A full list of all procedures provided through ADHB is detailed in Appendix 1.

Magnetic resonance imaging (MRI) and positron emission tomography (PET scans) are also modalities also of Nuclear Medicine. CMDHB provides MRI services to its own population with a very small volume provided through ADHB, mainly for inpatients. At the date of this document, PET scanning is not available in New Zealand and patients are referred to Australia for this diagnostic procedure.

Appendix 2 details the total CMDHB patient episode volume through the ADHB Radiology Department, and separates out Nuclear Medicine as a category, distinct from MRI. This data is shown by patient episodes and relative value units (RVUs – an indexed measure of resource utilisation). A summary of the data for 2006/07 full year and six months 2007/08 is:

Table 1: CMDHB Patient Episodes at ADHB Radiology Department :

Type	2006/07	Six months 2007/08
Nuclear Medicine	611	310
MRI	4	3

As can be seen in Appendix two the volume of patient *episodes* 6 months YTD 2007 08 of 310 equates to 231 patients. Therefore the nuclear medicine volumes provided by ADHB for the CMDHB equate to an average of 12 patient episodes per week (over a 50 week year) or 8-9 patients per week.

2.0 Trends and Future Directions

The National Radiology Laboratory report: *Nuclear medicine practice and patient doses in New Zealand in 2005*, published 2006, records the most recent trends in this branch of medicine.

Table 2 below shows the number of total nuclear medicine administrations and administrations per 1000 members of the New Zealand population for the years surveyed from 1966

Table 2

	1966	1973	1983	1993	2000*	2005
Population	2.68	2.97	3.23	3.48	3.86	4.10
Number of diagnostic administrations	6,164	17,720	24,113	29,056	29,600	26,895
Number / 1,000 pop	2.3	6.0	7.5	8.4	7.7	6.6

*data obtained as part of this study incomplete. Missing data has been estimated based on 2005 survey.

It should be noted that the number of administrations per 1,000 was lower in 2005 than in previous years (excluding 1966) and has remained relatively static over the last 30 years. The reduction of 8.4 per 1,000 population to 6.6 per 1,000 population represents a fall of 21%.

Whilst bone scans in New Zealand continue to be the most common nuclear medicine procedures the frequency of brain scans as well as liver tests have continued to fall as other techniques such as computerised tomography (CT), MRI and ultrasound scanning, have taken over.

The numbers of cardiovascular scans have also reduced significantly over the past twelve years for similar reasons. In contrast the numbers of myocardial perfusion studies have increased almost ten-fold since 1993 and now amount to about 15% of the total number of nuclear medicine procedures performed. However these procedures are not performed in the Radiology departments but the Catheter Laboratories of both ADHB and CMDHB so are not included in the above data.

To enable the administration of nuclear medicine procedures appropriate facilities, equipment and qualified specialist staff are needed. Requirements include a specialist in nuclear medicine who is capable of assessing the role of nuclear medicine procedures in patient management and to direct the performance and evaluate the quality of such procedures. The specialist must hold a license from the appropriate radiation licensing body to prescribe and administer radioactive substances to patients.

Working alongside the senior medical officer are trained nuclear medicine technicians who provide diagnostic aid to the SMO by conducting organ or body scans on patients. Technicians administer and record isotope dosage in accordance with protocol, observe patients during procedures and report abnormal activity.

Nuclear medicine is a small and highly specialised practice. It is also a diagnostic tool that has shown to be reducing in its application over the last decade in New Zealand as other imaging modalities have been introduced. Overall this is consistent with the rest of the developed world

These factors, combined with the small patient volumes provided by ADHB for the CMDHB population indicates that the future configuration of the service (currently provided by ADHB through their facilities) should remain.

4.0 Key Directions

- ✓ *CMDHB will continue to have ADHB provide nuclear medicine for the people of Counties Manukau for the foreseeable future*

APPENDIX 1 : 2006/07 MOH Contract referrals to ADHB Radiology - CMDHB domiciled patients

06/07 Sum of RVU Volume													
RVUVolume	Month												
Attendance Type	Jul 2006	Aug 2006	Sep 2006	Oct 2006	Nov 2006	Dec 2006	Jan 2007	Feb 2007	Mar 2007	Apr 2007	May 2007	Jun 2007	Grand Total
Angiography		73		22						28			123
CT Scan	0	13	0	0	22		26	10			21	17	109
Mammography				9	2	2	4		4	5			26
MR	0	0											0
Nuclear Medicine	412	353	440	400	321	266	271	158	319	280	443	415	4078
Plain Radiography	61	15.5	90	6.5	87.7	17	35.5	65.7	3	5	3.5	10.2	400.6
Special Procedure	8	4	4		4	4		4			25	8	61
Ultrasound	32	25	27	11	30	7	38	18	11	21	28	17	265
Grand Total	513	483.5	561	448.5	466.7	296	374.5	255.7	337	339	520.5	467.2	5062.6
06/07 Count of Patient Episodes													
	Month												
Attendance Type	Jul 2006	Aug 2006	Sep 2006	Oct 2006	Nov 2006	Dec 2006	Jan 2007	Feb 2007	Mar 2007	Apr 2007	May 2007	Jun 2007	Grand Total
Angiography		3		2						3			8
CT Scan	5	2	6	5	3		2	1			4	3	31
Mammography				4	1	1	2		2	2			12
MR	2	2											4
Nuclear Medicine	63	59	64	55	47	38	39	22	48	45	69	62	611
Plain Radiography	61	15	88	6	87	15	34	65	3	5	3	10	392
Special Procedure	2	1	1		1	1		1			6	2	15
Ultrasound	11	8	11	5	13	3	11	8	5	6	13	8	102
Grand Total	144	90	170	77	152	58	88	97	58	61	95	85	1175

07/08 Sum of RVU Volume							
Attendance Type	Jul 2007	Aug 2007	Sep 2007	Oct 2007	Nov 2007	Dec 2007	Grand Total
Angiography	122					77	199
CT Scan		39	27			20	86
Mammography	4				2		6
Nuclear Medicine	378	383	241	336	362	350	2050
Plain Radiography	1	5	2	7	2	3	20
Special Procedure			5	8			13
Ultrasound	3	31	16	21	6	14	91
Grand Total	508	458	291	372	372	464	2465
07/08 Count of Patient Episodes							
Angiography	4					4	8
CT Scan		8	4			2	14
Mammography	2				1		3
Nuclear Medicine	57	57	40	43	58	55	310
Plain Radiography	1	5	2	7	2	3	20
Special Procedure			2	2			4
Ultrasound	1	10	8	10	3	6	38
Grand Total	65	80	56	62	64	70	397
07/08 Count of Patients							
Angiography	2					2	4
CT Scan		4	3			2	9
Mammography	1				1		2
Nuclear Medicine	46	39	34	31	43	38	231
Plain Radiography	1	5	2	7	2	3	20
Special Procedure			2	2			4
Ultrasound	1	8	8	8	3	5	33
Grant Total	51	56	49	48	49	50	303

APPENDIX 2 : Procedures performed by the ADHB Nuclear Medicine Service for CMDHB residents

Adrenal Octreotide
Adrenal Octreotide Follow Up
Bone Bloodpool
Bone Local
Bone Paediatric
Bone WB + Spect
Bone Whole Body
Brain Ceretec
Day Stay Nuc Med
Emla Application
Gastric Empty Solid
GI Haemorrhage 1st Scintigram
GI Haemorrhage 24hr Follow Up
Hepato-Biliary Scintigram
In Vivo EDTA Clearance
In Vivo Shillings 2
Lacrimal Scintigram
Lung Quantitative
Lung V/Q
Parathyroid Scint Delay
Parathyroid Scintigram
Parathyroid Spect
Renal DMSA Scintigram
Renal DTPA Diuresis MCU
Renal DTPA MCU Direct
Renal DTPA Routine/Baseline
Renogram Diuresis
Sentinel Node Scintigram
Thyroid Tc04 Dynamic
Thyroid Tc04 Uptake