



REVIEW OF AMBULATORY/OUTPATIENT CHEMOTHERAPY AND HAEMATOLOGY SERVICES IN NEW SOUTH WALES 2005

Summary

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INSTITUTE NSW**

Commissioned by: **Cancer Institute NSW**
Conducted by: **Health Technology Analysts Pty Ltd**

BACKGROUND

This review is one of a series of health service reviews commissioned by the Cancer Institute NSW to assist the Area Health Services and the Cancer Institute NSW with planning. The reviews are a component of the programmes outlined in the NSW Cancer Plan 2004–2006. This survey was conducted because ambulatory care activity is not consistently or completely captured and reported by existing hospital systems. For the first time it is possible to aggregate data on NSW chemotherapy units. The identification of current service delivery in ambulatory care units may assist in the development of strategies for improving cancer services.

The primary objective of the project was to review all outpatient chemotherapy and haematology activity within NSW, inclusive of the ACT. For the purposes of the review, an outpatient was defined as an ambulatory patient visiting the unit for treatment, irrespective whether or not they are recorded as a same day admission or not. 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 review included both private and public treatment centres.

The review recorded information on the centre's physical location, human resources, physical infrastructure, business management systems, access to pathology services, access to imaging services, and supply of chemotherapy. The survey also quantified patient and business activity at each of the treatment centres. Data were collected using a 'bottom up' approach, with the information collected directly from each site. 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 was conducted in November 2005.

RESULTS

This review reports on outpatient chemotherapy and haematology activity, physical resources, staffing, and access to associated services within NSW and the ACT, subject to participation by individual units. For the purposes of the review, an outpatient was defined as an ambulatory patient visiting the unit for treatment, irrespective of whether or not they are recorded as a same day admission. 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 was collected. The review included both private and public treatment centres.

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Conclusions reached in this review represent interpretations of the aggregate data and in a NSW context is incomplete. The totals do not necessarily indicate the true total for the State or for respective AHSs, as 12 of the 83 units (14.5%) known to deliver chemotherapy or haematology services did not provide data for the survey. Several of these were larger metropolitan units. Therefore, caution is needed when interpreting average or relative data across AHSs or comparing between private and public providers. However, the sample size is considered sufficiently representative to deliver reliable insight to allow further planning.

Distribution of Outpatient Chemotherapy Services

The survey found that a total of 83 units in NSW provide outpatient chemotherapy; a total of 56 public units and 15 private units provided data, a further 12 did not (N=83).

Of the respondents there was roughly an even distribution of units between metropolitan and rural Area Health Services, with 36 units in metropolitan Area Health Services and 35 units in rural Area Health Services. 64% of private units surveyed were located in metropolitan Area Health Services.

The responding units contained a total of 608 beds/recliners (499 in the public sector and 109 in the private sector). 407 beds/recliners are in metropolitan Area Health Services and 201 beds/recliners are in rural Area Health Services. The median number of beds/recliners per unit was 8. Amongst the responding units, 25 units had 10 or more beds/recliners while 21 units had 5 or less. Whilst the survey focused on cancer treatments almost all the units also provided services to non-cancer patients.

Outpatient Chemotherapy Activity

One of the main objectives of the review was to quantify the core business of each unit i.e., delivering chemotherapy to patients. The need to be able to compare this across units in an equitable manner provided the rationale for the use of the 'patient chemotherapy visit' (PCV) measurement unit. This unit differed from previously-used occasions of service units as i) combination therapies conducted at one visit were recorded as one visit only, ii) chemotherapy treatment plus supportive procedures were recorded as one visit only, iii) visits where the patient did not ultimately receive chemotherapy were not included and major haematological procedures and other procedures were recorded elsewhere, and iv) a course of treatment with daily visits was recorded as a PCV each day the visit occurred.

Other measurement units that are routinely collected by units (eg. occasions of service, 'OoS') are open to variable interpretation. Occasions of service data are known to be heavily skewed by the inclusion of supportive procedures in some units but not in others. However, supportive and related procedures certainly do impact upon the workload of the unit, and for this reason the review also collected this data, albeit separately from that relating to the core business of delivering chemotherapy *per se*.

It was also recognised that not all chemotherapy visits are equal. In an attempt to account for the variation in complexity of chemotherapy delivery, the duration of the visit was used as a proxy for complexity. Duration has previously been shown by others to correlate well with chemotherapy complexity¹.

The survey respondent was asked to report the number of 'patient chemotherapy visits' that had been performed in their unit, per day, throughout their last typical week (i.e., not a week containing a public holiday or with key staff unavailable). So as to capture the level of complexity of each procedure the survey recipient was asked to report the total time required for each of these visits within three categories (≤ 1 hr, 1–6 hr, >6 hr). Information regarding specific non-chemotherapy haematological procedures (eg. blood and platelet transfusions, platelet exchange, aphaeresis, etc) and other activities (eg. immunoglobulin infusions, central venous access care, immunotherapy, etc) performed for ambulatory cancer patients were also collected.

Across the responding units, a total of 2,665 PCVs were recorded per week (2,176 in public and 489 in private) or 127,824 PCVs per year (48 week year, 104,352 public and 23,427 private). This equated to a mean of 38 PCVs/week/unit with some differences between public (40) and private (31). When considered relative to the number of beds/recliners, this equates to approximately 4.2 PCVs/week/bed or recliner (equal in public and private) assuming all units were open 5 days/week.

¹ Service Planning Guideline for Intravenous Chemotherapy Services, NSW Health, June 2005

Average Course of Treatment

Calculations were performed to best estimate the average number of PCVs per course of treatment. Data from a limited dataset indicated that on average, 10.0 PCVs were administered per patient for the first course of treatment. It was estimated that 81% of PCVs were attributable to patients undergoing their first course of treatment, whilst 19% only were attributable to patients undergoing retreatment. If these findings are 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).

Many of the units indicated that they had unused physical capacity. Explanations for unused capacity were documented, and included staffing for a reduced capacity, access to chemotherapy product, patients referred elsewhere due to private insurance contractual arrangements, and patient preference for particular days. Units that were achieving considerably more than the average number of PCVs/wk/bed were typically performing chemotherapy treatments of a shorter duration.

Nursing Workforce and Workload

241 full-time equivalent (FTE) nurses were identified in this survey providing chemotherapy to outpatients, 202 in the public sector and 39 in the private sector. Amongst the responding units, 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 roughly equal (2.6/unit), reflecting the fact that there are a small number of public units with larger complements of nurses.

When the patient chemotherapy visits (PCV) were considered relative to 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 suggested although measures of complexity were beyond the scope of this study. This difference remained present when the complexity of the PCVs was taken into account (private = 12 PCVs/wk/FTE nurse; public = 8 PCVs/wk/FTE). However other unit activity (including major haematology procedures) and staff commitments may be a factor when interpreting these findings. Less than half of the units indicated that they have a clinical nurse consultant on staff.

In the overwhelming majority of units, medical staff are providing the chemotherapy under supervision but not directly. A clinical nurse consultant was on staff at less than half the units. Other reports have

shown that in NSW 96% of all chemotherapy orders are written and supervised by a Medical Oncologist, an improvement on other states.

The presence of administrative support staff was variable across units, including some units with no dedicated administrative support.

Chemotherapy Supply

A large proportion of units relied upon a private pharmacy provider for provision of some or all of their chemotherapy agent (90%). In addition, 41 units indicated that they receive at least 90% of their chemotherapy from private providers. The majority of privately provided chemotherapy came from two commercial providers. Whilst supply of chemotherapy was generally satisfactory for planned chemotherapy treatments, supply of chemotherapy agent was problematic when less notice was given regarding the time or nature of the treatment.

Conclusion

The review provides useful information regarding the location, physical and human resources, and activity levels of outpatient chemotherapy and haematology units throughout NSW and the ACT. The provision of chemotherapy for cancer patients in the outpatient setting does not have a standardised statewide data collection such that prior to this survey little was known about how many facilities provided treatment or to how many patients. In the NSW context this data has never been previously gathered and reported on.

Obviously many factors impact upon relative activity level, including the nature of the unit, the availability of patients, and other commitments that compete for physical and human resources.