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## FORUM: Head and neck cancer: improving outcomes

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Head and neck cancer is the sixth most common cancer worldwide representing a wide range of malignancies. This issue of Cancer Forum focuses on mucosal (non-nasopharyngeal) head and neck squamous cell carcinoma (SCC). A small section is also devoted to non-melanomatomous cutaneous skin cancer.

The cure of locally advanced mucosal head and neck SCC with surgery alone is commonly said to be in the order of 30%. Coutard in the 1920s demonstrated the ability of external beam radiotherapy alone to cure cancers of the pharynx and larynx. By 1957 MacComb and Fletcher recognised the benefit of a combined approach of surgery and post-operative radiotherapy in locally advanced mucosal head and neck SCC.

By the 1980s, following a randomised trial initiated by the Radiation Therapy Oncology Group (RTOG) in the 1970s, the superiority of post-operative radiation therapy compared with pre-operative treatment was established. Since that time, efforts have been made in identifying and refining the clinico-pathological risk factors warranting post-operative radiotherapy, determining the optimal radiotherapy dose and improving outcomes with the use of treatment intensification through altered fractionation and chemo-radiotherapy.

Peters et al on a prospective trial evaluated the optimal post-operative radiation dose for locally advanced mucosal head and neck SCC, based on clinical and pathological risk factors. The most significant high-risk feature identified was the presence of extracapsular nodal extension. This was one of the first studies to define high-risk features. The impact of these features were further validated in a subsequent study reported by KK Ang et al.

Early attempts at organ preservation using induction chemotherapy and radiotherapy were reported by the Department of Veteran Affairs and European Organisation for Research and Treatment of Cancer Larynx preservation studies. Both demonstrated that the use of induction chemotherapy followed by radiotherapy in responders for laryngeal and hypopharyngeal tumours, respectively, could result in preservation of the larynx, without a survival disadvantage compared with immediate surgery and post-operative radiotherapy.

Over the last two decades many centres have moved toward organ-preservation for locally advanced mucosal head and neck SCC through use of radiotherapy with or without chemotherapy. However, in the absence of high quality randomised evidence comparing surgery and post-operative radiotherapy with chemo-radiotherapy, the debate of which approach to use continues in many multidisciplinary clinics.

**Overview**

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**Altered fractionation**

Disappointing outcomes with conventionally fractionated radiation therapy in locally advanced mucosal head and neck SCC led to the investigation of altered fractionated radiotherapy. Based on radiobiological principles, the use of accelerated, hyperfractionated or a combination of both schedules has been examined in randomised trials comparing outcomes with conventionally fractionated radiotherapy. Late radiation effects are partly dependent on the fraction size of the radiation dose, as discussed by Poulsen. Hyperfractionated radiotherapy aims to deliver a higher total dose, without an increase in late radiation effects, using radiation fraction sizes less than the conventional dose of 1.8-2.0Gy. Accelerated radiotherapy aims to reduce the overall treatment time by reducing the use of multiple daily fractions in an attempt to overcome the phenomenon of accelerated repopulation, which occurs around four weeks following insult to the tumour. A combination of hyperfractionation and accelerated radiotherapy can also be employed. The use of altered fractionation is often at the expense of increased acute radiation side-effects. Most randomised data has demonstrated superiority of altered fractionated radiotherapy with respect to loco-regional control, compared with conventionally fractionated radiotherapy.

**Chemotherapy**

The role of chemotherapy in the definitive, post-operative and recurrent/metastatic setting in locally advanced mucosal head and neck SCC, along with novel therapeutic agents, is discussed by Guminski.

The benefit of combined chemotherapy and radiotherapy in the definitive treatment of locally advanced mucosal head and neck SCC, and post-operatively in high-risk disease, is well established. In both scenarios there is a 12% reduction in risk of cancer death and an absolute benefit of 4% in five-year survival. More recent data suggests that the absolute survival benefit is 8% five-year survival.

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The benefit of definitive concurrent chemoradiotherapy compared with radiotherapy has been reported in many randomised clinical trials, while the role of induction chemotherapy remains uncertain. 1, 2

Endoscopic laser

The use of endoscopic laser resection of mucosal head and neck SCC has gained increased popularity over the past decade, particularly in the treatment of early laryngeal cancer. The benefit of the CO2 laser is that it can haemostatically excise lesions with a high degree of accuracy. The goals of treatment with early glottic SCC include curing the cancer with minimal toxicity and optimal voice quality. From a practical point of view a treatment that offers cure with one visit as opposed to six weeks of radiotherapy is appealing to both the patients and radiotherapy departments with long waiting lists. Despite the absence of randomised data it would appear that both provide similar local control. Which treatment provides superior functional outcome and is definitely more economical still remains controversial. Kleid and Iskis discuss laser surgery, techniques, advantages and risks, and functional outcome.

Functional outcomes

Regardless of whether surgery, radiotherapy, chemotherapy or a combination of these treatments is employed, each has its own short and long term effects on speech and swallowing. These effects often have a significant impact on the quality of life (QoL). The speech pathologist is commonly the professional left to rehabilitate patients with the resulting functional deficits due to their malignancy and treatments received. Perry and Frowen have performed a comprehensive review of the speech and swallowing outcomes in patients treated with surgery and chemoradiotherapy and conclude by providing a guide in the rehabilitation of speech and swallowing following treatment.

Nutritional management

Malnutrition is a well recognised and common problem in head and neck cancer patients. Lifestyle, along with tumour and treatment factors, all contribute to the problem. Malnourishment often has a significant impact on complication rates, ability to complete and recover from treatment and overall QoL. When to intervene and what modalities to use, such as a nasogastric or percutaneous endoscopic gastrostomy tube (PEG), are common problems faced by clinicians and other health professionals. Careful screening and early intervention appear the key to correcting and maintaining adequate nutritional status pre and post-treatment, including surgery, radiotherapy and chemotherapy. Davidson et al discussed this in greater detail.

Future directions

Positron Emission Tomography (PET)

Fluoro-deoxy-glucose PET scanning has emerged as a valuable diagnostic tool in the staging, the evaluation of CT scan, monitoring and restaging of head and neck cancers. It has a high positive and negative predictive value in the detection of disease and is valuable in the detection of unsuspecting metastatic disease not recognised by conventional structural imaging, such as CT. With the advent of CT-PET both structural and functional imaging can be obtained synchronously. PET scanning is also increasingly used to facilitate radiotherapy, as the images can provide a clear guide for tumour staging. PET can also be used in biological characterisation of tumours. The use of compounds such as fluorine-18 fluorodeoxyglucose can be used to the degree of hypoxia in tumours. Hicks and Shakir provide insight into the use of PET in head and neck cancer and its potential future role.

Novel prognostic markers

Great research efforts are being made in trying to predict the aggressiveness of certain tumours and responsiveness to the various treatment modalities. The ultimate aim is to better tailor the treatment to suit the profile of the tumour and therefore improve outcome with the least morbidity.

There are currently no reliable tumour markers for head and neck SCC. Coman et al examine the role of gene profiling, microarray technology and the current state of tumour markers in head and neck cancer.

Advanced non-melanomatous skin cancer of the head and neck

Non-melanomatous cutaneous malignancies of the head and neck are a common problem in Australia. While the majority are early basal cell carcinomas and SCC, there is a subset of patients with high-risk disease that have a high risk of local recurrence or risk of distant metastases. These include locally advanced SCCs and merkel cell carcinoma. Veness has provided a comprehensive overview of the management of high-risk non-melanomatous cutaneous malignancies. 3

References

6. Ang KK, Trotti A, Brown B et al. Randomized trial addressing use of fluorodeoxyglucose PET for diagnosing or intensity modulated radiotherapy (IMRT). Radiation is delivered in multiple sessions or fractions but significant improvements can also be achieved by incorporating the use of other cells and fractionation exploits this intrinsic difference. Altered fractionation schedules seek to improve the therapeutic ratio between tumour cell kill and normal tissue damage by exploiting the dissociation between acute and late radiation effects. Increased tumour control and acute toxicity are related to increasing the total dose and decreasing overall treatment time and is relatively unaffected by dose per fraction. Conversely, the late effects of radiation treatment are related to total dose and dose per fraction and is relative unaffected by overall treatment time. If however, the acute effects become so severe that stem cells are depleted, then consequences can be even more severe. The biological effective dose (BED) of radiation can be calculated mathematically. 4

Altered fractionation in locally advanced head and neck cancer: an update

Michael Poulsen | Southern Area Radiation, Mater Centre, Brisbane
Email: Michael_Poulsen@health.qld.gov.au

Abstract

Efforts to improve LAQ of advanced squamous cell carcinoma of the head and neck have been made by altering the dose and fractionalisation schedules for radiation treatment in an attempt to strike a better balance between tumour cell kill and normal tissue side-effects. Altered fractionation may involve acceleration, hypofractionation or hyperfractionation. Acceleration overcomes the problem of tumour cell repopulation by reducing the overall treatment time with small reductions in the total dose and dose per fraction. Hyperfractionation aims at reducing the late effects of treatment while improving loco-regional control by reducing the dose per fraction, increasing the total dose and keeping the overall time the same. Hypofractionation applies a high dose per fraction and is useful for palliative radiation where bio logically effective doses of radiation can be delivered in a short overall time without unacceptable acute effects of treatment.

A recent meta-analysis of altered fractionation schedules has been performed on more than 6500 patients in 15 trials and shows a small but significant absolute survival benefit of 3.4% at five years. This benefit was greatest for the hyperfractionation trials and was of a similar magnitude to the effect of adding chemotherapy synchronously to radiation.

In the past 20 years, many strategies have looked at improving the effectiveness of radiotherapy in advanced squamous cell carcinoma (SCC) of the head and neck. These have included incorporating the use of other treatment modalities such as surgery, chemotherapy, and more recently biological modifiers such as the epidermal growth factor receptor antagonists. Small but significant improvements can also be achieved by altering the dose, fractionation and delivery of treatment to target radiation dose fractionation and IMRT. 1

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One of the earliest prospective randomised trials to test hyperfractionation was the European Organization for Research and Treatment of Cancer (EORTC 22971). They randomised 352 patients with T2-3 N0-1 oropharyngeal cancers (excluding tongue base) to receive either a conventional course of 70 Gy in 35 fractions over seven weeks or a hyperfractionated treatment of 80.5 Gy given at 1.15 Gy twice per day, so that the total treatment was completed in seven weeks. The five year rates of local control (95% vs 40% [p=0.002]) and survival (40% vs 20% [p=0.008]) were much improved in the hyperfractionated arm. Acute effects were more severe and late effects less in the hyperfractionated arm.

Hyperfractionated radiotherapy has also been compared to accelerated split course, concomitant boost and conventional radiotherapy in the four arm Radiation Therapy Oncology Group (RTOG) 9003 trial.12 Patients treated with hyperfractionated and concomitant boost had better loco-regional control than those treated with standard fractionation. There was no difference in survival that could be demonstrated. Acute side-effects were worse in the altered fractionation arms compared to conventional radiotherapy, but there were no increased late effects.

These two trials and those of the Pinto13 have been combined in a meta-analysis of hyperfractionated trials. There was a survival benefit of 8% at five years which is similar in magnitude to synchronous chemoradiotherapy. The hazard ratio of death for hyperfractionated treatment was 0.78 [0.69-0.89].

### Accelerated fractionation

The rationale for accelerating radiation schedules is predicated on tumour cells undergoing accelerated repopulation during the treatment course after a lag time by shortening the overall treatment time, less of the total dose of radiation will be wasted in compensating for accelerated tumour cell repopulation during the treatment course. Approximately 40-60 Gy per day is required to correct for accelerated repopulation. Accelerating the treatment course will also result in an increased dose of toxicity, especially mucositis. Reductions in overall treatment time are difficult for head and neck cancer patients to tolerate unless reductions in late effects are made. Strong accelerations may only partially compensate for the decreasing total dose of radiation. Accelerated protocols can be divided into those without a dose reduction and those with an overall dose reduction. Examples of each of these will be given.

The potential hazard of not reducing total dose or fraction size in accelerated radiotherapy is illustrated in the British Columbia Cancer Agency study. In this trial, both arms received a dose of 66 Gy in 2 Gy fractions, but the accelerated arm received two fractions per day. Acute effects were more severe in the accelerated arm, but grade 3 effects were also much higher. This led to the trial being abandoned after accruing only 82 of a target total of 226 patients.

In a trial run by the French Head and Neck Oncology Group, 268 patients with advanced head and neck were randomised to 70 Gy in seven weeks using 2 Gy daily fractions, or 63-64 Gy in three weeks using twice daily 2 Gy fractions. Acute toxicity was worse in the accelerated arm. However, there was an improvement in loco-regional control and a marginal improvement in overall survival and disease free survival.

Mucosal reactions may be problematic even in accelerated regimens delivered over five weeks. A study from Poland14 randomised 109 patients to continuous accelerated regimens (CAIR) with daily treatment seven days per week achieved a 13% improvement in loco-regional control and a marginal improvement in overall survival compared with a conventional arm of 66 Gy in 33 fractions over 24 days with a conventional schedule of 70 Gy in 35 fractions over 49 days. Differences in loco-regional control, disease free survival and overall survival could not be demonstrated. There were more acute mucosal reactions in the accelerated arm, but late effects were reduced with the exception of late mucosal ulcerations. A meta-analysis of accelerated protocols has been performed.15 There were eight randomised trials without dose reduction and five with a total dose reduction. The hazard ratio for death in the first group was 0.97 [0.89-1.05] and for the second group was 0.92 [0.86-0.97]. The absolute survival improvement at five years was 2% and 1.7% respectively and the improvements in loco-regional control at five years were 7.3% and 2.3%.

### Hypofractionated radiotherapy

Hypofractionated radiotherapy uses a small number of fractions with a large dose per fraction. The overall time is usually shorter than an accelerated protocol. These regimes produce worse late effects than conventional fractionation when used in the curative setting.16 The acute reactions are acceptable if treatment volumes are kept small and tolerability can be improved by introducing treatment breaks into the protocol. This type of schedule is most suited to the patient with poor performance status in whom the aim of treatment is to palliate symptoms and cause as little as possible in the ways of side-effects. These patients have a poor prognosis with a median survival of four to eight months.17

There are a number of phase I and II studies that have looked at hypofractionated palliative radiotherapy for advanced SCC of the head and neck. The QUAD SHOT18 was developed with the aim of delivering short intense

### Table 1

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<tr>
<th>TYPES OF FRACTIONATION</th>
<th>CHARACTERISTICS</th>
<th>RATIONALE</th>
<th>APPLICATIONS</th>
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<tr>
<td><strong>HYPERFRACTIONATION</strong></td>
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<tr>
<td>Total dose same</td>
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<td></td>
<td></td>
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<tr>
<td>Dose per fraction reduced</td>
<td>Number of fractions increased</td>
<td>Overall time same</td>
<td></td>
</tr>
<tr>
<td>Reduce dose per fraction reduced</td>
<td>Higher total dose increase</td>
<td>Late toxicity less</td>
<td></td>
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<tr>
<td><strong>ACCELERATED FRACTIONATION</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Total dose reduced</td>
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<td></td>
<td></td>
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<tr>
<td>Dose per fraction reduced</td>
<td>Number of fractions same</td>
<td>Overall time reduced</td>
<td></td>
</tr>
<tr>
<td>Reduce dose per fraction reduced</td>
<td>Less late effects</td>
<td>Less late toxicity</td>
<td></td>
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<tr>
<td>Local control Better</td>
<td>Acute toxicity Higher</td>
<td>Late toxicity Less</td>
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<tr>
<td><strong>HYPOFRACTIONATION</strong></td>
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<tr>
<td>Total dose reduced</td>
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<td>Number of fractions increased</td>
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<td>Reduce dose per fraction reduced</td>
<td>More late effects</td>
<td>Less late toxicity</td>
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<tr>
<td>Local control Lower</td>
<td>Acute toxicity Lower</td>
<td>Late toxicity Higher</td>
<td></td>
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<tr>
<td><strong>Late effects</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Sore throating to late responding tissue</td>
<td>Large tumour burden</td>
<td>Slower tumour doubling time</td>
<td>Resource intensive</td>
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For each type of fractionation, the characteristics, rationale, and applications are listed. The table provides a summary of altered fractionation techniques.
doses of radiation that were below the threshold for mucositis. The protocol consists of 14 Gy in four fractions over two days and can be repeated in responders up to a total dose of 42 Gy in 12 fractions. In patients with very advanced disease and poor performance status, objective responses were produced in 53% of cases and 44% had improvements in their quality of life. Other palliative schedules include that of Paris, who used 3.7 Gy twice a day for two days and repeated this monthly for three months. Although 40% did not complete the full course, responses were achieved in 77% of cases. We are evaluating a hyperfractionated schedule which involves treating patients twice per week in 6 Gy fractions to a total dose of 30-36 Gy. This is well tolerated in terms of acute reactions and is equivalent to 40 Gy in 2 Gy fractions in terms of tumour and mucosal effects (Porceddu S, personal communication).

Comparing these protocols with each other is difficult because of the heterogeneity of advanced SCC of the head and neck and the problems associated with measuring quality of life rather than just survival.

Conclusions

There is level one evidence indicating that altered fractionation achieves better results than conventional radiotherapy in advanced SCC of the head and neck, although the margin of improvement is modest. The greatest benefits have been achieved in hyperfractionation and acceleration with dose reduction. The margin of benefit is similar to that achieved with synchronous chemotherapy and radiotherapy which has now become the gold standard for advanced SCC of the head and neck.

Accelerated and hyperfractionated radiotherapy will both increase acute side-effects of treatment, especially mucositis. The late effects are usually reduced, but there may be an increase in late effects through consequential acute side-effects. If the acceleration is too intense, significant dose reductions or treatment splits have to be applied to mitigate the acute side-effects and this will only be partially compensated by reducing the tumour cell repopulation. As hyperfractionation involves an increased number of radiation treatments, this may have limited application in Australia and Europe where there is a huge demand on limited radiotherapy resources.

Hyperfractionation and accelerated fractionation should be considered in advanced SCC of the head and neck where the patient is not fit for synchronous chemoradiotherapy. By understanding the biological basis for altered fractionation, these schedules can be applied to different scenarios in advanced head and neck cancer and achieve results better than conventional fractionation.

References

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Table 2

Summary of randomised trials of altered fractionation (modified from Bourhis J)

<table>
<thead>
<tr>
<th>Trial</th>
<th>Years</th>
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<td>1980-1987</td>
<td>80.5 Gy/7 wks</td>
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<td>356</td>
<td>10.3</td>
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<tr>
<td>1986-1989</td>
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<td>70.4 Gy/6.5 wks</td>
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<td>112</td>
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<td>59.4 Gy/3.5 wks</td>
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Chemotherapy and Biological Agents in the Clinical Management of Head and Neck Squamous Cell Carcinoma

Abstract
Historically surgery and subsequently radiotherapy became established as the primary treatments for head and neck squamous cell carcinoma. The significant incidence of recurrence and metastasis in patients with advanced head and neck squamous cell carcinoma treated with surgery or radiotherapy stimulated interest in the potential role of other agents, particularly in the context of chemotherapy. The demonstration of experimental activity with newly discovered agents in the 1970s led to clinical trials and confirmation of activity in advanced disease, albeit often tempered by significant toxicity. Interest also focused on evaluating a role for chemotherapy in combination with the primary modalities. The goals included reduction in local and systemic relapse, down-staging of the tumour prior to definitive treatment to reduce morbidity of surgery or radiotherapy, organ preservation and biological selection of responders to non-surgical treatment. Considerable effort has been expended trying to identify the optimal agents, administration and schedule of chemotherapy in these different situations. Defining the best combination of the treatment modalities of surgery, radiotherapy and chemotherapy continues to be explored and tailored to the different cancer entities collectively called head and neck squamous cell carcinoma. New agents continue to be tested and the advent of biological therapies, with the potential of molecular based individualised treatment, will impact on the clinical management of head and neck cancer.

Chemotherapy for metastatic/recurrent disease
By the early 1970s a number of agents were identified with single agent activity including bleomycin, methotrexate and 5-fluorouracil (5-FU). The discovery of cisplatin brought into practice an agent that has become the cornerstone of chemotherapy for head and neck squamous cell carcinoma (SCC), particularly as its toxicity was ameliorated by improvements in supportive care. Morton and colleagues in 1985 reported one of the few randomised trials comparing chemotherapy with best supportive care for patients with inoperable neck stage squamous cell carcinoma. The combination of cisplatin with infusional 5-FU alone was popular because of its tolerability and proven efficacy in the clinical management of head and neck SCC, particularly as its toxicity was ameliorated by improvements in supportive care. Morton and colleagues in 1985 reported one of the few randomised trials comparing chemotherapy with best supportive care for patients with inoperable neck stage squamous cell carcinoma. The combination of cisplatin with infusional 5-FU alone was popular because of its tolerability and proven efficacy.
safe given the high response rates in pilot studies of treatment-naive patients. Using chemotherapy as the initial modality it was hoped local treatment could be reduced in extent, thus reducing toxicity and permitting preservation of functional aero-digestive organs. A further promising biological response to chemotherapy could help select patients with aggressive disease who could be fast-tracked to surgical salvage. An important historical study of induction chemotherapy came from its use in the treatment of sarcoma as a component of a voice preserving approach. The landmark Veterans Affairs study in 1991 showed induction chemotherapy followed by radiotherapy could preserve the larynx in 64% of patients with a similar two-year survival rate. Surgical salvage was available to patients on the non-surgical arm who experienced local recurrence. Therefore a subsequent trial randomising patients with laryngeal cancer planned to receive definitive radiotherapy to induction versus concurrent chemotherapy has provided evidence in favour of the concurrent approach. Although less popular outside of North America, the use of induction chemotherapy has been re-examined using newer agents such as the taxanes with promising activity. A new generation of clinical trials have looked at combining induction therapy with concurrent radiotherapy, utilising several active chemotherapy agents with the hope of reducing treatment-related local and distant recurrences. Basic Induction chemotherapy has been associated with reduced risk of metastases, whereas concurrent chemo-radiotherapy has been particularly associated with a reduction in locoregional relapse, hence the rationale for combining the two approaches. Hitt et al reported an advantage for induction with cisplatin, S-FU and paclitaxel followed by cisplatin chemoradiotherapy over concurrent cisplatin and S-FU alone, with improved disease free survival and borderline significant overall survival benefit. A recent report in abstract form has suggested adding Docetaxel to cisplatin and S-Fu induction therapy for resectable laryngeal cancer improves the laryngeal preservation rate.21

Concurrent chemo-radiotherapy as definitive treatment

The development of concurrent chemo-radiotherapy for advanced head and neck SCC began soon after the discovery of chemotherapy activity in head and neck SCC, with testing of the combination of chemotherapy with radiotherapy as treatment for cancer considered unsuitable for curative surgery. A Medline search from 1975 identifies at least 40 randomised studies comparing radiotherapy with or without concurrent chemotherapy. These studies tested different schedules of radiotherapy (such as hyperfractionated, accelerated or split course) and used various chemotherapy agents, initially bleomycin, methotrexate and S-FU, with most recent studies using platinum drugs. Two large randomised trials have provided evidence for the use of either cisplatin or 5-FU in combination with radiotherapy as being superior to the use of radiotherapy alone. Denis et al showed improved loco-regional control and overall survival in advanced oropharyngeal SCC treated with concurrent cisplatin and S-FU.22 Adelstein et al in a three way study compared radiotherapy, split course chemoradiotherapy using cisplatin and S-FU and concurrent chemo-radiotherapy using high dose cisplatin.30 Patients in the split course arm who had undergone interval surgery if a sufficient response was achieved. At three years a survival advantage was shown for the group receiving concurrent treatment compared with both other arms who were not different from one another. This trial terminated ongoing interest in split course approaches. Unresolved issues include preference for cisplatin over carboplatin, scheduling of platinum (as daily, weekly and three weekly administration have all been investigated) and preference for single agent or combinations (eg. with S-FU or taxane). Overall however, some concurrent platinum chemotherapy appears better than no chemotherapy and major improvements are likely to come from additional novel agents rather than just manipulating platinum administration.

Post-operative concurrent chemo-radiotherapy for high risk patients

Two large multi-centre randomised trials have confirmed improved two year loco-regional control, and in a study with longer follow-up improved estimated five year survival23 following the addition of high dose three weekly cisplatin to patients receiving radiotherapy for SCC, with testing of the combination of chemotherapy and radiotherapy in settings beyond head and neck SCC. The development of concurrent chemo-radiotherapy using high dose cisplatin.33 Patients in the split course arm who had undergone interval surgery if a sufficient response was achieved. At three years a survival advantage was shown for the group receiving concurrent treatment compared with both other arms who were not different from one another. This trial terminated ongoing interest in split course approaches. Unresolved issues include preference for cisplatin over carboplatin, scheduling of platinum (as daily, weekly and three weekly administration have all been investigated) and preference for single agent or combinations (eg. with S-FU or taxane). Overall however, some concurrent platinum chemotherapy appears better than no chemotherapy and major improvements are likely to come from additional novel agents rather than just manipulating platinum administration.

Novel biological agents

As in other solid malignancies interest in immune therapies led to the testing of immune modulating agents, especially interferon, in combination with chemotherapy treatment of advanced head and neck SCC. Recent advances in our understanding of the molecular abnormalities underlying head and neck SCC has led to development of specific biological therapies targeting those alterations. The agents of special interest are the p53 oncolytic virus, tyrosine kinase inhibitors (TKI), antiangiogenic agents and the anti-epidermal growth factor receptor (EGFR) antibodies (such as cetuximab). The oncolytic p53 virus, capable of infecting and destroying tumour cells but not normal cells, captivated the attention of cancer researchers and clinicians by demonstrating that a tumour specific molecular defect could be used to selectively target tumour cells and achieve an appreciable clinical anti-tumour effect. A related immune related observation is the ‘cold’ or ‘stranger killer’ effect, whereby tumour cells not directly infected underwent cell death, presumably subsequent either to signalling from infected cells or due to release of material from dying cells. Ultimately this therapeutic approach has not been able to achieve sufficient systemic delivery to be a useful treatment. Anti-angiogenic agents have been tested in Phase III studies in combination with chemotherapy24 or radiotherapy. The EGFR receptor is over-expressed in up to 80% of head and neck SCC and some degree of expression can be detected by immunohistochemistry in almost all cases. The EGFR receptor belongs to a family of cell surface receptors whose members dimerize following binding of a ligand leading to activation and subsequent intracellular signalling. As the receptor family members can bind in a variety of combinations the system has a range of modulated responses to stimuli. In certain cases receptors or downstream effecter molecules may acquire autonomous activation and can thus lead to an over-active pathway in the absence of over-expression. Two major intracellular pathways are activated by EGFR stimulation. The mitogen activated protein kinase pathway leads ultimately to changes in DNA transcription that promote cell growth and division. The other major pathway is downstream of the Akt proto-oncogene, which is responsible for apoptosis resistance. Dysregulation of the EGFR signalling pathway can thus primarily lead to cells acquiring most of the important features of the malignant phenotype. Downstream EGFR activation has been targeted using the TKI erlotinib and gefitinib, however low response rates were observed. Understanding the molecular predictors for clinical response is an area of intense research interest. The EGFR receptor can also be disrupted by the monoclonal antibody cetuximab. The value of cetuximab in combination with radiotherapy has been confirmed in a Randomised Phase III trial with improved locoregional control and overall survival in patients with locally advanced tumours. Interestingly, a post-hoc subset analysis suggested the benefit may be dependant on the radiotherapy schedule. Cetuximab has also been used with cisplatin in a Phase III study in advanced disease, showing a modest improvement in response rate and a survival advantage in patients developing rash.25 It is being tested in a variety of other settings.

Trials in progress and future directions

Achieving the best outcomes for the lowest morbidity is a major goal of clinical research in head and neck SCC. The rationale for combining the two approaches is to use selective agents that can be safely used in combination with radiotherapy or chemotherapy and in subgroups of patients who can be identified as harbouring specific molecular derangements driving the malignant phenotype. In summary, the last few years have seen significant advances in the management of the heterogenous disease of head and neck SCC. Modest but definite improvements in survival with organ sparing have been achieved, but at the cost of more severe acute and perhaps also long-term toxicities. Defining the optimum use of existing agents has been a significant step that has required collaboration between the different specialties involved in the care of primary head and neck SCC patients and the endurance of patients who participate in clinical trials. The advent of new chemotherapy agents and ongoing studies to identify the best combination, sequence and timing with radiotherapy will continue to improve outcomes. More exciting is the prospect of effective biological therapies in translation of our increasing knowledge of the molecular pathology of head and neck SCC into more cures or equally effective but less toxic treatments.

Disclosure: The author has participated in an advisory board for Merck AG, manufacturers of Erlotinib.

References


The focused beam of the CO2 laser functions as a haemostatic scalpel. With a high degree of accuracy, the surgeon can deliver, through the hollow tube of an operating laryngoscope, an intensely hot beam of invisible monochromatic electromagnetic radiation (beyond the infra-red end of the spectrum), absorbed by the water in soft tissue, able to cause thermal injury. With binocular micro-surgical control, incisions can be made and tumour can be differentiated from normal tissue, allowing tumours to be excised, whether benign or malignant.

With the combination of local anaesthesia (using topical cocaine) and direct laryngoscopy (autoscopy), Kirsten pioneered office endoscopic laryngeal surgery in the late 19th century. Over the next decade Chevalier Jackson enhanced the techniques and moved them into the operating theatre. Techniques were refined and enhanced; aided by developments in general anaesthesia, the microscope, suspension laryngoscopy, Hopkins rod imaging and endoscopic equipment. Jako’s coupling of the CO2 laser to the surgical microscope in the 1970s led to Strong and Vaughan’s use of this equipment for early laryngeal cancers.

Steiner was an ardent proponent of trans-oral endoscopic laser surgery for small, moderate-sized and even large laryngeal cancers (and has enhanced his technique for non-laryngeal head and neck cancers).

Over the past decade, more centres around the world have been performing endoscopic laser resections of upper airway carcinomas and publishing their results. However, randomised control trials are rare and, in the absence of a randomised trial, achieving clear margins can be very difficult. A recent meta-analysis, comparing radiotherapy, open laryngeal surgery and endoscopic laryngeal surgery, concluded that “there is no evidence available from randomised controlled trials to guide treatment choice for patients with early stage glottic cancer.”

Principles of technique

Using modified microendoscopic endoscopes and surgical instruments, a CO2 laser beam can be used to endoscopically excise a tumour, with clear margins, which can be verified histologically. Larger tumours can be managed by removing through the tumour margins of the tumour can be better assessed, as it has a different reaction when lasered across, compared to lasering of normal tissue. The tumour excision can be tailored to the actual tumour size and shape, preserving as much normal tissue and functional tissue. Should excision not be adequate, re-excision (usually by the same endoscopic laser approach) can usually easily be performed (depending on access).

Should it be needed, radical open surgery and/or radiotherapy can still be performed, without the laser treatment having interfered with the likelihood of success of the mode of treatment. With tiny glottic cancers, Strong et al found that 20% of cases have no tumour in the specimen after biopsy for squamous cell carcinoma (SCC) (definitive radiotherapy was not necessary). Laser excisions, although tedious and time-consuming, take less time than does radical surgery, and result in a smaller scar, far more expedient than a course of radical radiotherapy, saving costs.

Disadvantages and risk

Exposure of the tumour can be compromised by anatomical variations (e.g. trismus, stiff neck, prominent teeth and full tongue) or by the size, localisation or extent of the tumour. The anterior commissure is a well-known site of difficult access, as is the subglottis, deep tongue base and para-oesophageal space.

The experience of the surgeon is important, as either incomplete excision can occur, or an increased risk of complications. Special surgical and anaesthetic precautions must be taken to prevent laser fire of the endotracheal tube, a very dangerous but rare occurrence.

Intra-operative bleeding can hamper the performance of the operation, more from obscuring the surgeon’s view than from dangerous blood loss. Secondary haemorrhage, particularly of the tiny laryngeal cancers, or delayed 10-14 days, can be dangerous because of aspiration or exanguination. The general anaesthetic required to control haemorrhage occurring above the laryngeal inlet is dangerous.
Other complications include post-operative airway obstruction, aspiration pneumonia, dysphagia, infection and surgical emphysema. Delayed wound formation and/or stenosis is a risk. Rarely is a tracheostomy, or a feeding tube, required.

Adjuvant treatment

When indicated, neck dissection is performed about a week after the trans-oral laser excision of the primary tumour. All of the various types and indications for lymphadenectomy exist. Depending on the author, postoperative radiotherapy is sometimes used. Steiner and Ambrosch use post-operative radiotherapy or chemo-radiotherapy to the primary site if the tumour cannot be resected completely despite further endoscopic attempts, and the only alternative would be a radical operation (eg. laryngo-pharyngectomy or glossectomy).

Adjuvant cervical radiotherapy is given after neck dissection for the usual indications (two or more involved nodes, extra-capular spread, lymphovascular invasion or a large solitary node).16 Zeltsel uses post-operative radiotherapy, almost routinely, after endoscopic laser excision of all supraglottic carcinomas. Some would argue, that since radiotherapy alone or in combination with chemotherapy, renders good results for supraglottic carcinoma, the laser excision is nothing more than an "excisional biopsy".

Trans-oral laser microsurgery (TOLM) in laryngeal SCC

Strong and Jako first described use of the CO2 laser to endoscopically resect laryngeal cancers.17 Strong showed that in up to 20% of cases, no residual SCC remained after the initial diagnostic biopsy, often making radiotherapy unnecessary. Steiner and Ambrosch showed six local recurrences and only one laryngectomy in 15 years if follow-up lasted at least five years in TOLM techniques.24 Since then, TOLM has been widely adopted as an alternative to definitive radiotherapy in the treatment of early laryngeal cancer.

If local control and survival are comparable, the choice of therapy is determined by patient preference after discussion of risks, benefits and likely functional outcomes. Steiner showed that most TOLM cases could be operated on within one day with little pain for a few days. Patients must be warned that approximately one third of patients require a second procedure often to biopsy suspicious granulation tissue. Most radiation protocols take six weeks, cause painful mucositis lasting a few weeks, require the patient to keep a feeding tube, require a tracheostomy in cases of very advanced neck disease (N3), or distant metastases and of 103 patients mainly with very advanced neck disease (N3), or distant metastases were excluded. In addition to TOLM, 75% also had neck surgery and 50% had chemotherapy. The Kaplan-Meier five-year local control rate was 85%. There was no local recurrence in T1 and T2 lesions, but there was a 20% local recurrence rate in T3 and T4 tumours. Kaplan-Meier five-year recurrence-free and overall survival rates were 73% and 52% respectively. Mean performance status score scales were 92% for normalcy of diet and 88% for intelligibility of speech.

Steiner has also reported 48 patients treated with TOLM for base of tongue squamous cell carcinoma between 1986 and 1997.28 Selective neck dissection was performed in 43 patients; 23 patients underwent postoperative radiotherapy for early-stage disease without chemotherapy. The Kaplan-Meier five-year local control rate was 85%. There was no local recurrence in T1 and T2 lesions, but there was a 20% local recurrence rate in T3 and T4 tumours. Kaplan-Meier five-year recurrence-free and overall survival rates were 73% and 52% respectively. Mean performance status score scales were 92% for normalcy of diet and 88% for intelligibility of speech.

Most impressive is Steiner's results with hypopharyngeal primaries. These tumors are in advanced stages and of 103 patients mainly with perimandibular cancer, 63 patients had pT2 cancers and 14 had pT3, and 4% had pT4a, second primaries, very advanced neck disease (N3), or distant metastases (ie. not treatable for cure) were excluded. In addition to TOLM, 75% also had postoperative radiotherapy. Of these 103 patients, 93
were controlled locally after a 44-month mean follow-up. The five-year Kaplan-Meier survivals were 69.2% for combined stage I and II, and 52.5% for stage III and IV.

Even in the most selective patients, Steiner’s overall local control and overall survival compares favorably with newly described chemotheraphy and radiotherapy laryngeal preservation protocols that have replaced the traditional total laryngectomy and postoperative radiotherapy for hypopharyngeal cancers.11 The primary aim of combined chemotherapy and radiotherapy is to preserve a functioning larynx and the largest such study showed this occurs in about 39% of patients.12 Given Steiner’s preference for operating on laryngeal functioning larynxes, albeit in a highly selective group, many surgeons argue TOLM remains a treatment option for selected hypopharyngeal cancer patients.12

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3. Kirsten A. [Autoloseze of the larynx and trachea (direct examination without mirror)]. P. A. Zee Cis Philadelphia. 1907.
31. Abboud F, Gaffney C. Radiotherapy for T1 glottic carcinoma: impact of Speech pathologists are traditionally the professionals who assess, diagnose and manage voice, speech and swallowing problems in people who present with head and neck cancer. The term head and neck cancer in this paper includes oral cavity, pharynx and larynx; ICD sites COO-C14 and C32.1

Ideally, a pre-treatment meeting between therapist and patient occurs, when informational counselling about anticipated changes like management of speech and swallowing problems takes place. Patients’ baseline voice and swallowing functions are documented, using objective recordings, such as audio-taping of voice and speech and video-fluoroscopic recording of swallowing function. In this way, functional attributes are assessed, rather than those changes due to the cancer itself, can be ascertained. Objective pre-treatment measures are also useful for planning rehabilitation.

The aim of speech and swallowing rehabilitation is to first optimise function (usually by direct therapy programs, such as exercise regimens) and second, to introduce compensatory strategies (diet changes, intra-oral or voice prosthesis) or manoeuvers (such as postural changes for safer swallowing), when improvement in function cannot, or does not occur. Impairment in speech or swallowing can negatively impact on patients’ quality of life (QoL), resulting in reduction in social participation and/or in activity. These life changes can be assessed using a tool such as Australian Therapy Outcomes Measures (or AUToMs)27 and may form goals in rehabilitation.

In this paper, we describe typical population-specific voice, speech and swallowing difficulties, as they relate to differing head and neck cancer sites and sizes, then discuss compensatory measures (diet changes, intra-oral or voice prosthesis) and examine the evidence for their continued use. Tracheostomy care is beyond the scope of this paper, so has not been addressed.

Oral cancer
One challenge for head and neck cancer researchers is to accrue adequate numbers of patients to enable meaningful analysis of data. This is particularly true for oral cancers, which are more difficult for any one institution to accrue many patients within a specific surgical resection/construction cohort.8 Multi-centred, collaborative research is therefore essential to address this problem of small numbers and assessing functional outcomes from different treatments.

Treatment for oral cancer usually involves surgery with, or without, radiotherapy, and this often impacts on speech and swallowing functioning. It is generally accepted that the biggest influencing factors on functional outcomes after surgery will be the extent of the resection and the type of reconstructions techniques used. The more extensive the resection, the greater will be the swallowing impairment.10 When considering the techniques of reconstruction, for good speech and swallowing to result, the issues become less clear. Primary surgical closure (pulling together and suturing larynx; ICD sites COO-C14 and C32.1

SPEECH AND SWALLOWING FUNCTION IN HEAD AND NECK CANCER PATIENTS: WHAT DO WE KNOW?

Alison Perry and Jacqui Frowen • School of Human Communication Sciences, La Trobe University, Victoria

Abstract
In this paper, we report on common speech and swallowing dysfunction that occurs after surgery, radiotherapy or chemo-radiotherapy for head and neck cancer (oral cavity, pharynx and larynx sites). We review speech therapy interventions and discuss available evidence for the use of these techniques. Methodological quality is low in the majority of published studies that describe rehabilitation after head and neck cancer treatments and speech disability has received very little attention. Although many researchers have investigated swallowing impairment, a wide variety of measurement tools have been employed, making results across studies difficult to compare. There is an absence of data on speech and swallowing outcomes after surgery, radiotherapy or chemo-radiotherapy for head and neck cancers. Further work is needed to first, undertake rigorous scientific studies of functional outcomes (speech, swallowing and quality of life); second, compare these outcomes after surgery, radiotherapy or chemo-radiotherapy for head and neck cancers. Further work is needed to first, undertake rigorous scientific studies of functional outcomes (speech, swallowing and quality of life); second, compare these outcomes after surgery, radiotherapy or chemo-radiotherapy for head and neck cancers. Further work is needed to first, undertake rigorous scientific studies of functional outcomes (speech, swallowing and quality of life); second, compare these outcomes after surgery, radiotherapy or chemo-radiotherapy for head and neck cancers.

Speech and swallowing function in head and neck cancer patients: What do we know?

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FORUM FORUM
Voice results after endolaryngeal surgery (with or without laser) for treating early laryngeal squamous cell carcinoma (SCC) are equivocal, as no comprehensive objective voice outcome data have been published. Indeed, a recent review of radiotherapy versus open surgery versus endolaryngeal surgery (with or without laser), Gey et al stated, “There is currently insufficient evidence to guide management decisions on the most effective treatment (for early laryngeal SCC).”

The value of voice therapy (identifying and addressing vocal misuse/abuse; giving advice and guidance on correct voice production and providing vocal exercises) in improving swallowing, dysphagia and during and after treatment has not yet been ascertained; these studies remain to be done.

Laryngeal cancer – large tumours

For patients with more extensive T3 or T4 tumours of the glottis, options for treatment include an organ preservation protocol, using chemo-radiotherapy, or having a total laryngectomy.

Chemo-radiotherapy treatment

Initially, it may seem attractive to preserve the organ (larynx), but preservation of form does not always translate into preservation of function, and patients need to have this point explained, before they consent to treatment.

In reality, we have no good scientific data on swallowing outcomes on which to base our pre-treatment advice to patients. Despite the large number of clinical trials that have been done to be undertaken with this population, swallowing outcomes are either not reported at all, or only crude, subjective measures are used. Further, there are no well published studies conducted comparing swallowing changes after chemo-radiotherapy treatment for laryngeal cancer.

Total laryngectomy

A primary (ie. done at the time of total laryngectomy) tracheo-esophageal puncture, or TEP, is currently the only way to access the laryngeal vestibule; and, often silent, aspiration. Fibrosis of the pharyngeal/ laryngeal muscles reportedly contributes to the above problems, further compounding the pre-treatment effects of the tumour itself. Surgery may involve the base of tongue and/or pharyngeal walls, when velo-pharyngeal closure may be compromised resulting in nasal sounding (ie. hypernasal) speech and nasal reflux (usually of fluids) during swallowing.

Ablative surgery to the oropharynx usually includes combined resection of the soft palate and tonsillar pillars. This type of resection can interfere with transport of a bolus through the pharynx, because normal sensory input is interrupted by use of tissue flaps for reconstruction. Such tissue flaps may be bulky and mechanically interfere with the passage of food. Further, they act passively, not actively, resulting in the loss of normal propulsive action supplied by the pharyngeal constrictors.

Management of speech problems

There are no published assessments of speech that are available, from those with simple written output (eg. Lightwriter), to synthetic speech boards (with pre-set phrases that can be pressed to speak, using an electronic voice output) or an artificial larynx (eg. Servox), where a battery-driven vibrator, hand-held against the neck, provides a substitute for sound that is normally generated by the vocal folds. Many laryngectomees use such devices.

Each patient needs to be carefully evaluated for the use of any speech aid and their daily needs and requirements, as well as an assessment of physical, especially hand dexterity, may direct the choice of a suitable aid.

Management of swallowing problems

Swallowing impairment may be managed using compensatory strategies against the neck, provides a substitute for sound and is divided into components, such as: respiration; tongue, lip, soft palate movements; ability to sustain vowel sounds; and intelligibility of words, sentences and conversation. Comparing age and gender-matched normative data, speech features that are defective can be identified using the FDA and then addressed in therapy. In a recent study examining the effects of head and neck cancer surgery and dysphagia, it was found to be a practical, valid and reliable tool for use with an Australian head and neck cancer population. In that pre-treatment study, people with surgery were shown to have worse speech intelligibility than the general population and the site of cancer dictated the resulting speech impairment. It is hoped to be undertaken to examine how head and neck cancer treatment may further impact on speech intelligibility.

Direct therapy to maximise residual function after treatment has not yet been ascertained; these studies remain to be done.

Compensatory strategies do not necessarily change the swallowing physiology, but they may reduce aspiration and improve the flow and direction of food and eliminate the patient’s symptoms, especially aspiration.

Compensatory strategies include: (i) postural changes which may change the dimensions of the pharynx, so giving better airway protection without increasing the effort or work for the patient during the swallow; (ii) sensory input being increased either prior to, or during, the swallow; (iii) modifying volume and speed of food presentation; (iv) changing food viscosity or consistency and; (v) introducing intra-oral prostheses.

Table 1 presents the postures which have current evidence for their use and their rationale.

Although there are limited published data regarding the benefits of palatal lift devices, these may be useful for patients with palatal clefts or obturators for improving speech and swallowing, these devices are commonly used in clinical practice. Their use markedly reduces oral residue after swallowing, as the prosthesis enables the patient to re-establish intra-oral pressure and/or allows them to achieve stronger tongue-to-palate contact for more efficient oral bolus transport.

Active therapy procedures are designed to change swallowing physiology (not just to compensate for the dysphagia), and require the patient to follow the directions of the clinician and (usually) practise independently and regularly. Resistance, range of motion and bolus control exercises may also be included in a repertoire of active therapy procedures.

Swallowing manoeuvres are used to teach patients to gain voluntary control of selected aspects of the pharyngeal stage of the swallow. Such manoeuvres may include a supraglottic swallow, where the airway can be voluntarily closed at the level of the true vocal folds before, and during, swallowing. The airway is closed and the false vocal folds and tilts the arytenoids anteriorly to meet the base of the epiglottis, thus giving strong closure of the entrance to the oesophagus. The Mendelson manoeuvre voluntarily increasing the extent and duration of laryngeal elevation, thereby...
increasing the duration/width of cricopharyngeal opening) or an effortful swallow (designed to increase posterior pharyngeal wall; reduces resting pressure in c-p sphincter).

Table 1

<table>
<thead>
<tr>
<th>Posture applied</th>
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<tr>
<td>Head back</td>
<td>Gravity clears oral cavity</td>
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<tr>
<td>Widens valleculae – stops bolus entering</td>
<td></td>
</tr>
<tr>
<td>Pushes tongue back towards pharyngeal</td>
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</tbody>
</table>

Adapted from Logemann and Sullivan.

increasing the duration/width of cricopharyngeal opening) or an effortful swallow (designed to increase posterior pharyngeal wall; reduces resting pressure in c-p sphincter).
Evidence for benefits of nutrition intervention

It is often difficult, if not impossible, to meet the high levels of evidence according to National Health and Medical Research Council (NHMRC) guidelines. Nutrition intervention studies are difficult to complete in a blinded fashion, patients may not adhere to the nutritional recommendations and it may not be ethically possible to conduct a randomised controlled trial (RCT) for many patients.17 Recent randomised controlled trials, however, have demonstrated improved outcomes from nutrition intervention for head and neck cancer patients undergoing radiotherapy. Ravasco et al18 randomised 75 patients receiving pre-operative chemo-radiotherapy to the head and neck area has revealed an increased early reaction which may be more intensive, individualised nutrition and radiotherapy to the head and neck (than the simple provision of oral supplement alone). The second received commercial oral nutritional support. There is considerable evidence that immune-enhancing enteric formulae have been shown to reduce the risk of post-operative infectious complications in patients undergoing major gastrointestinal surgery,19,20 but evidence is less convincing for head and neck radiotherapy. Pre-operative nutrition assessment assists in the identification of patients who are at risk of re-feeding syndrome due to extensive nutritional depletion, extended periods with minimal intake or alcohol abuse. When good symptom management is unable to achieve adequate oral intake, tube feeding is highly effective. There is consistent evidence that any form of enteral feeding results in higher protein and energy intakes and weight maintenance compared with oral intake alone.21 Low level evidence, largely from retrospective studies, suggests that for high nutritional risk groups, gusostomy insertion prior to cancer therapy provides some beneficial effect. For patients with pre-existing weight loss, prophylactic gusostomy tubes have fewer hospital admissions for dehydration or malnutrition22 and maintain QoL during treatment compared with oral intake alone.23

Both common routes of enteral feeding, nasogastric or gusostomy, are equally effective in preserving weight,24,25 with nasogastric tubes recommended for short-term use and gusostomy for periods exceeding one month. Nasogastric tubes can usually be inserted in an outpatient setting. Prophylactic gusostomy insertion prior to cancer therapy provides some benefit. The advantage of nutrition support before starting radiotherapy had less weight loss and less grade 3 or 4 mucositis (despite being more likely to have a higher tumour stage) than those who did not, they had poorer overall survival.41 Given the methodological limits of this study, associations could not be considered causal. It does, however, highlight the importance of including nutrition as an outcome in nutrition intervention studies.

Screening and assessment

As patients with head and neck cancer are at high risk of developing malnutrition, priority should be given to identify those patients who fall within ‘healthy’ or overweight categories and those patients who develop unintentional weight loss.48 The Malnutrition Screening Tool (MST)45 is a quick and simple tool based on recent appetite and weight loss. It is a five-question tool that asks patients whether they have lost more than 10% of their body weight in the past three months and whether they have had a poor appetite for the past 3 months. The MST has been shown to be a valid and reliable predictor of nutritional risk and weight loss.49

The MST can be used in the pre-operative phase of treatment. Where complex treatment regimens are planned and the patient is at high risk of malnutrition, speech pathologists may be involved in swallowing rehabilitation programs. Multidisciplinary teams provide an opportunity to identify dysphagia and nutritional risk during the pre-treatment phase. Where complex treatment regimens are planned and the patient is at high risk of malnutrition, speech pathologists may be involved in swallowing rehabilitation programs. Multidisciplinary teams provide an opportunity to identify dysphagia and nutritional risk during the pre-treatment phase. As a result, nutrition intervention should be continued post-operatively to ensure that patients return to oral intake without compromising nutritional status.

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society of australia.

the multidisciplinary nutrition and clinical oncology group will be formed within the clinical oncological pathways. we also hope a multidisciplinary nutrition group will be formed to develop nutrition guidelines that will help streamline the development of nutrition strategies. recently, local branches have merged to form the dietitians association of australia (daa). evidence-based practice guidelines for the nutritional management of cancer cachexia have been endorsed by the dietitians association of australia (d aa). evidence-based practice guidelines for the nutritional management of cancer cachexia have been developed. recently, local branches have merged to form the national daa oncology interest group, with the aim of developing standardised guidelines for the nutritional management of cancer cachexia.

future directions

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PET has become an important diagnostic modality in the assessment of cancer. In contrast to CT and MRI, which detail the anatomy of the body, PET provides an assessment of biochemical processes by way of uptake and retention of radiopharmaceuticals by tissues. While structural imaging can allow identification of enlarged or distorted internal structures, PET scanning provides information about the extent of disease. PET is not, however, limited to use of FDG since there are other tracers that can be utilised to characterise other processes pertinent to tumour biology. For example, cellular proliferation can be assessed with thymidine analogues such as fluorine-18 fluoro-L-thymidine (FLT), while tissue hypoxia can be imaged using nitroimidazole-like compounds such as fluorine-18 fluoromisonidazole (FMISO).4

Evaluation of head and neck cancer

Head and neck cancer is one of the most common cancers in the developed world and is a major cause of cancer death. In Australia, the incidence in males has been decreasing since the early 1980s, but has increased slightly in women during the same period consistent with smoking trends and emphasising the link between this type of cancer and tobacco use.

The primary treatment of head and cancer is determined by disease stage. Some early cancers, such as T1 laryngeal squamous cell carcinomas (SCC), can be cured by radiotherapy alone, or by laser surgery, maintaining the functions of speech and swallowing. However, the majority of patients currently present with loco-regional advanced disease, requiring selection of combined modality therapies individualised to achieve the best chance of cure while minimising treatment-related toxicity. In particular, preservation of organ function and quality of life are important yardsticks of the success of therapy, in addition to the more general goal of increasing survival. With this objective in mind, radiotherapy with concurrent platinum-based chemotherapy often precedes surgery in order to minimise the volume of tissue requiring resection, or to obviate surgery in a proportion of cases1 in such cases, the additional morbidity of salvage surgery at the primary site and in the neck dictated that initial radiotherapy should be highly targeted towards the tumour, confined to the neck in order to maximise the chance of cure, but also reduce the toxicity to adjacent normal tissues.

The likelihood of cure with any given therapeutic strategy is also related to the stage of disease. With increasing tumour and nodal stage, survival is reduced and the likelihood of relapse is increased. Overall, the five-year survival rates for patients with advanced stage (stage 3 and 4) head and neck cancer are low (<30%) and a high percentage will develop recurrent loco-regional disease or systemic metastasis within two years of initial treatment. These rates have remained largely unchanged over the past three decades despite improvements in loco-regional control.6 Clearly, improvements in the selection and delivery of treatment as well as the development of more effective therapies are required. The choice of the most appropriate treatment and the delivery of that treatment are critically dependent on accurate delineation of tumour sites. There is growing evidence that PET can significantly improve on current techniques with respect to these roles.

Rationale for PET in head and neck cancer evaluation

Most SCCs, the predominant histological subtype of head and neck cancer, have a high level of glucose metabolism, leading to high FDG-avidity. Several authors have reported the use of FDG PET scanning in cancer of the head and neck, both in the setting of primary staging and evaluation of patients after primary therapy, suggesting significantly higher accuracy than conventional evaluation.7 These studies have, however, generally focussed on patients who have been first evaluated and selected by structural imaging techniques including CT and MRI. In the primary presentation setting, there has been a tendency to use PET primarily in cases with equivocal findings after conventional evaluation. Accordingly, they have addressed its complementary role as a problem-solving tool. The need for accurate anatomical localisation of disease sites for surgical planning mandates the use of CT as part of the staging process of histologically-confirmed cases, however, with development of combined PET/CT scanners, there is now the possibility of obtaining this information with a single convenient and highly accurate test. Indeed, we believe that there is a strong rationale for the routine use of PET/CT for the staging, treatment selection and planning of patients with clinical evidence of locally-advanced head and neck cancer. The ability of PET to simultaneously provide a wide survey for remote nodal disease, including involvement of non-enlarged nodes, has potential implications for presurgical selection and planning and the more reliable exclusion of remote metastatic sites is also an important diagnostic advantage. More sensitive detection of synchronous malignancies would be an added bonus.

Although the structural relations of head and neck cancer are vital for planning primary treatment, they are of less relevance in recurrent disease. In addition, distortion of normal anatomy renders structural imaging of limited value following aggressive local therapy. Since FDG PET is likely to outline metastatic disease with higher specificity than CT scanning, it may allow patients with negative scans to be observed. PET after radiotherapy or surgery may be considered for surgery or local radiotherapy, as the sole treatment, for locally advanced disease in which detection of pericapsular disease was not possible. PET is also useful for evaluating patients for the development of metastases that may have tumours that spontaneously involute. The advent of FDG PET has also led to a more widespread use of PET to detect occult primaries. Although definite primary sites were only detected in around 25%, most series have reported a substantial rate of incremental metastatic site detection consistent with the high predilection for these tumours to metastasise. Furthermore, failure to detect a primary on PET was generally associated with an ongoing failure to detect it on follow-up using other techniques. Presumably a proportion of these cases have tumours that spontaneously involute. The advent of PET/CT allows more precise determination of the anatomical site of FDG uptake and ought to improve the differentiation between physiological uptake in muscle and normal physiological uptake or superficial structures for primary malignancy. FDG PET/CT is now our preferred method for evaluating malignant head and neck cancer in the neck in the absence of tumour in the upper airways on examination (Figure 1). This should ideally be performed prior to examination under anaesthesia to allow selection of sites for biopsy.

Figure 1
Detection of occult primary. This patient presented with left supracricoid laryngopharyngeal squamous cell differentiation on biopsy. CT and endoscopic evaluation failed to identify a mucosal primary. CT demonstrates slight effacement of the left pyriform fossa with increased uptake of FDG suggesting a primary site. PET/CT also demonstrated several metabolically active lung nodules consistent with metastases. These findings have both therapeutic and metastatic implications.

Figure 2
Radiotherapy planning. Radiotherapy planning based on CT in the patient would have been limited to treatment of the right valvular primary and enlarged right cervical nodes. PET/CT demonstrated high FDG uptake in non-enlarged subepithelial parapharyngeal and contralateral lower cervical nodes that would not otherwise have been included in the treatment volume.

Cancer Forum Volume 30 Number 3 November 2006
Staging of locally-advanced head and neck cancer

Relatively little primary head and neck surgery is performed at our institution. Rather we act as a major quaternary referral site for radiotherapy services, with referrals from a number of surgical oncology groups in our region. PET/CT has been used for almost 10 years at Peter Mac for the staging of most patients with locally-advanced disease being planned for radiotherapy with curative intent. This experience has demonstrated the capability of PET to detect disease in non-enlarged nodes, unexpected metastatic sites and secondary primary malignancies. In particular, PET findings are commonly incorporated into radiation treatment volume planning (Figure 2). A significant issue in judging the accuracy of PET/CT is the receptor status in certain cases, which may be an underestimate of pathological disease as it is not visible on imaging. A number of these patients have already been deemed unsuitable for surgery based on the burden of disease or co-morbidity. Furthermore, where a histological diagnosis is already available and clinician consensus is indicated in a staging role, PET is sufficiently high to warrant empirical treatment, it is often difficult to justify further biopsy to confirm discordant results between conventional staging and PET. Nevertheless, where surgical, biopsy or serial imaging follow-up has been available to validate such results, PET has been shown to be correct in the vast majority of cases.

We recently reviewed our preliminary experience using combined PET/CT scan in 35 patients who were all conventionally assessed with CT or MRI, as well as clinical examination. Twelve patients (34%) had a change in staging as a result of a PET/CT (95% CI 26-44%) and this was 100% (95% CI 89-100%) with upstaging of non-visible results. The overall agreement between PET and CT/MRI was 86%.

Tumour characterisation

In a phase I trial the hypoxic cytotoxin, tirapazamine, we have reported a high prevalence of hypoxia based on FMISO-PET. In a cohort of patients with very advanced disease FMISO-PET was positive in 13/15 cases at baseline including 12/15 of primary sites and 8/13 neck node regions. All sites of corresponding FMISO abnormality at baseline showed marked qualitative reduction of uptake within four weeks of commencing therapy consistent with effective hypoxia-targeted therapy. With a median follow-up of 6.9 years, there were only four local-regional failures, while three other patients have died of metastatic lung cancer. The five-year overall survival was 50% (95% CI: 27-73%) and the five-year freedom from loco-regional failure was 68% (95% CI: 38-88%). We have subsequently demonstrated that imageable hypoxia is associated with a poor outcome in patients receiving standard radiotherapy and an excellent local control in patients receiving tirapazamine as a radiosensitising agent in phase II clinical trial.1,2 We have now moved to a second generation hypoxia tracer called FAZA which provides higher tumour to background tissue contrast (Figure 3).

We have also evaluated FLT as a marker of cellular proliferation in various diseases including head and neck cancers, demonstrating the feasibility of using this as a tracer for evaluation of therapeutic response, particularly for tumouristic as opposed to conventional cytotoxic therapies.

Conclusion

PET is an exciting modality for the evaluation of head and neck cancer with roles across the whole temporal domain of the disease process. In particular, it is likely to be the most important modality in all those situations where local anatomy is distorted. PET/CT with FDG should be a routine tool for patients with locally advanced disease being contemplated for treatment with curative intent.

References

Head and neck squamous cell carcinoma (SCC) is among the top 10 most common cancers in the Australian population. This group of malignancies and their treatment is often associated with marked morbidity and mortality, particularly in patients with locally advanced head and neck SCC.

A tumour marker can be described as any substance produced as a result of cancer growth. These tumour markers have established roles in other cancers for screening, diagnosis, prognosis, therapeutic monitoring and/or detecting recurrence. Well known examples include BRCA1/2, PSA and Her2/neu. These tumour markers can play a key role in tailoring treatment.1 2 In head and neck cancer, such markers would be invaluable given the resulting functional deficits of treating locally advanced disease.3 4

With the completion of the sequencing of the human genome combined with advances in genomics and proteomics, there is a new potential to discover panels of novel tumour markers that may play an important role in the diagnosis/prognosis of head and neck cancers. Increasingly, research is examining patterns of gene expression or protein changes instead of elevated levels of specific tumour markers. These “molecular signatures” are established using genomic and proteomic techniques such as microarray analysis.

What is a microarray?

Microarrays, as the name suggests, are molecules or other small biological substances arrayed in a known, uniform order on a solid support. They can be broadly classified into three general groups: DNA, protein and tissue microarrays. DNA expression microarrays have been the most widely used to date. The development of expression microarray technology has allowed gene expression profiling at the RNA level to be conducted for tens of thousands of expressed genes simultaneously, by hybridising an array of known sequences with labelled cDNA reverse transcribed from the sample RNA. Expression profiling using DNA microarray analysis has been used for cancer classification5 6 and prognosis-based treatment.7 Other DNA microarrays designed to examine regions of chromosomal amplification or deletion, or chromosomal methylation are also widely used.

Protein microarrays are currently an emerging technology and are generally a piece of glass on which different molecules of protein have been affixed at separate locations in an ordered manner, forming a microscopic array.8 9 These may be used to identify protein-protein interactions, to identify the substrates of protein kinases, or to identify the targets of biologically active small molecules. The most common protein microarray is the antibody microarray, whereas antibody spots are spotted on the protein chip and are used as capture molecules to detect proteins from cell lysates.

Tissue microarrays are paraffin blocks that contain tissues assembled in array to allow a large number of biopsies to be sectioned and stained simultaneously for histopathological analysis.10 The “microblocks” are usuallycored biopsies of tumour or clinical specimens of approximately 1.0mm in diameter. These tissue cores are inserted in another separate recipient paraffin block in a precisely spaced, array pattern. Numerous sections of many tissues can be taken for independent tests.11 These are usually sectioned for immunohistochemistry or in situ hybridisation. Tissue microarrays are a rapid and convenient way to screen a large number of tumour markers by antibody staining across a wide range of patients.

Discovering novel markers in head and neck SCC

A large effort by many groups has been made to identify novel tumour markers in head and neck SCC over the past few years. Many of the initial studies described global changes in gene transcription associated with normal head and neck squamous epithelia from carcinoma. Chin et al studied the common alterations in the transition from mucosa to primary tumour and regional nodes using matched autologous tissues respectively in over 13,000 genes.12 13 They found over 1200 gene products showing statistically significant differences in expression in the transition from normal oral mucosa to the primary tumour. Studies from other laboratories have also demonstrated grouping of transcriptional profiles that distinguished pre-neoplastic versus cancerous epithelium.14 Patients with verrucous leuokplakia and erythroplakia, both premalignant conditions, were found to share a higher degree of relatedness to oral SCC samples than to normal controls. This phenomenon has also been observed by others and may suggest that changes in gene expression occur before the development of malignancy, raising the hopes of developing tumour markers to detect very early-stage lesions.

More recent research has focused on the elucidation of gene expression profiles that distinguish metastatic disease from non-metastatic disease. Tumours of the oropharynx, hypopharynx and larynx have been found to group significantly according to metastatic cervical lymph node status.15 16 A study evaluating the gene expression profiles of 34 hypopharyngeal tumour specimens identified 164 genes that were associated with metastatic potential, as indicated by patients with or without clinical evidence of metastasis three years after surgery.17 Others have identified a 116 gene signature set that differentiated primary tumour specimens according to metastatic lymph node status, and showed that tumour specimens from lymph node metastases were similar to lymph node-positive primaries.18 19 These authors went on to use the identified gene signature to “predict” the presence of lymph node metastases in a number of patients who were not included in the original data analysis.

A very recent series of studies by Roepman and colleagues have expanded the basis of metastasis predictor gene expression signature in head and neck SCC. These authors examined expression profiles from 82 head and neck SCC (41 metastatic and 41 non-metastatic) of the oral cavity and oropharynx and established a predictor set of 102 genes that was associated with metastatic disease.20 21 The performance of this predictor set was dependent on tumour tissue specimen storage times, exhibiting improving performance with shorter storage times. When the predictor set was assessed against expression profiles of 22 independent tumour samples, all stored for less than five years, lymph node status was correctly predicted in 86.4% of the tissue specimens.22 Further analysis has shown that this initial gene set is part of a larger group of 825 genes,23 with the suggestion that larger gene sets lead to more accurate predictions and are less prone to false negative calls. These findings taken together, suggest that there might be a metastatic gene expression signature present in some primary tumours that predisposes them to metastasis.

A great deal of research has also been conducted into attempting to correlate gene expression profiles from tumours with patient clinical outcomes. In an excellent study, Chung and co-authors identified gene signatures from tumours that clustered into four groups, which exhibited significantly different rates of disease recurrence-free survival.24 Others have examined over 50 specimens from multiple sites and identified a set of genes with altered expression that grouped patients according to tumour recurrence, and therefore worse outcome.25 A recent study from our laboratories has shown that elevated protein expression of one particular marker, osteonectin, was a powerful, independent predictor for short disease-free interval and poor overall survival in an independent group of 62 patients, following expression profiling of seven tumour specimens and autologous matched normal controls.26 27

These gene expression markers have the potential to become routinely used tumour markers. It may be possible to detect some or all of these changes by a simple biopsy or even a blood test. The pattern of alteration in gene expression may be used as a diagnostic, prognostic and treatment modality indicator. However, many of the genes identified by the various studies are not well characterised and need to be studied functionally. There is also significant validation work required to correlate the changes in expression pattern with clinical outcome. In head and neck SCC, with most recurrence occurring within two years of treatment, it is possible to validate these gene expression changes in a retrospective study and correlate with clinical outcome.28 29

A simple test for a small number of changes however, would be technically easier and probably more widely used. Currently, our best marker alpha-B crystallin, the product of the CRYAB gene, is more sensitive than nodal status or tumour staging in determining disease free interval or overall survival (Figure 1). Tumours with no alpha-B crystallin present as judged by immunohistochemistry or in situ hybridisation do not develop recurrence regardless of nodal status.29 30 This finding is currently being validated in a larger group of patients and to determine if head and neck SCC tumours negative for alpha-B crystallin staining are particularly sensitive to radiation therapy, as all of the nodal positive patients would have received this treatment.
Perspectives

One of the major criticisms of expression profiling studies to date, particularly those attempting to correlate or predict patient outcome, has been the lack of overlap in predicting genes between like studies. It is likely that the variation in tumour specimen characteristics could significantly impact this. With the development of more standardised techniques for sample preparation and data analysis, it is generally considered that these limitations will be overcome. Further, many have critiqued the small patient numbers involved in these early studies. Clearly, larger studies of much larger sample sizes comprising tumour specimens of more uniform characteristics need to be undertaken. It is also crucial that any pattern or gene difference from expression profiling analysis be validated in an independent sample series to ensure the robust nature of the finding. Even with these drawbacks, it remains possible to hope that some of the markers or patterns of markers identified in these studies could in the future be used to detect the presence of head and neck SCC, metastasis of the cancer, or aid in determining the best treatment for the patient.

References

4. de Muralt B, de Tribolet N, Diserens AC, et al. Phenotyping of 60 head and neck SCC, metastasis of the cancer, or aid in markers or patterns of markers identified in these studies be undertaken. It is also crucial that any pattern or gene difference from expression profiling analysis be validated in an independent sample series to ensure the robust nature of the finding. Even with these drawbacks, it remains possible to hope that some of the markers or patterns of markers identified in these studies could in the future be used to detect the presence of head and neck SCC, metastasis of the cancer, or aid in determining the best treatment for the patient.  

NON-MELANOMA SKIN CANCERS OF THE HEAD AND NECK: AN OVERVIEW ON MANAGEMENT

Abstract

Non-melanoma skin cancers occur at an epidemic rate in Australia and are increasing in incidence worldwide. In most patients, local treatment is curative. However, a subset of patients will be diagnosed with an advanced non-melanoma skin cancer, defined as: a subset of patients with cutaneous squamous cell carcinoma considered at increased risk of developing metastases to regional lymph nodes (high-risk squamous cell carcinoma); all patients with proven metastatic cutaneous squamous cell carcinoma to regional lymph nodes; all patients diagnosed with Merkel cell carcinoma; and a minority of patients with a basa cell carcinoma. Patients with an advanced non-melanoma skin cancer are often candidates for combined modality treatment. Patients with high-risk cutaneous squamous cell carcinoma may be identified based on primary lesion and patient factors, with most lesions arising on the sun exposed head and neck. In patients with proven nodal metastases the parotid and upper cervical nodes are frequent sites for metastases. Patients with operable nodal disease should be recommended surgery and adjuvant radiotherapy. Despite this many patients still experience relapse and die. Research aimed at improving outcomes, such as randomised trials incorporating the addition of chemotherapy (weekly carboplatin) to adjuvant radiotherapy, is currently in progress in Australia and New Zealand under the auspices of the Trans-Tasman Radiation Oncology Group. All patients with Merkel cell carcinoma (primary cutaneous endocrine carcinoma) should be recommended loco-regional adjuvant radiotherapy.

NON-MELANOMA SKIN CANCER (NMSC) is the most common malignancy worldwide and a consequence of chronic sun exposure. Most patients (75-80%) will have a small basal cell carcinoma (BCC) and a minority will have a cutaneous squamous cell carcinoma (SCC), with the sun exposed head and neck the commonest site (70-80%) for a NMSC. The worldwide incidence of NMSC has markedly increased and continues to rise. Australia has the highest incidence of NMSC and in regions of Northern Australia the annual incidence of SCC in males exceeds 1300/100 000 population. All patients with SCC are at risk of developing nodal metastases. Although overall only a minority (2-3%) ever do so. Despite this, hospital referred patients with SCC often have a higher incidence (10-20%) of nodal metastases. The development of metastases places patients at risk of significant morbidity and death.  

Patients developing nodal metastases will usually have a high-risk SCC1 and the number of patients diagnosed worldwide with SCC makes this a major public health issue. Many Australians die as a consequence of metastatic SCC, with one Western Australian study documenting 120 NMSC deaths (89 SCC, 22 Merkel cell carcinoma, nine other) over a five-year period, which accounts for 4% of all cancer related deaths. The morbidity of treating patients with metastatic SCC is considerable, with most requiring major surgery followed by six to seven weeks of adjuvant radiotherapy. Although the early literature suggested a very poor outcome with current best practice (surgery and radiotherapy), five-year disease-free survival is around 70% to 75%. Although most patients with NMSC can be considered at low risk of morbidity or mortality, an increasing number of patients are diagnosed with an advanced NMSC defined as: a subset of patients with cSSC considered at increased risk of developing metastases to regional lymph nodes (high-risk SCC); all patients with proven metastatic SCC to regional lymph nodes; all patients diagnosed with Merkel cell carcinoma; and a minority of patients with a BCC.

Patients with an advanced NMSC are often candidates for combined modality treatment. The management of these patients should be within the confines of a multidisciplinary team experienced in the management of these often complex cases.

Squamous cell carcinoma

The current clinical staging system inadequately prognosticates for patients with cSSC. Important tumour features such as lesion thickness/depth of invasion, histological grade, or the presence of perineural invasion or lymphovascular invasion are not considered (Table 1). Patient factors such as immunosuppression are also important (discussed later). Management decisions are infrequently made based on just one unfavourable factor since patients often have multiple clinicopathological high-risk factors (eg. thick cSSC (>4mm), recurrent setting, vicinity of parotid gland). Clinicians should be aware of patients with high-risk factors so that appropriate management decisions can
Management of patients with high-risk cSCC

Table 1

**High-risk primary cutaneous SCC features**

<table>
<thead>
<tr>
<th>Features</th>
<th>Indication‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thick or deeply invasive (≥5mm)</td>
<td>High-grade risk patients</td>
</tr>
<tr>
<td>Clark level III or greater</td>
<td>Perineural or lymphovascular invasion into the parotid gland</td>
</tr>
<tr>
<td>Large size (≥2cm)</td>
<td>Rapid growth</td>
</tr>
</tbody>
</table>

Note: Patients usually have a combination of high-risk features.

In a large Australian series of patients treated with Moh’s micrographic surgery, many with high-risk patients. In a large Australian series of patients treated with Moh’s micrographic surgery (margin controlled excision) also require complex (vascularised flap) reconstruction. Surgical margins (4-5mm). However, surgery may be constrained in patients with an inadequately excised cSCC is not recommended in light of the increased risk of metastatic nodal disease in the recurrent setting (Figure 1).

Table 2

**Patient and tumour factors favouring definitive radiotherapy**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>Older age (&gt;75 years)</td>
</tr>
<tr>
<td>Patient preference (avert surgery)</td>
<td>Patient preference (avert surgery)</td>
</tr>
<tr>
<td>Medicated with blood thinning agents (eg. Warfarin)</td>
<td>Median surgical risk (risk of perioperative event)</td>
</tr>
<tr>
<td>Significant medical co-morbidities</td>
<td>Site: Ala nasi, nasal bridge, lower eyelid, lip, inner canthus</td>
</tr>
<tr>
<td>Size: Locally advanced requiring complex surgery</td>
<td>Size: Locally advanced requiring complex surgery</td>
</tr>
</tbody>
</table>

† Many of these factors are relative indications only

There are emerging data that sentinel node biopsy (SNB) may have a select role in patients with high-risk cSCC. In a series of nine patients with high-risk cSCC, four of nine (44%) were positive on SNB, with two subsequently dying of metastatic disease. All node positive patients had cSCC ≥3cm in diameter and ≤8mm in depth. The five with a negative SNB remained disease free, although the median follow-up of eight months was short. However the role of SNB in patients with high-risk cutaneous head and neck SCC is evolving and still requires further validation and larger studies.

Electively treating nodes to prevent regional relapse may be considered. Radiotherapy or surgery is an option and the recommendation of one over another is based on multiple factors. There are clinical scenarios where first echelon nodes may be treated at the time of primary treatment. For example, surgery to excise a deeply invasive cSCC overlying the parotid gland may require both excision of skin and a superficial parotidectomy. Similarly, adjuvant radiotherapy directed to a high-risk temple cSCC in the setting of incomplete excision may involve a radiotherapy field that also encompasses the parotid nodes.

Perineural invasion (PNI) occurs in ~5-10% of patients, is usually an incidental (microscopic) finding and is reported to be associated with a higher incidence of nodal metastases. Patients presenting with cranial nerve palsies (often trigeminal and facial) have advanced disease that may not be curable. Diagnosis is often delayed for months or years with patients slowly developing progressive signs and symptoms. Although MRI imaging is the investigation of choice (thickened nerves) early disease may not be detectable and an open biopsy may be warranted. Patients with periorbital cSCC with incidental PNI are at risk of orbital spread and further treatment is usually warranted.

Adjuvant radiotherapy with the ability to treat widely and encompass neural pathways is often recommended.

**Immunosuppression**

Immunosuppressed patients are at increased risk of developing histological features considered high-risk. In one study comparing immunocompetent patients and organ transplant recipient, a significantly higher proportion of organ transplant recipient (17% vs 5%; p=0.0001) had thick (≥5mm) tumours with early dermal invasion (7% vs 3.3%; p=0.0001) when compared with immunocompetent patients. Of note immunosuppressed patients that develop metastatic nodal cSCC have a poor outcome. Martinez et al reported the outcome of 60 organ transplant recipients with metastatic skin cancer (85% SCC) and documented a three-year disease specific survival of only 56%.

Patients developing serious and life threatening cutaneous malignancies may be considered candidates for a significant reduction in their level of immunosuppression. Reducing a patient’s level of immunosuppression increases the risk of transplant rejection and possibly death. Renal transplant recipients may revert back to dialysis in the case of rejection, however, cardiac and liver recipients do not have this option. There is also ongoing research to identify newer effective immunosuppressants such as sirolimus-based regimens that in turn may be associated with a lower incidence of skin cancer.

Oral retinoids aim to delay or decrease the incidence of NMSC in organ transplant recipient. Although the mechanism of action is unclear there are limited data to suggest a benefit. In a systematic review of the literature only three eligible randomised trials were identified. All trials were small, but two did suggest a benefit in decreasing the incidence of new NMSC in patients taking Acitretin (25-30mg orally daily for six to 12 months) versus placebo. However, tolerability (headaches, mucocutanoeus reactions) with this drug remains a major issue and often necessitates treatment withdrawal.

**Metastatic nodal SCC**

Most metastatic (60-70%) nodes from head and neck cSCC occur in the parotid gland (+/- cervical nodes). Most metastases (70-80%) develop after treatment for a primary cSCC, rather than present with a concomitant primary and nodal disease. A minority (20-30%) will not have an identifiable index lesion and factors not well understood are involved in this subgroup of patients. Median time for the development of nodal metastases following treatment of an index SCC is ~12 months, although late relapse (two to three years) is well documented and justifies ongoing regular follow-up cSCCs following treatment for high-risk SCC.

The management of a patient with cutaneous metastatic nodal head and neck SCC has evolved. Most patients that relapse (70-80%) experience loco-regional relapse as the first site of relapse. This finding would suggest that treatment to improve disease control in the head and neck is likely to also impact on survival. Recent publications support best practice in operable patients as surgery and adjuvant radiotherapy. Patients treated with a combined approach can expect a 20-25% chance of loco-regional relapse and those treated with a single modality (surgery or radiotherapy) can expect a <50% likelihood of achieving freedom from loco-regional relapse. A study from Westmead Hospital, Sydney, confirmed a marked decrease in loco-regional relapse (20 versus 43%) and improved disease free survival (73 versus 54%; p=0.004) with the addition of adjuvant radiotherapy compared to surgery alone. Most recent studies suggest 60 Gy in 2 Gy daily fractions as an acceptable dose of adjuvant radiotherapy to a
Merkel cell carcinoma

Merkel cell carcinoma (MCC) is a rare and aggressive primary cutaneous neuroendocrine (small cell) skin cancer. Although most patients with a NMSC are cured by local treatment, patients with MCC have a poor outcome characterised by loco-regional (nodal and intransit) and distant relapse.70 A clinical diagnosis of MCC is difficult to make. Specific histochemical markers are needed to confirm MCC and exclude lymphoma or melanoma. The presence of cytokeratin 20 (CK 20) and neuron specific enolase (NSE), in association with negative markers for melanoma and lymphoma, support a diagnosis of MCC. Lesions often arise as painless dermal nodules on the head and neck in older Caucasian males. Other than locating cutaneous small cell carcinoma, clinicians need to consider the possibility of metastatic small cell lung cancer, especially in smokers. All patients should have chest imaging to exclude lung cancer or the possibility of pulmonary metastases. Patients presenting with clinical nodal metastases should also have CT scans of the abdomen and of the head and neck if the primary is located there.

Treatment

The aggressive nature of MCC is typified by high rates of early (less than 12 months) loco-regional relapse (20-80%) and distant failure (10-60%).71 Cancer specific death occurs in greater than 25-30% and those with localised disease have the best chance of cure. Surgery remains the initial treatment in patients with operable disease that are fit for an operation and do not have distant metastases. Defining an appropriate surgical margin is controversial, however wide margins of 2-3cm are recommended in light of the risk of subclinical intradermal invasion. Although proponents of excision alone suggest surgery as appropriate treatment in many patients, in a review of 1024 cases the authors identified 11 series (n=441) that documented local relapse rates with, and without, adjuvant radiotherapy. The mean relapse rate reported with the addition of adjuvant radiotherapy was 10 versus 53% without (p=0.00001).72 Clinicians should therefore attempt to excise lesions with a negative margin. Most patients will be candidates for loco-regional adjuvant radiotherapy and the necessity to obtain wide excision margins at the risk of a poor functional and/or cosmetic outcome should be avoided.70

Local excision without treatment to regional nodes does not address the high-risk of subclinical nodal disease (Figure 2). In an Australian study of patients treated with local excision 33% and 50% of patients, respectively, developed regional relapse with lesions 5-10mm and greater than 10mm in size.72 Therefore, the argument for local excision only, as adequate treatment for a patient with clinically localised MCC, is difficult to defend based on the high rate of regional relapse, which in turn usually portends a poor outcome.

A 75 year-old male with nodal relapse in his left upper neck following local treatment for an 8mm MCC of his upper lip.
Patients with advanced NMSC are best managed within the context of a multidisciplinary head and neck clinic. Many will be candidates for combined treatment incorporating surgery and adjuvant radiotherapy, with emerging evidence in the setting of metastatic nodal disease and MCC that adjuvant radiotherapy significantly improves outcome. Research within Australia is also currently ongoing to investigate the role of chemotherapy to further improve the outcome for these patients.

References


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Exposure to ultraviolet radiation accounts for around 99% of non-melanoma skin cancer and 95% of melanomas in Australia. On the other hand, there is very good evidence that exposure to sunlight enhances vitamin D levels that can have an impact on improving bone and musculoskeletal health for older people who are vitamin D deficient. This paradox creates a significant challenge for those working in public health to ensure an appropriate balance is communicated to the general public that takes into account the risks and benefits of sun exposure. With Australia having one of the highest rates of skin cancer in the world, prevention campaigns have been part of the Australian public health landscape since the early 1960s. Slogans such as “Slip! Slop! Slap!” and SunSmart have a very high public profile and there is considerable policy and practice in place that reinforces sun protective behaviour.1

The Cancer Council Victoria has the longest standing and best evaluated program in Australia, where there has been population monitoring of sun protective behaviour and attitudes since 1985.2,3 Over this time there has been a significant reduction in the desire to tan, improved use of sun protective items such as hats and sunscreen and a significant reduction in sunburn rates.4 The benefits of these campaigns has been a reduction in non-melanoma skin cancer rates in younger age groups.5

The improvement in sun protection policies and practices has come about largely because of a long standing integrated health promotion intervention that utilises mass media as the primary method to communicate to the general population, combined with community based interventions. Given this success, it is not too surprising that the media have been very responsive to research reports that highlight the benefits of vitamin D that may run counter to well established skin cancer prevention messages.6

Vitamin D deficiency

In recent years, research has identified findings that were showing high levels of mild vitamin D deficiency (between 25 to 50 nmol/L) in the general populations in the southern states of Australia over winter months. Any levels less than 50 nmol/L can lead to increased parathyroid hormone secretion and high bone turnover.7 In a Geelong (Victoria 37°S) study by Pascoe et al it was shown that 43% of females over the winter months were mildly vitamin D deficient and 8% of 20-59 year old women were regarded as moderately to severely vitamin D deficient (less than 25 nmol/L).8 In addition to this, 80% of dark skinned veiled women were noted as being vitamin D deficient. Older people who are institutionalised or housebound are also at a particularly high risk of vitamin D deficiency.9,10 Vitamin D deficiency is not just confined to adults. In a Tasmanian study, it was found that 10% of healthy eight-year-olds (mean age) were found to be mildly deficient during the winter months.11

Vitamin D production decreases during winter when the intensity of ultraviolet (UV) radiation is lower. The body can rely on tissue stores of vitamin D for between 30 and 60 days assuming vitamin D levels are adequate prior to winter.12 In most cases, any vitamin D reduction during winter is corrected in summer when more sunlight is received with more time spent outdoors. While this correction may occur, it is still important to prevent deficiency during winter as fracture rates increase with deficiency, particularly with older adults.13

In 2004, Osteoporosis Australia raised concerns in the media about vitamin D deficiency at the same time that new research by Hughes A-M et al was coming out about possible benefits of sun exposure in reducing non-Hodgkin’s lymphoma.14 Given the significant media attention centred around possible real benefits of sun exposure, The Cancer Council Victoria considered it was necessary to host a position statement with the Australasian College of Dermatologists (ACOD), Osteoporosis Australia (OA), Australia and New Zealand Bone and Musculoskeletal Society (ANZBMS) and The Cancer Council Australia to ensure consistent information was being provided to the general public. On 15 July 2004, The Cancer Council Victoria and the National Cancer Control Initiative hosted an expert meeting with representatives from relevant disciplines to investigate whether there was a basis for a common understanding relating to risks and benefits of sun exposure. A report from that meeting was published, along with a number of key recommendations that had unanimous support from all parties. In addition to this, following the meeting a position statement was approved and released in March 2005 that had the approval of the ACOD, OA, ANZBMS and The Cancer Council Australia.15 The process of reaching agreement with each of the parties was critical in ensuring consistency in the messages being delivered to the media around the vitamin D issue and to provide confidence to the general community that there was consistent health advice from all the parties. The position statement resulted in a number of key outcomes directly related to skin cancer control. Essentially it was agreed:

- A balance is required between avoiding increases in skin cancer and maintaining adequate vitamin D levels.
- Sun protection messages needed to shift away from encouraging people to stay indoors; instead they should be about encouraging people to take the right precautions when they are outside.
- Sun protection should only be applicable when the UV index is three or above.

The relationship between sun exposure and other diseases

There is in Australia unanimous agreement by the ACOD, OA, ANZBMS and The Cancer Council Australia that there is high-level evidence for the harmful effects of sun exposure in terms of skin cancer and for the beneficial effects of sun exposure in maintaining adequate vitamin D levels to protect against osteoporosis and bone fracture.16 However all parties agree that substantially more evidence is required before conclusions can be drawn between sun exposure and a possible beneficial effect with other cancers such as breast, prostate, bowel, or non-Hodgkin’s lymphoma and auto-immune diseases such as multiple sclerosis. The biological pathways underlying these empirically observed associations are still not clear and in some instances the epidemiological evidence is equivocal. It was agreed by all parties that it was not appropriate to make statements about a protective effect of UV radiation exposure for these diseases because substantially more studies with good individual exposure measures by season are required.

How much sun exposure is enough?

The most difficult factor in coming to an agreed position statement has been to determine what would be a reasonable level of sun exposure necessary for healthy bone growth and development that will not add to a substantial risk of skin cancer. It was clear amongst OA, ANZBMS and the ACOD that we are still a long way from having sufficient evidence to suggest where this point should be exactly. This difficulty exists almost entirely due to the limitation and paucity of existing research. This issue is also compounded because skin type, age and culturally related clothing practices vary the ability to absorb vitamin D through UV exposure.

Recognising the limitations of existing evidence, a very pragmatic approach was adopted in Australia. Based on evidence relating to osteoporosis and vitamin D, it was agreed one third of an MED to 15% of the body, (e.g. the face, arms and hands) on most days of the week would be sufficient to maintain adequate vitamin D absorption to reduce osteoporosis risk.17 In practice this equates in the Australian context to only 10 minutes sun exposure either side of the peak UV period on most days of the week and two to three hours per week sun exposure during the winter months. This level was acceptable to the ACOD as it was considered that the general population were already likely to be exceeding this level, and that a balance between the two needs to be achieved. This had not been a general perspective of skin cancer prevention messages to date.

Sun protection messages should refrain from encouraging people to stay indoors; instead they should be about encouraging people to take the right precautions when they are outside. Sun protection should only be applicable when the UV index is three or above.

The most difficult factor in coming to an agreed position statement has been to determine what would be a reasonable level of sun exposure necessary for healthy bone growth and development that will not add to a substantial risk of skin cancer. It was clear amongst OA, ANZBMS and the ACOD that we are still a long way from having sufficient evidence to suggest where this point should be exactly. This difficulty exists almost entirely due to the limitation and paucity of existing research. This issue is also compounded because skin type, age and culturally related clothing practices vary the ability to absorb vitamin D through UV exposure.

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Therefore there is no recommendation that people should deliberately expose themselves to the sun to enhance their vitamin D levels. The only exceptions are those people who are at high risk of being vitamin D deficient and when controlled sun exposure outside the peak UV periods may be beneficial to their health if supplementation is not available.
Times of the year and times of the day when sun protection should be applied

The Global UV Index released by the World Health Organization (WHO) in 2002 is a very useful tool to determine when sun protection is required and equally when it is not necessary.19 According to the Global UV Index that is now the international standard for UV measurement, sun protection should be promoted when the UV Index is three or above.

Figure 1 provides an example of the appropriate times of the year when we should be communicating the sun protection message. For example, Melbourne (Australia 38°S) shows that between the winter months of May and August inclusive, it is unlikely that sun protection will be necessary unless people will be near highly reflective surfaces such as snow and water, or at high altitudes. In the northern hemisphere over the summer months, it shows that the appropriate time for Leeds, UK at 54°N would be that sun protection advice should be reinforced between the months of May and August inclusive. For Glasgow, Scotland at 56°N it would be for a similar duration. Toronto, Canada at 43°N, sun protection campaigns would be appropriate for at least between March and October inclusive.

The UV Index can also be a useful tool to determine what time of the day that sun protection is required. In Australia, the Bureau of Meteorology in conjunction with The Cancer Council have been illustrating for the first time the UV Index in terms of a peak value for the day, as well as the times of day when sun protection is required (see Figure 2). This provides very useful information for the general public to guide their behaviour.

People with dark skin who wear veils, particularly in pregnancy, elderly or infirm people, those with malabsorption syndromes, organ transplant patients and those with personal risk factors of skin cancer will require a tailored health management plan that is likely to include vitamin D supplementation.

Is increased physical activity a key part of the solution?

Of significant note is that mildly deficient vitamin D levels (between 25 to 50 nmol/L) in the general population have been only during winter periods. Notably, children who were obese had lower vitamin D levels and higher levels of vitamin D were seen in adolescent boys who participated in sport.20,21 Therefore, by encouraging people to be more physically active outdoors in winter months, we will not only be increasing their vitamin D levels, but also importantly contributing to their overall good health. Increasing levels of physical activity will not be a solution however at latitudes where no UV is present over winter months.

Vitamin D deficiency and sun protection, are the messages complementary?

Vitamin D deficiency in the Australian context in the general population is largely confined to winter months in southern states when the sun protection message is not a relevant public health message. When the Global UV Index is in the moderate to extreme range, undertaking sun protection measures such as regular sunscreen application is unlikely to increase osteoporosis risk.22,23 A study by Matsouka et al. (Figure 3) showed that while sunscreen use initially reduced vitamin D absorption, this effect was dissipated after seven days.24

Conclusion

With appropriate refinements of the sun protection message, sun protection programs do not have to compete with the human need for vitamin D; the two messages can be quite complementary. In terms of

Figure 1
Average UV levels per month by city

Figure 2
UV Index as issued by the Australian Bureau of Meteorology

Figure 3
Circulating concentrations of vitamin D after a single exposure to one minimal erythemal dose of simulated sunlight either with a sunscreen, with a sun protection factor of 8, or a topical placebo cream.

Matsouka et al; J Clin Endocrinol Metab, 1987 et al; J Clin Endocrinol

key recommendations going forward, every opportunity should be made to promote the Global UV Index to those responsible for delivering sun protection campaigns, to guide when sun protective behaviour should be encouraged as well as when it may not be required. In terms of public health, we must continue to raise public awareness of potential negative health effects from excessive sun exposure during periods when UV is in the moderate to extreme range. In periods when the UV level is <3, it will be important to not encourage sun protective behaviour, except near highly reflective surfaces or high altitudes. In high latitude countries with very low UV levels for a significant proportion of the year, the increased use of vitamin D fortification in food and supplementation for high risk individuals should be considered.

Further research is required to understand the relationship between vitamin D and risk and cancer and autoimmune diseases, and to determine how much sun exposure is necessary to achieve adequate vitamin D levels. This information will help determine the right balance between the need for vitamin D versus the known benefits of sun protection.

References


Abstact

In a pilot study, we undertook to assess the efficacy of a support workshop for partners of women with early stage breast cancer. Thirteen male participants attended a two hour discussion group facilitated by a male facilitator. Open-ended and close-ended items specifically designed for this study were utilised to investigate the effects of attending the support workshop. The mean satisfaction scores indicate that partners found attending the workshop very useful. It was found to reduce their sense of isolation and improved perceived support, future outlook, ability to support their partners and families and their understanding of the emotional impact of breast cancer on partners. While a relatively large number of partners indicated a preference for an on-going group, fewer men indicated planning to keep in contact with others in the group. Despite having several limitations including small sample size, lack of a control group and pre-workshop assessment, the results indicate that partners believe it is important to have support groups available.

EVALUATION OF A SUPPORT WORKSHOP FOR PARTNERS OF BREAST CANCER PATIENTS: A PILOT STUDY

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Table 1
Summary characteristics of participants (N=11)

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>%</th>
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<tbody>
<tr>
<td>Age (mean 56.3 years, range 36-77)</td>
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<td>30-39</td>
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<td>40-49</td>
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</tr>
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<tr>
<td>Not married, living together</td>
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<td>Length of relationship (mean 28.9 years, range 10-51)</td>
<td>33</td>
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<td>50-59</td>
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<td>Children</td>
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<td>56</td>
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Table 2
Summary of quantitative measures of satisfaction (N=11)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>MEAN SCORE* (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe it is important for there to be a service that would provide support for partners of women with breast cancer</td>
<td>4.8 (0.4)</td>
</tr>
<tr>
<td>I think the workshop was well facilitated</td>
<td>4.6 (0.67)</td>
</tr>
<tr>
<td>I have learned more about the emotional impact of breast cancer on partners as a result of attending the workshop</td>
<td>4.5 (0.52)</td>
</tr>
<tr>
<td>I would recommend the workshop to other men in my situation</td>
<td>4.5 (0.52)</td>
</tr>
<tr>
<td>The workshop met my expectations</td>
<td>4.4 (0.67)</td>
</tr>
<tr>
<td>As a result of attending the workshop, I feel more confident in supporting my partner and family in dealing with breast cancer</td>
<td>4.4 (0.67)</td>
</tr>
<tr>
<td>I think the venue for the workshop was appropriate</td>
<td>4.3 (0.47)</td>
</tr>
<tr>
<td>I think the workshop covered topics which were appropriate to partners of women with breast cancer</td>
<td>4.3 (0.79)</td>
</tr>
<tr>
<td>I feel less isolated as a result of attending the workshop</td>
<td>4.2 (0.75)</td>
</tr>
<tr>
<td>I think the length of time allowed for the workshop was appropriate</td>
<td>4.2 (0.87)</td>
</tr>
<tr>
<td>I feel more supported as a result of attending the workshop</td>
<td>4.1 (0.83)</td>
</tr>
<tr>
<td>I feel more positive about the future as a result of attending the workshop</td>
<td>4.1 (0.94)</td>
</tr>
<tr>
<td>I think the meeting time was appropriate</td>
<td>4.1 (0.54)</td>
</tr>
<tr>
<td>I think the number of participants at the workshop was appropriate</td>
<td>4.1 (0.70)</td>
</tr>
<tr>
<td>I would prefer an on-going group instead of a one-off workshop</td>
<td>4.0 (0.77)</td>
</tr>
<tr>
<td>I think it was important for the workshop to be conducted by a male facilitator</td>
<td>3.5 (1.1)</td>
</tr>
<tr>
<td>I am intending to keep in contact with others I have met at the workshop</td>
<td>3.2 (0.87)</td>
</tr>
</tbody>
</table>

For purposes of evaluation, at the end of the meeting, a brief anonymous survey and a reply paid envelope was distributed to each participant. A reminder letter was also sent to all participants two weeks later. Eleven (85%) questionnaires were subsequently received. Based on the facilitator’s recommendation, a follow-up session was offered to all participants four weeks after the original workshop. Only two participants attended; when contacted, other participants responded that the first workshop had been sufficient.

Notes: *Response options ranged from “strongly disagree” (1) to “strongly agree” (5).
The least highly endorsed item was “I am intending to have a service that provides support for partners of women with breast cancer” (mean = 4.8; SD = 0.40). Few participants identified aspects of the workshop they did not find useful. Most commonly reported were that the workshop had been too short for everyone to talk (27%), and some contributions were anecdotal or too long (18%). Insufficient focus, others’ religious views and the facilitator guiding responses were also identified as not being useful.

Finding a way to get the participants to “open up” and either allocating more time or fewer participants for the group were the two most commonly suggested improvements. Other suggestions included having more focus for the group, focusing on particular subjects such as anger and depression and having specialist presenters such as therapists and dietitians.

In identifying services to further assist partners of women with breast cancer, counselling after surgery, hospital facilitators helping partners and an ongoing group with meetings up to three times a year were some of the main suggestions by participants.

Discussion
Evaluation sought to determine the effects of attending a support group on partners’ sense of isolation, perceived support, future outlook, ability to support their partners and families, and their understanding of the emotional impact of breast cancer on partners. It also aimed to explore whether participants intended to keep in contact with others after the group, partners’ views on the availability of such support, suggested improvements and what other services they believed would further assist them in dealing with their partners’ breast cancer.

The mean satisfaction scores indicate that partners found attending the workshop very useful. It reduced their isolation and improved perceived support and future outlook and their ability to support their partners and families. Results also suggest that the workshop increased their understanding of the emotional impact of breast cancer on partners. The results clearly suggest that partners believe it is important to make support groups available for them. They reported that the open and realistic nature of discussions at the workshop, finding out how others coped and recognising that they were not alone and had common concerns were all useful aspects of the workshop. They identified counselling after surgery, hospital facilitators helping partners as well as the patients and having an on-going group with meetings up to three times a year as additional services to further assist partners. While a relatively large proportion of partners indicated that they would prefer an on-going group instead of a one-off workshop, some indicated that they intended to keep in contact with others from the group. Also, only two participants returned to the follow up session conducted four weeks later. However, this may have been due to participants only being given one week’s notice about the follow-up session and also because the follow-up session was conducted too closely to the original workshop.

In response to 148 letters of invitation mailed to women with early-stage breast cancer, only 13 men (9%) responded, and only 4 attended the workshop. It is unclear whether the low uptake observed is unique to Australian men, given the limited amount of literature representing this group and the et al reported a 31% participation rate. This pilot study’s accrual rate suggests that only a relatively small percentage of men are likely to attend support groups. Another likely explanation is that support groups may be a less than suitable strategy to meet men’s information and support needs. It has been suggested that men have difficulty talking about their emotions and that they feel they have to give an impression of knowing everything they need to know. These characteristics represent potential barriers to help-seeking in general and attendance of support groups in particular. Also, Kroek, Roberts, Rager, Ferrara and Lor invented gender and cancer support group participation by comparing men diagnosed with prostate cancer with women diagnosed with breast cancer. It was found that men were less likely to join a support group, but men who did join attended for the same length of time as women. As the challenge seems to be in getting men to attend their first session, it was recommended that support groups need to be marketed differently for men, for example by referring to the men’s “information group” rather than a ‘support group’. Clearly, health services need to be responsive to men’s unique needs and innovative foundation supported chat rooms, should be explored as potential support strategies. Future studies should assess men’s unmet needs and ascertain their preferred support strategies and formats.

This study had several limitations including small sample size, lack of a control group and pre-workshop assessment. Absence of pre-workshop assessment was due to time limitations. The wide age range of participants may have impacted the effectiveness of this pre-intervention, as partners of different ages may have differing needs; possible differences were not explored in this study due to the small sample size. In addition, no information is available about partners who did not accept participation. It may be that these partners differed in their level and type of support needs from partners who participated in this study. Also, no validated measures of psychological adjustment were utilised for this evaluation as a priori we doubted whether attending a two-hour workshop would have a significant impact on psychological variables. However, given the pilot nature of this study, future studies are now needed to evaluate similar interventions using a control group design with a larger sample size.

This study provides preliminary recommendations for a support group intervention for partners of breast cancer patients. Tabled is a National Breast Cancer Foundation scholar supported by a National Association of Women In Superannuation post-graduate scholarship. Bettina Meiser is supported by Public Health Australia Fellowship 0070/9 from the National Health and Medical Research Council of Australia.

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The authors would like to thank all the men who participated in this research. We are also grateful to Allan Redpath for facilitating the workshops. Belinda Theves is a National Breast Cancer Foundation scholar supported by a National Association of Women In Superannuation post-graduate scholarship. Bettina Meiser is supported by Public Health Australia Fellowship 0070/9 from the National Health and Medical Research Council of Australia.

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The term Indigenous Australians refers to people of some 20 years lower than that of their non-Indigenous counterparts. The health status of Indigenous Australians is a testament to the failure of a highly developed country to provide for its people in an equitable manner. In a nation where most people can have a reasonable expectation of becoming octogenarians, it seems unthinkable that the average life expectancy of Indigenous Australians is some 20 years lower than that of their non-Indigenous counterparts.

The term Indigenous Australians refers to people of Aboriginal or Torres Strait Islander background who live in Australia. They are the world’s oldest living culture, estimated to have been present in Australia for more than 65,000 years. They are the traditional custodians of the lands, waters and seas on which they have lived for tens of thousands of years. Indigenous Australians are the only group of people who have had their ancestors living in Australia for more than 10,000 years.

Cancer in Indigenous Australia

While lung cancer has a poor five-year survival rate in the general Australian population, its prognosis in Indigenous Australians is far worse. Mortality from lung cancer in Indigenous Australians is currently 3.6 times higher in Indigenous populations than in the general population. This has been attributed mostly to the higher prevalence of tobacco smoking, which is more prevalent among Indigenous people. These cancers, which are early detection is not always problematic for several reasons, including insidious onset and high metastatic potential.

In stark contrast, Indigenous Australians are dying mostly of neoplastic disease of the lung, female genital organs (most commonly cervical carcinoma) and liver (hepatocellular carcinoma). These cancers are early detection is not always possible for several reasons, including insidious onset and high metastatic potential.

Another significant difference between Indigenous and non-Indigenous Australians is the lower incidence of cancers that are early detection is not always problematic for several reasons, including insidious onset and high metastatic potential. These cancers, which are early detection is not always possible for several reasons, including insidious onset and high metastatic potential.

The high prevalence of alcoholism within Indigenous communities compounds the threat posed by HBV infection. While Aboriginal and Torres Strait Islanders are less likely to consume than non-Indigenous Australians, those who do are more likely to drink to harmful levels. In the National Drug Strategy Survey, 79% of Indigenous people aged 14 years and older who drink alcohol at least weekly did so to a harmful degree compared to 12% of the non-Indigenous population.

It is thus evident that a combination of lifestyle factors and inadequate primary health care is responsible for the natural history of cancer in Indigenous Australians.

Addressing cancer control in Indigenous Australia

Currently there are several axes of disadvantage which contribute to the poor outcome of malignancy in Indigenous populations. The three main challenges in achieving equality in indigenous health status are: access to primary health care centres for the early detection of major disease; education; and a health workforce which is sensitive to the needs of the Indigenous population. In order to meet these objectives, the essential element is sufficient government funding. Successful government support of the indigenous health system would involve both adequate levels of expenditure and appropriate use of the funds.

In 2002, government funding of Indigenous health was 2.2% higher than the expenditure for non-Indigenous Australians. It is commendable that the Federal Government has now recognised the need for unequal per capita funding in favour of Indigenous Australians. However, in a population with a disease burden three times that of the general Australian population, the current level of expenditure is simply inadequate. In a paper commissioned by the Australian Medical Association (AMA) in 2002, Professor John Dobie recommended that an equitable allocation of resources would only be reached by an increased annual expenditure of $250 million.

The Medicare Benefits Scheme (MBS) and the Pharmaceutical Benefits Scheme (PBS) receive a large proportion of the Federal health budget. These funds are of little consequence to Indigenous Australians as they have limited access to private health care and community pharmacies. A high proportion of Indigenous Australians do not have a Medicare card or number and are therefore precluded from access to mainstream health services.

Access to healthcare is a major determinant of health.
status. While only 2% of non-Indigenous Australians live in remote or very remote areas, these are home to 25% of Indigenous people.2 Per 100,000 people in these areas, there are only 113 medical practitioners, compared to 318 in capital cities.12 Twelve and a half per cent of discrete Aboriginal communities are located more than 100 kilometres from a major hospital, where motor vehicle ownership is low, distance can be a significant impediment to the pursuit of medical care.

Fortunately, most of these localities offer community health care centres, funded by the Federal Government. The National Aboriginal Controlled Community Health Organisation (NACCHO) is part of the Indigenous Health Taskforce set up by the AMA and has provided 51 primary health care centres in rural and remote areas. In these centres, 70% of staff is of Indigenous background and the goal is to deliver health services that are holistic, comprehensive and culturally appropriate health care to the community which controls it.13 However, the network of these centres is not consistently spread throughout the country and more are required. The following will address the specific challenges and opportunities in the reduction of mortality from lung, cervix and liver cancer.

Improvement of lung cancer survival rates in Indigenous people is dependant upon two factors. Firstly, accessibility of primary healthcare is essential for early assessment of symptoms, as discussed above. Secondly, tobacco smoking must be discouraged. Just over half of Indigenous people are everyday tobacco smokers, twice that of non-Indigenous Australians.4 As a result, Indigenous populations have higher mortality rates from all smoking related cancers.5 Amongst the non-Indigenous population, the main cause is due to chronic obstructive pulmonary disease. While it is evident that there is a great shortage of medical professionals in rural areas, the case loads for specialist services may also help. It would also be necessary to extend education about smoking to younger girls. A study conducted between 2000 and 2002, in WA found that 44% of Indigenous youth had their first sexual experience at age 16, compared to 23% of their non-Indigenous counterparts.

Strategies to reduce the incidence of liver cancer in the Indigenous population should focus on eliminating the two major aetiological agents: HBV and alcoholism, as well as protection of those people who are already at risk.

Vaccination has been successful in reducing the rates of infection in children and should be made available in all Indigenous communities. The management of those chronically infected with HBV is critical. Antiviral therapy has been successful in preventing the progression to HCC. Serum a-fetoprotein tests for at risk individuals can be conducted at community health care centres as a means of screening. This has proven successful in the reduction of HCC mortality among Indigenous Alaskans.6,7

The issue of alcoholism is complex as it is intertwined with history and social status. Governments encouraged Aborigines to drink. Then forbidden to drink. Then they allowed some Aborigines to drink and not others. Then prohibition for all Aboriginal people ended. By this time drinking had become a symbol for equality and citizenship.8,15 It is necessary to educate Indigenous people about the detrimental effects of alcohol and in order to contradict these long standing misconceptions. Counselling and support during abstinence is paramount. Insufficient funding and education may be the only obstacle to improvement of Indigenous health status. A lengthy history of marginalisation and racism lies in the background of interactions between Indigenous and non-Indigenous Australians.9 10 11 12 It is the responsibility of the former to educate the latter. Hence, establishment of a healthcare workforce that empathises with and caters to the cultural and social needs of Indigenous Australia is vital in order to increase participation in screening and check-up consultations.

The requisite knowledge and experience of these workers should include: cross-cultural practice; chronic illness management; integrated population and clinical care service delivery; and the provision of emotional and social health services.13 In view of this definition, it is evident that Indigenous health workers are best equipped to service Indigenous populations. Nevertheless, in 2005, 0.7% of Indigenous Australians had access to a primary care centre which facilitates early diagnosis and treatment of malignant disease. They must have access to primary care centres which facilitate early diagnosis and treatment of malignant disease. They must have access to primary care centres which facilitate early diagnosis and treatment of neoplastic changes. It is the responsibility of current and future healthcare professionals to educate and provide Indigenous Australians with healthcare that is catered to their needs. It is the responsibility of state and federal governments to provide us with the resources to do so. Our task, as medical practitioners of the future, is clear.

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Final word

One can conclude that Indigenous Australians are dying from cancers of which other Australians are increasingly protected. Australian governments have been unsuccessful thus far in ensuring that the technologies which have allowed these advances reach all Australians equally. In order to bridge the resultant gap in health status, more healthcare resources must be directed to rural and remote Australia. Indigenous people must receive education on prevention of malignant disease. They must have access to primary care centres which facilitate early diagnosis and treatment of neoplastic changes. It is the responsibility of current and future healthcare professionals to educate and provide Indigenous Australians with healthcare that is catered to their needs. It is the responsibility of state and federal governments to provide us with the resources to do so. Our task, as medical practitioners of the future, is clear.

*This article is the winning essay in The Cancer Council Australia’s student essay competition. At the winner, Ujvala Jagadish attended the World Health Organisation’s Collaborating for Cancer Education’s Oncology for Medical Students summer school.
News
n Centre for Behavioural Research in Cancer (CBIRC), Victoria
The Centre for Behavioural Research in Cancer (CBIRC) has engaged new staff to work on several projects:
  n development and implementation of internal evaluation strategies for the Cancer Council Victoria (Jane Fletcher)
  n investigations into the special needs of cancer patients (Haley Matic)
  n statistical analysis and report-writing for sun protection research projects (Kris Jansen)
  n Centre for Health Research and Psycho-oncology (CHeRP), NSW
CHeRP presentations over the last few months include PhD student Claire Johnson’s findings on perceptions and referral practices of Australian specialists and general practitioners, presented at the European Association for Palliative Care Research Forum in Venice in May. Dr Chris Paul presented Telemarketing smoking cessation: a proactive approach to non-volunteer smokers at the 13th World Conference on Tobacco or Health in Washington in July.
Professor Afaf Girgis was an invited speaker at The Medical Oncology Group of Australia/Faculty of Radiation Medicine Oncology Annual Scientific Meeting held at Sanctuary Cove in August.
Dr Paul, Professor Girgis and Dr Raoul Walsh have been awarded new funding to carry out the 2nd Biennial Community Smoking Survey, which will continue to track key indicators of community attitudes and practices relevant to tobacco control policies and activities. Professor Girgis is leading a national team of researchers relevant to tobacco control policies and activities.

n Cancer Research Prevention Centre (CPRC), Queensland
Recent presentations include:
  10th International Congress on Obesity in Sydney (October). Poster by Dr Marina Reeves: The Logan Healthy Living Program – telephone-delivered intervention on physical activity and diet.
  School of Population Presentation Series (June). Professor Owen: The PLACE Project: What have we learned about how adults’ community environments might influence their physical activity?

n Tobacco Control Research Evaluation (TCRE), SA
Jacqueline Hickling attended the UICC World Cancer Congress and the 13th World Conference on Tobacco Dr Health and presented several talks and a poster.

n Viertel Centre for Research in Cancer Control (VCRC), Queensland
The Psycho-oncology Research Unit hosted the 8th Biennial Behavioural Research in Cancer Control Conference in September. The conference was supported by the Cancer Council Australia through its Public Health Committee and was attended by behavioural scientists, program and evaluation staff and management working on cancer control issues in Australia.

Two new doctoral scholarships were recently announced and will begin in 2007. The first, for Indigenous health, will enable us to establish a program of research in the field of Indigenous and Torres Strait Islander cancer control. The second is related to decision making and prostate cancer and will enhance our well-established prostate cancer research program.

Research in the Pipeline
n CBIRC
A cluster randomised trial of a shade intervention for secondary schools
In 2003-2006 the National Health and Medical Research Council funded an innovative intervention study to explore an environmental approach for adolescent skin cancer prevention. Dr Suzanne Dobbinson leads a research team at the CBIRC examining the efficacy of a shade intervention for secondary schools in a three-year cluster randomised trial. The study aims to objectively assess whether students will use or avoid purpose-built shade. Fifty-one schools with limited available shade were recruited to the study in 2004. Twenty-five were randomly assigned to receive a built shade-sail intervention in winter 2005 and 26 schools provided a control group. Two study sites at each school were defined as suitable for shade development and the sites were monitored by video cameras during 14 weeks of pre-test and 16 weeks of post-test to assess numbers of students using the areas during lunch breaks. Data collection and content analysis of films is now completed with data entry and analysis soon to begin. We anticipate the preliminary results will be available by the end of 2006. The study results will be particularly valuable in informing schools’ decisions about whether the large capital expense required to build a shade structure is a worthwhile investment.

Time trends in media advocacy about tobacco
Research suggests that news coverage of tobacco issues can have direct and indirect effects on smoking behaviour, but it is rarely systematically monitored. We coded tobacco-related articles from all Australian national and state daily and Sunday newspapers from 2001-2005 using a coding system with high inter-rater reliability. Of 5139 articles, 74% were hard news articles, 12% letters, 8% columns and 2% editorials. Overall, 52% achieved greater prominence by either appearing in the first four pages of the newspaper or being accompanied by an image. News coverage of tobacco issues during this period was dominated by four themes: secondhand smoke issues (31%), health effects (13%), education/prevention (12%) and the tobacco industry (10%). Each article was also coded for the nature of the event covered, in terms of whether it represented progress (66%) or a setback (21%) for tobacco control objectives, or a mixed (8%) or neutral (4%) impact on tobacco control objectives.

We calculated media impressions per capita for each year period, the average Australian would have been exposed to 130 tobacco-related news articles - or one every two weeks. While a majority of coverage is positive for tobacco control, some states and some advocates do better than others, providing lessons for improving media advocacy in tobacco control. For more information, contact Dr Sarah Durkin, Quit Research and Evaluation Manager sarah.durkin@cancervic.org.au.
We will pilot test the intervention for feasibility and cancer. These late effects include cognitive impairment, of the disease process and/or treatment for childhood cancer. The aim of the intervention is to development of a lifestyle intervention specifically for physical activity and dietary intake concerns. In addition survivors, who live rurally in Queensland, to highlight the Interviews will be conducted with 30 breast cancer resources. In the next year. Funded by the Cancer Institute NSW and will be offered to another seven centres over being implemented in two cancer care centres in NSW to improve service delivery. The system is currently being implemented in two cancer care centres in NSW and will be offered to another seven centres over the year. Funded by the Cancer Institute NSW and The Cancer Council NSW, this system has the potential to improve patient-centred care and provide more objective utilisation of limited psychosocial resources.

**n CHeRP**

Routine assessment and management of cancer patients’ psychosocial well-being in outpatient oncology services. In partnership with cancer centres, we are introducing a four step system for the ongoing assessment, identification and management of cancer patients’ psychosocial well-being as part of routine care. Step one requires all cancer patients, at three specified clinic visits, to complete an on-line psychosocial assessment via touchscreen computer installed in oncology outpatient waiting rooms. On completion of the survey, a tailored report summarising the individual patient’s level of distress is printed and placed in their medical file (with their consent) for follow-up by their health care team (step two). As well as identifying the patient’s current issues of concern, the report provides evidence-based strategies for managing the identified issues to facilitate health care providers to offer care that is tailored to the patient’s level and type of need (step three). The final stage involves benchmarking service performance across cancer centres to enable them to identify strengths and weaknesses in order to improve service delivery. The system is currently being implemented in two cancer care centres in NSW and will be offered to another seven centres over the year. Funded by the Cancer Institute NSW and The Cancer Council NSW, this system has the potential to improve patient-centred care and provide more objective utilisation of limited psychosocial resources.

**n CREPC**

Rural and remote breast cancer survivors

Interviews will be conducted with 30 breast cancer survivors, who live rurally in Queensland, to highlight the particular needs of these women specifically regarding physical activity and dietary intake concerns. In addition interest in health promotion interventions and preference for modes of delivery will be ascertained. The findings from the qualitative interviews will be used to guide the development of a lifestyle intervention specifically for rural and remote women survivors of breast cancer. Childhood cancer survivors

We will test the feasibility of a lifestyle intervention, delivered via mailed print materials, for survivors of childhood cancers. The cancer of the intervention is to improve both the dietary quality and physical activity levels of survivors. Long-term survival is often compromised due to long-term side-effects (late effects) of the disease process and/or treatment for childhood cancer and include cognitive impairment, functional problems, endocrine toxicity (contributing to an increased incidence of obesity), early mortality from second cancers and cardiaco pulmonary disease. We will also test the intervention for feasibility and acceptance with participants from the Mater Children’s Hospital in Brisbane.

**n Centre for Cancer Control Research (CCCR), SA**

Evaluation of sun protection in early childhood centres in SA We are conducting a follow-up survey to assess current trends in sun protection in childcare centres across SA and the impact of the SunSmart Early Childhood Program. Three hundred randomly selected childcare centres and kindergartens have been asked to report on their sun protection policy and practice via a self-completed survey similar to the baseline survey which was undertaken in 2001. Questions relating to the benefits of and barriers to joining the SunSmart program were also included.

Compliance to the Australia/New Zealand standard for solaria in metropolitan Adelaide. We are about to undertake a study to understand local solaria compliance with the Australia/New Zealand standard. This will provide an evidence base and help determine if there is a need for action surrounding solaria compliance. Our study will follow a similar method to that used in Victoria, using research assistants of different skin types and age groups who will book and attend solaria centres to observe practices and note what information is provided to them. This study will be completed over the summer of 2006-2007.

Qualitative study of GPs’ perceptions of the new NHMRC guidelines for the management of women with screen detected abnormalities. This project involves semi-structured interviews with a small number of general practitioners in Adelaide and aims to assess the level of awareness of the new NHMRC guidelines; to explore their perceptions around the impact of changes on their practice and on their patients; and to identify their needs around applying the new guidelines. Analysis of interview transcripts will be undertaken to identify common and divergent themes. Findings will help guide The Cancer Council South Australia’s efforts to support GPs and their patients in relation to implementation of the guidelines.

**n TCRE**

Evaluation of the Aboriginal and Torres Strait Islander Cancer Forum

The Aboriginal and Torres Strait Islander Cancer Forum (13-14 September 2006) aimed to increase cancer diagnosis awareness, improve cancer information and coordination of services in Aboriginal and Torres Strait Islander communities and improve information for Aboriginal and Torres Strait Islanders. It also aimed to ensure services are culturally responsive. An evaluation (semi-structured interviews with key stakeholders) is planned to ascertain the level of achievement of the conference objectives and to gain feedback on changes needed to provide effective, culturally-responsive cancer treatment and care within these communities.

Tobacco component of the Australian School Student’s Alcohol and Drugs (ASSAD) Survey (SA specific) Smoking prevalence and smoking behaviour were investigated among South Australian school children in 2005 as part of the triennial Australian School Students’ Alcohol and Drugs (ASSAD) Survey. This report will present South Australian smoking rates, statistics on other smoking behaviour and influences and knowledge of tobacco harms among students aged between 12 and 17 years of age, examining trends over time.

**n VCCRCC**

Identifying the psychosocial care needs of people with cancer in regional Queensland We are conducting a study to address the psychosocial support needs of people diagnosed with cancer in regional Queensland. The project will identify the psychosocial patterns of care, psychosocial support needs and adjustment outcomes of people diagnosed with cancer who are seen through the Townsville Cancer Centre. Participants will complete a telephone and self-administered questionnaire twice over a six month period. The questionnaire focuses on patient’s knowledge and use of support services, their experiences with the Townsville Cancer Centre and their psychosocial outcomes. This information will be used to identify and develop a model of psychosocial care that can be implemented within Townsville Hospital.

Skin clinics and the diagnosis and management of skin cancer in Queensland Medical practices devoted entirely to the diagnosis and management of skin lesions are a relatively new and growing aspect of primary care in Queensland. This project involves 28 skin cancer clinics and 100 general practitioners and will examine the number and type of skin examinations and how suspicious skin lesions are managed in the two settings. Funded by the National Health and Medical Research Centre, the study will investigate the role skin clinics play in the diagnosis and treatment of skin cancer in Queensland, and will provide the first direct assessment of the impact and performance of skin clinics in Queensland. It will provide an evidence base for rational decisions about how best to manage skin cancer in the community. The study will also provide doctors with information on their own performances in relation to skin cancer diagnosis and management and where further training would be most beneficial.

Evaluation of The Cancer Helpline and cancer counselling service of the Queensland Cancer Fund. The aim of this project is to evaluate psychosocial care provided by Queensland Cancer Fund (QCF) Cancer Helpline operators for callers with cancer, or for their carers. Results will enable QCF to determine whether

The Cancer Helpline effectively screens callers with cancer or their carers, for distress and then provides appropriate psychosocial care and/or referral to other services. This project is being extended to include an evaluation of the QCF cancer counselling service.

**New Results**

**n CBBC**

The effects of television advertisements for junk food versus nutritious food on children’s food attitudes and preferences.

Content analyses indicate junk food advertising is prevalent on Australian children’s television, healthy eating is rarely promoted. Two studies were conducted: (a) a cross-sectional survey examining associations between children’s regular television viewing habits and their food-related attitudes and behaviour; and (b) an experiment assessing the impact of varying combinations of television advertisements for unhealthy and healthy foods on children’s dietary knowledge, attitudes and intentions. The experimental conditions comprised: (a) viewing regular advertisement types toward junk food; (b) viewing advertisement types toward healthy foods; and (c) watching mixed-type advertisement types toward junk and healthy foods. The study showed that viewing unhealthy foods on television decreases children’s food-related attitudes and behaviour (eating preference, intention to purchase, importance of healthy food). Content analyses also indicate that higher levels of junk food advertising are associated with children’s lower food-related attitudes and higher food-related behaviour. The study concluded that charging the food-advertising environment on children’s television to one where nutritious foods are promoted and junk foods are relatively un-represented would help to normalise and reinforce healthy eating. For more information, contact Dr Helen Dixon, Senior Research Fellow, Helen. Dixon@cancervic.org.au.

**n ASSAD**

Tobacco use among Australian secondary school students (ASSAD) In 2005, the eighth in a series of secondary school-based surveys monitoring the use of tobacco, alcohol and other substances among adolescents was conducted throughout Australia. The survey series commenced in 1984 and has been conducted every three years. The current study is conducted as a collaboration between state and territory cancer organisations, the Commonwealth Department of Health and Ageing and state and territory Health Departments. In 2005, data were collected from 21,805 male and female students aged 12-17 years from 376 schools across Australia. In 2005, at least half of the students aged between 12 and 16 years of age had no experience of smoking cigarettes. Among all students aged 12 to 17 years, 9% were classified as current smokers (smoked in the seven days preceding the survey). The proportion of current smokers increased from 2% among 12 year-olds to 18% among 17-year-olds. The proportion...
of students smoking in the previous week doubled between the ages of 13 (3%) and 14 (6%) and reached a peak prevalence of 12% among 17-year-olds. Based on the survey data, we estimated that 140,359 students were currently involved with tobacco smoking in that they had smoked at least one cigarette in the week prior to the study. Using standard questions and sampling measures, we found that the prevalence of current smoking for 12-15 year-olds and 16-17 year-olds in 2005 was the lowest since the survey series began in 1984.

CHeRP
NSW Smoking Community Survey
CHeRP together with the Health Strategies Division of The Cancer Council NSW have undertaken the first of a series of biennial telephone surveys of NSW residents regarding smoking-related perceptions and practices. The survey provides rapid turn around of data to track key indicators of attitudes and practices relevant to tobacco control policies and activities. The first survey in October-December 2004 involved 3503 NSW residents aged 18 years and over. Households were selected at random from the NSW Electronic White Pages, mailed an information letter and then contacted by telephone to interview one randomly-selected member per household. Study data indicated that government action lags well behind community views in areas such as: smoke free pubs and clubs; smoking in homes, cars and public areas; spending on tobacco campaigns; superannuation fund investment in tobacco; and smoking in movies. Among smokers, levels of quitting activity were high with almost two-thirds of smokers trying to quit in the previous two years and approximately 40% of smokers intending to quit in the next six months. Levels of retail access to cigarettes were very high for almost all smokers and appeared related to cigarette consumption and relapse. Data on use of pharmacotherapy, relapse triggers and use of quitting assistance strategies were also collected.

CPHC
From partying to parenthood: young women’s perceptions of cigarette smoking across life transitions
PhD student Liane McDermott used standardised, open-ended telephone interviews with 80 women from the young cohort of the Australian Longitudinal Study on Women’s Health, selected to be never smokers, new adopters, continuing smokers and quitters. The social context of smoking (socialising with other smokers, drinking alcohol and going out to pubs and clubs) was identified as the predominant influence on smoking from the time the young women left home until they settled into a committed relationship and started their own family. Stress was also identified as an important factor as young women experienced various lifestyle changes. An increased sensitivity to the negative aspects of smoking after they turned 21 was reported, and around their mid-20s they became concerned about the addictive nature of cigarettes and their future plans for having children. Motherhood itself was seen to carry increased responsibilities to ensure children were not exposed to passive smoking and there was perceived importance of positive role modelling to protect their children from becoming smokers themselves. These life stages present opportunities for interventions to prevent smoking adoption in young adulthood and to enhance quitting. McDermott, L. J. Dobson A. J. and Owen, N. (2006). From partying to parenthood: young women’s perceptions of cigarette smoking across life transitions. Health Education Research, 21, 428-439.

CCCR
National evaluation of primary school sun protection policies and practices
This evaluation of Australian primary school sun protection policies and practices is the first to include all states and territories and involved a total of 932 schools across the nation. It builds on earlier evaluations of the Primary Schools SunSmart Program conducted in 1998 and 2001. SunSmart schools were found to have a higher standard of policy and practice than non-SunSmart schools, indicating the positive impact of the program for schools involved. Hat enforcement was the most popular sun protection strategy across primary schools, however the results indicate scope for improvement in other areas and particularly in relation to minimising exposure during peak ultraviolet times. There was a significant decline in the proportion of schools regularly making sunscreen available for student use. The inclusion of sun protection strategies in written policy was clearly associated with the corresponding sun protection practice, highlighting the need for the continued development of comprehensive written sun protection policy. Most non-SunSmart schools reported interest in joining the program, with many indicating that more information about the program would encourage them to join.

Sun protection practice among South Australian adolescents
Since 1990, The Cancer Council South Australia has been monitoring the sun protection habits of South Australian adolescents via the Australian School Students Alcohol and Drug survey (ASSAD). The most recent survey was administered in 2005, following identical methodology as in previous years. Although the majority of students answered the skin cancer knowledge question correctly (that skin cancer is caused by ultraviolet radiation exposure) a large proportion still liked to get a tan (70.3%). Also, comparisons to earlier years showed a reduction in many sun protection practices with: a decline in regular hat wearing among boys; a decline in regular sunscreen use in general; and a steady decline in shade seeking behaviour among girls. A concerted effort is clearly needed to develop strategies to reverse current trends in adolescent sun protection practice.

Cancer related information needs and preferences survey
A telephone survey was conducted with 342 cancer patients (from across four hospitals in Adelaide), 216 of their carers and 400 members of the general public to identify the methods each group have used to obtain information about cancer, as well as where and how they would like to receive cancer related information in the future. While doctors remain the most trusted source of information, findings indicate that the internet is the second most popular, additional source of cancer information after booklets and pamphlets, with one in four patients (25%), one in four carers (24%) and one in six members of the general public (17%) having used the internet to access cancer information. This is higher than the proportion of patients, carers and general public who have accessed information via a helpline (10%, 8% and 2%) attended a cancer related forum, talk or education program (10%, 6% and 7%) or joined a support group (11%, 7% and 3%). Online chat groups are rarely accessed by any of these groups (0.3%, 0.9%, 0.6%). The findings do, however, reveal evidence of a technological divide. Not surprisingly the internet was more popular with younger people, those with higher levels of education, those with higher household incomes and those who liked to be involved in making healthcare decisions. The main attractions were convenience, speed and the amount of information that could be accessed. The main reported barriers were: not having access to a computer or the internet and not knowing how to use the technology.

TRCE
Progress Against Cancer' newsletter: evaluating The Cancer Council Helpline as a distribution mechanism
The Cancer Council Helpline is a non-medical information and support service. Information provided by The Cancer Council Helpline ranges from prevention to different types of cancer, treatment, services available and emotional support. The Cancer Council Helpline sends out resources to callers who would like information. A trial was conducted with the Cancer Council Helpline to determine whether sending the Progress Against Cancer newsletter to callers (a newsletter normally sent to volunteers and donors) would have any adverse (or positive) effects. All respondents thought it was appropriate for the Cancer Council Helpline to send the newsletter or had no view and 91% either thought the newsletter should be sent to every caller or had no view.

National Youth Tobacco-Free Day
National Youth Tobacco Free Day was held on 5 April 2006. The evaluation involved two studies. The first assessed perceptions of the impact of an event run in Rundle Mall that consisted of music and entertainment for young people. The second study involved an assessment of the use of promotional kits, entry to website competitions and staging of local events celebrating National Youth Tobacco Free Day. Overall, the central event held in Rundle Mall was well received and respondents’ perceptions of its impact were favourable. Results of the second study revealed that receipt of the kit appeared to be low, with less than half of those sent the kit recalling that they received it.
Senate calls for gynaecological cancer control

The Senate committee inquiring into the management of gynaecological cancer has called for a number of recommendations consistent with those put forward by The Cancer Council Australia, Clinical Oncological Society of Australia (COSA) and the National Aboriginal Community Controlled Health Organisation (NACCHO) in a joint submission earlier this year.

Among its recommendations released in Parliament on 19 October, the Senate Community Affairs Committee sought government support for better coordination of patient travel and accommodation schemes; expedited use of Human Papilloma Virus immunisation to reduce cervical cancer in Indigenous communities; improvements in cancer-care referral pathways; and, greater incorporation of multidisciplinary care into cancer workforce training and planning – all of which were supported by The Cancer Council Australia, COSA and NACCHO.

The Cancer Council Australia and COSA hope to work closely with Cancer Australia to develop and implement cancer control policy that will reduce the impact of gynaecological cancer on Australian women and their families.


Web resource provides missing link to genetic cancer information

More than 4000 Australians diagnosed each year with a familial based cancer can now access a new online resource thanks to a collaboration between The Cancer Council Australia and the National Cancer Genetics Education Group.

The web-based family cancers facility includes information on types of family cancers, genetic testing, family cancer clinics and a searchable directory of resources.

The Cancer Council’s Chief Executive Officer, Professor Ian Olver, said that in around five per cent of the 88,000 cancers diagnosed each year in Australia, an inherited faulty gene was a major contributing factor.

“Family cancer can be a difficult concept to understand and there is a lot of confusing and contradictory information around,” Professor Olver said. “While the Internet has provided greater access to information, it is not always the right information.

“Family cancer can be a difficult concept to understand and there is a lot of confusing and contradictory information around,” Professor Olver said. “While the Internet has provided greater access to information, it is not always the right information.

“Our new web resource provides a centralised resource of credible, evidence-based information – making it more user-friendly and reliable for the public.”

Spokesperson for the National Cancer Genetics Education Group and project manager with NSW Health’s Centre for Genetics Education, Kate Dunlop, said the online resource would benefit not just consumers, but support health professionals such as GPs and others working with cancer patients.

“A busy GP rarely has the time to search through volumes of web based information to provide their patients with relevant and useful support,” she said.

“Now they can go to one site to get what they need and can feel secure in the knowledge they are directing their patients to evidence-based information.”

The new family cancers section on The Cancer Council Australia’s website can be viewed at www.cancer.org.au/familycancers.
Benefits Advisory Committee’s recommendations to subsidise the drug Herceptin (trastuzumab) for women with early-stage HER2-positive breast cancer.

The Cancer Council Australia’s Chief Executive Officer, Professor Ian Olver, said the decision to list Herceptin on the Pharmaceutical Benefits Scheme from October was good news for the 2000 Australian women diagnosed with HER2-positive breast cancer each year.

“Studies show that combining standard chemotherapy with Herceptin reduces disease recurrence in women with early stage HER2-positive breast cancer by 46 per cent, saving thousands of lives,” Professor Olver said.

“PBS subsidisation will make the demonstrated benefits of Herceptin much more affordable for those 2000 Australian women currently living with HER2-positive breast cancer, a particularly aggressive form of cancer.

“The Cancer Council Australia also welcomes the Government’s decision not to restrict eligibility to patients with tumours larger than 20mm, which will help ensure that more women with the potential to benefit from Herceptin will be able to access the drug through the PBS.”

Around the traps – what we have been up to

It is always eventful at The Cancer Council Australia and the last few months have seen two great events come to life again.

On August 25 we had our annual Daffodil Day, one of our biggest yet, with the country awash with bright yellow blooms and other related merchandise.

By purchasing a daffodil or other item in memory of a loved one, to celebrate a survivor, or to simply give hope to a cancer-free future, hundreds of thousands of Australians helped us move towards our fundraising target of more than $8 million.

“The continued and generous support of the Australian people and the media of Daffodil Day was truly overwhelming,” The Cancer Council’s Chief Executive Officer, Professor Ian Olver said.

We put away our daffodil yellow shirts when it rolled into October, as it was time to think pink and harness some serious girl power for our Girls Night In event.

With Girls Night In, women across the country were encouraged to boot the boys for a night in October and get their gal pals together for a Girls Night In and raise money to help find a cure for breast and other women’s cancers.

They were asked to simply register as Girls Night In hosts and then invite their female friends, workmates and family to get together for an evening. Guests were asked to donate the equivalent of what they would have spent on a night out.

In its second year, the event proved again to be a massive success.

On September 15 we had our annual Girls Night In event, which raised more than $1 million. Around the country it was time to boot the boys for a night in and get their gal pals together for a Girls Night In and raise money to help find a cure for breast and other women’s cancers.

Karen Hall, The Cancer Council South Australia

100 Questions and Answers about Bladder Cancer

P Ellsworth, B Carswell
Jones and Bartlett Publishers (2006)
147 pages plus index

This American publication is a resource to help understand bladder cancer and treatment options for this disease.

It is designed to answer questions commonly asked by patients about bladder cancer and it is part of a series of 100 Questions and Answers written by medical staff from the University of Massachusetts Memorial Medical Centre.

This interesting and clinically relevant book is an invaluable resource for practical answers to questions ranging from understanding bladder cancer, treatment options, post-treatment quality of life and supports. Aimed at patients with bladder cancer, it is just as relevant and useful for physicians, nurses, health professionals and families who want a current and easy-to-read book on this subject.

The layout is easy to follow with coherent and understandable language. It is divided into eight parts including: background information on the anatomy and physiology of the bladder and cancer; diagnosis and tests; and treatment options including transurethral resection of bladder tumour, peri operative chemotherapy, intravesical therapy, immunotherapy, surgery, and non-operative bladder sparing therapy. Also included is information about metastatic disease and end of life care. The glossary of terms is comprehensive, relevant and thorough. An appendix lists websites and information about supports for patients and families, albeit with a US focus.

Original in its format, commonly asked questions by patients are covered in a sequential and informative manner. Explanations of medical terms are highlighted and definitions used to explain these are located down the side of the page for easy reference. Photos and clear diagrams help explain procedures. Interspersed in italics throughout each section are comments made by patients about their own experiences, which support what has been written by the authors. This book is unique in that it encompasses detailed information in an easy to understand format that aims to be clear, concise and educational. The use of diagrams and patient experiences makes it a book for everyone with an interest in bladder cancer.

However, there are some weak points. One criticism is the lack of a bibliography and referencing, especially statistics and tables. A bibliography would be a valuable resource for readers who wanted to read further on a specific topic. Being American, the resources for patient support, including organisations and web sites, may not be relevant for Australian patients and families.

Overall, 100 Questions and Answers about Bladder Cancer is a handy, valuable, readable and original resource and I would recommend it to all health professionals who have an interest in the education of patients and families with bladder cancer. It would be a useful resource in an oncology ward library, with relevance to current nursing practice and knowledge.

Karen Hall, The Cancer Council South Australia

100 Questions and Answers about Caring for
Family or Friends with Cancer
SL Rose, RT Hara
ISBN: 0-7637-2421-1  216 pages plus index
RRP: $US16.95

I commenced the first chapter of this book with the expectation that it would answer questions that a person from a non-medical background may raise about cancer and how to care for a person with cancer. This book, authored by two social workers, unfortunately failed to meet my expectations. The first chapter gave quite a good broad explanation of what cancer was and different treatment options that may be recommended. It then went on to describe the roles of the health care providers that would be involved in the care of a person being treated for cancer. Unfortunately, this was from an American perspective.

Chapter 3 was entitled ‘Helping Your Loved One to Cope’. This dealt quite well with potential scenarios and offered potential solutions on how to deal with the emotional ups and downs of a person (or carer) with cancer.

The next chapter ‘Caring for the Carer’ discussed family issues such as the impact on relationships, what to tell children, changes in family dynamics and discussions about wills. Avoiding ‘burnout’ for the carer was also discussed.

The remainder of the book, from chapter six onwards was, in my opinion, of little use to the Australian reader. It discussed issues such as home care and the availability of services and equipment, health insurance, social security, employment concerns and the difference between inpatient facilities from an American viewpoint.

The last few pages were a list of general resources – cancer web sites and contact addresses of organisations and groups in the US. For those without a computer, or not living in the US, they would be of little use.

Overall, I found this book easy to read, however, as there was such an emphasis on care and services available in the US, at least half the book would not have relevance to an Australian reader. I feel this book would have benefited from some medical or nursing input to make it a little more ‘user friendly’ for a cancer carer.

Lynda Horning, Illawarra Cancer Care Centre, Wollongong NSW

100 Questions and Answers about Liver Cancer
GK Abou-Alfa, R DeMatteo
ISBN: 0-7637-4754-8 120 pages plus index
RRP: $US16.95

This book has been written for people diagnosed with liver cancer to better enable them to understand their diagnosis and treatment, and to navigate the treatment required. The two authors work at the Memorial Sloan-Kettering Cancer Centre in New York and are medical specialists in treating liver cancer. The text is broken into nine short, easy to digest sections, making it easy for these to be accessed as needed by the reader including:

- Information about the structure and function of the liver;
- Risk factors;
- Screening;
- Diagnosis and staging;
- Coping with the diagnosis;
- Treatment;
- Cancer-related practical issues;
- Cirrhosis-related practical issues; and
- Social and end-of-life issues.

The information is presented in a consumer-friendly manner and is concise in nature.

It is difficult to evaluate the currency and sources of information presented as there are no refer-ences provided, although specific information is offered including a discussion of particular cancer treatment trials. Directions to find further information is included throughout the text as needed, however these are American sources and are of limited relevance to the Australian reader (for example, financial support agencies). An index is included as a useful pointer to specific topics and a glossary of terms is also provided.

A potential difficulty and source of confusion for the Australian reader is that some of the approaches described are contradictory to current practice here. For example, hospice care is described as a service that is an entitlement available after ‘active’ treatments, such as chemotherapy, have finished.

This concise book is primarily intended for people diagnosed with liver cancer, but would also be a valuable information support for friends and family.

Given that there are few similar Australian resources on this topic it could be valuable here, but should be used with caution given that the information is focused on an American readership.

Kate Cameron, The Cancer Council South Australia

2006 Oncology Nursing Drug Handbook
GM Wilkes, M Barton-Burke
Jones and Bartlett Publishers (2005)
ISBN: 0-7637-3923-5 1196 pages plus index
RRP: $99.00

This textbook is a serious American ‘heavyweight’. As this is the ninth edition of the Oncology Nursing Drug Handbook, and there is obviously a population of devotees, I took the opportunity to ask my colleagues of their opinions of the text. Those I approached ranged in nursing experience from first rotation of the new graduation program to the most experienced nurses (clinical nurse consultant and ward-based nurse educator). The more recent recruits found the key abbreviations very helpful and the overall format and language easy to follow.

The detail of drug descriptions from class right through to drug interactions, special considerations, potential toxicities/side effects, and the nursing implications make this a valuable resource for all levels of cancer nursing. The inclusion of Appendix 1: Controlling Occupational Exposure to Hazardous Drugs is very detailed and extensively referenced, making it a very good reference tool for health care professionals.

Each chapter is comprehensive, well referenced, and all aspects of drug administration and subsequent care of the patient appear to be included. The authors recognise that prescribing practices may differ elsewhere in the world and that this should be carefully considered, especially by those who are not intimately familiar with adult cancer chemotherapeutic regimens. However, given that the NSW Cancer Institute website is now available to health professionals, this should not present a problem if this textbook is being used as a resource.

In conclusion, I quote two colleagues; “I would use this textbook” and “It would save the clinical nurse consultant from getting a phone call at 2am”. Sally Bone, Cancer Services Community Liaison, Royal North Shore Hospital, Sydney NSW

Bethesda Handbook of Clinical Oncology (2nd Edition)
J Abraham, CJ Allegra & J Gulley (eds)
Lippincott Williams & Wilkins (2005)
ISBN: 07817511-60 672 pages plus index
RRP: $82.50

This handbook is a comprehensive, well referenced reference tool for health care professionals.
The Bethesda Handbook of Clinical Oncology is a text that is clear, concise and complete, making it an excellent reference for any health professional working with patients with cancer. It has been well put together by many cancer clinicians working in major cancer centres in the US.

This book is designed as a quick and ready reference for clinicians working with a patient living with cancer. This edition is updated with the new cytotoxic drugs and dosages, treatment regimens and data from the latest clinical trials. New chapters in the text are written about targeted therapies and the use of complementary and alternative medicines in cancer care.

While this text is not written specifically for nurses, it is an excellent reference for any nurse requiring a handy reference for their everyday nursing care of any patient with cancer.

While supportive care in symptom management is very important in nursing patients with cancer, it is just as important for the nurse clinician to know about the clinical features and current medical management. Whilst this text explores the usual clinically-related chapters on the individual disease states, it also contains concise and informative chapters on supportive care, oncological emergencies and end-of-life care. Information on aetiology, pathophysiology and epidemiology has been limited in order to provide more practical clinical information. Much of the up-to-date information is easily accessible via the inclusion of more charts, tables and algorithms.

The first edition of this text was an excellent handy reference. This second edition has been written for the clinician working in the current health climate, with comprehensive reviews of disease management and pertinent information relating to the more controversial areas of complementary and alternative medicine. It is an excellent reference text for any health care professional working with patients with cancer.

Alayne Reid, Division of Cancer Services, Mater Adult Hospital, South Brisbane QLD


Lippincott Williams & Wilkins (2006)

ISBN: 0-7817562-86

406 pages plus index

RRP: $328.90

Cancer Chemotherapy and Biotherapy: Principles and Practice is the updated 4th edition of a popular book which aims to provide the clinician with an overview of the pharmacology of chemotherapy and its application in clinical practice. This is a hard backed book published in the US with a total of 37 chapters, the majority of which are devoted to specific chemotherapeutic agents, while a few chapters focus on the more general aspects of cancer chemotherapy.

Chapter one explores the role of drugs in cancer treatment while chapters two and three provide some readable and useful information on preclinical aspects of cancer drug development and pharmacokinetics. Chapters four and five explore the effects of chemotherapy on fertility and the carcinogenic properties of these agents. Further chapters on the care of central venous catheters and the pharmacogenetics of cancer chemotherapy are comprehensive and provide the reader with a broad insight into these areas.

The chapters relating to individual agents are organised by drug class and although most drugs are included, this information is not structured in the most logical manner and the way in which the classification of drugs is applied appears rather inconsistent. Under each agent or class there is detailed information including a history of the agent, discussion of the chemical structure, a pharmacokinetic profile, mechanisms of action and mechanisms of resistance, all appropriately referenced. The use of illustrations to support the text assists the reader’s understanding and a table of key features provides an easy to read summary relating to the properties of each agent. Information on interactions with other agents, toxicities and side-effects is varied according to author and the information on actual therapeutic application in clinical practice is limited.

Further chapters on cancer vaccines, inhibitors of tumour angiogenesis and antibody therapies examine recent developments in these newer areas of therapeutics in cancer and provide the reader with a useful overview of some of the principles and pharmacology of this area of cancer therapy.

In conclusion, this is a useful text to pursue information related to the mechanism of drug action, however it does have more use as a pharmacological text rather than as a practical tool in the clinical setting. This book probably offers no advantage over many other texts with similar content but provides a useful ‘desk’ supplement to some of the smaller pocket size texts and provides interesting insight into the development of many agents.

Christine Carrington, Medical Oncology, Princess Alexandra Hospital, Brisbane QLD

Cancer of the Uterus

G Coukos, SC Rubin (eds)

Marcel Dekker (2005)

ISBN: 0-8247-5415-8

506 pages plus index

RRP: $85.00

Cancer of the Uterus presents a collection of reviews written by North American scientists and clinicians relevant to the aetiology, pathology, clinical presentation and management of uterine malignancy. The book is most relevant to the medical specialist or advanced medical trainee working in the area of gynaecological cancer, but would also serve as a useful reference book for scientific or nursing staff with a special interest. The book has 18 chapters, with the majority of the book dedicated to the clinical management of endometrial cancer.

The first two chapters discuss the molecular genetics of uterine malignancy and the Hereditary Nonpolyposis Colorectal Cancer (HNPPC) syndrome. This is an informative summary of the current knowledge and recent advances in this area and is presented in an easy to understand format. The figures showing the molecular basis of the progression from normal to hyperplasia and carcinoma of the endometrium are excellent. The recommendations for risk reducing surgery and the limited data to support screening of women with HNPCC are nicely discussed.

Chapters three and four discuss steroid hormone receptors and the effects of Tamoxifen on the endometrium. There is an in-depth review of the genomic and non-genomic pathways of estrogen, progesterone, glucocorticoids and androgens occurring through their receptors. Unfortunately the clinical relevance of the main steroid receptors and hormone effects in relation to endometrial cancer is somewhat lost in the minutiae of this descriptive analysis. On the other hand, there is a good discussion regarding the limited role for screening for endometrial cancer in women taking Tamoxifen.

The pathology of uterine malignancies discussed in chapters five and six are excellent up-to-date summaries of current knowledge in this area. Relevant pathological features and clinical correlations are clearly and concisely presented. The only criticism would be that the photomicrographs would be more useful if they were in colour rather than black and white.

In the remaining bulk of the book (Chapters eight to 18), different authors discuss the various treatment modalities available for endometrial hyperplasia and cancer, including the management of uterine sarcoma. Chapter eight addresses the conservative management of endometrial hyperplasia and provides a sensible outline for the premenopausal woman with early endometrial cancer who wishes to maintain fertility, although it was disappointing that there was no debate regarding the more recent use of progesterone releasing intra-uterine devices. Chapters nine and 10 discuss the surgical staging and treatment of early endometrial cancer including the role of laparoscopy, with some interesting controversies being addressed but left unanswered pending further randomised trials of laparoscopy versus laparotomy. Chapters 11 and 12 address the role of surgery in advanced and recurrent endometrial cancer and are well researched and informative.

Chapters 13 and 14 review the evidence base for the use of radiation treatment for endometrial cancer and...
sarcoma. There is a useful discussion of the current status of adjuvant chemotherapy and radiation in the management of patients with uterine papillary serous carcinoma. The roles of hormonal and targeted therapies for endometrial cancer are outlined in chapters 15 and 16.

The final chapter discussing hormone replacement in the patient with uterine cancer was disappointing in that the recommendation was not to consider oestrogen replacement unless symptoms were unable to be controlled by other non-hormonal strategies. This recommendation needs updating in light of the Women’s Health Initiative findings for the oestrogen only arm and in view of the increasing knowledge of the long-term benefits of oestrogen only replacement therapy.

Cancer of the Uterus is a valuable reference book with an excellent summary of the evidence base for current strategies of diagnosis and management of uterine malignancy. Like all reference books, it will require regular updating in line with recent knowledge to retain its usefulness to those working in this area.

Rhonda Farrell, Department of Gynaecological Oncology, King Edward Memorial Hospital, Perth WA

Cancer Therapies
GM Wikles, M Barton-Burke
Jones and Bartlett Publishers (2006)
ISBN: 0-7637-2682-6
350 pages plus index
RPP: $106.00

It is becoming increasingly difficult to keep up-to-date with the ever-evolving treatments for cancer and many texts are at risk of being out-of-date before they even hit the shelves. Despite this, Cancer Therapies is a well-referenced, comprehensive and modern text with CD-ROM.

The first chapter provides an easy to read overview of the biological basis of cancer that is built on within subsequent sections. Concepts that impact on current cancer treatment development are summarised and provide a natural lead into the next chapter on chemotherapy and cell cycle kinetics.

Considering the vast array of chemotherapy drugs utilised, the third chapter is kept relatively brief. Drugs are alphabetically listed for easy reference with basic information including class, mechanism of action, indications, dosing, administration and side-effects. More in-depth information on these agents may be better sourced from an alternate text.

The strength of this text is the three chapters that provide comprehensive overviews on cancer treatments that are new or emerging, considered cutting edge or complex/specialised. Chapter four on biologic therapies for cancer treatment explains basic concepts of tumour immunology and covers the sometimes controversial use of IL-2 and the Interferons. Nursing management of treatment related toxicities is well presented in easy to follow tables and clinical pathways. Haematopoietic growth factors are also covered in this chapter along with experimental treatments such as vaccines and adoptive cellular transfer.

Chapter five provides an overview of molecular targeted therapy. This chapter simplifies complex concepts with the aid of diagrams and examples to clarify important points. Current targeted therapies are listed in table format with information on their mechanism of action, indications, common side-effects and key nursing interventions.

Chapter six is on haematopoietic stem cell transplantation and provides a comprehensive overview on rationale of transplant, types of transplant and the potential complications. Nursing care is the main focus of this chapter and is separated chronologically into pre-transplantation, transplantation and post-transplantation phases. Example nursing care plans are provided along with tables on infection, graft versus host disease and acute renal failure.

The final two chapters deal with issues surrounding safety. Chapter seven touches on infrastructure, drug ordering, safe handling and administration of cytotoxics, use of cytotoxics in non-malignant conditions, standards of practice, clinical competence and education.

Chapter eight provides an interesting read on possible drug interactions with cancer medications. Common interactions are briefly discussed and summarised in tables. The appendix of nursing care plans is in some areas a little out of date.

Overall, I found Cancer Therapies a useful reference, particularly for treatments that fall outside of the traditional cancer therapies. As it is an American book, some of the drug names differ and not all drugs included are available for use in Australia. It is generally easy to read and provides sound theoretical and practical information for the cancer nurse.

Tracey Doherty, Department of Medical Oncology, Flinders Medical Centre, Adelaide SA

Contemporary Issues in Lymphoma: A Nursing Perspective
ME McFadden, B Pootowski, SV Temple
Jones and Bartlett Publishers (2005)
ISBN: 0-7637-2957-4
246 pages plus index
RPP: $96.80

Contemporary Issues in Lymphoma: A Nursing Perspective was written by nurses for nurses. This American publication has 12 contributors, many of whom are nurse practitioners and nurses who work in advanced practice roles throughout the US.

The book commences with a comprehensive discussion of the immune system followed by an in-depth and informative chapter on the cytogenetics of lymphoid malignancies. This chapter greatly advances nurses’ knowledge and understanding of this ever changing and complicated malignancy.

Three chapters are devoted to non-Hodgkin’s lymphoma, Hodgkin’s lymphoma and multiple myeloma. They are clearly written, follow the same outline and are very interesting to the reader. They broadly discuss the epidemiology, pathophysiology, standards of care, novel treatment strategies and nursing and patient management issues of each malignancy.

The issues and challenges in lymphoma are reviewed. This chapter discusses in depth many of the disease and treatment related toxicities. The issues may be at diagnosis, during therapy, or present as long-term complications. The chapter highlights that nurses play a pivotal role in educating the patient and family about the disease process, therapies and potential side-effects, and how to access and intervene when toxicities are experienced. It cleverly demonstrates that balancing treatment outcomes, toxicities, survivorship and quality of life issues are an integral responsibility of the oncology nurse caring for the patient with lymphoma.

The role of transplantation in lymphoma and myeloma in this book focuses on autologous transplantation, however it does discuss the role of allogeneic transplantation in these diseases. The chapter clearly outlines the eligibility criteria, stem cell collection process, conditioning therapies, treatment related toxicities and long-term complications of therapy.

The book concludes with a wonderful chapter listing resources for patients. The Leukaemia and Lymphoma Society’s Information Resource Centre (IRC) has developed an extensive collection of resources and organisations that cover a wide range of services for patients and families. Despite the organisations being based in the US, I will definitely be accessing the websites and email addresses for my patients.

I enjoyed reading this book and would not hesitate to recommend it to both novice and experienced cancer nurses. The text can complement your knowledge, increase your understanding and challenge you with up-to-date information.

Priscilla Gates, Haematology Unit, Peter MacCallum Cancer Centre, Victoria
Contemporary Issues in Prostate Cancer – A Nursing Perspective

J Held Warnkessel
Jones and Bartlett Publishers (2006)
ISBN: 0-7637-3075-0
440 pages plus index
RRP: $94.00

This hardcover book is an easy-to-use guide about prostate cancer. The author is a well known cancer nurse who has published two other books on the subject. As the profile of prostate cancer increases over the next few years, books like this one will help nurses further develop the new role of the prostate cancer nurse.

This book is aimed at both the junior and experienced nurse. It brings together a range of nursing specialists covering current treatment options and issues related to the management of prostate cancer. It is an easy to use format; it is well illustrated and as it is written for nurses, it also looks at nursing diagnoses, interventions and outcomes. The use of nursing diagnoses and standards of care will prompt the prostate cancer nurse and other nurses to review their service. It will also be a useful tool for those setting up a prostate cancer nurse service.

This book has four main themes: epidemiology, treatment options, quality of life issues and management of advanced disease. It also discusses the issues of complementary and alternative therapies and their use in men with prostate cancer. In this edition the author has added chapters on brachytherapy and laparoscopic prostatectomy.

Each chapter has an overview of content and references, which are up-to-date and indexed. The use of tables and flowcharts compliment and further enhance the text.

The final chapter deals with support services for patients, families and health professionals from early detection and screening to end of life issues. It looks at written, internet, psychosocial and support resources. This chapter is helpful, however as the book is American some of the resources aren’t as helpful as they could be for the Australian setting.

As an experienced oncology nurse I found this a well structured, concise and easy-to-read text. I would recommend this text to nurses and other health professionals responsible for the management of prostate cancer patients. It is a comprehensive update, which includes most of the current treatment options for patients with prostate cancer with the exception of HIFU (High-Intensity Focused Ultrasound), which is relatively new to Australia.

Pauline Thomson, Cancer Care Centre, St George Hospital, Sydney NSW

Colorectal Cancer in Clinical Practice (2nd Edition)
P Rozin, GP Young, B Levin, SJ Spann (eds)
Taylor & Francis Group (2006)
168 pages plus index
RRP: $75.00

The authors of this book are practising clinicians from Israel, Australia and the US. As such they provide an international perspective to the problem, although “preventable and treatable”, is “one of the major malignancies afflicting the westernised societies, both in terms of incidence and … mortality”. The text is designed around a series of questions and is aimed at the practising clinician. The information is current and evidence-based. It is set out in such a way that encourages browsing as well as directed reading. The book has questions as chapter headings, making the information very accessible.

Some of the chapters answer questions that patients may ask such as “how does colorectal cancer develop?” and “is diet important in preventing colorectal cancer?” Others answer questions that clinicians may ask themselves such as “who is at risk from familial colorectal cancer and how can they be managed?” or “how should we follow up premalignant conditions?” The text contains clear diagrams and relevant illustrations.

The chapter about the pros and cons of population-based cancer preventative strategies includes research into patient preferences and cost factors in the discussion and therefore provides a well-rounded look at this issue.

I have a minor quibble with the scant reference to the interdependent roles of various health professionals, not just medical specialists, within cancer prevention and on-going management, but on the whole I found this an interesting and useful text.

This 2nd edition has updated information on risk factors, preventative strategies, screening methodology and cancer therapies. The book is designed as an easy-to-read ’at hand’ reference rather than an all-encompassing ‘bible’. It fills a need for a busy clinician and would be a worthy addition to the shelf above the desk.

Jenny O’Baugh, Nepean Cancer Centre, Nepean Hospital, NSW

Dx/Rx: Breast Cancer

DE Lake
Jones and Bartlett (2006)
ISBN: 0-7637-2681-8
123 pages plus index
RRP: $56.10

This book is one of a series of handbooks based on the management of common malignancies. The series is published in the US and the statistics within Dx/Rx: Breast Cancer are reflective of this. The book is clearly set out allowing prompt accessibility to information for the reader. The information in the handbook is concise but thorough. The handbook is sequenced into 14 chapters covering the epidemiology of breast cancer to primary care issues for survivors.

The chapters in Dx/Rx: Breast Cancer are bulleted format and incorporate tables and figures for ease of information. The first chapter in the handbook is the epidemiology, risk factors and screening of breast cancer, which refers to the population of the US. The reader can generalise some of the information, but would need to seek further information for location-specific statistics. The second chapter, diagnostic tools and physical examination, is covered adequately in four pages. There is a substantial chapter covering the histopathology, staging, natural history and pathologic prognostic factors of breast cancer. Several chapters cover the management and treatment of breast cancer, including surgical management, hormonal therapy, chemotherapy, the use of monoclonal antibody and radiation therapy. These chapters thoroughly cover the indications for each treatment regimen and would be a valuable reference tool. The final chapters of the book briefly discuss long-term complications of treatment, future therapeutic directions, special conditions such as male breast cancer, prevention trials, hereditary breast cancer and survivorship issues. Each chapter concludes with a thorough current reference list, where the reader can acquire further information if desired.

A sole criticism of Dx/Rx: Breast Cancer is the intended reader is not identified. Through reading the book it is apparent that the handbook is written for medical doctors who diagnose and prescribe for breast cancer. However, it would also be a valuable tool for specialist nurses and junior doctors caring for patients with breast cancer.

In conclusion Dx/Rx: Breast Cancer would be a valuable handbook for medical doctors, specialist nurses and junior doctors to aid in the management and treatment of patients with breast cancer.

Tahnee Oliver, Oncology Unit, Launceston General Hospital, Tasmania

Dx/Rx: Palliative Cancer Care

VT Malhotra and N Moryl
ISBN: 0-7637-3639-7
134 pages plus index
RRP:SUS29.95

This handbook is part of the Dx/Rx Oncology series. It is an American publication with the authors coming from the Department of Anaesthesiology and Critical Care and Neurology at the Memorial Sloan-Kettering Cancer Centre. The handbook is very concise and easy to read. It is divided into 19 chapters, with the first nine chapters focused on pain. These chapters include...
BOOK REVIEWS

Gynaecological Cancer Care: A Guide to Practice
T Lancaster, K Nattress (eds)
Asmued Publications (2005)
ISBN: 0-9752018-0-8
410 pages plus index
RRP: $79.95

It is refreshing to read such a comprehensive, high quality, international gynaecological textbook written entirely by women. Twenty-eight multidisciplinary health professionals from six countries, all experts in their respective disciplines, have contributed to this excellent publication. The need for such a textbook is evidenced by the dearth of available medical and nursing literature on this subject in comparison to breast cancer.

Written from both a woman-centred and evidence-based perspective, the physical, emotional, social and psychosocial issues faced by gynaecological cancer patients, the second most common cancer of women, and the most common cause of cancer deaths in women, are addressed throughout. Of the 22 chapters, four of them cover the psychosocial issues in depth, some of which are known to be challenging topics for health professionals, such as: sexuality and body image; spiritual care; social and cultural diversity; and loss, grief and bereavement.

Overall, Dx/Rx: Palliative Cancer Care appears to be a comprehensive and valuable reference, particularly in relation to the complexities of pain assessment and pain management. However, my criticism of the book is that it does not sufficiently address issues experienced by advanced cancer patients and lacks depth of the multidisciplinary approach used in palliative care. The handy quick reference guide would be well suited for health professionals and junior medical staff new to the field of cancer care.

Malignant Mesothelioma
Hi Pass, NJ Vogelzang, M Carbone (eds)
Springer-Verlag GmbH (2005)
832 pages plus index
RRP: $US139.00

This is a reference book suitable for departmental and medical libraries and for the shelves of those who have a particular clinical or research interest in mesothelioma, or who are involved in public health administration or industrial litigation.

Dr Pass, Vogelzang and Carbone envisioned a comprehensive text and have achieved it. They have assembled a group of experts and international contributors who provide 54 chapters covering carcinogenesis, genetics, clinical presentation, epidemiology, imaging, pathology, current and investigational treatments and the economic implications of the disease.

To be useful such a book must be well indexed; and this is, the individual chapters are well referenced and references are current.

The text is well edited, although there is some repetition, which is inevitable with multiple authored texts. The figures of gene expression arrays, histopathology slides and x-rays are of good quality and sharply reproduced. The book is well bound and attractively presented. This is a quality production.

It covers the subject in appropriate scope and detail for a reference volume. However, despite recent advances, malignant mesothelioma remains a lethal disease, and a section devoted specifically to symptom control and quality of life would be appropriate. As the incidence of mesothelioma plateaus in the first world, it will rise further in the third world where cheap substitutes for asbestos are lacking. A discussion of the epidemiology of the disease in the third world would be useful in the next edition. Finally treatment is well covered, but a more critical look at the evidence for the efficacy of what are becoming more widely accepted therapies would enhance the value of the book. Overall it is highly recommended.

Michael Byrne, Dept Medical Oncology, Sir Charles Gardiner Hospital, Perth WA

MD Anderson Manual of Medical Oncology
HM Kantarjian, RA Wolff, CA Koller
ISBN: 0071414991
RRP: $285.00

The MD Anderson Manual of Medical Oncology has, according to the editors, been written as a hands-on resource for oncologists that presents a bird’s eye view of medical oncology as it is currently practised at this institution. It was written primarily from the perspective of the medical oncologist and although MD Anderson claims to practise a multidisciplinary approach, it is void of information in some...
sections covering radiotherapy and surgery.

The manual covers 13 sections: leukaemia, lymphoma and myeloma, blood and marrow transplantation, lung cancer, head and neck cancer, gastrointestinal carcinomas, breast cancer, gynaecologic malignancies, genitourinary carcinomas, miscellaneous tumours, supportive care, palliative care and symptom management and long term survival, with a total of 44 chapters. The lengths of the chapters are variable and range from as few as eight pages (autologous transplantation) to 40 pages for cervical cancer. Haematological malignancies occupy the first 270 pages of the manual.

The text demonstrates a rationale for patient care that is evidence based, with MD Anderson showing their biases as they apply to cancer biology and therapy. They have endeavoured to articulate the rationale of ongoing clinical trials and the importance of clinical investigation.

The manual contains a plethora of tabulated data and graphics, pathology figures, illustrative imaging, algorithms in the form of flowcharts and diagrams to provide the reader with a practical guide to the diagnostic and therapeutic strategies used at MD Anderson. The layout of some pages is somewhat messy, with some pages containing too many graphics. Some of the pathology and radiology images are poorly replicated giving them a blurred appearance.

Overall, the manual is worthwhile to look at, but I am not convinced that it is a must for every oncology department.

Karen Goryniska, Oncology Unit, Coffs Harbour Health Campus, Coffs Harbour NSW

Molecular Carcinogenesis and the Molecular Biology of Human Cancer
D Warshawsky, JR Landolph (eds)
Taylor & Francis (2006)
558 pages plus index
RPP: £85.00

The long-winded title of this book is indicative of both its strengths and its weaknesses. The claim on the back cover is that: “This volume explores molecular information specific to chemical, viral and radiation carcinogenesis, explains the working of cellular oncogenes and tumor suppressor genes, and also introduces the latest genomic and proteomic approaches”. All that is laudable, and certainly a strength. The related weakness lies in the need to provide links between these various fields of enquiry.

In structure, the first quarter of the book provides a timely summary of the field once known as ‘chemical carcinogenesis’. The term is still understood, but no longer identifies particular scientists, departments, institutes or funding streams. There follows an outline of the basis of molecular carcinogenesis which provides the paradigm for discussions of major cancers (breast, lung, skin, etc.). There are no link-up problems here. There are gaps in knowledge, but the molecular genetic approach to cancer etiology provides a basis for addressing malignant transformation and current approaches to therapeutics. In this context, a chapter on metastasis would have been useful. Also useful would have been a chapters on chemical and viral carcinogenesis at that part of the book in which radiation carcinogenesis is considered. The goal of such chapters would have been carcinogen-gene interactions: the business of relating how chemical carcinogens in particular may be understood as modifying particular genes or signal transduction pathways. In part, such chapters are missing because the pickings are slim.

The challenge for the editors and readers is to link the sections with the last part of the book. The final chapters of the book address regulatory control of carcinogen exposure in terms of bioassay, risk assessment and law-making. It is in this context that agents like dioxins (TCDD) and polychlorinated biphenyls emerge as clear causes for concern. But how are these agents to be understood in terms of the molecular genetics of tumours with which they are associated? Arguably, these ‘carcinogens of interest’ might have been subject to more detailed discussion in earlier biologically-based chapters.

The observations made above are difficulties with current knowledge rather than criticisms of the book under consideration. Regardless of such limitations, this volume is a useful compendium. There is a consistency of style across the chapters and the contributing authors write with authority. The book would be of benefit to anyone seeking to close the gap between biological effects induced by certain classes of compounds and the manner in which carcinogenic hazards are regulated.

Bernard W Stewart, Cancer Control Program, South Eastern Sydney and Illawarra Area Health Service and Faculty of Medicine, UNSW

Neuro-Oncology of CNS Tumors
JC Toon, M Westphal, JT Rutka, SA Grossman (eds)
ISBN: 3-540-25833-7
696 pages plus index
RPP: $US522.00

This textbook represents at least the third such neuro-oncology tome. While this is very encouraging to neuro-oncologists, I am not sure that it offers much more than previous textbooks. The publication of such a text is a sure sign that neuro-oncology has developed significantly over the last 10 years and that there is now a substantial body of information on this unfashionable subspecialty. The question to be asked of such a book is what does it offer above and beyond previous texts or a regular review of the current literature? This particular textbook has authors from around the world and covers all the usual areas encompassed within neuro-oncology. However, it is almost equally divided into adult and paediatric neuro-oncology and, while this may suit some clinicians, I suspect that most specialists in the field of neuro-oncology are focused either on adult or paediatric tumours, but not both. Thus almost half of the book becomes an irrelevancy to most readers.

I have found that many such textbooks focus too much on the uncommon and less on the common. As a good example, there are 11 pages on high-grade gliomas in this book, which compares poorly to the 25 pages on the rare phenomenon of skull based tumours. Further, the book is, in many respects, out of date even though it was published in 2006. There is only one brief paragraph on the influential Stupp regimen and cites the 2004 ASCO abstract, despite the New England Journal paper being published in 2005. Even more disappointing, there is no discussion on targeted therapies or novel therapeutic strategies.

I would not recommend this book given such concerns. I would suggest that a review of the recent literature in a particular area would be more forthcoming and that a reference to the encyclopaedic text Brain Tumours, edited by Kaye & Laws, would be more worthwhile.

Mark Rosenthal, Director of Medical Oncology, Royal Melbourne Hospital, Victoria

Nursing Care of Women with Cancer
KH Dow
Mosby (2006)
565 pages plus index
RPP: $124.95

This hard-back book is edited by Karen Hassey Dow, a prominent and widely published American oncology nurse. There are 29 chapters written by 36 American and Canadian nurses and allied health professionals. One assumes from the title that the book is about breast and gynaecological cancers. Interestingly it also includes lung cancer, colorectal cancer and non-Hodgkin’s lymphoma. While the inclusion of these three chapters provides an extra dimension for nurses who work with women with breast or gynaecological cancers, I can’t imagine that nurses working with the other three groups of patients would specifically seek out this book as it
I often like to source references to read further on a subject and was frustrated by the fact that the last 10 references cited in the chapter on breast cancer are missing from the reference list. The chapter ‘Body image and sexual functioning’ has some topics that have been cited directly from other sources without considering that this is a book specifically about women with cancer. Consequently I found it irritating that reference was made to the necessity to offer patients sperm banking, that there was a third of a page devoted to head and neck cancer (where it is not included in the rest of the book) and that suggested assessment questions include ‘Has having cancer interfered with you being a father/husband?’ and ‘Has your cancer changed the way you see yourself as a man?’.

Despite these, the book is well written, well laid out and easy to read. It is a welcome edition to my personal library and I recommend it for hospital libraries, units caring predominantly for women with breast or gynaecological cancers and the nurses from those units who are prepared to pay $125 for a textbook.

Letitia Lancaster, Department of Gynaecological Oncology, Westmead Hospital, Sydney NSW

**Nursing in Haematological Oncology (2nd Edition)**

M Grundy (ed)

Bailliere Tindall (2006)

ISBN: 0-7020-2753-7

602 pages plus index

RPP: $99.00

This second edition retains its focus on both senior and junior nurses in haematological oncology. The explanations maintain a basic level for easy comprehension, but also a more in-depth discussion and dissection, which provides a useful resource for experienced nurses. The explanation in the 2000 edition of haematopoiesis was quite simplified and brief, a situation which has been rectified in the 2006 edition, making this text a useful reference point for teaching. This new volume includes a chapter on adolescents with cancer, an important inclusion that addresses some pertinent issues such as compliance, negotiation and refusal of treatment in this unique patient group.

The chapter on nausea and vomiting was reviewed by ward staff and found to be quite comprehensive although repetitive at times. Senior nurses were appreciative of having a text that was written at more intense level, however it was a little overwhelming for the junior nurses. Nevertheless, they were able to understand the explanation of causes of nausea. It was interesting that this chapter notes that nurses are the ones that drive antiemetic administration and therefore have an important role to play in the quality of the hospital experience for patients.

The first edition of Nursing in Haematological Oncology (2000) only dealt briefly with emerging treatments, whereas this edition devotes an entire chapter to immune modulators. The topic of sexuality is also included as a separate chapter from fertility. Too often these topics are bundled together and brushed over; this text identifies the separate issues, and the ability to be able to communicate with patients appropriately and supportively is a requirement reinforced in the discussion.

More social and psychological issues are highlighted and management strategies are brought forward in this text. It provides a comprehensive overview of not only clinical interventions

Di Saward, Nursing Education and Research Department, Royal Adelaide Hospital, SA

**Oncology: An Evidence-Based Approach**

AE Chang, PA Ganz, DF Hayes, T Kinsella, HJ Pass (eds)

Springer-Verlag GmbH (2006)

ISBN: 0-387-24291-0

1958 pages plus index

RPP: $US179.00

As suggested by the title, this book looks at the complexity of oncology by utilising an evidence-based approach. It is a large heavy book with 113 chapters and many authors, however it is easy to read and should capture the reader’s attention due to the layout and style in which it is written. The opening chapter allows the novice or more experienced clinician to gain immediate direction with a succinct introduction to the evidence-based approach to oncology.

It follows on by looking at the principles of chemotherapy, radiation, surgery and targeted/biological therapies. Each of these chapters gives an overall description of its targeted treatment modality using some great diagrams. The “Cancer imaging” chapter is a huge plus for this book as it discusses scanning with positron-emission tomography, utilising some excellent images. Other sections look at supportive care of the cancer patient, management of oncologic emergencies and acute toxicities of treatment. It also covers the cell cycle, carcinogenesis and tumour immunology. The sections on cancer survivorship, informed consent and patient decision-making are well worth a read.

Overall a great book providing comprehensive coverage of the evidenced-based approach to oncology, allowing the readers to make their own decisions. I would recommend this book to all health professionals who have an interest in oncology.

Di Saward, Nursing Education and Research Department,
Pediatric Oncology

P Imbach, T Kühne, R Arceci (eds)
Springer-Verlag GmbH (2006)
ISBN: 3-540-25211-8
243 pages plus index
RRP: €84.95

Pediatric Oncology, as stated in the foreword, is “rightly viewed as a clinical and scientific subspecialty of pediatrics”. This speciality is unique in many of its processes from disease presentation and diagnosis through treatment to survivorship/death. With today’s internet savvy generation, their expectation for information is greater and people’s understanding is sometimes skewed by the information they may find. This book provides a collection of concise information through the spectrum of paediatric oncological issues to allow both the health professional, and also some patients and families, to tailor their search for information. Its authors are involved in clinical trial groups and therefore providing current data.

This book provides 20 chapters covering the leukaemias, myelodysplastic syndrome, myeloproliferative syndromes, the lymphomas, histiocytoses, brain tumours, neuroblastoma, nephroblastoma, the sarcomas, retinoblastoma, germ cell tumours and hepatic tumours. The chapters covering oncological emergencies, nursing care and psychological and psychosocial issues provide a more balanced view of the total care and issues facing this unique group of patients. The contents page is detailed and the chapters easy to find with each page named with its relevant chapter. Its script is in note form, making it an effective and fast reference tool. This book is a good starting point to further refine an information search of relevant in-depth texts and current journal articles.

The desired audience was intended to be all people involved in the care of the paediatric oncology patient, including the patient’s family (parent and sibling), however I believe its usefulness will be limited for this latter group of readers. Very well informed patients and families may find it useful, but its point form and brief statements may not provide the explanation needed, and some terminology may inhibit understanding. (It may be used to ‘check’ that the health team has done or explained everything they should). For all practitioners in the MDT of paediatric oncology, this book provides a concise, current and comprehensive tool for a quick review of diseases, their related pathogenesis, genetics, treatment, prognosis and complications.

Hopefully, informed staff will provide information to patients and families, which in turn will empower them to be a part of the decision-making process and help, as the book’s editor hopes, “to create an atmosphere of trust, and hope”.

Liz Darch, Oncology/Haematology Department, Princess Margaret Hospital for Children, Perth WA

What makes this book important and informative to any reader is that it is a collection of chapters written by luminaries in the field of PET. Each succinctly written chapter has extensive peer-reviewed references and the discussion/content in each chapter is up-to-date. This book may be targeted primarily at the nuclear imaging community, but the understanding of the science behind PET imaging can be important for clinicians using PET services. Appropriately in this book, there is also a brief overview of the clinical applications of PET imaging in oncology in chapter 16.

The numerous and strategically placed illustrations make even the most fundamentals of physics, instrumentation, radiochemistry and radiation dosimetry etc. easy to comprehend and thus, this book is suitable for those new and old to the field of PET. We would recommend it to any scientists and clinicians with an interest in medical imaging.

Seu Som and Peter Lin, Department of Nuclear Medicine, PET and Ultrasound, Liverpool Hospital, NSW

Practical Management of Thyroid Cancer: A Multidisciplinary Approach

EL Mazzaferrin, C Harmer, UK Mallick, P Kendall-Taylor (eds)
Springer-Verlag GmbH (2006)
434 pages plus index
RRP: $US149.00

This is a very readable book which covers the management of thyroid cancer in a comprehensive manner. The editors are acknowledged international leaders in the field from both sides of the Atlantic including Newcastle-upon-Tyne, Royal Marsden Hospital in London and Ohio State University. They have assembled a small but dedicated team of contributors who have provided an excellent and up-to-date review of thyroid cancer.

Mazzaferrin introduces the topic with a masterly overview of thyroid cancer, focusing on the significant increase in thyroid cancer seen around the world over the last three decades. A summary of the investigation and management of thyroid cancer is then provided.

Section 1 covers the UK multidisciplinary approach to management of thyroid cancer, with the UK evidence-based guidelines key recommendations being presented and discussed in detail. Mallick then reviews the multidisciplinary team (MDT) structure, discussing both advantages and disadvantages in relation to thyroid cancer. It must be noted that thyroid cancer is one malignancy where a multidisciplinary team approach with regular MDT meetings, albeit less formalised than the NICE recommendations, have been part of routine practice in many units in Australia for several decades, driven largely by a need for close interaction between endocrinologist, nuclear medicine physician and endocrine surgeon to achieve optimal management. Thyroid cancer and its management are then discussed from the perspective of the patient, the specialist nurse and from the clinical psychologist.

The remaining sections of the book deal with specific topics in relation to the management of thyroid cancer, such as the diagnosis of thyroid cancer, surgical and non-surgical management and follow-up. The section on initial surgery is particularly well-written with an up-to-date overview of contra-versial areas, for example Watkinson strongly supports routine central lymph node (Level VI) dissection as part of initial surgery for the N0 neck in papillary thyroid cancer. The following sections deal with a range of other interesting topics, such as thyroid cancer in children, aggressive thyroid cancer, rare thyroid cancers and a very useful section dealing specifically with the issues related to incidental papillary micro carcinoma, providing a balanced viewpoint between the two extreme goals of eliminating all disease and reducing the likelihood of recurrence to a minimum, versus keeping intervention to a minimum whilst accepting some degree of risk of intervention. The final section provides an overview of future developments and directions for research.

Overall the book provides an invaluable practical resource for clinicians and all other team members involved in the
## CALANDER OF MEETINGS

### AUSTRALIA AND NEW ZEALAND

<table>
<thead>
<tr>
<th>Date</th>
<th>Name of Meeting</th>
<th>Place</th>
<th>Secretariat</th>
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<tbody>
<tr>
<td>29 Nov</td>
<td>33rd Clinical Oncological Society of Australia Annual Scientific Meeting</td>
<td>Melbourne VIC</td>
<td>ASN Events Tel: +61 3 9863 7867 Web: <a href="http://www.cosa.org.au">www.cosa.org.au</a> Email: <a href="mailto:congress@asnevents.net.au">congress@asnevents.net.au</a></td>
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<td>2007</td>
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<tr>
<td>May</td>
<td>13-16 Australian College of Dermatologists 40th Annual Scientific Meeting</td>
<td>Adelaide SA</td>
<td>Australian College of Dermatologists PO Box 2065 Bondi Park NSW 2111 Australia Tel: 1300 361 821 (Australia only) or +61 (02) 8765 0242 Fax: +61 (02) 9786 2194 Email: <a href="mailto:admin@dermcoll.asn.au">admin@dermcoll.asn.au</a> Web: <a href="http://www.dermcoll.asn.au">www.dermcoll.asn.au</a></td>
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<tr>
<td>August</td>
<td>1-5 Medical Oncology Group Australia Annual Scientific Meeting</td>
<td>Melbourne VIC</td>
<td>MOGA Conference Secretariat c/o Pharmaevents PO Box 265, Annadale NSW 2038 Tel +61 2 9280 0577 Fax +61 2 9280 0533 Email: mogapharmaevents.com.au Web: <a href="http://www.moga.org.au">www.moga.org.au</a></td>
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<tr>
<td>28-31</td>
<td>9th Australian Palliative Care Conference</td>
<td>Melbourne VIC</td>
<td>APCC 07 Conference Secretariat C: ICE Australia P/L 6 Clarendon Place, South Melbourne VIC 3205 Tel: +61 3 9681 6288 Fax: +61 3 9681 6653 Email: <a href="mailto:apcc@kreast.asa.com.au">apcc@kreast.asa.com.au</a> Web: <a href="http://www.pallcare.org.au/Default.aspx?tabid=309">www.pallcare.org.au/Default.aspx?tabid=309</a></td>
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<tr>
<td>October</td>
<td>1-7 RANZCR 58th Annual Scientific Meeting</td>
<td>Melbourne VIC</td>
<td>Royal Australian and New Zealand College of Radiologists (RANZCR) Level 5, 51 Dunst Street, SYDNEY NSW 2000 Tel: +61 2 9286 9777 Fax: +61 2 9286 9799 Web: <a href="http://www.ranzer.edu.au">www.ranzer.edu.au</a></td>
</tr>
<tr>
<td>November</td>
<td>14-16 34th Clinical Oncological Society of Australia Annual Scientific Meeting</td>
<td>Adelaide SA</td>
<td>Pharma Events Ph: +61 2 9280 0577 Fax: +61 2 9280 0533 Email: cosapharmaevents.com.au</td>
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### INTERNATIONAL

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<th>Date</th>
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<tr>
<td>2006</td>
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<tr>
<td>November</td>
<td>Oct 29 – Nov 2 1st International Congress on Childhood Cancer (ICCC 2006)</td>
<td>Tehran Iran</td>
<td>Cancer Institute Research Center MAHAK Childhood Cancer Hospital Oshoin BLVD, Darabad Tehran, I. R. of Iran 19575-566 Tehran c/o Aleneza Mosavi-jaraffi Tel: +98 21 22481010 Fax: +98 21 22481011 Email: <a href="mailto:mosava@yahoo.com">mosava@yahoo.com</a> Web: <a href="http://www.cr.tums.ac.ir/En/home.asp">www.cr.tums.ac.ir/En/home.asp</a></td>
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<tr>
<td>2-4</td>
<td>4th French Brazilian Cancer Congress</td>
<td>Rio de Janeiro Brazil</td>
<td>Sociedade Fraco-Brasilica de Oncologia Rio de Janeiro, Brazil Tel: +55 24 224 6200 Fax: +55 24 222 12156 Email: <a href="mailto:drularismail@terra.com.br">drularismail@terra.com.br</a> Web: <a href="http://www.oncologiasjocbrasileira.com">www.oncologiasjocbrasileira.com</a></td>
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<tr>
<td>2-4</td>
<td>7th Meeting of the International Society of Geriatric Oncology (SIGO)</td>
<td>The Hague Netherlands</td>
<td>SIGO - International Society of Geriatric Oncology - by TRIM T. Ramaynk Geners Deynrodtweg 62 2586BN The Hague Tel: +31 70 331 8444 Fax: +31 70 331 8444 Email: <a href="mailto:tajana.romanyk@trm-ongolo.org">tajana.romanyk@trm-ongolo.org</a> Web: <a href="http://www.cancerworld.org/siog/">www.cancerworld.org/siog/</a></td>
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<td>5-8</td>
<td>3rd Asian Pacific Organization for Cancer Prevention (APOCP) General Assembly Conference “Empowering Cancer Prevention in the Asia Pacific”</td>
<td>Bangkok Thailand</td>
<td>3rd Asian Pacific Organization for Cancer Prevention (APOCP) Nagoya, Japan Tel: +61 1 809 7664 Fax: +61 2 955 9986 Email: <a href="mailto:tkajima@nagoya-kcn.co.jp">tkajima@nagoya-kcn.co.jp</a> Web: <a href="http://www.apocp.org">www.apocp.org</a></td>
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<tr>
<td>5-9</td>
<td>48th American Society for Therapeutic Radiology and Oncology (ASTRO) Annual Meeting</td>
<td>Philadelphia United States</td>
<td>American Society for Therapeutic Radiology and Oncology (ASTRO) Fairfax, Virginia, United States Tel: +1 703 227 0170/502 1550 Fax: +1 703 502 7852 Email: <a href="mailto:meetings@astro.org">meetings@astro.org</a> Web: <a href="http://www.astro.org">www.astro.org</a></td>
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<tr>
<td>5-10</td>
<td>XVII FIGO World Congress of Gynecology and Obstetrics</td>
<td>Kuala Lumpur Malaysia</td>
<td>FIGO Conventions and Events Sdn Bhd Kuala Lumpur, Malaysia Tel: +60 3 4222 9100 Fax: +60 3 4217 1133 Email: <a href="mailto:conference@figo2006.com">conference@figo2006.com</a> Web: <a href="http://www.figoworldcongress.com">www.figoworldcongress.com</a></td>
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<tr>
<td>7-10</td>
<td>18th EORTC-NCI-AIRC Symposium on Molecular Targets and Cancer Therapeutics</td>
<td>Prague Czech Republic</td>
<td>Federation of European Cancer Societies (FECS) Brussels, Belgium Tel: +32 2 775 0201 Fax: +32 2 775 0200 Email: <a href="mailto:ENA2006@fecc.be">ENA2006@fecc.be</a> Web: <a href="http://www.fecce.be">www.fecce.be</a></td>
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<td>7-10</td>
<td>3rd Asia Pacific UICC Reach to Recovery International (RRI) Breast CAANCER Support Conference</td>
<td>Mumbai India</td>
<td>3rd Asia Pacific UICC Reach to Recovery International (RRI) Breast CAANCER Support Conference Conference Mumbai, India Tel: +91 22 2449808 Fax: +91 22 444 49800 Email: <a href="mailto:vinayk_hqprod@live.com">vinayk_hqprod@live.com</a> Web: <a href="http://www.jagruti.org.in">www.jagruti.org.in</a></td>
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<tr>
<td>9-10</td>
<td>Satellite Meeting “Modeling for Detection of Environmental</td>
<td>Chiang Mai Thailand</td>
<td>Asia Pacific Organization for Cancer Prevention (APOCP)</td>
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**Note:** The information is subject to change. Please check the official websites for the most up-to-date details.
## CALENDAR OF MEETINGS

<table>
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<th>Place</th>
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<tbody>
<tr>
<td>9-11</td>
<td>2006 ONS Nurse Practitioner Conference</td>
<td>Pittsburgh, United States</td>
<td>Oncology Nursing Society (ONS) 125 Enterprise Drive 15275 Pittsburgh, Pennsylvania, USA Tel: +1 866 257 4667 / +1 412 859 6100 Fax: +1 877 369 5497 / +1 412 859 6162 Email: <a href="mailto:customer.service@ons.org">customer.service@ons.org</a> Web: <a href="http://www.ons.org/">www.ons.org/</a></td>
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<tr>
<td>10-12</td>
<td>ONS 2006 Institutes of Learning</td>
<td>Pittsburgh, United States</td>
<td>Oncology Nursing Society (ONS) 125 Enterprise Drive 15275 Pittsburgh, Pennsylvania, USA Tel: +1 866 257 4667 / +1 412 859 6100 Fax: +1 877 369 5497 / +1 412 859 6162 Email: <a href="mailto:customer.service@ons.org">customer.service@ons.org</a> Web: <a href="http://www.ons.org/">www.ons.org/</a></td>
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<tr>
<td>13 - 15</td>
<td>International Conference on Quality Assurance and New Techniques in Radiation Medicine</td>
<td>Vienna, Austria</td>
<td>IAEA - International Atomic Energy Agency Ms. R. Perricos, Conference Services Section Wagamers Strasse 5 P.O. Box 100, 1400 Vienna Tel: 43 1 2600 21315 Fax: 43 1 2600 7 Email: <a href="mailto:r.perricos@iaea.org">r.perricos@iaea.org</a> Web: <a href="http://www.pub.iaea.org/MTCD/Meetings/Announcements.asp?ConfID=146">www.pub.iaea.org/MTCD/Meetings/Announcements.asp?ConfID=146</a></td>
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<tr>
<td>16 - 18</td>
<td>Cancer and Pregnancy</td>
<td>Orta S. Giulio, Italy</td>
<td>European School of Oncology Daniela Mengato - Francesca Marangon Viale Beatrice d’Este, 37 20122 Milano Tel: 39 02 8546 451 Fax: 39 02 8546 454 Email: <a href="mailto:conferences@esoncology.org">conferences@esoncology.org</a> Web: <a href="http://www.cancerworld.org/home.asp">www.cancerworld.org/home.asp</a></td>
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<tr>
<td>17 - 18</td>
<td>3rd Multidisciplinary Educational Oncology Symposium: Multidisciplinary Approach to Gynaecological Cancers</td>
<td>Johannesburg, South Africa</td>
<td>European School of Oncology (James dir.) Yvonne Pyne James Tel: 27 11 403 4004 Fax: 27 11 1041 Email: <a href="mailto:rsvp@yebo.co.za">rsvp@yebo.co.za</a></td>
</tr>
<tr>
<td>21-22</td>
<td>Cancer World Conference on Improving Cancer Services</td>
<td>Brussels, Belgium</td>
<td>European School of Oncology Marjanta Cassese Viale Beatrice d’Este 37, 20122 Milan Tel: +39 02 8546 452 Fax: +39 02 8546 454 Email: <a href="mailto:mcsasse@oncology.org">mcsasse@oncology.org</a> Web: <a href="http://www.cancerworld.org/">www.cancerworld.org/</a></td>
</tr>
<tr>
<td>24 - 26</td>
<td>11th International Conference: Issues on Tissues</td>
<td>Mumbai, India</td>
<td>Asia Pacific Association of Surgical Tissue Banks Tata Memorial Hospital Dr. E. Borges Road, 400 012 Mumbai Tel: 91 222 417 7000 Fax: 91 222 416 497 Email: <a href="mailto:info@apastb.org">info@apastb.org</a> Web: <a href="http://www.tatamemorialcentre.com/newsreleases/apastb.htm">www.tatamemorialcentre.com/newsreleases/apastb.htm</a></td>
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<tr>
<td>26 Nov – 1 Dec</td>
<td>92nd RSNA Scientific Assembly and Annual Meeting</td>
<td>Chicago, United States</td>
<td>Radiological Society of North America (RSNA) 820 Jorie Blvd 60521 Oak Brook Tel: +1 630 571 7877 Fax: +1 630 571 7837 Email: <a href="mailto:reginfo@rsna.org">reginfo@rsna.org</a> or <a href="mailto:sdrew@rsna.org">sdrew@rsna.org</a> Web: <a href="http://www.rsna.org/">www.rsna.org/</a></td>
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<tr>
<td>27 - 28</td>
<td>BASO-ACS Scientific Conference</td>
<td>London, United Kingdom</td>
<td>The Association for Cancer Surgery (BASO) BASO c/o The Royal College of Surgeons of England</td>
</tr>
</tbody>
</table>
### CALENDAR OF MEETINGS

<table>
<thead>
<tr>
<th>Date</th>
<th>Name of Meeting</th>
<th>Place</th>
<th>Secretariat</th>
</tr>
</thead>
<tbody>
<tr>
<td>December</td>
<td>1st African Conference on Tobacco or Health</td>
<td>Casablanca, Morocco</td>
<td>Moroccan Association for Prevention &amp; Health Education (AMAPES STOP TABAC)</td>
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<td></td>
<td></td>
<td></td>
<td>Mohamed Bartal</td>
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<td></td>
<td></td>
<td></td>
<td>39 Rue de l’Epi, 20050 Casablanca</td>
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<td>Fax: 212 2 229 6850</td>
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<td>E-mail: <a href="mailto:bartalmo@pmuara.ma">bartalmo@pmuara.ma</a></td>
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<td></td>
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<td></td>
<td>Web: <a href="http://www.achatmorocco.org/">www.achatmorocco.org/</a></td>
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<tr>
<td>9 - 12</td>
<td>The American Society of Hematology</td>
<td>Florida, United States</td>
<td>American Society of Haematology - ASH</td>
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<tr>
<td></td>
<td>48th Annual Meeting and Exposition</td>
<td></td>
<td>1900 M Street, NW Suite 200</td>
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<td>20036 - Washington DC</td>
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<td>Email: <a href="mailto:ash@hematology.org">ash@hematology.org</a></td>
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<td>Web: <a href="http://www.hematology.org/meetings/2005/index.cfm">www.hematology.org/meetings/2005/index.cfm</a></td>
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<tr>
<td>9 - 13</td>
<td>American Society for Cell Biology (ASCB) 46th Annual Meeting</td>
<td>San Diego, United States</td>
<td>American Society for Cell Biology</td>
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<td></td>
<td>8120 Woodmont Avenue Suite 750</td>
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<td>20814 - Bethesda, MD</td>
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<td>Web: <a href="http://www.ascb.org/meetings/am2005/index.html">www.ascb.org/meetings/am2005/index.html</a></td>
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<tr>
<td>10 - 14</td>
<td>VI International Meeting on Cancer</td>
<td>Texas, United States</td>
<td>The Cancer and Bone Society</td>
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<td>Induced Bone Disease</td>
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<td>Conference Secretariat</td>
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<td>2052 M Street, NW, Suite 800</td>
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<td>Email: <a href="mailto:info@cancerandbonesociety.org">info@cancerandbonesociety.org</a></td>
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<td>Web: <a href="http://www.cancerandbonesociety.org">www.cancerandbonesociety.org</a></td>
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<td>2007</td>
<td>January</td>
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<tr>
<td>9 - 13</td>
<td>6th Annual Meeting of the Israel Society</td>
<td>Eilat, Israel</td>
<td>Israel Society for Clinical Oncology &amp; Radiation Therapy (ISCORT)</td>
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<td>for Clinical Oncology &amp; Radiation Therapy</td>
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<td>A.M. Knaism</td>
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<td>(ISCORT)</td>
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<td>Tel: +972 3 613 4942/3</td>
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<td>E-mail: <a href="mailto:knasim@biggerinvestments.com">knasim@biggerinvestments.com</a></td>
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<td>Web: <a href="http://www.iscort.org/">www.iscort.org/</a></td>
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<tr>
<td>2007</td>
<td>February</td>
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<tr>
<td>14 - 17</td>
<td>Annual Assembly of The American Academy of Hospice</td>
<td>Salt Lake City, United States</td>
<td>American Academy of Hospice and Palliative Medicine</td>
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<tr>
<td></td>
<td>and Palliative Medicine (AHHMP) and The Hospice</td>
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<td>4700 W. Lake Avenue, Glenview, IL 60025-1485</td>
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<td></td>
<td>and Palliative Nurses Association (HPNA)</td>
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<td>Tel: 847/375-4712</td>
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<td>E-mail: <a href="mailto:info@ahhmp.org">info@ahhmp.org</a></td>
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<td>2007</td>
<td>March</td>
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<td>1 - 3</td>
<td>American Psychosocial Oncology Society (APOS)</td>
<td>Texas, United States</td>
<td>American Psychosocial Oncology Society</td>
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<td></td>
<td>4th Annual Conference</td>
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<td>Ms. Alison Holcomb</td>
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<td>2365 Hunters Way, 22911 Charlottesville</td>
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<td>Tel: +1 434 293 5350</td>
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<td>1 - 4</td>
<td>The International Network For Cancer</td>
<td>Sao Paulo, Brazil</td>
<td>Institut Pasteur</td>
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<tr>
<td></td>
<td>Treatment and Research (INCTR) 7th Annual Meeting</td>
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<td>Cedric Petit-Musin, Meeting Coordinator</td>
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<td></td>
<td>Rue Engelhart 642, B-1180 Brussels</td>
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<td>Tel: 32 2 373 9314</td>
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<td>E-mail: <a href="mailto:Cedric@inctr.be">Cedric@inctr.be</a></td>
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<td>Web: <a href="http://www.inctr.org">www.inctr.org</a></td>
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<td>14 - 17</td>
<td>Primary Therapy of Early Breast Cancer,</td>
<td>St. Gallen, Switzerland</td>
<td>Ms. Beatrice Nair</td>
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<td>10th International Conference</td>
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<td>St. Gallen Oncology Conferences</td>
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THE CANCER COUNCIL AUSTRALIA

The Cancer Council Australia is the peak national cancer control organisation. Its members are the leading state and territory cancer councils, working together to undertake and fund cancer research, prevent and control cancer and provide information and support for people affected by cancer.

MEMBERS
The Cancer Council ACT
The Cancer Council New South Wales
The Cancer Council Northern Territory
The Cancer Council South Australia
The Cancer Council Tasmania
The Cancer Council Victoria
The Cancer Council Western Australia
Queensland Cancer Fund

AFFILIATED ORGANISATIONS
Australasian Association of Cancer Registries
Clinical Oncological Society of Australia Inc
Palliative Care Australia

CEO
Professor I Olver MD, PhD, CMin, FRACP, FAChPM, MRACMA

COUNCIL
Office Bearers
President
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Vice President
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Professor D Hill AM, PhD
Professor W McCarthy AM, MBBS, FRACS
Dr A Penman
Assoc Professor S Smiles RN, RM, ICC, BHA, GradDipPSEM
Dr K White PhD

CLINICAL ONCOLOGICAL SOCIETY OF AUSTRALIA INC

The Clinical Oncological Society of Australia (COSA) is a multidisciplinary society for health professionals working in cancer research or the treatment, rehabilitation or palliation of cancer patients.

It conducts an annual scientific meeting, seminars and educational activities related to current cancer issues. COSA is affiliated with The Cancer Council Australia.

EXECUTIVE COMMITTEE
President
Professor D Goldstein MBBS, FRACP
President Elect
Vacant
Executive Officer
Ms M McJannett
Council Nominees
Ms K Cameron RN, OncCert, GrDipN, MNSc
Professor B Stewart MSc, PhD, FRACI, Dip Law
Ms A Woollett

MEMBERSHIP
Further information about COSA and membership applications are available from: www.cosa.org.au or cosa@cancer.org.au
Membership fees for 2006
Ordinary Members: $160
Associate Members: $100
(includes GST)

INTEREST GROUPS
ANZ Children’s Haematology and Oncology
Breast Oncology
Cancer Nurses Society of Australia
Cancer Research
Clinical Research Professionals
Epidemiological
Familial Cancer
Gastrointestinal Oncology
Gynaecological Oncology
Lung Oncology
Medical Oncology
Melanoma and Skin
Neuro-oncology
Palliative Care
Pharmacy
Psycho-Oncology
Radiation Oncology
Regional and Rural Oncology
Social Workers
Surgical Oncology
Urological Oncology