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## **A Review of the Educational Needs of Nurses Administering Cancer Chemotherapy in Rural and Remote Areas of Queensland**

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### **Abstract**

This paper describes current issues in chemotherapy nursing practice in rural and remote Australia. There is a trend to refer chemotherapy clients back to their rural and remote health facility for treatment from major oncology centres in Australia. However, it is increasingly apparent that the majority of nurses administering chemotherapy in smaller centres lack the theoretical and clinical knowledge to ensure optimum client outcomes and nurse/client safety. There are also issues unique to rural and remote life which will influence optimum chemotherapy service delivery.

The research program described in the paper will ascertain the education requirements of rural and remote nurses administering chemotherapy and the design and delivery of a chemotherapy education package specific to the rural and remote context. Similar programs will ensure the best standards of chemotherapy practice in non-metropolitan areas by enhancing the practical and theoretical knowledge base of rural and remote nurses.

### **Introduction**

While it is difficult to obtain any concrete figures relating to chemotherapy administration in rural and remote Australia, anecdotal evidence and practical experience indicate that the number of external referrals for cancer chemotherapy to outlying rural and remote health services from larger metropolitan and provincial centres has increased significantly in recent years<sup>1,2</sup>. It appears from the AIHW<sup>3</sup> data that the majority of this is delivered by nursing staff in rural and remote areas. This trend is a response to the increasing cost burden of inpatient chemotherapy to metropolitan and provincial oncology centres. In order to defray this expense from the larger health service, there is currently an emphasis on chemotherapy administration in the outpatient setting in the client's home town. Advances in biotechnology have facilitated this transfer of chemotherapy to the outpatient setting, with many clients implanted with venous access devices that enhance administration of chemotherapy and continuous infusion devices that deliver pre-programmed schedules of antineoplastic agents<sup>4</sup>.

### **Chemotherapy and cancer support from the perspective of the rural and remote client**

Rural Australians are not one homogenous group and it is difficult, therefore, to plan specific chemotherapy services from outside a given rural or remote area. This is because communities differ

greatly in terms of their economic base (farming, mining, tourism – which predispose to different forms of cancer) and their demographic composition<sup>5,6</sup>. Generally, however, rural and remote Australia is characterised by economic instability and poverty due to droughts and the loss of local industry<sup>7</sup>. Populations in rural areas are decreasing and are also ageing, due to the drift of younger people to metropolitan areas in search of work<sup>8,9</sup>. Those who stay behind are more likely to have received a lower level of education, have poorer communication skills than their urban counterparts and are less likely to be able to afford private health insurance<sup>10</sup>. All of these demographic factors adversely influence both the cancer-preventing and the cancer treatment-seeking behaviours of rural and remote people, resulting in a reluctance to access the health care system until their condition is well advanced and requiring more intensive chemotherapy services<sup>11</sup>.

Psychosocial issues must also be considered when planning chemotherapy services in non-metropolitan areas. For example, population drifts in rural and remote areas are disrupting the traditional support structures in these communities. This creates a need for expanded community cancer services to support chemotherapy patients, such as domiciliary nursing, respite care, social workers, home help and meals on wheels, which increase the pressure on the shrinking health dollar. In the past these services would have all been provided by the close network of family and friends within the community<sup>11</sup>.

There are also cultural traits typical of rural and remote people which complicate the planning of chemotherapy service delivery. One is the tendency of country people to define health in terms of their ability to work, regardless of their illness<sup>12</sup>. The response of urban people is more likely to be linked to the fear of pain or cosmetic disfigurement, whereas country people fear their loss of productivity<sup>13</sup>. They are, therefore, more likely to place an emphasis on the maintenance of their functional abilities and on their independence. This need to help themselves is accompanied by a resistance to help from 'outsiders'<sup>12,14</sup>, which is occurring in a context of increasingly high turnover of health care professionals in non-metropolitan areas<sup>15,16</sup>. It is well known that rural and remote people find it difficult to expose private concerns related to their diagnosis of cancer to health professionals who are new to the area, or to professionals located in a distant referring centre<sup>8</sup>.

Furthermore, rural and remote communities often comprise people of many different ethnic origins in addition to the Indigenous people concentrated in these areas. These groups require a different approach to culturally acceptable cancer services than people of English-speaking backgrounds<sup>17</sup>.

An advantage of the trend to deliver chemotherapy closer to home is that it relieves some of the social and financial burdens rural people experience when undergoing specialist cancer treatments, such as transport and accommodation costs; isolation from social and family networks; and from those health professionals they do know and trust<sup>11</sup>. There are, however, disadvantages to this trend.

### **Issues related to the safe provision of cancer treatment**

While no statistics are available for Australian rural health services, Schulmeister<sup>18</sup> indicates that some form of chemotherapy error occurs in 63% of specialist oncology units in the United States and

that nurses are involved in 73% of these errors. Errors that can be attributed solely to the nurses administering the drugs are estimated to be between two and 10%. The consequences of such mistakes can be devastating – 10% of clients required extended and expensive hospitalisation in the Schulmeister study, with medical intervention required in a further 22% of cases that did not require hospitalisation. In the US in 1994, there were 11 reported cases of client death due to chemotherapy overdose<sup>18</sup>. Factors attributed to chemotherapy administration errors in metropolitan areas include stress, understaffing, lack of experience and fatigue. These factors are exacerbated in the rural context, having been identified as variables in Australian research as characteristic of nurses employed in rural health services<sup>16,19</sup>.

Despite careful review of chemotherapy drugs and protocols before dispatch from the referring centre, the potential for error in the administration of these agents remains high. It is increasingly apparent that the majority of nurses administering chemotherapy in smaller rural and remote health facilities have little training or experience in this specialised area. A chemotherapy regime is only as safe as the nurses who are the final checkpoint in the administration process and it appears that mistakes will inevitably occur in these outlying areas.

### **Issues relating to access to education and training in rural and remote areas**

Rural and remote area nurses in Australia are aware that they have a responsibility to ensure they have a sound understanding of all the drugs they administer and the principles of safe administration of cytotoxic drugs. They are also conscious of the necessity of familiarity with the Statute and common laws related to the cytotoxics they administer to clients<sup>19,20</sup>. Rural and remote area nurses report however, that larger health services are often unaware of the narrow range of services they can provide<sup>19</sup>.

The reality is that rural and remote health services have limited staff numbers; limited budgets for specialised equipment such as Huber needles and cytotoxic waste disposal mechanisms; and restricted availability of training, which could accommodate the newer technologies they are expected to embrace<sup>9</sup>. For rural nurses, the unfortunate outcome of recent policy changes such as outpatient chemotherapy administration, is a greater knowledge requirement for nursing staff in the face of financial and resource cutbacks<sup>11</sup>.

Many rural and remote area nurses express a desire to meet these challenges. Nurses seeking education on cytotoxic administration, however, articulate as barriers those very factors rural clients cite as reasons for welcoming chemotherapy in their home town. For example, while clients no longer have to travel long distances for treatment, these nurses experience difficulty in accessing the necessary education because of the financial burdens in travelling to, and staying in, larger centres, where the only clinical training in chemotherapy administration is offered. Like their clients, they also experience isolation from family and friends for extended periods if they leave their home town for training. Rural nurses face additional difficulties because they have limited access to conferences, peer networks, libraries and information technologies; in addition to inadequate staff ratios which do not accommodate backfilling of staff who do seek education outside the town<sup>11,19,21</sup>.

### **Knowledge deficits identified amongst non-specialist**

## nurses administering chemotherapy

There is evidence that these factors contribute to a significant knowledge deficit amongst the nursing professionals administering chemotherapy in rural areas. The specialist oncology nurses and pharmacist in one provincial health service routinely receive six calls a week from health professionals in outlying areas administering chemotherapy, spending up to one hour per call advising them on safe administration of anti-neoplastic drugs<sup>1</sup>. The calls are received from all over south-east Queensland and northern NSW, including Charleville, Cunnamulla, Tenterfield, Warwick and Roma.

Knowledge deficits identified by oncology professionals at this referral centre, the widespread incidence of which is corroborated by reports in the international literature, include:

1. Clinical knowledge of cell cycles and their relation to chemotherapy; anti-neoplastic drug actions; standard chemotherapy doses and the rationale for dose variations; recognition and management of immediate and potential side effects; client education; and safe handling of cytotoxic drugs.
2. Technical skills such as the access and management of various venous access devices; venepuncture and cannulation<sup>2,23,24</sup>.

Previous research demonstrates conclusively that well-designed chemotherapy education programs adapted to specific rural and remote contexts, which are delivered face to face, increase the safety and quality of care to rural clients<sup>22,24</sup>. The professional, social and financial costs for nurses of such programs are relieved if they are delivered in rural and remote areas rather than requiring the nurses to travel long distances to metropolitan or provincial centres. Local delivery also enhances learning outcomes as it is linked to the context of rural nursing practice.

### Possible solutions

The specialist oncology nurses in South East Queensland recognise their collegial responsibility to ensure nurses administering cytotoxics to clients referred from major centres have the peer and educational support that ensures work place health and safety for clients and nurses in specific rural and remote contexts. They are also aware that client outcomes are significantly enhanced if nurses in outlying areas are competent to administer chemotherapy.

As a result, they have obtained funding for a two phase project. Phase 1 is a needs analysis of rural and remote area nurses in Queensland that will ascertain the education requirements of rural and remote area Registered Nurses with regard to the administration of chemotherapy. Phase 2 of the study will involve the design and delivery of an educational package that is context specific, relating to the administration of chemotherapy by rural and remote area nurses. The delivery platform will be determined by the needs analysis, but will include interactive multi-media platforms (for example CD-ROMs).

### Conclusion

There are many positive outcomes to be achieved from this research. The most important is that a course designed specifically for the context of non-metropolitan health care delivery, which is consistent with the best practice standards of chemotherapy practice, will improve the chemotherapy treatment outcomes and safety of rural and remote residents, throughout Australia. Furthermore, enhancing the knowledge, competence and

confidence of rural and remote area RNs administering cytotoxics will ensure the occupational health and safety of nurses delivering chemotherapy to rural and remote clients. It is also hoped that the project, through the delivery of the course, will develop a peer network of nurses educated about, and competent in, chemotherapy administration throughout Queensland that will be sustainable on completion of the project. This will ensure that nurses entering rural and remote contexts will be effectively mentored and educated in chemotherapy protocols.

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