

**Counties Manukau  
District Health Board**

**Cancer Services  
(Non-Surgical Cancer Services)  
Health Services Plan**

**February 2008**

## 1.0 Current Services

Counties Manukau DHB has developed a Cancer Control Strategy 2007, to set the direction for the provision of cancer services for the CMDHB population into the future, consistent with the requirements of the New Zealand Cancer Control Strategy (NZCCS).

CMDHB is responsible for funding cancer services across the full spectrum of the cancer control continuum: prevention, screening, diagnosis, treatment, palliative care and research. The provider for medical and radiation oncology, outpatient, daypatient and inpatient is Auckland DHB (ADHB). The spectrum of services provided for CMDHB residents is:

**Prevention** – CMDHB supports a broad range of prevention activities, targeting major risk factors for cancer including poor nutrition and obesity, physical inactivity and smoking. Prevention related activities are delivered across a wide spectrum of community organisations – schools, churches, hospitals and primary care settings including primary healthcare organisation programmes. Key initiatives such as the *Let's Beat Diabetes* programme and *Smoking Cessation* programmes in the hospital and community closely relate to the prevention related objectives of the NZCCS.

**Screening** – CMDHB commenced a local breast cancer screening programme in 2006. Since then a new mobile unit has been purchased and a new fixed screening and assessment site at Manukau SuperClinic™ has been built. Maaori and Pacific women are prioritised in the screening invitation process, to address current inequalities in access. During 2007/08 the breast screening mobile schedule has been developed in consultation with Primary Health Organisations (PHOs) and community groups.

**Diagnosis and treatment** – A broad range of diagnostic procedures are available. The main methods of cancer treatment include surgery, radiation therapy and chemotherapy.

While most cancer surgery for Counties Manukau residents is undertaken at CMDHB facilities by CMDHB clinicians, thoracic, neurosurgical, hepatic and tertiary gynaecology surgery is undertaken at Auckland City Hospital.

Medical Oncology and Radiation Oncology are provided for the CMDHB residents by Auckland DHB from the Auckland City Hospital site. This includes provision of inpatient, daypatient and outpatient care for diagnosis and treatment of cancer. Chemotherapy (intravenous, oral and combined) is delivered by ADHB at Auckland City Hospital.

### Medical Oncology

ADHB provides a Level 6 Medical Oncology services as per the NSW Delineation model. This requires the service to have an Oncology Department, Oncology specialists and training registrars; to fulfill the role of teaching and research; and to participate with other oncology specialties as part of a comprehensive cancer service.

Outreach chemotherapy consultation clinics are provided by ADHB at Manukau SuperClinic™ and Botany. A comprehensive secondary level haematology service, including chemotherapy, is provided at CMDHB by CMDHB clinicians.

### Radiation Oncology

Currently, all CMDHB residents who require radiotherapy are treated at the ADHB Auckland Regional Cancer Centre. ADHB is a Level 6 Radiation Oncology service with multiple linear accelerators, a full integrated computer assisted planning and treatment programme. Full specialist staffing, teaching, research and access to all sub-specialties.

Four radiotherapy clinics for consultation are provided currently at the Manukau SuperClinic™ and two at the Botany facility are supported by the Auckland Regional Cancer Centre each month.

## **Palliative Care**

Palliative Care services are provided to around 800 Counties Manukau residents at any one time. These services may be provided by primary care providers, community hospice providers, CMDHB community health services (intermediary care division), CMDHB adult inpatient acute care service at Middlemore Hospital, or the paediatric service at KidzFirst.

The ADHB regional Child Health Palliative Care Service provides tertiary services for CMDHB children from Starship Hospital. The only role played by ADHB is in the provision of adult Palliative Care services while Counties Manukau residents are oncology inpatients at Auckland City Hospital.

CMDHB adult specialist palliative care services have developed in an ad-hoc way until recently. Services provided include acute inpatient care at Middlemore Hospital, outpatient clinic support at Manukau SuperClinic and Pukekohe, CMDHB community-based services, Franklin Hospice and South Auckland Hospice. The specialist hospital service receives adult inpatient referrals from throughout the hospital, approximately 9-11% of total hospital admissions. As well as providing direct care, the Palliative Care Service provides consultancy advice, education and support to generalist providers within the hospital/hospice and to the wider community.

The CMDHB Palliative Care team is a consultative team to the admitting teams and currently has dedicated palliative care beds. Development of short-stay beds located at the front of hospital (perhaps in the Assessment and Planning Unit) will improve care delivery, decrease admissions into in-patient beds, and provide early and prompt symptom management.

## **Community Hospices**

South Auckland Hospice Inpatient Unit has 9 specialist Palliative Care beds and is currently planning the increase to 14 beds. The minimum international benchmark is five beds/100,000 of population. South Auckland Hospice has 350 community patients at any one time with up to 650 new admissions per year.

Franklin hospice has no inpatient unit but respite beds at Pukekohe Hospital and Franklin Memorial Hospital are used for the provision of inpatient care for appropriate patients. Franklin Hospice provides services for up to 75 patients at any time and accepts referrals from up to 110 patients per year.

## **Cancer Services: Research and Surveillance**

CMDHB is leading a number of different initiatives to improve data collection to enable better informed decision-making, to ensure patients are investigated, staged and treated in a timely manner and to evaluate outcomes and compare with published international figures. Data issues including lack of standardised variables and lack of outcome monitoring is a significant issue to both clinicians and CMDHB. CMDHB supports the standardisation of electronic data, systems and software across all DHBs. An important data-related issue is to improve the collection of ethnicity data, and to ensure that ethnicity data is consistent between different organisations.

Appendix One contains volume information for inpatient admissions, discharges, outpatient activity and treatments

### **1.1 Clinical Networks in Oncology Care**

Clinical Networks are a means of providing a new focus across all clinical disciplines toward prevention of illness and injury and maintenance of health. The aim of each Clinical Network is to improve the integration and coordination of clinical services through interaction between service providers and other enabling stakeholders by collaborating across professional, area health service and institutional boundaries. During 2007 the process of developing the Northern Regional Cancer Network commenced.

The strategic role of clinical networks is to provide advice and direction on where and how services should be delivered. The network model involves multi-sectorial/multidisciplinary relationships, referral and support structures between units, with emphasis on clinical management and partnerships.

All clinical networks will have six major functions:

1. The planning of services based upon the needs of the population and the changes in the health system, and accommodating changing technologies and demographic profiles;
2. The development of policy that supports the changing needs of the population and fosters innovation;
3. The definition of meaningful performance measures, including the setting of targets and the monitoring of outcomes;
4. The development of protocols to ensure efficiency, effectiveness and safety in the services we deliver;
5. The investment in people, providing opportunities to develop skills and knowledge; and
6. The fostering of leadership and advice on future workforce planning and, subsequently on prioritising resource allocation across the system.

## **1.2 Northern Regional Cancer Network**

The concept of a clinical network is behind the establishment of the Northern Region Cancer Network. CMDHB together with Auckland DHB, Northland DHB and Waitemata DHB in the 2007/08 fiscal year has established a Northern Region Cancer Network that will support the ongoing development of cancer services by committing organisational resources to the development of a regional cancer control strategy and supporting the implementation of two regional cancer workstreams.

The principles of the Northern Region Cancer Control Network will support the local delivery of effective, efficient and equitable cancer control services, by:

- Facilitating Cancer Control Strategy and action planning and implementation
- Facilitating regional collaboration to improve patient journeys and outcomes
- Supporting quality improvement initiatives
- Supporting regional integration across traditional silos

The emphasis will be on a model supported by the network of health care professionals to provide care consistent with principles of efficiency and quality while enhancing the patient and carer experience.

## **2.0 Key Issues**

### **Coordination of Cancer Care**

Currently services for people of Counties Manukau are inadequately coordinated. Challenging for all providers, this is exacerbated in CMDHB by medical and radiation oncology services, and considerable surgical management (neurosurgery, cardiothoracic, major head and neck, and tertiary gynaecology) being provided at ADHB. Coordination of care is critical to achieve treatment compliance, and to prevent avoidable delays between transfers of care.

### **Lack of local service provision**

Transport difficulties and anxiety are both significant issues for many people of Counties Manukau, particularly people from immigrant communities or lower decile areas. On the contrary, Counties Manukau residents are increasingly comfortable and familiar with Manukau campus, and have knowledge of local community services. Local service provision more readily integrates with local community based resources.

### **Timeliness of service provision**

Ensuring ready access to oncology treatment services is critical to achieve high quality outcomes. Waiting times for some cancer treatment is beyond clinical recommendations and increased service capacity is required.

### **Growth in Demand**

Significant growth in demand is forecast associated with the increased incidence of some cancers, changes in treatment regimes, and the growth and ageing of the CMDHB population. This increase in demand will require additional service volumes that will also be affected by changes in clinical practice.

## **3.0 Trends and Future Directions**

Drug technologies continue to develop in the treatment of cancer and through Pharmac, access to new drugs is being facilitated on an ongoing basis. The current trend is towards oral drug treatments which although relatively new, are often the preferred option for patients and will impact facilities planning.

Oral chemotherapy is being implemented now and is likely to be widely adopted as an alternative to IV chemotherapy in the future for the treatment of all types of cancers. Although we are not able to forecast this with certainty, we have made some assumptions in relation to this trend in our volume planning. The implementation of oral chemotherapy will be factored into the scoping for day and out patient facilities for managing patients receiving chemotherapy at CMDHB.

It is anticipated there will be an increasing demand for concurrent chemo/radiotherapy treatment regimes.

The push around radiotherapy technologies is a challenge and the debate continues as to demand for radiotherapy versus intervention rate for radiotherapy.

### **3.1 Breast Cancer Diagnosis using Ultrasound Elasticity Imaging**

This service could be provided by clinics and hospitals, which currently have the facilities to perform ultrasound (US) breast examinations.

X-ray mammography is widely used in the diagnosis of breast cancer and is safe and effective. Many lesions found using this technique are of an indeterminate nature, and thus require biopsy for definitive status determination. This is the current practice at CMDHB.

However as the majority of biopsies are performed on what eventuates to be benign lesions, this means that many unnecessary and costly procedures are performed on healthy women.

Ultrasound (US) is used as an adjunct to X-ray mammography and has several useful advantages including: the ability to be used for women with dense breast tissue, guiding interventions such as biopsy, and in women for whom exposure to X-ray radiation is contraindicated. US is also useful to determine whether a lesion is malignant or benign.

US elasticity imaging is a modification of standard US to incorporate tissue compression and elasticity measurements to the scan result. Data are collected using the US device both before and after tissue compression. The manner in which the various components of the tissue respond to compression

results in slightly different US echo-genicity, which can be visualised in real time in a similar way to conventional US. Malignant masses are stiffer and therefore deform less than benign masses. Malignant masses appear darker than benign masses on the elasticity image. In addition, benign masses have better delineated boundaries between the mass and the surrounding tissue. Malignant masses are believed to have a less defined boundary due to the infiltration of the malignancy into the surrounding tissue. These properties are exploited in USEI.

USEI, US and X-ray mammography were compared in a 2007 study using fifty patients with either benign (n=25) or malignant (n=25) lesions (Thomas et al 2007) (level III-2 diagnostic evidence). Results showed that:

- USEI was as sensitive (96%), and was substantially more specific (80% versus 68%) than US alone.
- The use of combined US and X-ray mammography greatly increased the sensitivity (i.e. the ability to correctly identify those who have the disease), but resulted in a much reduced specificity (i.e. the ability to correctly identify those who do not have the disease).

**Table A. Sensitivity and specificity for detection of malignant lesions**

	Sensitivity	Specificity
US	96%	68%
US+ X-ray mammography	100%	40%
USEI	96%	80%

**Table B. Comparison of US and USEI vs the reference standard, histology (n=108)**

Sensitivity (%)		Specificity (%)	PPV (%)	NPV (%)
US	91.8	78	77.6	92
USEI observer 1	77.6	91.5	88.4	83.1
USEI observer 2	79.6	84.7	81.3	83.3

**Table C. Comparison of the discriminative ability of three diagnostic tests on lesions of known status**

	Sensitivity (%)	Specificity (%)
US	94	83
X-ray mammography	87	85
USEI	82	87

No cost/benefit analysis is available to date.

### 3.2 Boron Neutron Capture Therapy for Cancer Treatment

Boron neutron capture therapy (BNCT) involves the selective, radiation-based destruction of a variety of malignant tumours, but mainly cancers of the head and neck. This technology would be limited to use in tertiary hospitals that have access to a neutron source, such as a nuclear reactor.

To date the main types of cancers treated in trials with BNCT have been advanced gliomas, and melanomas (either primary melanomas or cerebral metastases of melanomas). Head and neck, and liver cancers have also been recently treated with BNCT (Barth et al 2005).

BNCT may be utilised for several cancers which are resistant to many, if not all, current cancer therapies available. For example, glioblastoma multiforme, a type of brain cancer, is resistant to surgery, chemotherapy, radiotherapy, immunotherapy, and gene therapy. Advanced melanoma and metastases of melanoma may also be difficult to treat (Barth et al 2005).

### **3.3 Ovarian Cancer Symptom Index**

Currently there is no effective method of screening for ovarian cancer and as such the first presentation of many women occurs at an advanced stage of the disease when the prognosis is poor. If ovarian cancer is diagnosed at Stage I when it is limited to the ovaries the prognosis for the patient is extremely good, with greater than 90 per cent survival. Until recently (2007) it was believed that that ovarian cancer caused no symptoms until the disease reached an advanced stage, however, there is a growing realisation that ovarian cancer causes a distinct pattern of, and timing of symptoms.

If a symptom index were in place and established, general practitioners or other medical personnel would administer the screening survey to female patients presenting with gastrointestinal or abdominal symptoms, which may indicate ovarian cancer. Studies are now starting to evolve which have shown positive outcomes from the use of the tool.

### **3.4 Future Service Provision: Local Chemotherapy Treatment**

As part of the Regional Service Planning process completed in 2004 an agreement was made with the Auckland DHB that cancer services should be provided as close to the local population as possible where this is shown to be cost effective and efficient. This principle has guided the planning for future provision of chemotherapy services.

CMDHB has agreed (with endorsement from the Northern Region) to the establishment of an outreach chemotherapy treatment service at CMDHB (Manukau) alongside the provision of chemotherapy outpatient clinics. This local ambulatory service will be implemented in 2009.

The model of care will be based on the "hub and spoke" with Auckland City Hospital as the hub. The Medical Oncology service provided at Manukau SuperClinic will be consistent with Level 5 of the NSW Role Delineation model. This involves access to a medical registrar on call 24 hours, appointed Medical Oncology Specialist with multidisciplinary management of oncology patients including case conferences with radiotherapists, physicians and surgeons. This model will enable an increased oncology presence on the site and this will result in improved co-ordination and information sharing between clinicians. Clinicians support the central management of the service, with oncologists dedicated to CMDHB and spending the majority of their week at CMDHB i.e. a hybrid "hub and spoke" model.

Services provided from Manukau Campus will include first specialist appointments, follow up and assessment appointments as well as the delivery of chemotherapy treatment for Counties Manukau residents with a defined tumour type (breast, lung, colorectal).

The identified benefits of the proposal include: increased capacity for multidisciplinary team planning and improved communication, greater opportunity for patients to be managed by the same team and with consequently improved continuity of care and less likelihood of delays. Counties Manukau patients and their families will therefore receive the best care in the most convenient location. These benefits are clearly linked to the goals of the New Zealand Cancer Control Strategy.

Providing an outreach chemotherapy service at CMDHB will improve the physical access to these services, particularly for Maaori and Pacific patients residing within the catchment area. The Manukau campus is located close to some of the lowest decile areas in Counties Manukau and it is well documented that proximity improves access in low decile areas. It is also anticipated that this local service will result in improved multidisciplinary patient care and a more streamlined patient journey.

There will be an increase in the number of combined ADHB and CMDHB clinician meetings held on site at Manukau and improved multidisciplinary working within various tumour groups as a result (particularly bowel and lung cancer). ADHB clinicians anticipate seeing over 450 new patients, 2300 follow ups and treating 3500 CMDHB patients, requiring chemotherapy within Counties Manukau per annum. CMDHB is confident that this improved access will help to streamline the patient journey and may result in an increased uptake of this type of therapy. It will also create a greater likelihood of those patients requiring readmission to manage complications of treatment and to support devolution of care from secondary to primary care.

CMDHB and ADHB clinicians and managers have worked closely to define the chemotherapy service at CMDHB. ADHB strongly supports the plan and clinicians in both organisations look forward to realising the benefits of the new service. The decision to limit the new service to three major cancer groups was in acknowledgement that they are large subgroups and that multidisciplinary teams are already established in CMDHB to manage them.

By constraining the process to these subgroups CMDHB may also better estimate the support services required to develop a high quality cancer therapy service (e.g. nurses, radiology, laboratory etc). It therefore allows for the more comprehensive support structures and infrastructure necessary for delivering chemotherapy to be developed over time and extended to other subgroups. It also allows for more accurate costing of treatment to be identified which will aid in future planning.

It is envisaged that the development of the local chemotherapy service at CMDHB will be incremental with the phased introduction of chemotherapy treatments for breast, colorectal and respiratory cancers. These are the areas with the higher number of cancers. Chemotherapy delivery at CMDHB will begin with the simpler more straight forward chemotherapy treatments such as Capecitabine, 5FU/FA, Adriamycin, Carboplatin and blood transfusions. These simpler treatments are predominantly associated with Gastrointestinal and Breast tumour groups. Within six months of establishment the chemotherapy service will expand to include lung cancer.

With this model there is also likely to be an increase in the number of acute referrals to CMDHB. The 2007/07 year saw 6% of CMDHB patients receiving chemotherapy treatment at ADHB subsequently being admitted acutely to CMDHB. All patients attending ADHB for chemotherapy treatment are currently advised to telephone ADHB if they are acutely unwell or have any concerns. It is anticipated that patients attending CMDHB for chemotherapy will continue to be given this advice. However, a number of patients will still present acutely to the Emergency Department at CMDHB. As well as monitoring the number of patients attending EC acutely, as part of the implementation of the Chemotherapy outreach service the Consultant physicians within EC should be provided with advice and education by the ADHB Medical Oncologists. In the longer term it is envisaged that with the growth in the delivery of chemotherapy locally, the service will expand to a five day a week service, and that there will be increased support for a locally- based service perhaps including a CMDHB based oncology/palliative care registrar.

Ultimately the oncology service will include a ward referral service.

In the medium to long term (2009/10) an oncology day stay facility with co-located radiotherapy and chemotherapy clinics is planned for the Manukau campus.

### **3.5 Future Service Provision: Radiotherapy**

Consistent with the principle of providing services as close to the local population as possible, it has been agreed by the Northern Region that when new radiotherapy capacity is required beyond that currently available at ADHB, Waitemata DHB will develop two Linear Accelerators to create additional capacity within the region. Subsequently additionally capacity required within the Northern Region will be developed at the Manukau Campus with the anticipated timeframe 2014/15. A footprint for this facility is included in the masterplanning at Manukau Campus.

Radiation Oncology will be provided at Manukau SuperClinic to Level 5 as per the NSW Delineation model. This level requires a basic modern radiation oncology treatment centre comprising a minimum of superficial, deep x-ray therapy and megavoltage machines with one bunker per linear accelerator. Access to CT, MRI scan and/or CT casting system. The service will include Radiation Oncologists, Medical Physicists, Radiation Therapists, Biomedical Engineers or Technicians and Therapeutic Radiographers.

### **3.6 Future Service Provision: Local palliative care service**

The CMDHB Palliative Care Plan has recently been developed with a wide range of input from health service providers and the community. The overall framework of the plan fits the framework set out in

the New Zealand Palliative Care Strategy but is tailored to the needs of Counties Manukau and builds on existing service frameworks in Counties Manukau.

Counties Manukau DHB's vision for palliative care services clearly reflects the strategic direction of CMDHB and is of a multi-disciplinary network of health services centred on primary care that emphasis the needs of the patient and his/her family/whanau. The Palliative Care Plan has a six year focus (2006-2012) with staged implementation. Currently the CMDHB Palliative Care Network ("the Network") is being established focusing on the needs of patients, their home carers and their family/whanau. There will be a particular focus on providing services, and facilitating access to services, that are tailored to the needs of peoples from the different cultures and spiritual beliefs of the people of Counties Manukau. The Network will provide quality services that are culturally, socially and psychosocially appropriate for each individual patient and their home carer and their family/whanau.

Considerable Regional Services Planning has been completed. The detailed planning for providing Chemotherapy services on site at Manukau for the CMDHB population is underway at the date of this HSP for implementation in 2008.

The detailed planning has also just commenced for the next replacement of a linear accelerator which will firm up timing for the development of new capacity at Waitemata DHB. This process that is underway and due to be completed by mid 2008 will also clarify the third step to creating radiotherapy capacity at CMDHB. A full regional process will be entered into at that point.

## **4.0 Key Directions**

- ✓ *Continuation of a Hub and Spokes Model for non-surgical cancer services with transition to most services being provided at Manukau campus by ADHB during the Health Services Plan.*
- ✓ *Development of chemotherapy services at Manukau in 2009/2010.*
- ✓ *Development of radiotherapy service provision at Manukau in 2014/2015.*
- ✓ *Continuation of inpatient oncology service provision at Auckland City Hospital for the foreseeable future.*
- ✓ *Development of increased multidisciplinary clinics at MSC (e.g. oncology/respiratory, breast cancer) to improve the coordination of patient care.*
- ✓ *Implementation of the CMDHB Palliative Care Plan involving a multi-disciplinary network of health services centred on primary and community based care, but supported by access to specialist Palliative Care Services for advice, complex symptom management and ease of access to assessment/review.*
- ✓ *Additional service volumes in response to the rising incidence of cancer and demographic growth.*

## APPENDIX ONE Current Activity Matrix : Oncology for CMDHB population

### 1.0 Current Activity Inpatients: Service Related Groups (please see below for DRG codes in this grouping)

CMDHB SDR 0607

	Discharge	Caseweight
Adult	0.85	0.83
Child	1.13	1.47

BY Service Related Group (irrespective of discharge department)			2004/05			2005/06			2006/07			
Patient Type	Day/Inpatient	Agency code	Discharges	Caseweights	acw	Discharges	Caseweights	acw	Discharges	Caseweights	acw	
Adult	Daypatient	Auckland Counties Manukau	78	30.79	0.39	93	48.72	0.52	112	56.52	0.50	
			88	37.70	0.43	77	34.24	0.44	117	52.52	0.45	
	Daypatient Total		166	68.49	0.41	170	82.95	0.49	229	109.05	0.48	
	Inpatient	Waitemata	1	1.20	1.20	4	2.87	0.72	1	0.72	0.72	
		Auckland Counties Manukau	163	219.21	1.34	220	316.48	1.44	201	286.68	1.43	
		Manukau	361	446.47	1.24	376	490.66	1.30	398	471.31	1.18	
		Non Northern Region	7	8.26	1.18	2	2.83	1.41	5	6.47	1.29	
	Inpatient Total		532	675.15	1.27	602	812.83	1.35	605	765.18	1.26	
	Adult Total			698	743.64	1.07	772	895.78	1.16	834	874.23	1.05
	Child	Daypatient	Auckland Counties Manukau	18	7.76	0.43	23	9.20	0.40	23	9.05	0.39
			2	0.98	0.49	4	1.74	0.43	2	0.77	0.38	
Daypatient Total		20	8.74	0.44	27	10.94	0.41	25	9.81	0.39		
Inpatient		Auckland Counties Manukau	18	17.66	0.98	60	57.59	0.96	37	39.18	1.06	
			3	2.30	0.77	3	2.26	0.75	2	6.16	3.08	
Inpatient Total		21	19.96	0.95	63	59.84	0.95	39	45.34	1.16		
Child Total			41	28.70	0.70	90	70.78	0.79	64	55.15	0.86	
Grand Total			739	772.34	1.05	862	966.56	1.12	898	929.38	1.03	

**Service Related Group : Malignancy : - DRGs relevant to group.**

SRGname	Malignancy
drg_code	drg_name
B66A	Nervous System Neoplasm W Catastrophic or Severe CC
B66B	Nervous System Neoplasm W/O Catastrophic or Severe CC
D60A	Ear Nose Mouth and Throat Malignancy W Catastrophic or Severe CC
D60B	Ear Nose Mouth and Throat Malignancy W/O Catastrophic or Severe CC
E71A	Respiratory Neoplasms W Catastrophic CC
E71B	Respiratory Neoplasms W Severe or Moderate CC
E71C	Respiratory Neoplasms W/O CC
G60A	Digestive Malignancy W Catastrophic or Severe CC
G60B	Digestive Malignancy W/O Catastrophic or Severe CC
H61A	Malignancy of Hepatobiliary Sys Panc (Age>69 W Cat or Sev CC) or W Cat CC
H61B	Malignancy of Hepatobiliary Sys Panc (Age>69 W/O Cat or Sev CC) or W/O Cat CC
H61C	Malignancy of hepatobiliary system, pancreas age <70 w/o cat or sev cc
I65A	Connective Tissue Malignancy including Pathological Fx W Cat or Sev CC
I65B	Connective Tissue Malignancy including Pathological Fx W/O Cat or Sev CC
I69A	Bone Diseases & Spec Arthropathies Age >74 W Catastrophic or Severe CC
J62A	Malignant Breast Disorders (Age >69 W CC) or W (Cat or Sev CC)
J62B	Malignant Breast Disorders (Age>69 W/O CC) or W/O (Cat or Sev CC)
J62C	Malignant breast disorders age <70 w/o cc
L62A	Kidney and Urinary Tract Neoplasms W Catastrophic or Severe CC
L62B	Kidney and Urinary Tract Neoplasms W/O Catastrophic or Severe CC
M60A	Malignancy Male Reproductive System W Catastrophic or Severe CC
M60B	Malignancy Male Reproductive System W/O Catastrophic or Severe CC
N60A	Malignancy Female Reproductive System W Catastrophic or Severe CC
N60B	Malignancy Female Reproductive System W/O Catastrophic or Severe CC
R62A	Other Neoplastic Disorders W CC
R62B	Other Neoplastic Disorders W/O CC

## 2.0. Current Activity Inpatients : Purchase Unit Code

By PUC Code			2004/05			2005/06			2006/07		
Patient Type	Day/Inpatient	Agency code	Discharges	Caseweights	acw	Discharges	Caseweights	acw	Discharges	Caseweights	Acw
Adult	Daypatient	Auckland Non Northern Region	116	42.03	0.36	148	67.02	0.45	229	106.47	0.46
			1	0.76	0.76	2	2.67	1.34	3	4.32	1.44
	Daypatient Total		117	42.80	0.37	150	69.69	0.46	232	110.78	0.48
	Inpatient	Auckland Non Northern Region	329	465.84	1.42	431	635.29	1.47	434	637.54	1.47
			3	3.72	1.24	1	0.44	0.44	6	7.59	1.26
Inpatient Total		332	469.56	1.41	432	635.73	1.47	440	645.13	1.47	
Adult Total			449	512.35	1.14	582	705.42	1.21	672	755.92	1.12
Child	Daypatient	Auckland Non Northern Region	29	11.67	0.40	34	10.67	0.31	15	4.47	0.30
									1	0.33	0.33
	Daypatient Total		29	11.67	0.40	34	10.67	0.31	16	4.81	0.30
	Inpatient	Auckland	33	55.97	1.70	83	129.61	1.56	46	53.52	1.16
Inpatient Total			33	55.97	1.70	83	129.61	1.56	46	53.52	1.16
Child Total			62	67.64	1.09	117	140.28	1.20	62	58.33	0.94
Grand Total			511	579.99	1.14	699	845.71	1.21	734	814.24	1.11

### 3.0 Current Activity Outpatients (including Chemotherapy and Radiotherapy assessment and treatment)

	FSA			FU		
	2004/05	2005/06	2006/07	2004/05	2005/06	2006/07
DHB						
ADHB	1141	1202	1257	7916	8811	8934
Other DHBs	12	5	8	20	33	35
Grand Total	1153	1,207	1265	7936	8,844	8969

	Chemotherapy			Radiotherapy		
	2004/05	2005/06	2006/07	2004/05	2005/06	2006/07
DHB						
ADHB	3,876	5,391	3,337	10,753	11,676	12,642
Other DHBs	17	28	48	27	43	70
Grand Total	3,893	5,419	3,385	10,780	11,719	12,712

**APPENDIX TWO: FORECAST VOLUME ACTIVITY : ONCOLOGY**

**1.0 FORECAST : INPATIENT VOLUMES BY SERVICE RELATED GROUP**

			Forecast Discharge Numbers @2.9% growth				Forecast WIES @2.9% growth			
Patient Type	Day/Inpatient	Agency code	2009/10	2011/12	20016/17	2026/27	2009/10	2011/12	20016/17	2026/27
Adult	Daypatient	Auckland Counties	122	129	149	198	61.57	65.10	75.20	99.92
		Manukau	127	135	156	207	57.01	60.60	70.03	92.92
	Daypatient Total		250	264	305	406	119.05	125.71	145.24	193.33
	Inpatient	Waitemata	1	1	1	2	0.72	0.72	0.72	1.45
		Auckland Counties	219	232	268	356	312.36	330.90	382.24	507.76
		Manukau	434	459	530	705	513.94	543.54	627.62	834.85
Non Northern Region		5	6	7	9	6.47	7.76	9.06	11.64	
Inpatient Total		659	698	805	1072	833.48	882.80	1018.13	1355.82	
Adult Total			909	962	1110	1477	952.84	1008.40	1163.54	1548.24
Child	Daypatient	Auckland Counties	25	27	31	41	9.83	10.62	12.19	16.12
		Manukau	2	2	3	4	0.77	0.77	1.15	1.53
	Daypatient Total		27	29	33	44	10.60	11.38	12.95	17.27
	Inpatient	Auckland Counties	40	43	49	66	42.35	45.53	51.88	69.88
		Manukau	2	2	3	4	6.16	6.16	9.25	12.33
Inpatient Total		42	45	52	69	48.83	52.32	60.45	80.22	
Child Total			70	74	85	113	60.32	63.77	73.25	97.38
Grand Total			978	1036	1195	1591	1012.17	1072.20	1236.76	1646.59

## 2.0 FORECAST ACTIVITY: INPATIENTS: BY PURCHASE UNIT CODE

By PUC Code			Forecast Discharge Numbers @2.9% growth				Forecast WIES @ 2.9% growth			
Patient Type	Day/Inpatient	Agency code	2009/10	2011/12	20016/17	2026/27	2009/10	2011/12	20016/17	2026/27
Adult	Daypatient	Auckland	250	264	305	406	116.23	122.74	141.80	188.76
		Non Northern Region	3	3	4	5	4.32	4.32	5.75	7.19
	Daypatient Total		253	268	309	411	120.81	127.97	147.55	196.26
	Inpatient	Auckland	473	501	578	769	694.84	735.97	849.08	1129.66
		Non Northern Region	7	7	8	11	8.85	8.85	10.12	13.91
Inpatient Total		479	508	586	779	702.31	744.83	859.20	1142.18	
Adult Total			732	775	894	1190	823.41	871.78	1005.64	1338.60
Child	Daypatient	Auckland	16	17	20	27	4.77	5.07	5.96	8.05
		Non Northern Region	1	1	1	2	0.33	0.33	0.33	0.67
	Daypatient Total		17	18	21	28	5.11	5.41	6.31	8.41
	Inpatient	Auckland	50	53	61	81	58.18	61.67	70.97	94.25
		Inpatient Total		50	53	61	81	58.18	61.67	70.97
Child Total			68	72	83	110	63.97	67.74	78.09	103.49
Grand Total			800	847	977	1300	887.46	939.60	1083.81	1442.12

## 3.0 FORECAST ACTIVITY : OUTPATIENTS BY TYPE

Please note: The historical data for outpatients, chemotherapy and radiotherapy activity at ADHB is not reliable. There has been a great deal of work done at ADHB with the region to understand activity levels with more surety.

The data below has been prepared on a more specific level for provision of chemotherapy into new purchase units that better reflect the activity that contributes to the diagnosis and treatment of patient with chemotherapy. This gives us a better indication of the types of chemotherapy for the CMDHB population that is delivered now i.e. the 2006 07 volumes have been converted to the new units and then extrapolated out on two bases: demographic growth (Table 1) and **actual growth rates as we know these now** (Table 2).

Changes in technology and their impact on clinical practice are unknown and this data will be discussed more fully as more information is to hand from ADHB and the business case for the chemotherapy unit at Manukau SuperClinic is developed.

**Table 1**

	At MSC Visits	AT ADHB Visits	Forecast Chemotherapy Numbers @2.9% growth					
			At MSC	At MSC		At MSC		At MSC
			2009/10	10/11	2011/12	15/16	20016/17	2026/27
<b>Medical Oncology</b>								
First Specialist Assessment	432	75	445		457		498	575
Follow Up (Ratio 1:4)	1308	300	1346		1425		1644	2188
Assessment	2732	600	2811		2977		3434	4570
IV Chemotherapy	1798	568	1850		1959		2260	3008
Oral Chemotherapy Combined (Oral/IV)	502	161	517		547		631	840
Chemotherapy	107	60	110		117		134	179
Nurse Procedures	400	400	412		436		503	669
<b>Forecast Radiotherapy Numbers @2.9% growth</b>								
	At MSC Visits	AT ADHB Visits	At MSC	At MSC		At MSC		At MSC
			2009/10		2011/12		20016/17	2026/27
<b>Radiation Oncology</b>								
First Specialist Assessment	650	180	669		708		817	1087
Follow Up	2400	200	2470		2615		3017	4015
Radiotherapy		11,990.00			Unknown		Unknown	Unknown
Assessment		3102			Unknown		Unknown	Unknown

**Table 2**

	At MSC Visits	AT ADHB Visits	Forecast Chemotherapy Numbers @ 5.0% growth					
			At MSC	At MSC		At MSC		At MSC
			2009/10	10/11	2011/12	15/16	20016/17	2026/27
<b>Medical Oncology</b>								
First Specialist Assessment	432	75	454		500		638	1040
Follow Up (Ratio 1:4) Assessment	1308	300	1373		1514		1933	3148
IV Chemotherapy	2732	600	2869		3163		4036	6575
Oral Chemotherapy	1798	568	1888		2081		2656	4327
Combined (Oral/IV) Chemotherapy	502	161	527		581		742	1208
Nurse Procedures	107	60	112		124		158	258
	400	400	420		463		591	963
<b>Forecast Radiotherapy Numbers @ 5.0% growth</b>								
	At MSC Visits	AT ADHB Visits	Forecast Radiotherapy Numbers @ 5.0% growth					
			At MSC	At MSC		At MSC		At MSC
			2009/10		2011/12		20016/17	2026/27
<b>Radiation Oncology</b>								
First Specialist Assessment	650	180	683		752		960	1564
Follow Up	2400	200	2520		2778		3546	5776
Radiotherapy Assessment		11,990.00 3102			Unknown Unknown		Unknown Unknown	Unknown Unknown