

## Chemotherapy health service profile

### 1.1. Capacity and access

Table 1 shows the number of chemotherapy admissions and patients by health service provider, by site over the period 2009 – 2012.

In 2011/12, 4,121 patients received chemotherapy from a NEMICS health service. 58% of patients undergoing chemotherapy in the NEMICS region had their chemotherapy at public hospitals (2,408 public: 1,713 private).

Of these patients, Eastern Health had the highest throughput across their three sites that administer chemotherapy - 25% of all patients treated in the region, whilst the highest throughput individual site was Austin Hospital who saw 23% of patients.

Craigieburn Health Service saw the fewest patients (3.2%), with Mercy Hospital for Women seen similar numbers of patients (3.8% of patients). This is as expected as these sites operate 2 days a week.

Since 2009 public sector admissions have decreased by 4.4% but patient numbers have increased by 5.4%. This change is most likely due to changes in admission criteria for procedures performed in day oncology units. Many procedures previously admitted are now considered VACS funded procedures and therefore aren't represented in VAED data.

In the private sector both admissions and patient volumes have increased by 16%. This increase is likely due to Epworth Eastern day oncology unit opening in 2010.

**Table 1. Chemotherapy activity data by health service by site, 2011/12**

Service	Activity - total									
	Admissions						Unique patients			
	Adm 2011-12	Adm 2010-11	Adm 2009-10	% change adm 2009 - 12	Same- day 2011-12	Multi- day 2011-12	Pts 2011-12	Pts 2010-11	Pts 2009-10	% change pts 2009 - 12
<b>Public health services</b>										
<b>Austin Health</b>	<b>5,778</b>	<b>6,411</b>	<b>6,065</b>	<b>-4.7%</b>	<b>4719</b>	<b>1059</b>	<b>957</b>	<b>982</b>	<b>906</b>	<b>5.6%</b>
Austin Hospital	5,778	6,411	6,065	-4.7%	4719	1059	957	982	906	5.6%
<b>Eastern Health</b>	<b>7,056</b>	<b>6,968</b>	<b>7,272</b>	<b>-3.0%</b>	<b>6484</b>	<b>571</b>	<b>1,050</b>	<b>1,042</b>	<b>978</b>	<b>7.4%</b>
Box Hill Hospital	3822	3970	4156	-8.0%	3325	497	613	646	615	-0.3%
Maroondah Hospital	2275	2190	2438	-6.7%	2201	74	329	324	319	3.1%
Yarra Ranges Health/CHS (Lilydale)	958	807	678	41.3%	958	0	152	118	101	50.5%
<b>Northern Health</b>	<b>2,169</b>	<b>2,571</b>	<b>2,328</b>	<b>-6.8%</b>	<b>2130</b>	<b>39</b>	<b>324</b>	<b>339</b>	<b>311</b>	<b>4.2%</b>
Northern Hospital	1753	1997	1956	-10.4%	1714	39	293	302	281	4.3%
Craigieburn CHS	416	574	372	11.8%	416	0	66	86	72	-8.3%
<b>Mercy Hospital for Women</b>	<b>482</b>	<b>477</b>	<b>527</b>	<b>-8.5%</b>	<b>457</b>	<b>25</b>	<b>90</b>	<b>89</b>	<b>99</b>	<b>-9.1%</b>
<b>NEMICS PUBLIC TOTAL</b>	<b>15,485</b>	<b>16,427</b>	<b>16,192</b>	<b>-4.4%</b>	<b>13790</b>	<b>1695</b>	<b>2,408</b>	<b>2,441</b>	<b>2,284</b>	<b>5.4%</b>
<b>Private hospitals</b>										
Epworth Eastern Hospital (Epworth Healthcare)	4,759	4036			4346	413	632	570		
Warringal Private Hospital (Ramsay Health)	3,826	3830	3442	11.2%	3582	244	477	467	433	10.2%
<b>Other NEMICS Private HS (excluding Warringal and Epworth)</b>	<b>4,269</b>				<b>3657</b>	<b>612</b>	<b>604</b>			
<b>NEMICS PRIVATE TOTAL</b>	<b>12,854</b>		<b>11064</b>	<b>16.2%</b>	<b>11585</b>	<b>1269</b>	<b>1,713</b>		<b>1475</b>	<b>16.1%</b>

## 1.2. Day oncology units

In the NEMICS region 10 sites have a day oncology unit (DOU) (these are located at the campuses listed in the above table as well as Ringwood Private Hospital).

Over June 2013, interviews were undertaken with the NUM or director of nursing at each DOU in the region<sup>1</sup>. Key comparators from these meetings are set out in this section.

In a snapshot:

- The number of dedicated chairs in each DOU ranges from 5 (Craigieburn Health Service) to 17 (Austin Hospital).
- 7 of the 10 DOUs have one or more dedicated beds in the DOU. 3 services have no dedicated beds in the unit (Craigieburn Health Services, Yarra Ranges Health, and Mercy Hospital for Women).
- 4 of the 10 DOUs have dedicated oncology wards on-site (Box Hill Hospital, Mercy Hospital for Women, Epworth Eastern, and Ringwood Private Hospital); 4 of the 10 DOUs have mixed wards (oncology and other) (The Northern Hospital, Maroondah Hospital, Austin Hospital (2 mixed wards), Warringal Private Hospital). There is no inpatient oncology at Craigieburn Health Service and Yarra Ranges Health.
- The operating hours per week ranges from 14 (Craigieburn Health Service) to 47.5 (Warringal Private Hospital)
- All DOUs in the region report that they administer first cycle protocols to patients except Yarra Ranges Health.
- All DOUs report treating all types of cancer with the exception of Acute Leukaemia (only Austin Hospital takes referrals for these patients) Other NEMICS providers refer to Austin Hospital DOU for patients requiring chemotherapy for this cancer type.
- Most DOUs report a limited or no service for head and neck cancer patients. For Head and Neck chemotherapy, NEMICS providers refer to Austin Hospital with the exception of Eastern Health who refers to Peter McCallum cancer centre.
- The only reported changes to referral pathways and service provision in 2013 is at Ringwood Private Hospital's DOU which will no longer provide chemotherapy for haematology patients and will refer these patients to Epworth Eastern (due to a retiring consultant).

### 1.1.1. Pre-appointment -preparation of chemotherapy and patient

Table 2 shows the location of the cytotoxic suite for each DOU, and whether the service is provided in-house or contracted out. There is a correlation between self reported timeliness of access to chemotherapy agents and the cytotoxic suite location and provider.

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<sup>1</sup> John Fawcner private hospital Day Oncology Unit was not interviewed as they are outside the NEMICS geography.

**Table 2. Location and provider of cytosuites for NEMICS day oncology units**

Off site cytosuite		On site cytosuite	
In house	contracted out	In house	contracted out
	Warringal Private Hospital Epworth Eastern Mercy Hospital for Women Yarra Ranges Health Maroondah Hospital Craigieburn Health Service The Northern Hospital	Austin Hospital Box Hill Hospital	Ringwood Private Hospital

7 of the 10 DOUs contract out cytotoxic preparation to providers which are located off-site. Ringwood Private Hospital contracts the service out but the provider is located on-site.

Northern Health DOUs and Eastern Health's Yarra ranges Health and Maroondah Hospital DOUs report of lag time from order to delivery of drugs of up to 2 days. The remaining 6 DOUs report same day availability. Only Austin Hospital and Box Hill Hospital have in-house on-site providers, and both DOUs report faster access to chemotherapy agents.

Table 3 shows the location of the main pathology provider for each DOU, and whether the service is provided in-house or contracted out. Self reported turnaround time for pathology ranges between 1 and 24 hours with on-site, in-house provision (Box Hill Hospital, Maroondah Hospital, and Austin Hospital) reporting the fastest turnaround time.

**Table 3. Pathology provider and location for NEMICS day oncology units**

Off site pathology		On site pathology	
In house	contracted out	In house	contracted out
Yarra Ranges Health	Craigieburn Health Service Mercy Hospital for Women Ringwood Private Hospital	Box Hill Hospital Maroondah Hospital Austin Hospital	The Northern Hospital Epworth Eastern Warringal Private Hospital

### 1.1.2. Workforce

Table 4 sets out the number of days dedicated management time each DOU's Nurse Unit Manager (NUM) has assigned each week. Dedicated management days for NUMs per week ranges from 0.25 days (Warringal Private Hospital) to 3 days (Box Hill Hospital). Both these services operate 5 days a week.

There is no NUM on-site at Craigieburn Health Service (whereat an ANUM manages the service). It is likely that dedicated management time positively influences service efficiency.

**Table 4. Self reported Nurse Unit Manager dedicated management time**

NUM dedicated management time (days per week)	
Northern Health - The Northern Hospital	2
Northern Health- Craigieburn Health Service	no NUM on-site
Eastern Health - Box Hill Hospital	3
Eastern Health – Maroondah Hospital	1
Eastern Health - Yarra Ranges Health	1
Austin Hospital	1.5
Mercy Hospital for Women	1
Epworth Eastern	2
Ringwood Private Hospital	0.5
Warringal Private Hospital	0.25

Table 5 sets out levels staff seniority and medical presence at each DOU during hours of operation:

- 8 of the 10 DOUs have either a dedicated clinical oncology pharmacist attached to the DOU or working across the ward and DOU (there is no oncology pharmacist at Mercy Hospital for Women or Yarra Ranges Health).
- 6 DOUs have dedicated oncology staff attached to the unit.
- 4 of these 6 have a consultant level presence (The Northern Hospital, Box Hill Hospital, Maroondah Hospital (haematologist), and Mercy Hospital for Women (a visiting medical officer from Peter McCallum cancer centre)).
- 5 DOUs have no oncologist (registrar or consultant) attached to the unit (Yarra Ranges Health, Austin Hospital, Epworth Eastern, Ringwood Private Hospital, Warringal Private Hospital).

**Table 5. Oncology staffing detail for NEMICS day oncology units**

	Clinical oncology pharmacist attached to unit	Consultant medical oncologists / haematologists attached to unit	Registrar / fellow / resident medical oncology attached to unit	Average no. nursing staff per shift (SRN, RN, EN, ANUM, NUM)
The Northern Hospital	Yes	Yes	Yes	5
Craigieburn Health Service	Yes	on site	Yes	2
Box Hill Hospital	Yes	Yes	Yes	6
Maroondah Hospital	Yes	Yes (haem)	Yes	3
Yarra Ranges Health	No	No	No	2
Austin Hospital	Yes	on site	Partial - 3 fellows for clinical trial patients	7
Mercy Hospital for Women	No	Yes VMO Peter Mac	Yes VMO Austin	2
Epworth Eastern	on site	on site	Yes (resident)	7
Ringwood Private Hospital	on site	on site	No	5
Warringal Private Hospital	on site	on site	No	5

### 1.1.3. Service and operational models

Interviewees were asked to describe their **service network arrangements** with other providers.

Broadly, for day oncology staff, two informal network clusters exist within the NEMICS region (excluding internal provider networks), when considering shared care arrangements and consultant cover. These are:

1. Austin Health, Northern Health, Mercy Hospital for Women, Warringal Private Hospital: Austin Health consultants have rotas at Warringal Private Hospital, Northern Health, and Mercy Hospital for Women (who also report shared care and consultant links with Peter McCallum cancer centre).
2. Eastern Health, Epworth Eastern, Ringwood Private Hospital: Box Hill Hospital consultants have rotas at Epworth Eastern, and Maroondah Hospital consultants are Visiting Medical Officers at Ringwood Private Hospital. Ringwood Private Hospital triages febrile patients to Epworth Eastern and Maroondah Hospital Emergency Departments, and Eastern Health refer to St Vincent's Hospital for patients requiring chemotherapy for brain metastases.

Interviewees were asked to describe the **protocols in place for the emergency management of patients** whilst in the DOU and out of hours. Responses varied significantly given that DOUs range from no medical cover (Yarra Ranges Health has no medical cover except during clinic times) and comprehensive medical cover (Austin Hospital DOU has consultants assigned to respond to METCALLs on rotation). Also, 4 of the 10 DOUs have no ICU on-site and 5 DOUs do not have an emergency department on-site.

Responses ranged from having formal written protocols in place for the management of sick patients (Mercy Hospital for Women) to no written procedure (Austin Hospital). Eastern Health DOUs model differs from the other DOUs in the region in that Eastern Health DOUs do not have pre-meds written in advance but do administer medication in emergency situations then retrospectively write up prescriptions.

For patients who become febrile whilst in the DOU, the following referral pathways were reported:

- The Northern Hospital: Remain in DOU but do have an on-site Emergency Department.
- Craigieburn Health Service: Transferred to The Northern Hospital.
- Box Hill Hospital: Remain in DOU but do have an on-site Emergency Department.
- Maroondah Hospital: Remain in DOU but do have an on-site Emergency Department.
- Yarra Ranges Health: Transferred to Angliss Hospital, Maroondah Hospital, or Box Hill Hospital Emergency Department.
- Austin Hospital: Managed in a 2 bed specialist unit within the DOU. Remain in DOU but do have an on-site Emergency Department.
- Mercy Hospital for Women: Transferred to on-site Emergency Department.
- Epworth Eastern: Transferred to on-site 30 bedded dedicated oncology ward. No on-site Emergency Department.
- Ringwood Private Hospital: Transferred to Maroondah Hospital or Knox Private Hospital Emergency Departments.
- Warringal Private Hospital: Transferred to Warringal and managed by the treating Oncologist.

Interviewees were asked whether other **ambulatory procedures** were undertaken in the DOU. 4 of 10 DOUs have a separate ambulatory procedure area. All DOUs undertake blood tests on patients on the same day as the patients' chemotherapy appointment with the exception of Mercy Women's Hospital DOU due to capacity constraints.

Of note, Box Hill's DOU model is changing under the new Box Hill redevelopment. Currently non-oncology ambulatory procedures are undertaken outside the DOU in multiple other departments. In the new building, oncology and non-oncology patients will receive ambulatory care under the DOU

(called “medical oncology/medical infusion unit” at this early planning stage). Staff expressed concern with the proposed model.

#### 1.1.4. **Service co-locations**

Table 6 sets out the support services relevant to the administering of chemotherapy and in addition to those not already set out on the NEMICS cancer services location map.

The table distinguishes between an on-site service and where there are formal access arrangements to a service not on-site.

Yarra ranges Health DOU has the fewest support services on-site but undertake rigorous patient screening so that only low risk patients are referred there. Craigieburn Health Service also has very few support services on-site.

All DOUs have a social worker on-site and all DOUs have dietetics on-site with the exception of Craigieburn Health Service DOU. However, the level of dietetics service varies between providers. For example, Ringwood Private Hospital will contract in a Dietician as required whereas The Northern Hospital DOU and Box Hill DOU have a dedicated Dietician attached to the unit.

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**Table 6. Support service at NEMICS day oncology units**

Key: **On-site** **Access** **No service**

Day Oncology Unit:	The Northern Hospital	Craigeburn Health Service	Box Hill Hospital	Maroondah Hospital	Yarra ranges Health	Austin Hospital	Mercy Hospital for Women	Epworth Eastern	Ringwood Private Hospital	Warringal Private Hospital
Anaesthetics									Until 5pm then on call access	
Cardiac care unit										
Cardiac diagnostic								Cat lab		
Cardiac medicine										
Chaplaincy								Oncology specific (EE employee)	On site and on call	Call local service if required
Clinical psychology	1 session NH (Fri) 1 session Craigeburn (Mon)	1 day per week (of the 2 days they are open)	Designated time for oncology							
Infectious diseases								Epworth Health	On call by referral	
Intensive care unit										
Interpreting service								Access if required	Phone access only.	Phone access. Onsite if required.
Medical imaging							Limited on site - urgent VQ scan, X-rays. Other at Austin	Not 24/7. On site. Contracted out to MIA	During business hours. Can flex.	
Nuclear medicine								MIA and Peter Mac	During business hours. Can flex.	
Nutrition team	1 dietician specifically for oncology		0.1EFT dedicated to DOU					Cover DOU IF send referral	Dietician contracted in.	

Day Oncology Unit:	The Northern Hospital	Craieburn Health Service	Box Hill Hospital	Maroondah Hospital	Yarra ranges Health	Austin Hospital	Mercy Hosptial for Women	Epworth Eastern	Ringwood Private Hospital	Warringal Private Hospital
Occupational therapy	BECC and BHS sites				EFT 12 hrs pw		Not used but could refer to Austin if required.	Private consultant as needed basis	contracted service	
Pain management								1 VMO onc. uses pain consultant on occasion	pall care consultants assist as needs	Oncologists who manage pain, not seperate team
Palliative care			Consultant and registrar on site / inpatient beds offsite				Will have patients offsite in designated beds	Nurse consultant but not VMO. Refer to Wantirna	5 pall. care beds	
Pathology		1 day a week					Blood collection only.	Melbourne pathology	business hours. Out of hrs - Knox Healthscope	
Physiotherapist	BECC and BHS sites							Epworth	business hours.	
Psychiatry	BECC and BHS sites							at VMOs request		
Radiation oncology								Peter Mac		
Rehabilitation	BECC and BHS sites							3 Epworth rehabilitation sites	Refer to Victorian Rehabilitation Centre	
Renal unit								Epworth Richmond		Renal physicians onsite. No dialysis unit.
Respiratory								ward - respiratory physicians	Takes respiratory ptns so support available from those physicians as	Respiratory physicians onsite. No unit.
Social work	2 social workers dedicated to oncology	2 days a week	Designated time for oncology		EFT 16 hrs pw				3 days a wk	
Speech pathologist							Not used but could refer to Austin if required.	Contracted in on as needs basis	Contracted in on as needs basis	On call.

In addition to the above support services, interviewees were asked to comment on the **provision of central venous access services**. PICCs and Ports are inserted on-site at 8 of the 10 DOUs. At Craigieburn Health Service patients are referred to The Northern Hospital and at Yarra Ranges Health, patients are referred to Maroondah Hospital for central venous access services.

Interviewees were asked to describe protocols for patients undergoing **concurrent chemo-radiation**. Table 7 sets out referral pathways for these patients at each of the DOUs. Of note, patients often receive concurrent chemo-radiation at sites that do not have collocated chemotherapy and radiation-therapy.

**Table 7. Protocol for patients undergoing chemo-radiation**

	Radiotherapy referral for chemo-rad patients	Estimated travel time for chemo-rad patients (by car)	Administer chemotherapy for patients undergoing concurrent chemo-radiation?
<b>The Northern Hospital</b>	Rov Epping	2 minutes (ambulance transfer)	Yes.
<b>Craigieburn Health Service</b>	Rov Epping	20 minutes	No.
<b>Box Hill Hospital</b>	Peter Mac Box Hill	2 minutes (no transport offered)	Yes.
<b>Maroondah Hospital</b>	ROV Ringwood	5 minutes	Yes.
<b>Yarra Ranges Health</b>	ROV Ringwood	25 minutes	Yes. Patients will travel between 2 sites over their course of treatment.
<b>Austin Hospital</b>	In house / Austin	0 minutes / on site	Yes. Dedicated clinical nurse consultant to coordinate chemo-radiation patients. NB. Some patients have Cx elsewhere or are admitted as inpatients.
<b>Mercy Hospital for Women</b>	Austin Hospital or Peter Mac	0 minutes / on site	Yes - with Austin but very rare for gynae.
<b>Epworth Eastern</b>	Peter Mac Box Hill	0 minutes / on site	Yes. If Peter Mac full there are instances where patients will travel to ROV (Ringwood) for their radiotherapy and back to Epworth Eastern for their chemotherapy.
<b>Ringwood Private Hospital</b>	ROV Ringwood	0 minutes / on site	Yes.
<b>Warringal Private Hospital</b>	Austin Hospital	2 minutes (ambulance transfer)	Yes.

### 1.1.5. Summary of Chemotherapy provision at NEMICS providers

An assessment of NEMICS chemotherapy provision was informed by existing VAED data and interviews with day oncology units. There is no available data or monitoring of safety and quality outcomes from chemotherapy at a health service level. Current service improvement programmes focus on operational management; and national standards focus on process metrics.

The National Chemotherapy Standards are based on the assumption that electronic prescribing is in place at all providers. However, only Northern Health DOUs (The Northern Hospital and Craigieburn Health Service) have e- prescribing for chemotherapy. Also, none of the NEMICS public sector DOUs undertakes routine audits for safe processes for chemotherapy (2 of the 3 private sector DOUs do report to undertake routine audits).

The Victorian Department of Health have provided non-recurrent grants to 8 providers to develop a day oncology unit toolkit based on lean redesign thinking for use by day oncology providers across Victoria (Victorian Chemotherapy Service Redesign Project VCSR). Within NEMICS, Eastern Health is a pilot service for this programme of work. Eastern Health has identified priority need areas specific to their local environment as well as contributing to the development of the toolkit. The learning from this exercise correlates with some of the reported and observed service gaps across NEMICS DOUs:

- Streamlining referral pathways: An example highlighted in this report is that some sites who treat head and neck patients are also those with the least support services on-site whilst other DOUs with similar or more comprehensive levels of support services report that they do not treat for this tumour type due to the multidisciplinary requirements for these patients.
- Equity of access: A reported gap is access to support services such as Look Good Feel Better, and information provision on support groups (particularly for private providers). There is a perceived need to improve equity of access to these services.
- Patient experience: Best practice examples should be standardised across services. Examples set out in this report where patient experience could be improved include where there are different day appointments for bloods and day chemotherapy, and where patients undergoing concurrent chemo-radiation may be treated across multiple sites.

#### Possible areas of interest:

1. What are the requirements to roll out e-prescribing for chemotherapy across NEMICS health services?
2. Should data collection and monitoring of key quality and safety outcomes for the administering of chemotherapy be implemented in the NEMICS region?
3. Should day oncology units be assigned minimum safety standards (including onsite support services and staff profiles) to ensure that the service provided is safe and appropriately supported?
4. How can access to information, education and support services (including external visiting services) be made more equitable across NEMICS providers?
5. Implementation of VCSR toolkit and collection of consistently defined Day Chemo performance data sets to enable future benchmarking.