

Ambulatory/outpatient chemotherapy
and haematology services
in New South Wales

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Contents

Abbreviations used in this report	1	Impact of the review on chemotherapy service planning in NSW	12
Key Findings of the Review of Ambulatory / Outpatient Chemotherapy and Haematology Services in NSW (2005)	2	New cases requiring chemotherapy	12
Introduction	3	Proportion of previously treated patients requiring chemotherapy	12
Methodology	4	Development of targeted chemotherapy activity indicators	12
Identification of survey recipients	4	Average number of PCVs per new patient	13
Identification of rural and metropolitan units	4	Unit capacity	13
Survey instrument	4	Conclusion	14
Measurement of chemotherapy activity	5	References	15
The Patient Chemotherapy Visit (PCV)	6		
Measurement of the complexity of chemotherapy procedures.	6		
Results and discussion	7		
Statewide Results	7		
Distribution of Outpatient Chemotherapy Services	7		
Chemotherapy activity	7		
Chemotherapy activity	8		
Average course of treatment	8		
Numbers of new and retreated patients	8		
Chemotherapy workforce	8		
Chemotherapy supply	9		
Pathology services	9		
Unused capacity	9		
Admitted and non-admitted data	9		
Analysis of MBS reimbursements for chemotherapy administration and comparison to results of the review	10		
Overall activity	11		
Comparisons of activity in public and private units	11		
Validation of review findings	12		

Abbreviations used in this report	
AHS	Area Health Service
DACS	Director of Area Cancer Services
FTE	Full time equivalent
MBS	Medicare Benefits Schedule
NUM	Nursing Unit Manager
OOS	Occasions of Service
PCV	Patient Chemotherapy Visit
Planning Guideline 2005	NSW Health Service Planning Guideline for Intravenous Chemotherapy (2005)
The review	Review of Ambulatory / Outpatient Chemotherapy and Haematology Services in NSW (2005)

Key Findings of the Review of Ambulatory / Outpatient Chemotherapy and Haematology Services in NSW (2005)

- In NSW, 83 ambulatory units provide outpatient chemotherapy.
- Fifty-six public units and 15 private units participated in the review.
- Of the responding units, 36 were located in metropolitan areas and 35 in rural Area Health Services (AHS).
- Sixty-four per cent of private units were located in metropolitan AHSs.
- Nurses make up the majority of the workforce, with 241 full-time equivalent (FTE) nurses providing chemotherapy to outpatients. Of these, 202 were in the public sector and 39 in the private sector.
- Six-hundred-and-eight beds/recliners were identified:
 - 499 in public units and 109 in private units
 - 407 beds/recliners in metropolitan AHSs and 201 beds/recliners in rural AHSs
 - The median number of beds/recliners per unit was eight
 - 25 units had ten or more beds/recliners while 21 units had five or less
 - there was a mean of 38 PCVs per week/unit, with higher numbers in public (40) than private (31) services
 - there were 4.2 PCVs per week/bed or recliner, assuming all units were open five days a week.
- The units reported a total of 2,665 patient chemotherapy visits per week (2176 were in public units and 489 in private units). This equates to an estimated 125,000 visits per year.
- Approximately 81 per cent of patient chemotherapy visits were attributable to patients undergoing their first course of treatment
- On average, 10 patient care visits were administered per patient for the first course of treatment.
- The majority of units were not operating at full capacity, for three main reasons:
 - lack of patients (cancelled on the day, patients referred elsewhere due to private insurance contractual arrangements, patient preferences for particular days)
 - lack of nursing staff
 - to a lesser extent, lack of chemotherapy product (more common on a Monday).



Introduction

Chemotherapy refers to a type of cancer treatment, which uses drugs to stop or slow the growth of cancer cells, and can be used to cure cancer, control cancer, or for palliative care. Chemotherapy may be used as the sole type of treatment, or it may be used in conjunction with surgery, radiotherapy, or hormonal therapies. The selection of chemotherapy drugs, dosage, duration of therapy, and type of administration are determined by a combination of clinical practice guidelines, tumour characteristics, and patient characteristics.⁶

While chemotherapy is most often given intravenously, depending upon the drug/regimen, it may also be given orally, intramuscularly, or subcutaneously. It may also be injected into the fluid around the spine (intrathecally), and two or more delivery routes may be used concurrently.⁶

Chemotherapy may be delivered to patients in-hospital, or on an out-patient basis, either at home (for oral drugs) or in a day procedure centre (also known as ambulatory care). There are clear guidelines for safe prescribing, handling, storage, and administration of cytotoxic drugs, requiring a skilled workforce.

There is no standardized data collection system in NSW for either service provision or service use for ambulatory chemotherapy. Previous reviews of cancer services have taken a 'top-down' approach, relying upon readily available national or state treatment statistics that have been collected for other reasons.

The *Review of Ambulatory/Outpatient Chemotherapy and Haematology Services in NSW (2005)* (the review), conducted by Health Technology Analysts, described in this report was commissioned by the Cancer Institute NSW to review all outpatient chemotherapy and haematology activity within NSW, inclusive of the ACT. The identification of current service delivery in ambulatory care units is a critical step in understanding chemotherapy delivery across NSW so that comprehensive strategies to improve current service delivery can be developed. It is also crucial to inform service planning to accommodate increasing cancer projections over the next decade.

Identification of current service delivery in ambulatory care units is a critical step in understanding chemotherapy delivery across NSW.

The review includes both private and public treatment centres providing chemotherapy or haematology services to cancer patients. It includes unit-level data on staffing, types of services provided, access to pathology services, access to imaging services, supply of chemotherapy and levels of service provision.

This report presents the findings of this review and explores the use of this information in the 2007 review of the *NSW Health Service Planning Guideline for Intravenous Chemotherapy (2005)*.

Methodology

Treatment centres providing chemotherapy or haematology services to cancer patients were within the scope of the review.

For the purposes of the review, an outpatient was defined as an ambulatory patient visiting the unit for treatment. Only those treatment centres providing chemotherapy or haematology services to cancer patients were within the scope of the review, and in general, only data relating to cancer patients were collected. The survey included both private and public treatment centres and was conducted over one week in November 2005.

Identification of survey recipients

A list of survey recipients was informed by websites listing cancer services, direct telephone calls to hospitals and the input of the Directors of Area Cancer Services (DACs). A total of 95 potentially relevant sites were identified and sent a survey by post.

Identification of rural and metropolitan units

The review divided facilities into metropolitan and rural categories, based on rural units being outside Sydney, Greater Newcastle and Greater Wollongong.[†] It also divided facilities into private and public units.

Survey instrument

The survey instrument was designed to be completed by the day-to-day coordinator of the unit to describe the characteristics of their ambulatory chemotherapy/haematology unit, and to summarise the activities undertaken by the facility. The survey instrument was pilot tested in two outpatient chemotherapy day units (one private and one public unit), and subsequently modified.

The survey instrument was posted directly to each of the identified units. An initial telephone call was made to identify the most appropriate person to complete the survey – typically the day-to-day coordinator of the unit. This was followed by a scheduled telephone interview in which the survey questions were explained in detail. Particular attention was paid to the definition of PCV. If the survey was not returned by the due date, at least two further telephone calls were made.

It is important to note that the survey only related to chemotherapy and haematology activity. Cancer patients receiving other treatment modalities were not included.

The survey was presented in 13 sections:

Section 1: General information.

- Details of the unit.
- Open hours.
- Contact details of the Practice Manager, Nurse Unit Manager, Medical Director, Head of Oncological Services.

Section 2: New ambulatory cancer patients presenting at the unit.

Section 3: Chemotherapy activity for ambulatory cancer patients.

- Number and duration of patient chemotherapy visits performed.
- Maximum capacity for patient chemotherapy visits
- Capacity constraints.
- Outpatient to inpatient transitions.

Section 4a: Major non-chemotherapy haematological procedures for ambulatory cancer patients.

- Number of haematological procedures performed.
- Maximum capacity of haematological procedures.
- Capacity constraints.



Section 4b: Other activities for ambulatory cancer patients.

- Number of other activities performed.
- Clinical trials.

Section 5: Consultations for ambulatory cancer patients.

- Medical oncology consultations.
- Haematology consultations.

Section 6: Other information for ambulatory cancer patients.

- Identification of other chemotherapy/haematology activity for ambulatory patients performed elsewhere in the hospital.
- If chemotherapy/haematology/other procedures are delivered for non-cancer patients.

Section 7: Resources available for ambulatory cancer patients.

- Physical resources (beds, recliners, rooms, apheresis facilities etc).
- Clinical human resources (medical staff, nursing staff, other associated staff).

Section 8: Supply of chemotherapy product.

- Providers of chemotherapy (dedicated chemotherapy pharmacy, offsite provision of chemotherapy).
- Timing and timeliness of chemotherapy supply.

Section 9: Pathology services for ambulatory cancer patients.

- Providers of pathology services (internal, private contractor).
- Timing and timeliness of pathology results.
- Electronic availability of pathology results.

Section 10: Imaging services for ambulatory cancer patients.

- Providers of imaging services (private, public).
- Timing and timeliness of imaging results.
- Picture archive communication system (P.A.C.S) availability.

Section 11: Business management systems.

- Software systems (appointments, billing, chemotherapy ordering, etc).
- Billing and reimbursement practices.
- Admission practices.
- Administrative human resources (booking clerk, outpatient manager, billing clerk).
- Electronic prescribing.
- Intranet and Internet access.

Section 12: Business activity level for ambulatory cancer patients.

Section 13: Private health fund practices (for private facilities only).

Measurement of chemotherapy activity

Planning for ambulatory care facilities in NSW to date has been informed by the NSW Health Service Planning Guideline for Intravenous Chemotherapy, first developed in 2005 (Planning Guideline 2005). In this guideline, Occasions of Service (OOS) were used to estimate the demand for services, based on all visits to ambulatory care units, regardless of the procedure being undertaken.

As part of the review, a new measurement tool, the Patient Chemotherapy Visit (PCV) was developed so that chemotherapy activity could be measured apart from other procedures conducted at ambulatory care units, such as central venous access care, bone marrow biopsies and the administration of antibiotics, antifungals and antivirals.⁴

The Patient Chemotherapy Visit (PCV)

The PCV is defined as follows:

A visit by a single cancer patient, on any given day, to the unit to receive chemotherapy i.e.:

- ▶ Multiple or combination treatments on same day = only one patient chemotherapy visit.
- ▶ Treatment plus related procedures on same day = only one patient chemotherapy visit.

BUT,

- ▶ Patient attends to receive chemotherapy, but after investigation/examination they do not receive it ≠ a patient chemotherapy visit.
- ▶ Patient attending for reason other than receiving chemotherapy ≠ a patient chemotherapy visit.
- ▶ Patient attends to receive a major haematological procedure without chemotherapy delivery ≠ a patient chemotherapy visit.
- ▶ Patient attends for immunotherapy (eg., Mabthera, Herceptin, Erbitux) without chemotherapy ≠ a patient chemotherapy visit.

The replacement of the OOS-based planning variables with PCV-based planning variables is a key refinement of the Planning Guidelines (2005) and was utilised when the guidelines were reviewed in 2007.⁹

Activity information did not quantify the type of cancer patients being treated, the stage of their cancer or protocol used. Multiple or combination chemotherapy regimens given on the same day were counted as one PCV only.

The review reported on the extent of 'unused capacity' in the units and factors limiting full utilisation (e.g. staff availability).

Measurement of the complexity of chemotherapy procedures.

The review confirmed that not all chemotherapy visits are equal. In an attempt to account for and measure the variation in the complexity of chemotherapy delivery, the duration of the visit was used as a proxy for complexity.⁴ Duration has been shown by others to correlate with chemotherapy complexity.¹¹

To reflect complexity, PCVs were broken into time groupings to correlate with MBS reimbursement categories. A PCV weighting formula was then developed based on the mid point in time for the first two categories (less than one hour, and one to six hours). The following formula was applied and PCVs reported in crude and weighted terms.⁴

$$\text{Time-weighted PCV} = (\text{PCV} \leq 1 \text{ hr} \times 0.5) + (\text{PCV } 1-6 \text{ hrs} \times 3.5) + (\text{PCV} \geq 6 \times 7.0)$$



Results and discussion

The 2005 review captured data from 71 units in public and private outpatient settings out of a possible 83 across NSW.⁴ A set of variables was collected in the survey using questions under the 13 broad categories described in the methods.

The PCV measure and a weighting mechanism to reflect the spectrum of complexity of treatment, both developed for this review, enabled the chemotherapy activity at each unit to be quantified and compared.

The reporting of results focused on a number of issues across the following broad areas:

- volume and distribution of outpatient chemotherapy services
- average course of treatment
- nursing workforce and workload
- chemotherapy drug supply.

More specifically, information on the following areas was collected:

- accessibility of outpatient chemotherapy and haematology units
- physical resources
- nursing staff
- nursing chemotherapy certification
- medical staff – medical oncology
- medical staff – haematology
- chemotherapy supply
- imaging services
- pathology services
- business management systems
- new patients
- patient chemotherapy, haematology and immunology visits
- patient chemotherapy visits by day of the week
- patient chemotherapy visits by Area Health Service

Total outpatient chemotherapy and haematology service visits in NSW can be estimated at 142,783 per annum.

- estimates patient chemotherapy visits per annum
- consultations
- other activity
- patient chemotherapy visits and nurses
- patient chemotherapy visits and beds
- calculated distribution of PCVs.

Statewide Results

Distribution of Outpatient Chemotherapy Services

A total of 83 ambulatory care units in NSW provide outpatient chemotherapy services. Data was collected from 71 of 83 units including 56 public units and 15 private units.

There was an even distribution of units between metropolitan and rural AHSs, with 36 units in metropolitan areas and 35 units in rural areas. Sixty-four per cent of private units surveyed were located in metropolitan AHSs.

Chemotherapy activity

Of the responding units, 241 FTEs managed 2,665 patient chemotherapy visits over the one week survey period (2,176 in public and 489 in private). This equates to 127,824 PCVs across a 48 week year (104,352 public and 23,427 private), with a mean of 38 PCVs/week/unit with some differences between public (40) and private (31). Assuming all units were open and operating five days/week, the results indicate that there are approximately 4.2 PCVs/week/bed or recliner (equal in public and private).

Of the estimated visits to ambulatory units, 70 per cent occurred in metropolitan areas.

In rural areas, around 12 per cent of chemotherapy administration occurs in the private sector; whereas in metropolitan areas, the split approximates to 22 per cent. This confirms a higher level of cancer specialisation in private facilities in metropolitan areas, compared to rural counterparts.

Non-chemotherapy haematological procedures are concentrated in public centres in metropolitan areas, reflecting the concentration of specialised treatment for haematological malignancies in public metropolitan centres.

The estimate of visits for the units that did not respond is 16,063,³ meaning that the total of visits for NSW across all units per annum can be estimated at 142,783.

Average course of treatment

Calculations were performed to best estimate the average number of PCVs per course of treatment. On average, 10.0 PCVs were administered per patient for the first course of treatment.

Numbers of new and retreated patients

Eighty-one per cent of PCVs were delivered to patients undergoing their first course of treatment. Applied to the estimated aggregate PCVs per annum for all of the participating units (127,824 PCVs/year) it is estimated that approximately 10,354 patients receive a course of chemotherapy annually (at one of the participating units) with an estimated 8,700 of these courses being for new patients (107,136 PCVs/year).

Chemotherapy workforce

A reported 241 full-time equivalent (FTE) nursing positions provide chemotherapy to outpatients across NSW; 202 in the public sector and 39 in the private sector. A mean of 3.6 nurses were employed per unit (3.8/public unit and 2.6/private unit). Median nurse numbers per unit were approximately equal (2.6/unit), reflecting the small number of public units with larger compliments of nurses.

When the patient chemotherapy visits (PCV) were

compared with nurse staffing levels, higher activity per nurse in the private sector (mean 15 PCVs/wk/FTE nurse) compared with the public sector (mean 12 PCVs/wk/FTE nurse) was identified. Differences in the complexity of treatment regimens between private and public facilities may contribute to this outcome although a detailed exploration of complexity and associated distribution was not within the scope of this study. Other unit activity (including major haematology procedures) and staff commitments also need to be considered.

Less than half the units had a clinical nurse consultant on staff. In the majority of units, medical staff write treatment requests and provide supervision, but were not involved in direct administration. The presence of administrative support staff was variable across units, including some units with no dedicated administrative support.

More staff work across ambulatory units in metropolitan areas which correlates with the higher number of beds/recliners in these units. In rural areas, the number of medical oncologists working within units is disproportionately lower, but is balanced by a relatively higher proportion of specialised nursing staff at the CNC and CNS levels. The number of medical oncologists visiting rural areas under outreach service arrangements was not reported.

Chemotherapy supply

A large proportion of units relied on private pharmacy providers for some or their total chemotherapy supply (90 per cent). Forty-one units received at least 90 per cent of their chemotherapy from private providers. Two commercial providers supply the majority of privately sourced agents.

All private facilities across NSW obtain chemotherapy supplies from off-site private providers and 75 per cent of public metropolitan facilities have a dedicated chemotherapy facility. Even though they exist in some units, dedicated chemotherapy facilities are not common in rural areas, either in the public or private sectors.

While supply of chemotherapy was generally satisfactory for planned chemotherapy treatments, supply issues and potential waste were reported when appointment times were changed or inadequate notice was given to providers.



Pathology services

Nearly all sites have access to electronic pathology results, with higher rates of outsourcing to private pathology contractors in rural areas.

Unused capacity

During the survey week, units reported they were operating at 68 per cent capacity, equivalent to around 222 PCVs per chair per year, or 135,000 PCVs annually across all NSW public and private units in the survey. Reasons for not operating at full capacity included workforce constraints, patient cancellations, availability of drugs and access to other clinical support services including pathology and imaging. It should be noted that the additional capacity may be used for ambulatory care activities apart from chemotherapy.

Admitted and non-admitted data

Sites were asked to report on the number of PCVs that were classified as admitted or as non-admitted. One-hundred per cent of activity in the private sector is treated as admitted, while for the public sector the admitted activity represents only three per cent. As a result, the opportunity to analyse chemotherapy data across both private and public sectors through the NSW Health Business Objects database (including admitted patient data only) is limited.

Comprehensive analysis of chemotherapy activity across the private and public sectors is possible through MBS data, as for the majority of visits, a medical benefits claim is made either as an admitted patient in the private sector (often through the treating doctor's private office rather than through the facility itself) or as a privately referred non-inpatient in the public sector.

Table I (over page) includes MBS item numbers related to chemotherapy administration, and shows activity related to each item from 2006 to 2007. It shows how the items are linked to length of administration, allowing analysis on the complexity of treatment.

Analysis of MBS reimbursements for chemotherapy administration⁶ and comparison to results of the review

 Table 1 MBS Chemotherapy Items, NSW, 2006–07⁷

MBS Item	Description	Number of Items
I3915	CYTOTOXIC CHEMOTHERAPY, administration of, either by intravenous push technique (directly into a vein, or a butterfly needle, or the side-arm of an infusion) or by intravenous infusion of not more than one hour duration.	30,090
I3918	CYTOTOXIC CHEMOTHERAPY, administration of, by intravenous infusion of more than one hour duration but not more than six hours duration.	74,763
I3921	CYTOTOXIC CHEMOTHERAPY, administration of, by intravenous infusion of more than six hours duration – for the first day of treatment.	5,089
I3924	CYTOTOXIC CHEMOTHERAPY, administration of, by intravenous infusion of more than six hours duration – on each day subsequent to the first in the same continuous treatment episode.	6,983
I3927	CYTOTOXIC CHEMOTHERAPY, administration of, by intra-arterial infusion push technique (directly into an artery, a butterfly needle or the side-arm of an infusion) or by intra-arterial infusion of not more than one hour duration.	62
I3930	CYTOTOXIC CHEMOTHERAPY, administration of, by intra-arterial infusion of more than one hour duration but not more than six hours duration – payable once only on the same day.	13
I3933	CYTOTOXIC CHEMOTHERAPY, administration of, by intra-arterial infusion of more than six hours duration – for the first day of treatment.	51
I3936	CYTOTOXIC CHEMOTHERAPY, administration of, by intra-arterial infusion of more than six hours duration – on each day subsequent to the first in the same continuous treatment episode.	85
I3939	IMPLANTED PUMP OR RESEVOIR, loading of, with a cytotoxic agent or agents, not being a service associated with a service to which item I3930, I3933, I3936 or I3945 applies.	382
I3942	AMBULATORY DRUG DELIVERY DEVICE, loading of, with a cytotoxic agent or agents for the infusion of the agent or agents via the intravenous, intra-arterial or spinal routes, not being a service associated with a service to which items above applies.	2,939
I3945	LONG-TERM IMPLANTED DRUG DELIVERY DEVICE, accessing of.	28,099
I3948	CYTOTOXIC AGENT, instillation of, into a body cavity.	1,918
TOTAL		150,474

Overall activity

There was a dramatic increase in MBS reimbursements for chemotherapy over 1999–2001, after which rates continued to increase, but at a slower rate (Figure 1).

Comparisons of activity in public and private units

Treatments classified as in-patient chemotherapy in the public sector declined dramatically over the period 1999–2003 (Figure 2). Rather than reflecting a transfer in the

management of chemotherapy patients to ambulatory settings, this change is likely due to changing billing practices.

Significant growth has occurred in private sector activity, which is more reliably attributable to increased activity. The reduction around 2007 probably reflects a lag in the submission of data rather than an actual fall in activity (Figure 2).

Due to changes in patterns of charging within the public sector between 1999 and 2002, MBS trend data for these years should be interpreted with this consideration.

Figure 1 MBS Chemotherapy Items – Number of Items Claimed 1993–94 to 2006–07

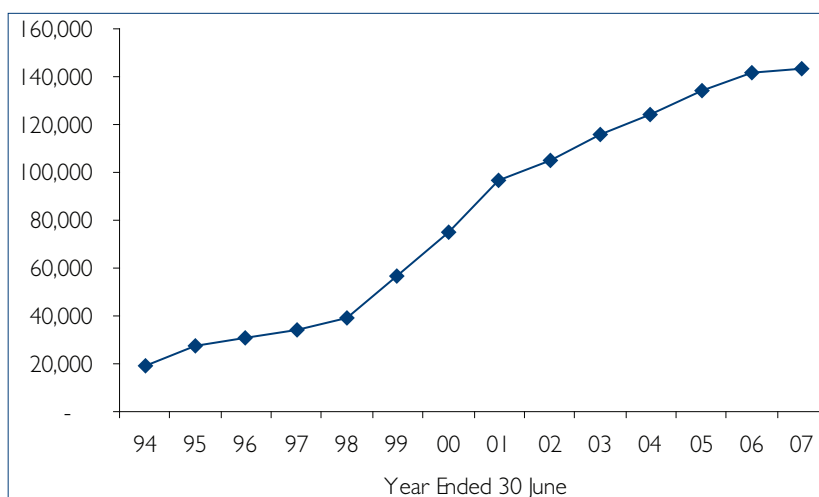
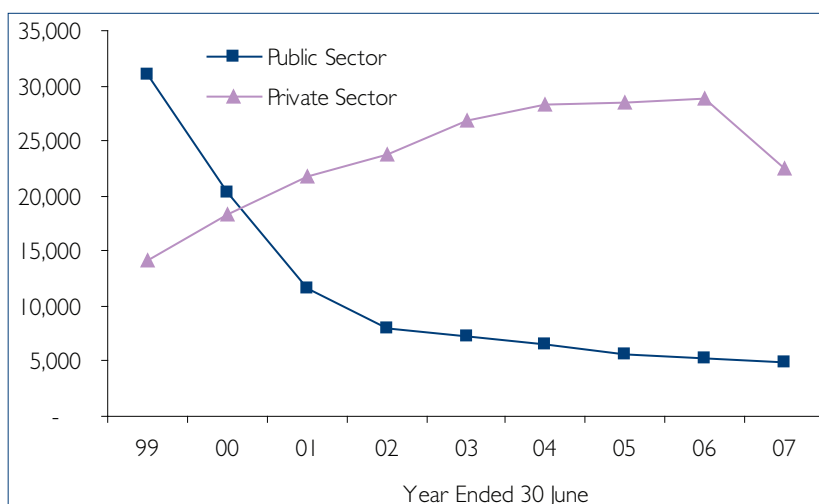


Figure 2 Admitted Patient Services – Admissions for Chemotherapy 1998–99 to 2006–07



Validation of review findings

The MBS data reports 28,868 chemotherapy admissions in the private sector in 2005 (Figure 2). This is consistent with the estimate of 23,427 chemotherapy visits for the private sector reported by the review once under-reporting is taken into account.

In the survey year, there were 5,246 chemotherapy admissions in the public sector⁸ although when admissions occurring in interstate hospitals are excluded, there were 4,047. This is consistent with the estimate from the survey that around three per cent of chemotherapy patients in the public sector are admitted (once under-reporting in the survey is taken into account).⁴

The correlation between the survey data and the MBS data validates the potential for MBS data to provide a reasonably comprehensive overview of chemotherapy activity in NSW, bearing in mind limitations around more retrospective data.

Impact of the review on chemotherapy service planning in NSW

The NSW Health Service Planning Guideline for Intravenous Chemotherapy (2005) (Planning Guideline 2005) was developed by NSW Health to assist in planning for ambulatory chemotherapy across NSW, with a periodic review in 2007. The guideline has provided a basis for estimating the demand for services related to the administration of intravenous chemotherapy, the volume of services, the number of chemotherapy chairs, and medical oncology staff required to meet that need.^{9, 11}

When the first guideline was written, statewide data related to chemotherapy services was not available, and a specifically targeted activity measure for chemotherapy administration had not been developed.

The Planning Guideline (2005) assumed the following¹¹:

- 50 per cent of new cancer cases require chemotherapy
- a re-treatment rate of 25 per cent
- 8.2 treatment episodes per patient

- chair capacity is assumed to be four treatment episodes per eight hour day
- workforce requirements are based on a population based benchmark for medical oncologists and haematologists.

The outcomes of the review informed the analysis of these assumptions in 2007.⁹

New cases requiring chemotherapy

The Planning Guideline (2005) used 50 per cent as a planning parameter for new cancer patients requiring chemotherapy. Data from the review suggests a utilisation rate of 41 per cent, based on the estimated number of patients receiving chemotherapy in a year and NSW cancer incidence for 2005. This aligns with the Cancer Services Framework for Victoria (2003) which suggests a chemotherapy utilisation rate of 42 per cent.²

Proportion of previously treated patients requiring chemotherapy

Chemotherapy may also be offered to treat recurrence in a wide range of cancers. Prior to the review there was little data to indicate the proportion of previously treated cases who may benefit from further chemotherapy. A figure of 25 per cent was used to inform the Planning Guideline (2005).¹¹ Data from the review suggests a re-treatment rate of 19 per cent, which matches the guideline estimate. The 2007 review of the guidelines continued to assume that each year the number of previously treated cases requiring further chemotherapy is equivalent to 25 per cent of the number of new cases receiving chemotherapy that year.⁹

Development of targeted chemotherapy activity indicators

The replacement of the OOS-based planning variables with PCV-based planning variables was a key refinement of the 2007 review of the Planning Guideline (2005).⁹ The PCV separates chemotherapy from other procedures performed at ambulatory settings, such as central venous access care, bone marrow biopsies and the administration of antibiotics, antifungals and antivirals.



Average number of PCVs per new patient

Based on the use of the PCV, the review suggested 10 PCVs per patient for first course of treatment,⁴ compared to the 8.2 OOS used in the Planning Guideline (2005).¹¹

The Planning Guideline (2005) assumed similarity in clinical practice between ambulatory units and incorporated an average of 10 PCVs per cancer patient. In planning chemotherapy services for individual units in different AHSs, the 2007 review suggests that consideration be given to varying clinical practices and caseload to confirm that this average is representative.⁹

Unit capacity

During the survey week for the review (November 2005), units reported they were operating at 68 per cent capacity, equivalent to around 222 PCVs per chair per year, or 135,000 PCVs annually across all NSW public and private units in the survey. Giving some confidence to these estimates are Medicare statistics for NSW which show that around 140,000 chemotherapy services were funded under Medicare in 2004–05.⁷

In the 2007 review of the Planning Guideline (2005), an 85 per cent capacity is assumed, equating to 278 PCVs per year (five days per week for 48 weeks). This equates to 1.2 PCVs per chair per day. Under the Planning Guideline (2005), chair capacity was assumed to be four treatment episodes per eight hour day including all functions grouped under the OOS measurement.

Other data analysed by Akscin et al report a figure of 1.3 infusion patients per chair per day in a benchmarking survey of 178 US oncology practices (although data on hydration and therapeutic drug infusions were included with chemotherapy infusions).¹

In planning for chemotherapy services, additional chair capacity for non-chemotherapy procedures needs to be taken into account. In addition, existing infrastructure and other resources need to be considered. For example, a rural service may only have staff available on particular days to administer chemotherapy, but may operate extended hours.

Conclusion

The review presents a targeted chemotherapy activity measurement tool and methods to analyse the complexity of chemotherapy treatments.

The Review of Ambulatory / Outpatient Chemotherapy and Haematology Services in New South Wales (2005) for the first time provides information regarding the location, physical and human resources, and activity levels of outpatient chemotherapy and haematology units throughout NSW and the ACT.⁴

Importantly, it presents a targeted chemotherapy activity measurement tool, the PCV and explores methods to analyse the complexity of chemotherapy treatments. It also includes a comprehensive survey instrument that could easily be applied in the future to determine changes to chemotherapy services.

Of the 83 identified units across NSW and the ACT, 85 per cent responded to the survey informing the review. While this is statistically valid, the conclusions reached from the review represent interpretations of the aggregate data and in a statewide context are incomplete. As such, caution is needed when interpreting average or relative data and when comparing rural/metropolitan and private/public providers.

Notwithstanding, the sample size is sufficiently representative to deliver reliable insight to allow further planning. The review provided valuable information for the 2007 review of the NSW Health Chemotherapy Planning Guidelines, and has informed the future development of data collection for outpatient chemotherapy across NSW.



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