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Over view

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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-melanomatosus 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.

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.
The benefit of definitive concurrent chemo-radiotherapy compared with radiotherapy alone has been reported in many randomised clinical trials, while the role of induction chemotherapy remains uncertain.1,17

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 curving the cancer with minimal toxicity and optimal voice quality. From a practical point of view a 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. Kleveland and Iselli 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 overall 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 chemo-radiotherapy 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 discuss 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 planning, the 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 be incorporated on the planning 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.

References


AlteredFractionationinlocallyadvancedheadandneckcancer:
anupdate

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Abstract

Efforts to improve the cure rates of advanced squamous cell carcinoma of the head and neck cancer have been made by altering the dose and fractionation schedules for radiation treatment in an attempt to strike a better balance between tumour kill and normal tissue side-effects. Altered fractionation may involve acceleration, hyperfractionation or hypofractionation. Acceleration overcomes the problem of tumour cell repopulation by reducing the overall treatment time with slight 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 biological 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 hypofractionation 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 radiation therapy 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 areas of tumour with reflectance or intensity modulated radiotherapy (IMRT). Radiation is delivered in multiple sessions or fractions to allow normal tissues to repair sublethal damage that has been incurred by the radiation. Normal tissue 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 are relatively unaffected by overall treatment time. However, the acute effects become so severe that stem cells are depleted, then consequently cell loss occurs.

The biological effective dose (BED) of radiation can be calculated mathematically:15

\[ \text{BED} = D \times (1 + \frac{t}{T_{HR}}) \]

where \( D \) is the dose per fraction, \( t \) is the time between fractions and \( T_{HR} \) is the hypoxic fraction. This demonstrates that there is a significant impact of fractionation on the outcome of treatment and that a higher dose per fraction is required to deliver the same total dose in fewer fractions.
where D= total dose and d= dose per fraction. The a/b ratio varies from tissue to tissue with late responding tissues having an a/b ratio of 1-3 and acute responding tissues and tumours having an a/b ratio of 8-10. This paper reviews the methods of altering fractionation in the head and neck region and the clinical studies that have investigated its use over the past 20 years. The rationale and effects of altering fractionation are summarised in Table 1.

### Types of fractionation of radiotherapy

**Conventional radiotherapy**

Conventional radiotherapy is given with external beam radiotherapy once per day in doses of 2 Gy, five days a week. Typical conventional schedules in Australia, the US and Europe are 60-70 Gy in 30-35 fractions given over six to seven weeks. In the UK, schedules tend to be shorter by using a larger dose per fraction, such that 50 Gy is delivered in 20 fractions over four weeks.

**Hypofractionation**

Hypofractionation seeks to increase the total dose, number of fractions and reduce the dose per fraction so that the total treatment can be delivered in the same overall time as a conventional treatment. This is achieved by using between two and three fractions per day. The reduction in dose per fraction allows the total dose of treatment to be escalated. The linear quadratic equation would predict that this would produce a higher overall time as a conventional treatment. This is achieved by using a larger dose per fraction, such that US and Europe are 60-70 Gy in 30–35 fractions given over six to seven weeks. In the UK, schedules tend to be shorter by using a larger dose per fraction, such that 50 Gy is delivered in 20 fractions over four weeks. Hypofractionation

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The rationale for altering radiation schedules is predicated on tumour cells undergoing accelerated repopulation during the treatment course after a lag time. A 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.

### Table 1

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<th>Types of Fractionation</th>
<th>Characteristics</th>
<th>Results</th>
<th>Applications</th>
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<tr>
<td>Hypofractionation</td>
<td>Total dose same</td>
<td>Dose per fraction reduced</td>
<td>Number of fractions increased</td>
</tr>
<tr>
<td></td>
<td>Reduced dose per fraction reduces late effects</td>
<td>Higher total dose increase lifetime risk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Absolute local control  Better Acute toxicity: Higher Late toxicity: Less</td>
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<tr>
<td></td>
<td>Dose limiting toxicity in late responding tissues</td>
<td>Large tumour burden slower tumour doubling time Resource intensive</td>
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### Accelerated Fractionation

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<th>Types of Fractionation</th>
<th>Characteristics</th>
<th>Results</th>
<th>Applications</th>
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<tr>
<td>Accelerated fractionation</td>
<td>Total dose reduced</td>
<td>Dose per fraction reduced same</td>
<td>Number of fractions increased</td>
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<tr>
<td></td>
<td>Reduced time reduces tumour repopulation</td>
<td>Treatment effect of reduced total dose</td>
<td>Reduced time reduces late effects</td>
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<tr>
<td></td>
<td>Local control  Better Acute toxicity: Higher Late toxicity: Less</td>
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<td></td>
<td>Rapid doubling time in tumours</td>
<td>Patient wants a short treatment Efficient use of resources</td>
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### Hypofractionated Radiotherapy

Hypofractionated radiotherapy utilises a small number of fractions with a larger 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. The QUAD SHOT study showed that hypofractionated radiotherapy can produce equivalent results to conventional radiation even when significant reductions in overall dose occur. In this study, 64 Gy in 33 fractions, compared with a conventional arm of 66 Gy in 33 fractions over six-and-a-half weeks. There was no improvement in loco-regional control but the reduction in dose per fraction was associated with a reduction in late morbidities including osteoradionecrosis, skin telangiectasia, mucosal ulceration and laryngeal oedema.

Concomitant boost achieves modest acceleration and no dose reduction by treating twice a day in the last week of treatment when tumour cells should be undergoing rapid repopulation. This limits the intensity to the areas of gross disease so that areas of microscopic involvement may remain undertreated. The RTOG 90-03 study showed that concomitant boost (72 Gy in 42 fractions over six weeks) and hypofractionation (81.6 Gy in 68 fractions over seven weeks) had better loco-regional control than conventional fractionation, but there was no difference in overall survival. The acute effects were increased, but there were no increases in the late effects.

The Trans Tasman Radiation Oncology Group (TROG) 91.01 study compared a modest acceleration protocol of 59.4 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 mucocutaneous.

A meta-analysis of accelerated protocols has been performed. There were eight randomised trials without dose reduction and five with a total dose reduction. The hazard ratio for death for 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 year was 2% and 1.7% respectively and the improvements in loco-regional control at five years were 7.3% and 2.3%.

### Summary of altered fractionation

- **Total dose: Same**
- **Dose per fraction: Reduced**
- **Number of fractions: Increased**
- **Overall time: Same**


Accelerated fractionation

- **Total dose: Reduced**
- **Dose per fraction: Reduced**
- **Number of fractions: Increased**
- **Overall time: Reduced**


Hypofractionated radiotherapy

- **Total dose: Reduced**
- **Dose per fraction: Increased**
- **Number of fractions: Reduced**
- **Overall time: Reduced**

Reduced dose per fraction increases number of fractions. Reduced overall time reduced. Local control. Acute toxicity: Less. Late toxicity: Higher. Palliation in poor performance status frail patients. Not good for slow responding tissues such as brain. Efficient use of resources. Acute toxicity low.
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 without dose reductions. 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 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

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 adjuvant or multimodality including chemotherapy. 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 agent to the management of cases of recurrent or metastatic disease.

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 head and neck SCC, unsuitable for radiotherapy. High dose cisplatin doubled the median survival from 10 to 20 weeks in comparison to untreated controls, and no benefit was seen from adding bleomycin. Methotrexate alone was popular because of its tolerability and proven responses, however combination with cisplatin resulted in increased toxicity but no improvement in response. The administration of 5-FU by four to five day continuous venous infusion appeared to be an effective radiosensitizer and also to have a good response rate used alone. The combination of cisplatin with infusional 5-FU was shown to be significantly more active than with bolus 5-FU. Jacobs et al in 1992 showed benefit from the combination of cisplatin with 5-FU over those drugs as single agents. By this time in the early 1990s the less toxic cisplatin analogue carboplatin had become available and was being used in place of cisplatin in many tumour types. A landmark randomised trial compared the combinations of cisplatin/5-FU versus carboplatin/5-FU versus methotrexate (see table 1) in chemotherapy naive patients with inoperable recurrent or metastatic disease. Predictably greater toxicity was observed with the combinations, particularly cisplatin/5-FU. Response rates were higher with the combinations but overall survival was no different. In practice this has led clinicians to consider combination chemotherapy in the following two patient groups: those where a response in symptomatic recurrence would be of palliative benefit; and physically fit patients who are prepared for the greater inconvenience, particularly of multi-day 5-FU infusion. For patients with reduced performance, weekly methotrexate retains a role. The advent of the taxanes in the 1990s and demonstration of their activity in Phase II trials has added a new class of agent to the management of cases of recurrent or metastatic head and neck SCC, however the same issues of toxicity and absolute benefit pertained. Phase II trials have reported response rates for paclitaxel over three hours of 20% and of 40% for a 24-hour infusion, with a median survival time (MST) of 38 weeks. For Docetaxel the reported response rate and MST are 21-42% and 27-35 months.

The value of triplet combinations (platinum + 5-flourouracil + taxane) has been examined in Phase II trials. A response rate of 44% has been reported for docetaxel/cisplatin/5-FU. Paclitaxel has been used in combination with either cisplatin or carboplatin and ifosfamide with response rates of almost 60%, but with severe neutropenia. A randomised trial of cisplatin/5-FU versus cisplatin/paclitaxel showed equivalence between the treatments with identical response rates (27% and 26%) and MST (8.1 and 8.7 months).

The advent of light weight ambulatory infusional devices has improved the convenience of 5-FU treatment. The 5-FU component has also been met by oral analogues including capecitabine, which has prolonged systemic exposure equivalent to intravenous infusion; a Phase II trial reported similar response rate and survival to the classic cisplatin/5-FU doublet. It does have the potential disadvantage of requiring oral or enteral administration, which may not be feasible in locally recurrent head and neck SCC. Other agents with some reported activity include ifosfamide, gemcatabic, irinotecan, (reviewed in Murphy) vinorelbine and pemetrexed. Other chemotherapy approaches have included intra-arterial administration and direct injection into local recurrences. In the palliative setting reducing toxicity and inconvenience from treatment is a relevant aim. Earlier trials focused particularly on response rates, whereas more recent studies have also paid attention to the effects of treatment on quality of life.

Induction chemotherapy
Although not a curative modality the question was addressed as to whether addition of systemic chemotherapy could improve the local and distant failure rates when combined with definitive local surgery or radiotherapy. Such an approach was considered

Table 1
A summary of important Phase III trials providing evidence for the use of systemic therapy in head and neck SCC.

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<th>Outcome</th>
<th>p value</th>
<th>Year</th>
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<tr>
<td>Recurrent and metastatic head and neck SCC</td>
<td>Cisplatin 100mg/m2 D1 5-FU 1g/m2 D1-4 q3w</td>
<td>RR 42%, MST 6.6m</td>
<td>&lt;0.01 for RR</td>
<td>1992</td>
</tr>
<tr>
<td>Recurrent and metastatic head and neck SCC</td>
<td>Carboplatin 300mg/m2 D1 5-FU 1g/m2 D1-4 q4w</td>
<td>RR 21%, MST 5.0m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage III/IV resectable laryngeal ca</td>
<td>Cisplatin 100mg/m2 D1 5-FU 1g/m2 D1-5 q3w then RT</td>
<td>5 yr overall survival (OS) 42%</td>
<td>Not significant (NS) for OS</td>
<td>1991</td>
</tr>
<tr>
<td>Unresectable head and neck SCC</td>
<td>RT 70Gy</td>
<td>3yr OS 23% MST 12.6m</td>
<td>p=0.04</td>
<td>2003</td>
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<tr>
<td>Stage III/IV resectable laryngeal ca</td>
<td>RT 70Gy with Cisplatin 100mg/m2 D1,22,43</td>
<td>2yr intact larynx 75%</td>
<td>p=0.05</td>
<td>2003</td>
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<tr>
<td>Stage III/IV oropharynx</td>
<td>RT 70Gy with Carboplatin 70mg/m2/day</td>
<td>5yr OS 16%, LRC 25%</td>
<td>p=0.02 for LRC, p=0.05 for OS</td>
<td>2004</td>
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<tr>
<td>Stage III/IV head and neck SCC</td>
<td>RT 66Gy</td>
<td>2yr LRC 72%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage III/IV head and neck SCC</td>
<td>RT 66Gy with Cisplatin 100mg/m2 D1,22,43</td>
<td>5yr LRC 69%, OS 40%</td>
<td>p=0.07 for LRC, p=0.02 for OS</td>
<td>2004</td>
</tr>
<tr>
<td>Stage III/IV head and neck SCC</td>
<td>RT with cetuximab 400mg/m2 w1 then 250mg/m2/w2</td>
<td>MST 29.3m</td>
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</table>

Abbreviations: RR response rate, LRC loco-regional control rate, MST median survival time, OS overall survival, EGFR epidermal growth factor receptor, NS not significant.
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 proposition was that tumour 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 oropharyngeal carcinoma 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. 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 the need for local and distant recurrences. Basic induction chemotherapy has been associated with reduced risk of metastases, whereas concurrent chemoradiotherapy has been particularly associated with improved survival rates, 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 radio-chemotherapy over radiotherapy alone 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 for resectable laryngeal cancer improves the laryngeal preservation rate.

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 patients considered unsuitable for 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 chemotherapy with radiotherapy and chemotherapy agents considered unsuitable for surgery. All large multicentre studies comparing radiotherapy with or without 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 chemotherapy 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 carboplatin and S-FU.30 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.31 Patients in the split course arm who underwent 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 which were not different from one another. This trial reduced 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 further manipulating platinum administration.

Novel biological agents

In addition to the same old biomarkers of interest in immune therapies led to the testing of immuno modulating agents, especially interferon, in combination with chemotherapy treatment of advanced head and neck SCC, there were various trials that failed to show a benefit.52 More recently, an understanding of the molecular abnormalities underlying head and neck SCC has led to development of specific biological therapies targeting those alterations. The agents of specific interest are the p53 oncoprotein, tyrosine kinase inhibitors (TKI), anti angiogenic agents and the anti-epidermal growth factor receptor (EGFR) antibodies. The oncoprotein p53 virus, capable of infecting and destroying tumour cells but not normal cells, captured the attention of cancer researchers and clinicians in demonstrating that a tumour specific molecular defect could be used to selectively target tumour cells and achieve an appreciable clinical anti-tumour effect.53 A related improved observation has been with the use of 5-fluorouracil which 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 I/II studies in combination with chemotherapy and radiotherapy.54 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 dimerise following binding of a ligand leading to activation and subsequent intracellular signalling. As the receptor family can bind in a variety of combinations the system has a range of modulated responses to stimuli. In certain cases receptors or down-stream effector 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 and 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 TKIs erlotinib and gefitinib, however low response rates were observed.55 Understanding the molecular predictors for clinical response is an area of intense research. In particular 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.56 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.57 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 new understanding of the heterogenous settings.

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Use of Lasers in Head and Neck Cancer

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Abstract

Trans-oral endoscopic laser excision of upper aerodigestive cancers is a relatively new and exciting therapeutic option, with the advantage of being organ-sparing and hence function-preserving. It is relatively straightforward to perform, although requires expertise and expensive equipment, and therefore, is “operator-dependent” – it is very operator-dependent. For early laryngeal tumours, where the oncological results are excellent, it can avoid prolonged radiotherapy and hence is less expensive. Since over 10% of head and neck squamous cell carcinoma survivors develop a second malignancy, avoiding radiotherapy is a worthwhile attribute. However, there are no good controlled studies comparing vocal function. For larger tumours of the larynx, tongue, oropharynx and hypopharynx, neither the oncologic results, nor the functional results, are as impressive and post-operative radiotherapy is often necessary.
Other complications include post-operative airway obstruction, aspiration, hoarseness, dysphagia, infection and surgical emphysema. Delayed web 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, post-operative radiotherapy is sometimes used. Stein and Ambrosch use post-operative radiotherapy or chemo-radiotherapy to the primary site if the tumour cannot be completely resected 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-capusular spread, lymphovascular invasion or a large solitary node). Zietels 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. Strong showed that in up to 20% of cases, no residual SCC remained after the initial diagnostic biopsy, often making radiotherapy unnecessary. Stein and Ambrosch showed six local recurrences and only one laryngectomy in 1989, following 13 patients who underwent at least four years of TOLM techniques. 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 for early laryngeal cancer is determined by patient preference after discussion of risks, benefits and likely functional outcomes. Stein showed that most TOLM cases could be managed on an outpatient basis with minimal discomfort and 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 months. Hence, a Meier over the survival but the risk of causing a radiation induced tumour (estimated at 1/300).

**Voice outcomes following TOLM compared with radiotherapy**

One of the arguments in favour of radiotherapy for early glottic cancer is the supposed better voice outcome, compared to that after laser ablation. Some authors have stated that their voice results are good, but why then would Remacle et al need to publish a paper titled Reconstruction of glottic defects after endoscopic cordectomy: voice results? In a recent study of 115 patients with glottic cancers, they found that 92% of patients had good voice function and 34% had excellent voice function. Cragle and Brandenburg reported that surgical treatment of early glottic cancers may produce a vocal result that is equivalent to that following irradiation. These investigators evaluated voice profiles in 11 patients treated with TOLM and 20 patients treated with irradiation. Both groups had similar voice profiles, characterised by decreased maximum phonation times and increased jitter, shimmer and signal-to-noise ratios.

Most investigators, however, contend that a better voice more reliably follows treatment with radiotherapy rather than TOLM. Radiotherapy does not require removal of adjacent healthy tissue to provide a clear margin around a cancer. However, vocal deterioration may result from radiotherapy and may be significant if loss of vocal cord bulk results from tumour necrosis or if fibrosis develops. One of the key points in the question of which treatment to choose came from Ton-Van and others who evaluated 356 patients with early glottic cancer. They determined that the quality of voice after treatment with radiotherapy was "indistinguishable superior to that after conservation surgery." However, these investigators pointed out that a functional larynx was preserved in 82% of patients treated surgically compared with 87.2% initially treated with radiotherapy. This reflects the use of total laryngectomy for radiation salvage. As a result of these findings, Ton-Van and others advocate the use of surgery as a primary mode of therapy in patients capable of safely undergoing an anastomosis. Exceptions include patients who are willing to accept a greater risk of total larynx loss in the effort to preserve the highest quality voice.

The absolute quality of their voice may not be as important a consideration for many patients in selecting treatment as is their general ability to communicate. For these patients, speech intelligibility may be more meaningful as a criterion to assess results rather than acoustic and aerodynamic measurements. Schuller and others used instrumental voice analysis and auditory perceptions to evaluate the voice of 75 patients treated with TOLM for early laryngeal cancers. They found that 88% of the respondents were content with the postoperative voice.

**Laryngeal preservation following TOLM versus radiation treatment**

One of the key differences between TOLM and radiation is the ability to repeat TOLM in the event of local failure, whereas radiation failures are most commonly treated with total laryngectomy. Consequently final laryngeal preservation is probably higher for T2 tumours using TOLM. Morris and others carried out an intensive literature review and identified an overall 8.6% failure rate at one year after primary laser glottic cancer for managed surgically, compared with a 16.7% failure rate among similarly staged cancers managed with radiotherapy.

Patients with T2 glottic tumours may be better treated primarily with TOLM than with radiotherapy, as they have an even higher local recurrence rate after irradiation. Surgical salvage with less than a total laryngectomy is unlikely to be possible. One of the advocates for radiation, Jorgenson and others described 1005 Danish patients treated at a single referral centre between 1965 and 1995. All early glottic cancers (99%) within a catchment area of 1.33 million people received primary radiotherapy and follow-up was excellent (only three patients were lost to follow-up), and three-hundred and twelve T1 glottic cancers were treated with irradiation with a five-year local control of 88%. Including surgical salvage, five-year disease-specific survival was 99%. Two hundred and thirty-three T2 glottic cancers were treated with irradiation with a five-year local control of 67%. Including surgical salvage, the five-year disease-specific survival was 88.4%. These investigators identify that this high recurrence rate (one out of three) for T2 glottic cancers resulted in an overall laryngeal preservation rate of 80%. This is substantially lower than the 95% organ preservation reported by Chevalier's group using organ preservation surgery.

Jorgenson and others argued that part of the excellent results reported by Chevalier and others reflected a selection bias. Jorgenson and others additionally pointed out that the voice quality is better after irradiation than after supracricoid laryngectomy. For these reasons, they have developed an alternative approach to managing T2 glottic cancers with irradiation. Jorgenson observed that improved radiotherapy techniques, as well as the capacity to salvage irradiation failures with supracricoid laryngectomy, will likely decrease the ultimate need for total laryngectomy. Undoubtedly the salvage rate of TOLM for local recurrences is high. More recently, Stein has shown that radiotherapy failures may also be salvaged by TOLM in many cases.

**Involvement of the anterior commissure by tumour**

The anterior commissure of the larynx is a site of special concern. There is no perichondrium on the laryngeal surface at this point to resist tumour spread. Early data of TOLM suggested this high recurrence rate (one out of three) for T2 glottic cancers with irradiation.

Kaplan-Meier overall survival was 73%. Most (84%) required a temporary nasogastric feeding tube but few (5%) a permanent tracheostomy. One patient returned to surgery for bleeding. Stein also reported on 56 patients with higher stage supraglottic cancer. Surgery was used in 84% for neck disease and 22 (39%) had radiotherapy after surgery. Local control was obtained initially in 80.5% and the overall five-year Kaplan-Meier survival was 50%. Three (6%) patients developed large stenosis (4%) and required a permanent tracheostomy. Five patients (10%) suffered significant aspiration, leading to total laryngectomy in three. Significant bleeding requiring a further anaesthetic occurred in 8%.

Stein has also reported 48 patients treated with TOLM for base of tongue squamous cell carcinoma between 1986 and 1997. Selective neck dissection was performed in 43 patients; 23 patients underwent postoperative radiotherapy for early stage neck disease prior to surgery. The Kaplan-Meier five-year 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 scale scores were 92% for normoacidity of diet and 88% for intelligibility of speech. Most impressive is Stein's results with hypopharyngeal primaries. These tumours are commonly in advanced stages and of 103 patients mainly with perimucosal cancer, 63 patients had T2 cancers and 14 had T3 cancers. Twenty-six (25%) of these patients, very advanced neck disease (N3), or distant metastases (ie. not treatable for cure) were excluded. In addition to TOLM, 75% also had 50% or more 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 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 favourably with most chemotherapy and radiotherapy laryngeal preservation protocols that have replaced the traditional total laryngectomy and postoperative radiotherapy for hypopharyngeal cancers. 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. Given Steiner’s preference for open laryngeal resections, and open laryngeal surgeries, albeit in a highly selective group, many surgeons argue TOL is a treatment option for selected hypopharyngeal cancer patients.5

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

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

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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 studies 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 voice) that can generate a core set of measures for each stage of swallowing. Resection of either the oral cavity, pharynx or larynx will affect function. 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.

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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 studies 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 voice) that can generate a core set of measures for each stage of swallowing. Resection of either the oral cavity, pharynx or larynx will affect function. 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.

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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), Dey 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 the management of dysphonia 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 function, and patients may 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 performed, much remains to be undertaken within this population, swallowing outcomes are either not reported at all, or only crude, subjective measures are used. Further, there are no well designed published studies of swallowing function or speech 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 world’s best practice for speech rehabilitation after a total laryngectomy. Such surgical-prosthetic voice restoration may also be offered months – or even years after treatment. Such surgical-prosthetic voice restoration may also be offered months – or even years after treatment. Such surgical-prosthetic voice restoration may also be offered months – or even years after treatment.

Oropharyngeal cancer

Sites of oropharyngeal cancer include the soft palate, retromolar trigone, tonsils, base of tongue and superior and lateral pharynx. If the base of tongue or pharyngeal wall is affected, then speech may not necessarily be grossly impaired, but swallowing almost certainly will be. The movement of the tongue base is crucial to the efficiency of the swallow, as this area contributes, via its pressure generation against the pharyngeal wall, to the propulsion of the bolus through the pharynx.

Chemo-radiotherapy is commonly used in the management of oropharyngeal cancers. While data on swallowing outcomes after such treatment remains limited, a recent systematic review identified the most commonly reported impairments in swallowing after radiotherapy. These included: poor pharyngeal motility with subsequent pharyngeal residue; epiglottic immobility; reduced laryngeal excursion; poor closure of 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 radiation.

Surgery may involve the base of tongue and/or lateral 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 loss of the loss of pharyngeal propulsive action supplied by the pharyngeal constrictors.

Management of speech problems

There are no published assessments of speech that are cancer-specific. Speech pathologists use tests such as the Frenchay Dysarthria Assessment (FDA), a motor speech assessment standardised on a UK population of adults with dysarthria (eg. from Parkinson’s Disease, Motor Neuron Disease, etc). This test is used to measure speech impairment only 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 surgery and dysphagia is likely under-reported, as patients often expect to have changes in function and an altered diet, so they do not always report the full extent of their swallowing problems after laryngectomy.

Compensatory strategies

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

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

Although there are limited published data regarding the best effects of palatal prosthesis, naso-gastric tubes 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 intraoral 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 swallowing process. 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 action of bearing down against the false vocal folds and tightt the arytenoids anteriorly to meet the base of the epiglottis, thus giving strong closure of the entrance to the pharynx.

The Mendelsohn manoeuvre voluntarily increasing the extent and duration of laryngeal elevation, thereby improve the flow and direction of food and eliminate the patient’s symptoms, especially aspiration.
increasing the duration/width of cricopharyngeal opening) or an effortless swallow (designed to increase posterior tongue base movement) may both be used to manage problems in the pharyngeal stage of swallowing.

Conclusion

Speech and swallowing rehabilitation for people with head and neck cancer is a complex and specialised area of speech pathology work. Many treatments for head and neck cancer result in speech and/or swallowing impairments and these, in turn, may reduce a patient’s activity, societal participation and QoL. Early referral to a speech pathologist is desirable – where possible, before head and neck cancer treatment commences. Accurate diagnosis and evidence-based therapy can improve speech and swallowing deficits, and there is good scientific evidence for the use of many manoeuvres/comparative strategies. There is a need for multicentre, hypothesis-driven quality research into functional outcomes in people who are being treated for head and neck cancer.

References


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Abstract

Malnutrition is known to be a problem in head and neck cancer throughout all phases of treatment and rehabilitation. Nutrition interventions have demonstrated beneficial intermediate outcomes. Despite this, nutrition services for this patient group are not consistent across Australia. Routine screening procedures should be implemented in multidisciplinary head and neck clinics and treatment areas to identify patients who are at nutritional risk. Close collaboration is particularly important for the speech pathologist and dietitian in order to manage dysphagia and its nutritional consequences. Guidelines for the nutritional management of these patients will assist in service provision.

The prevalence of malnutrition in patients with cancer is the highest of all hospital patient diagnostic groups and is well recognised that patients with head and neck cancer are among those at highest nutritional risk. Even before treatment commences 25-50% of patients have markedly reduced nutritional status.1-4,6

Malnutrition is associated with increased risk of infections, decreased response to treatment, poorer quality of life (QoL), increased healthcare costs and a shorter survival time.4 Weight loss during radiation therapy to the head and neck can place at risk the safety and effectiveness of the treatment, requiring repeat CT scans in order to keep critical structures to accepted tolerances.6 Weight loss during radiation therapy to the head and neck can place at risk the safety and effectiveness of the treatment, requiring repeated CT scans in order to keep critical structures to accepted tolerances and emergency admissions to hospital for nutrition-related and dehydration problems are commonly reported during treatment.5 An inability to eat and drink adequately places a significant burden on both the healthcare system and the psychosocial well-being of the patient and their carers.

Causes of nutritional depletion

Some patients are already malnourished at presentation due to eating and drinking difficulties caused by the tumour location or pre-morbid lifestyle. Nutritional status can then be further compromised due to treatment side-effects. Adapting the texture of meals is more difficult for a person if they have limited food preparation skills, cooking facilities and/or social supports. These are common features of this patient group, especially when treatment often means many weeks away from home.

The mode of treatment will affect nutritional outcomes. The effect of surgical intervention on swallowing is dependent on the degree and site of resection. Resection of the floor of mouth or base of tongue places a patient at greater risk of requiring supplemental feeding. Radiotherapy and chemotherapy have both acute and long-term impacts on functional swallowing and nutritional status. Side-effects include mucositis, odynophagia, xerostomia, trismus, pharyngeal fibrosis and changes in taste and appetite.6 These changes not only affect a person’s desire to eat, but also reduce the effectiveness of chewing, bolus cohesion and pharyngeal clearance. The removal of teeth further exacerbates these difficulties.

Swallowing function deteriorates in the early post-

Table 1

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<th>Posture applied</th>
<th>Rationale</th>
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<tr>
<td>Head back</td>
<td>Gravity clears oral cavity</td>
</tr>
<tr>
<td>Chin down airway</td>
<td>Widens valleculae – stops bolus entering</td>
</tr>
<tr>
<td>Chin down wall</td>
<td>Pushes tongue back towards pharyngeal</td>
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Treatment period, then improves up to 12 months post-treatment when it subsequently stabilises commonly at a level lower than pre-treatment.11,12 There is a trend towards organ preservation management where increased doses of radiotherapy or chemotherapy regimens are selected over surgical treatment with the expectation of improved function. Research into this area has revealed an increased early reaction which may last longer and be more severe.13,14 Anecdotal evidence suggests these patients tend to require dietetic and speech pathology support months after completely treatment and may not ever return to managing a "normal" diet without supplementation. Little research has examined the long-term effects on swallowing and nutritional outcomes.

The loss of the ability to enjoy a meal can be distressing. Nguyen et al showed that the severity of dysphagia in a group of 73 patients complaining of swallowing difficulties followed a range of treatment modalities for head and neck cancer, correlated with compromised QoL, depression and anxiety.

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. While nutritional 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.38,39 Recent randomised control trials, however, have demonstrated improved outcomes from nutrition intervention for head and neck cancer patients undergoing radiotherapy. Ravasco et al38 randomised 75 patients receiving pre-operative chemotherapy to one of three groups. The first received dietary advice, nutrition handouts and referral to a dietitian if considered necessary.4 The group receiving early and intensive nutrition intervention had less weight loss and less deterioration in nutritional status, global QoL and physical function.

These studies have demonstrated that the decline in nutritional status often reported with head and neck cancer is not inevitable. Patients at risk of malnutrition i.e. the majority of head and neck cancer patients, should receive regular and individualised nutrition intervention.42

For surgical head and neck cancer patients, pre-operative weight loss greater than 10% over six months is associated with increased complications. A number of studies have examined pre-operative nutritional support. There is considerable evidence that immune-enhancing enteral formulae and prophylactic nasogastric tube insertion prior to radiotherapy improves nutritional outcomes.42,43 An adequate nasogastric tube insertion provides feeding results in higher protein and energy intakes and weight maintenance compared with oral intake alone.42 Low evidence, largely from retrospective studies, suggests that for high nutritional risk groups, prophylactic nasogastric tube insertion prior to cancer therapy provides some beneficial effects. The majority of studies have reported that prophylactic nasogastric tubes have fewer hospital admissions for dehydration or malnutrition42 and maintain QoL, during treatment compared with oral intake alone.42

Both common routes of enteral feeding, nasogastric or gastrostomy, are equally effective in preserving weight,42,43 with nasogastric tubes recommended for short-term use and gastrostomy for periods exceeding one month. Nasogastric tubes can usually be inserted in an outpatient setting.42 The MST can be included on admission forms and can be completed by the patient, administration, nursing staff or nutrition assessor. The patient at nutritional risk should be referred for full nutrition assessment. Patients initially screened as at low risk should be re-screened every two weeks 20 days when next attending an outpatient appointment.42

Body weight is the simplest indicator of change in nutritional status and head and neck cancer patients should be weighed routinely. A more thorough nutrition assessment is required, however, to determine changes in body composition. Loss of fat-free mass is mainly responsible for the reduced functional status and increased mortality associated with malnutrition.42 Body fat often masks loss of lean tissue and hence patients who fall within ‘healthy’ or overweight categories are often overlooked despite significant amounts of unintentional weight loss.44

Nutrition assessment provides a comprehensive and individualised nutritional history and clinical examination, physical examination and/or biochemical measurements to determine an individual’s nutritional status.42

The PatientGenerated Subjective Global Assessment (PG-SGA)45,46 is a valid and reliable tool for assessing the nutritional status of patients with cancer.47 The PG-SGA can be used in nutritional triage to determine whether patients require more intensive nutrition support and also as an outcome measure to assess the impact of nutrition intervention. Table 2 summarises key elements in the attainment of improved nutrition outcomes.

Early and intensive nutrition management

Multidisciplinary clinics 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 pathologist and dietitian should commence prior to or in the first week of treatment.

Initial dietary advice for malnourished patients includes ways to increase protein and energy intake and advice on texture modification if there are chewing or swallowing difficulties. Relaxation of any previous dietary restriction is often appropriate, especially as goals of treatment change during chemotherapy and radiotherapy. Many patients will require oral nutrition supplements to reach their nutrient requirements. The dietitian can prescribe the most appropriate supplement, advising the patient on any subsidised supplies for which they may be eligible. Monitoring is an essential component to achieve positive outcomes as adherence to the original prescription can become difficult due to taste fatigue or changing side-effects of treatment.

In the early post-operative phase, routine and regular review by a speech pathologist is important to ensure the most efficient return to oral intake without compromising nutritional status. At this time, patients often require oral or alternative supplemental feeding while they complete swallowing rehabilitation programs.

Multidisciplinary care is also imperative during post-operative radiotherapy or chemotherapy to manage side-effects that may limit food intake. Co-locating dietetic and speech pathology services provides valuable input at the radiation oncology and nursing staff improves team communication, allowing

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### Table 1

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Patients with head and neck cancer associated with greater likelihood of severe weight loss and/or need for alternative feeding method</th>
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</thead>
<tbody>
<tr>
<td>Diagnosis</td>
<td></td>
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<tr>
<td>pharyngeal/hypopharyngeal primary</td>
<td></td>
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<tr>
<td>nasopharyngeal tumours</td>
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<tr>
<td>T4 tumours</td>
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<tr>
<td>Moderately or poorly differentiated cancer</td>
<td></td>
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<tr>
<td>Treatment</td>
<td></td>
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<tr>
<td>excision of base of tongue or pharynx</td>
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<tr>
<td>mandibuleectomy</td>
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<tr>
<td>reconstruction with a pectoralis major flap</td>
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<tr>
<td>chemo-radiotherapy</td>
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<tr>
<td>Post-operative radiotherapy</td>
<td></td>
</tr>
<tr>
<td>Weight loss</td>
<td></td>
</tr>
<tr>
<td>pre-treatment weight loss &gt; 7% body mass index</td>
<td></td>
</tr>
<tr>
<td>pre-treatment weight loss &gt; 10lbs (1kg)</td>
<td></td>
</tr>
</tbody>
</table>

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### Table 2

<table>
<thead>
<tr>
<th>Key points in the nutrition care of head and neck cancer patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>n Monitor weight regularly.</td>
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<tr>
<td>n Aim for weight maintenance during treatment.</td>
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<tr>
<td>n Implement routine nutrition screening.</td>
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<tr>
<td>n Refer high risk patients for nutrition and swallowing assessment.</td>
</tr>
<tr>
<td>n Manage nutrition-related symptoms as a nutrition intervention.</td>
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efficient identification and resolution of symptoms. Transdisciplinary intervention should continue well into the post-treatment phase until symptoms subside, patients return to oral intake and can maintain suitable weight. The use of objective assessments including fluid and electrolyte evaluation of swallowing and modiﬁed barium swallowing assessment guides clinicians in developing swallowing rehabilitation programs. These patients are concurrently dealing with issues related to cancer treatment and support. Supportive care should be available following the completion of treatment to provide QoL for cancer survivorship. Supportive care should be available following the completion of treatment to promote QoL.

Future directions

Well designed prospective studies are needed to clearly identify which head and neck cancer patients would beneﬁt from prophylactic gastrostomy placement and to determine optimal perioperative nutrition support. Future research evaluating the impact of intervention in patients with head and neck cancer needs to include a longer follow-up, mortality data, an analysis of health service utilisation and an assessment of cost versus beneﬁt.

Evidence-based practice guidelines for the nutritional management of cancer cachexia have not been developed. Recent, local branches have merged to form the DAA nutrition interest group, which will help streamline the development of nutrition intervention protocols. As current improvements in care of cancer patients have been shown to prevent or minimise nutritional deﬁcits.


The optimal timing of nutritional intervention is unclear. One study suggests that prophylactic placement of feeding tubes before radiation therapy may improve nutritional status and QoL. Other studies have shown that early intervention with nutritional support can improve swallowing function and reduce the incidence of aspiration pneumonia. However, the evidence is inconsistent, and more research is needed to determine the optimal timing and type of nutritional intervention for patients with head and neck cancer.

References


PET has become an important diagnostic modality in the assessment of cancer. Changes in tumour metabolism are detectable with FDG-PET/CT and MRI, which detail the anatomy of the body. PET provides an assessment of biochemical processes by way of uptake and retention of radiotherapeutics by tumour cells, while structural imaging can allow identification of enlarged or distorted internal structures. PET scanning provides information about these alterations in metabolism that are likely tumour, scarring from previous treatment, or other biological processes. PET aids management by answering critical questions regarding the presence and extent of disease.

In clinical practice, PET is most often performed using the glucose analogue, fluorine-18 fluorodeoxyglucose (FDG). Enhanced glucose metabolism has long been recognised to be a feature of malignant cells, but is now known to be directly driven by key genomic changes in cancer cells. Because of significantly increased uptake of FDG in most cancers compared to normal tissues, FDG PET provides high diagnostic contrast. Consequently, FDG PET has superior diagnostic accuracy compared to structural imaging in a wide range of cancers and in a number of different clinical scenarios. These include initial diagnosis, primary staging, therapeutic planning, response assessment, restaging at relapse and post-treatment surveillance. The evaluation of tumours by PET is not, however, limited to use of FDG as there are many 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 fluorothymidine (FLT), while tissue hypoxia can be imaged using nitromidazole-like compounds such as fluorine-18 fluoromisonidazole (FMISO).

**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 obliterate surgery in a proportion of cases. In such cases, the additional morbidity of salvage surgery at the primary site and in the neck dictates that initial radiotherapy should be high-dose and volumetrically targeted to 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 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. 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 high aerobic glycolytic 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. 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 more aggressive 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 concern in CT and MRI imaging. PET allows more precise localisation of disease without distortion of normal anatomy and may be a preferred tool for early detection of any residual tumour. PET has been found to be valuable in the detection of 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 detection of the anatomical site of FDG uptake and ought to improve the differentiation between physiological uptake in muscle and fat and tomoscintically suspicious for primary malignancy. FDG PET/CT is our preferred method for evaluating malignant lymphadenopathy in the neck in the absence of tumour in the upper airways on examination. 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 supraclavicular lymphadenopathy with squamous cell differentiation on biopsy. Clinical 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 staging implications.

The PET/CT also demonstrated a left supraventricular lymph node suspicious for a left parapharyngeal primary - a finding that was confirmed at surgery.

**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 ipsilateral parapharyngeal and contralateral lower cervical nodes that would not otherwise have been included in the treatment volume.
TOWARDS DISCOVERY OF NOVEL TUMOUR MARKERS FOR HEAD AND NECK CANCERS

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Abstract
Recent advances in genomic technology, in particular gene expression profiling, may elucidate novel tumour markers or signatures that will predict how various tumours will behave and respond to various treatment modalities. In head and neck cancer, tumour markers may address current functional deficits in treating locally advanced disease. In the context of expression profiling, as achieved by microarray analysis of the relevant mRNA population, multiple studies have examined differences between normal epithelia and head and neck carcinoma. In this context, gene sets which might distinguish metastatic disease have been described. Gene profiling has the clinical outcome and the work has been extended to characterise particular gene products as potential biomarkers. Such
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, therapeutics monitoring and/or detecting recurrence. Well known examples include BCA1/2, PSA and Her2/neu. These tumour markers can play a key role in tailoring treatment.1 In head and neck cancer, such markers would be invaluable given the resulting functional deficits of treating locally advanced disease.1,2

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 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 classification3-5 and prognosis-based treatment.6 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.7-12 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, where antibodies are spotted on the protein chip and are used as capture molecules to detect proteins from cell lysate solutions.

Tissue microarrays are paraffin blocks that contain tissues assembled in array to allow a large number of biopsies to be sectioned and used for various experimental and histological analysis.13 The “microblocks” are usually scored biopsies of tumour or clinical specimens of approximately 1.6mm 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.14 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 large number 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 using normal head and neck squamous epithelia from carcinoma. Chiu 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.15,16 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.17 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 may 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 with metastatic cervical lymph node status.21 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.20 These authors 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.22 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 has expanded the expression profile of metastasis prediction gene expression signature in head and neck SCC. These authors examined expression profiles from 82 head and neck SCC tumour and cervical lymph node metastases. In another 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.23 Others have examined over 50 specimens from multiple sites and identified a set of genes with altered expression that grouped patients according to lymph node metastasis, and therefore worse outcome.24 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.25 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 could 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.26

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 tumor staging in determining disease free interval or overall survival (Figure 1). Tumours with no alpha-B crystallin present as judged by immunohistochemistry (IHC) do not develop recurrence regardless of nodal status.27 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.
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 of 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 criticised 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 current 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
Management of patients with high-risk cSCC

Patients with high-risk cSCC should be recommended wide local excision to achieve oncological excision margins (4-5mm). However, surgery may be constrained by cosmetic and functional consequences and a non-surgical approach (ie. radiotherapy) may be considered. Advanced and destructive cSCC (eg. T3/T4/14 lesions) may also require complex (vascularised flap) reconstruction. Moh’s micrographic surgery (margin controlled excision) is often considered the ‘gold standard’ in treating high-risk patients. In a large Australian series of patients treated with Moh’s micrographic surgery, many with high-risk tumours, only 4% recurred.23 These control rates concur favourably with the results of other Moh’s surgery series and highlight the importance of margin-controlled excision.

There is a role for both definitive (Table 2) and adjuvant radiotherapy, if indicated.24 Patients with a 2-3cm cSCC probably have a similar outcome with either definitive radiotherapy or surgery, however excision should be considered as the first option. Larger lesions should be considered for combined treatment, although this approach is not always possible. The role for adjuvant radiotherapy is important in the setting of incomplete excision since up to 50% of patients will recur with an associated increased risk of developing nodal metastases.25 Re-excision is often not feasible secondary to cosmetic and functional constraints. Other pathological features, such as the presence of perineural invasion, may also warrant a recommendation of radiotherapy.

Patients with an incompletely excised cSCC are at risk of both local recurrence and subsequent nodal metastases. There is no consensus in the definition of an acceptable surgical margin. Published recommendations, in the setting of lip and other cSCC, range from 3-10mm.26 In a study of 150 excised NMSC (25% cSCC) a 4mm surgical margin resulted in clearance in 97% of cases, compared with a 2mm excision margin achieving this in only 78% of cases.27 Adjuvant radiotherapy is an efficacious option in reducing local relapse in the setting of a close or positive excision margin.28 Observation and expectant treatment 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).

There are emerging data that sentinel node biopsy (SNB) be applied.19,20 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 SCC >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.29 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. Radiotherapy30 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.31 Patients presenting with cranial nerve palsies (often trigeminal and facial) have advanced disease and may not be operable. Diagnosis is often delayed for months or years with patients slowly developing progressive signs and symptoms.32 Although MRI imaging is the investigation of choice (thickened nerves) early disease may not be detectable and an open biopsy may be warranted.33 Patients with periorbital cSCC with incidental PNI are at risk of orbital spread and further treatment is usually warranted.34 Adjunct 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=0.0011) had thick (>5mm) tumours with early dermal invasion (7 vs 0.3%; p=0.0001) when compared with immunocompetent patients.35 Of note immunosuppressed patients that develop metastatic nodal cSCC have a poor outcome. Martinez et al36 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.37 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.38

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 support a benefit. In a systematic review of the literature only three eligible randomised trials were identified.39 All trials were small, but two did suggest a benefit in decreasing the incidence of new NMSC in patients taking Actretin (25-30mg orally daily for six to 12 months) versus placebo. However, tolerability (headaches, mucocutaneous 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 patients (70-80%) develop metastases 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 of SCC following high-risk treatment.

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.40 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 MCC are cured by local control, patients with MCC have a poor outcome characterised by loco-regional (nodal and intransit) and distant relapse. 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. O’Brien et al. have validated the benefit of proposed new staging system in identifying patients that have a worse prognosis. A recent large collaborative study from six Australian and North American institutions analysed outcome for patients with metastatic cutaneous head and neck SCC using the proposed PN staging system of O’Brien et al. The findings from this study confirm the utility of separate parotid and neck stages in predicting outcome. Patients with pathological involvement of both the parotid and neck did worse compared with those having only parotid disease.

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of combination chemotherapy. A recent Queensland study compared patients treated with the addition of chemotherapy (n=40) with 62 patients treated without chemotherapy. The authors reported no significant overall survival benefit to those patients receiving chemotherapy (p=0.16) and no improvement in distant control (65 versus 70%; p=0.61). While not excluding a possible benefit to chemotherapy these results further support the need for a randomised controlled trial to confirm the hypothesis that chemotherapy is beneficial.

Patients experiencing systemic recurrence are incurable and have a median survival of three to six months. Patients with systemic disease may be candidates for palliative chemotherapy, although many are medically unfit for this treatment. A minority (20-30%) developing only local recurrence may be curable if indicated. Unlike SCC the risk of nodal and distant metastases is rare and treatment is aimed at securing control if indicated. Unlike SCC the risk of nodal and distant metastases is rare and treatment is aimed at securing control if indicated.

References

RISKS AND BENEFITS OF SUN EXPOSURE – IMPLICATIONS FOR PUBLIC HEALTH PRACTICE BASED ON THE AUSTRALIAN EXPERIENCE

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Abstract
Over recent years, the evidence has been accumulating that vitamin D has a positive impact on our health. This is likely to have an impact on the future of our public health advice related to skin cancer prevention. This paper explores, from a public health perspective based on Australian experience, how skin cancer prevention messages need to be managed in light of new information about vitamin D and in particular, the times when sun protection advice should be provided. Conclusions are drawn in relation to how the vitamin D message can be complementary to the sun protection messages.

Exposure to ultraviolet radiation accounts for around 99% of non-melanoma skin cancers and 95% of melanomas in Australia.1 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.2 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 1980s. 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 behaviours.3–5

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 1987. 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.6–9 The benefits of these campaigns has been a reduction in non-melanoma skin cancer rates in younger age groups.10

The improvement in sun protection policies and practices has come about largely because of a long standing integrated health promotion intervention that utilizes 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.

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.11 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).12 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.13–15 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.16

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.17 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.

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.18 Given the significant media attention centred around possible or real benefits of sun exposure, The Cancer Council Victoria considered it was necessary to hold a position statement with the Australasian College of Dermatologists (ACOD), Osteoporosis Australia (OA), Australia and New Zealand Bone and Mineral 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.19 In addition to this, the 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.20 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 each of the disciplines.

The position statement resulted in a number of key outcomes directly related to skin cancer control. Essentially it was agreed:

n A balance is required between avoiding increases in skin cancer and maintaining adequate vitamin D levels.

n Sun protection messages needed to shift away from the notion that people have to protect themselves against the sun at all times.

n Skin cancer campaigns need to note that there are benefits and harms associated with sun exposure 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.

n 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.

n Sun protection should only be applicable when the UV index is three or above.

The relationship between sunshine 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.21 However all parties agree that substantially more studies with good quality evidence are required to 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 observations 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.
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. 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 only been 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. 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. 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.

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](image1.png)

**Figure 1**

Average UV levels per month by city

![Figure 2](image2.png)

**Figure 2**

UV Index as issued by the Australian Bureau of Meteorology

![Figure 3](image3.png)

**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 low (<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 of 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


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

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Abstract

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 closed-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

Each year, approximately 11,500 women are diagnosed with breast cancer in Australia. As well as experiencing feelings of fear, distress and grief subsequent to diagnosis, it is estimated that 25% of these women suffer from anxiety and depressive disorders. While cancer significantly impacts on the functioning of these women, it also affects every member of their families and hence cancer is often recognised to be a family disease. Social support and in particular, support from family members, can be a crucial determinant of patients’ adjustment, well-being and even their survival. In this context, partners are widely recognised as playing a special role for these patients. Partners are regarded by patients as the most valuable source of emotional support and are involved in meeting many of the patients’ social and emotional needs.

Emotional and instrumental support from partners at pre-surgery has been shown to decrease distress at post-surgery for breast cancer patients, while emotional support from women in breast cancer can be predicted by marital support. It has been found that a strong relationship with an adult partner decreased the effects of depressed mood for patients, as well as decreasing the consequences of maternal depression for the children in the family. Emotional support from partners has also been identified as being related to decreased physical problems over time for patients with a recurrence of breast cancer. It has been suggested that the partner’s availability provides comfort and reassurance for these women, enabling them to find some positive meaning in their experience and so facilitate their adjustment.

While support by partners and families plays a crucial role in the adjustment of breast cancer patients, these men* and their families experience considerable stress themselves. Bader points out that it cannot be assumed that the family, and in particular the partner, can be natural supporters of the breast cancer patients, but that they may themselves also require help and support. The partner of a breast cancer patient may become increasingly more vulnerable as he faces two challenges: being the primary supporter, he is required to assume new roles in the home and provide instrumental as well as emotional support; while at the same time he must cope with the distress of his wife’s diagnosis, her suffering and threat to her life. There are enormous demands on the partner as the primary caregiver for both the patient and the family. When a patient’s distress level is high and he uses ineffective strategies, he is less likely to be capable of providing support.

While partners often seem to worry more than the patient about their partner’s diagnosis and treatment and about losing emotional support than the patients. While the crisis of cancer draws attention to the needs of the patient, partners may often be left to cope with little or no support. It has been suggested that group support for the partners of women with breast cancer may be a potentially effective treatment intervention as it may reduce isolation, allow partners to share feelings and claim some much-needed time for themselves. In taking up the support group, partners may be able to become a greater sense of empathy for the women.

Few resources currently exist to provide support to partners of breast cancer patients and there is little literature available on the efficacy of support services

* Previous research has investigated only male partners of female breast cancer patients. The current study is also an investigation of male partners, and the term ‘wife’ is used to refer to the breast cancer patient.
two-hour discussion sessions using two facilitators, of mastectomy patients that attended 10-weekly to listen, comfort and support them as a result of their patients also indicated that the group sessions provided contributed to both an increase in communication their partners to be better caregivers (86%), and patients reported that receiving the intervention helped to compare their experiences with those of the other partners. Also, patients whose partners attended the support group reported less mood disturbance, greater functional support and greater marital satisfaction. Patients reported that receiving the intervention helped the group also indicated that the group sessions provided a stimulus to subsequent intimate conversations with their partners and that their partners were more able to listen, comfort and support them as a result of their participation.

Due to the limited preliminary results of previous research on support groups for partners and the lack of such precedence in the Australian setting, a trial of a group intervention for partners of early-stage breast cancer patients was carried out. As previous studies in this area have been conducted in the US and Canada and notions of masculinity are at least in part culturally determined, it is important to assess the efficacy of support groups for partners in different cultural contexts. This pilot study aimed to examine the feasibility of a group intervention for partners, to explore the needs of partners in relation to such a group and the appropriateness of the structure of this intervention in meeting those needs. In particular, this study aimed to investigate the effects of attending a support group on partners’ sense of isolation, perceived support, future outlook, ability to support their partners affected by cancer and their families, and their understanding of the emotional impact of breast cancer on partners. It also aimed to explore whether participants intended to form support networks with other participants and if they preferred an ongoing group or a one-off meeting. Participants’ views on the importance of the availability of such support groups, how such a service could be improved and what other services would further assist these men in dealing with their partners’ breast cancer were also explored. This pilot study intended to provide recommendations for developing an appropriate support group intervention for partners. For this purpose, it was designed as a process evaluation to evaluate the feasibility provision processes by investigating the content and the quality of the group, rather than an outcome evaluation focused on quantified degrees of participant outcomes.

Methods

Participants and recruitment

The participants of this study were partners of women with early stage breast cancer, selected in line with the study by Bultz et al due to the relative homogeneity with early stage breast cancer, selected in line with the study by Bultz et al18 due to the relative homogeneity with early stage breast cancer, selected in line with the study by Bultz et al18 due to the relative homogeneity with early stage breast cancer, selected in line with the study by Bultz et al18 due to the relative homogeneity. The participants of this study were partners of women who were survivors of breast cancer (i.e. diagnosed a minimum of two years ago, one pre-menopausal and one post-menopausal) were also invited as speakers. The speakers were more positive about the future as a result facilitated general discussion. The speakers were asked to talk at the beginning of the group to ease participants into discussion about breast cancer, as well as to exemplify open sharing of feelings and challenges.

Partners attended the two-hour discussion group facilitated by a male oncology social worker experienced in conducting groups. Two partners of women who were survivors of breast cancer (i.e. diagnosed a minimum of two years ago, one pre-menopausal and one post-menopausal) were also invited as speakers. The speakers were more positive about the future as a result facilitated general discussion. The speakers were asked to talk at the beginning of the group to ease participants into discussion about breast cancer, as well as to exemplify open sharing of feelings and challenges.

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Table 3 provides an overview of responses to open-ended items (mean = 3.2; SD = 0.87).

Results

Demographic information summary

Demographic data for the participants are shown in Table 1. All participants were male, aged between 36 and 77 years, with a mean age of 56.3 years. Equal numbers of participants reported having a trade (33%) or a certificate from college (33%), 22% had a bachelor’s degree and 11% had a post-graduate diploma or degree. Most participants spoke English at home (89%); with the remaining 11% fluent in English) and all were married or were in a de facto relationship. The mean length of relationships was 29.8 years (ranging between 10 and 51 years). Fifty-six per cent of couples had children from their current relationships, 22% did not have children, 11% had children from previous relationships and 11% had children from both current and previous relationships.

Responses to closed-ended items

The mean score of individual satisfaction items ranged from 3.1 (on being able to talk about children) to 5.0 (on benefit to partner). The mean score of group satisfaction items ranged from 3.2 (on being able to talk about children) to 5.0 (on benefit to partner).

Responses to open-ended items

The mean score of individual satisfaction items ranged from 3.2 to 4.8 (with 3 denoting “neutral” and 4 denoting “agree”). The total mean satisfaction score was 4.2 (SD = 0.42). Table 2 provides an overview of the mean satisfaction score for each item. The most highly endorsed item was “I believe it is important to have a service that provides support for partners of women with breast cancer” (mean = 4.8; SD = 0.40). The least highly endorsed item was “I am intending to keep in contact with others I have met at the workshop” (mean = 3.2; SD = 0.87).

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 their own sense of wellbeing. The results suggest that support groups are an effective way to support men with breast cancer, that they are better able to communicate about their emotions and that they find it more helpful to talk about their emotions in a support group setting.

In response to 148 letters of invitation mailed to women with early-stage breast cancer, only 13 men (9%) responded and attended the workshop. It is unclear whether the low uptake observed is unique to Australian men, given the limited amount of literature around this topic. This low uptake rate suggests that only a relatively small percentage of men might be interested in attending a support group for breast cancer. This may be due to a number of factors, including the timing of recruitment and the fact that the study was conducted at the beginning of the year when many men may be focusing on other aspects of their lives.

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.

Table 3 Useful aspects of the workshop (N=11)

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<th>IDENTIFIED ASPECT</th>
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</thead>
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</tr>
<tr>
<td>Realistic nature of discussion</td>
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<tr>
<td>Finding out how others coped</td>
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<td>Hearing others’ stories</td>
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<td>Capable facilitator</td>
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<td>Full participation by all members</td>
<td>2</td>
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<tr>
<td>Hospital recognising the importance of partner’s role in treatment of patient</td>
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<td>Learning to deal with partner’s feelings that she had been disfigured</td>
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<tr>
<td>Hearing that other couples have been brought closer together</td>
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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 of this study 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, few men 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 conclusion, this study highlights the importance of offering support groups for partners of women with breast cancer. It is clear that these groups are effective in reducing partners’ isolation, improving their sense of support, and improving their ability to support their partners and families. Furthermore, the results 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.

Acknowledgements

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 Thewes is a National Breast Cancer Foundation scholar supported by a National Association of Women In Supernannuation post-graduate scholarship. Bettina Meiser is supported by Public Health Australia Fellowship 007079 from the National Health and Medical Research Council of Australia.

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3. Baider L. Psychological intervention with couples after mastectomy.
4. Redpath for facilitating the workshops. Belinda Thewes is a National Breast Cancer Foundation scholar supported by a National Association of Women In Supernannuation post-graduate scholarship. Bettina Meiser is supported by Public Health Australia Fellowship 007079 from the National Health and Medical Research Council of Australia.
The welfare status of Australia’s Indigenous population 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. In 2001, Indigenous Australians comprised 2.4% of the total population. Only 30% of Indigenous people live in major cities, leaving 70% in rural and remote areas. This preoccupation with Indigenous people in rural and remote areas.

A challenge in the detection and management of shortcomings in Indigenous health is the lack of complete Indigenous identification of medical records throughout Australia. In recent years, the cancer registry in Queensland, the Northern Territory and Western Australia have undertaken specific initiatives to maximise Indigenous notification. The NT has reported morbidity among Indigenous Australians. It is commendable that the 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 Doubled recommended that an equivalent level 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 portion of the Federal health budget. These funds are of little consequence to Indigenous Australians as they have little or no contact with the private health care systems. 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 promotion and disease prevention among Indigenous Australians. The high prevalence of alcoholism within Indigenous communities compounds the threat posed by HBV infection. While Aboriginal and Torres Strait Islander people are less likely to consume alcohol than non-Indigenous Australians, those who do are more likely to drink to hazardous levels. In the National Drug Strategy Survey, 79% of Indigenous people who consumed alcohol 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 malignant 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.

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Access to healthcare is a major determinant of health


status. While only 2% of non-Indigenous Australians live on remote or very remote communities, these areas are home to 25% of Indigenous people.1 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 hospital, a geographical factor 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 healthcare centres, funded by the Federal Government. The National Aboriginal Controlled Community Health Organisation (NACCHO) is part of the Indigenous Health Taskforce. NACCHO has established and has provided 51 primary health care centres in rural and remote areas. In these centres, 70% of staff is of Indigenous background and is expected to deliver 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 dependent 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 as many as their non-Indigenous counterparts.14 As a result, Indigenous populations have higher mortality rates from all smoking related cancers.15 Amongst the non-Indigenous population, the link between smoking and increased risk of cancer is well known.16,17 Tobacco smoking is 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.

Increased cervical screening of Indigenous women is critical in the reduction of cervical cancer mortality. The Federal Government’s latest cervical screening initiative, ‘MBA’, is aimed to adequately target the Indigenous population. In the 2001-2002 budget, the Government announced a four-year program worth $72.3 million to provide primary cervical screening of high-risk communities. The initiative centred upon offering monetary incentives to GPs for maximising the number of female patients seen. This program has been criticised for its failure to specifically name Indigenous populations as a ‘high risk’ category and for insufficient consideration of the current operation of Indigenous healthcare centres. Most NACCHO services are not GP-accredited. Usually, a healthcare worker obtains the necessary certificate to become a GP. If the GP receives the incentive, there is no incentive for the centres to increase their cervical screening participation rates. In addition, a question mark will simply reward centres within communities where women are younger or more willing to undergo screening, while diverting funding away from older or less willing women who may be at the highest risk.

A proportion of the funds would be better spent in education and information about the benefits of cervical screening. A lack of female health workers has also been implicated in the low participation rates, hence incentives for women to work in such services may also help. It would also be necessary to extend education about screening 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.18

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 that 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.19

The issue of alcoholism is complex as it is intertwined with history and social status. Governments encouraged the sale of alcohol until the mid-20th century. They then allowed them to drink. Then they allowed some Aborigines to drink and not others. Then prohibition for all Aboriginal people ended. By this time, alcohol had become a symbol for equality and citizenship.20 It is necessary to educate Indigenous people about the detrimental effects of alcohol abuse so that they are able to control this long standing misconception. 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. The existence of the former’s understanding of the latter is now recognized. However, the establishment of a healthcare workforce that empathises with and caters to the cultural and social needs of Indigenous Australia is vital 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. In view of this definition, it is evident that Indigenous health workers are best equipped to service Indigenous populations. Nevertheless, in 2005, Indigenous Australians constitute a mere 1% of healthcare workers in the country, which is not even proportionate to Indigenous representation within the Australian population. Increasingly, universities are attempting to maximise Indigenous participation in healthcare professions by offering scholarships and access schemes. There is also a greater emphasis on Indigenous health issues in university curricula. These measures will hopefully translate into a more culturally appropriate health workforce in the future.

While it is evident that there is a great shortage of medical professionals in rural areas, the caseloads for specialist staff would be quite low, meaning availability of such services in remote areas would be an expensive and inefficient allocation of resources. However, effective treatment of malignant disease requires access to a multidisciplinary team including oncologists, surgeons and allied health professionals. In order to overcome this problem, specialist outreach programs combined with shared-care have been proposed. These programs would involve the patient travelling to a major centre for initial treatment, following which local care can be arranged via community health centres. This approach has proved to be effective in the treatment of breast cancer in rural areas.21

Final word

One can conclude that Indigenous Australians are dying from cancers from 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.

n This article was the winning essay in The Cancer Council Australia’s student essay competition. At the winner, Uvula Jagadish attended the World Health Organisation’s Collaborating for Cancer Education’s Oncology for Medical Students summer school.

References
Australian Behavioural Research in Cancer

News

n Centre for Behavioural Research in Cancer (CBRC), Victoria
The Centre for Behavioural Research in Cancer (CBRC) 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 Jamsen)

n Centre for Health Research and Psycho-oncology (CHERP), NSW
CHERP presentations over the last few months include PhD student Clare 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 Cancer Council WA annual update series in July, making a series of presentations to the public and health professionals. She was also an invited speaker on psychosocial support in geriatric oncology at the Medical Oncology Group of Australia/Faculty of Radiation Oncology Annual Scientific meeting held at Sanctuary Cove in August.

Dr Paul, Professor Girgis and Dr Raoul Walsh have been proactive approach to non-volunteer smokers at the 13th 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 Cancer Council WA annual update series in July, making a series of presentations to the public and health professionals. She was also an invited speaker on psychosocial support in geriatric oncology at the Medical Oncology Group of Australia/Faculty of Radiation Oncology Annual Scientific meeting held at Sanctuary Cove in August.

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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 or Health and presented several talks and a poster.

n Viertel Centre for Research in Cancer Control (VCRCC), 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 CBRC
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 Dobinson leads a research team at the CBRC 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 one every two weeks. While a majority of coverage is positive for tobacco control, some states and some year period, the average Australian would have been exposed to 130 tobacco-related news articles - or we calculated media impressions per capita for each state and Australia overall by factoring in newspaper circulation rates and population size. Over this five-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 is neutral (4%) impact on tobacco control objectives.

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.
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 step 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 next 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 CPRC  
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 access to health care, 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 TCOR  
Evaluation of the Aboriginal and Torres Strait Islander Cancer Forum

The Aboriginal and Torres Strait Islander Cancer Forum (13-14 September 2006) aimed to improve 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 Islander cancer survivors. 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.

n CReCC  
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 early childhood 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.

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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 VCRCC  
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 relatively new and growing in many areas of 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 performance in relation to skin cancer diagnosis and treatment 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 Cancer Helpline effectively screens callers with cancer or their caregivers, for distress, 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 CBRC  
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 were: watching more or less junk food consumption. The study concluded that changing 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.

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 1994 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 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.

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%, 0.8%). 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.

CancerForum Volume 30 Number 3 November 2006

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 inappropriate 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.

REPORTS

CancerForum Volume 30 Number 3 November 2006
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.

“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.

Kylie fans donations deliver new service for breast cancer patients

With millions tuned in to watch Kylie Minogue’s cancer story on July 17, The Cancer Council sent a big thank you to her many supporters who kindly donated to the Kylie Minogue Breast Cancer Fund after her 2005 diagnosis.

Within days of the diagnosis becoming public, and Kylie’s personal appeal to fans to make a small donation to The Cancer Council in lieu of flowers and cards, the Kylie Minogue Breast Cancer Fund was created.

The donated funds will go to establishing online support for young women with cancer. The online forum overcomes geographic and physical boundaries and allows patients from across the country to talk to others who understand.
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 early stage HER2-positive breast cancer by 46 per cent, saving thousands of lives,” Professor Olver said.

“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 success.

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 trans-urethral 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
SI Rose, RT Hara
ISBN: 0-7637-4241-1 216 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.

GK Abou-Alfa

2006 Oncology Nursing Drug Handbook
GM Wilkes, M Barton-Burke
Jones and Bartlett Publishers (2005)
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: 07-817511-60
672 pages plus index
RRP: $82.50

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.

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Sally Bone, Cancer Services Community Liaison, Royal North Shore Hospital, Sydney NSW
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 readers’ 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 Therapies

GM Wilkes, M Barton-Burke
Jones and Bartlett Publishers (2006)
ISBN: 0-7637-2682-6
350 pages plus index
RRP: $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 Potiowski, SV Temple
Jones and Bartlett Publishers (2005)
ISBN: 0-7637-2957-4
246 pages plus index
RRP: $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 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-Warmkessel
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 Rozen, 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, which although “preventable and treatable”, is “one of the major malignancies affecting the westernised societies, both in terms of incidence and … mortality”.

This text is designed around a series of questions and is aimed at the practical 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 Mahottara and N Moryl
ISBN: 0-7637-2639-7
134 pages plus index
RRP:$US29.95

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...
Gynaecological Cancer Care: A Guide to Practice
T Lancaster, K Nattress (eds)
Ausmed Publications (2005)
ISBN: 0-9753018-0-8
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 psychological consequences of gynaecological cancer, the second most common group of cancers in women, and the most common cause of cancer deaths in women, are addressed throughout. Of the 22 chapters, four of them cover well 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, Drs Lancaster and Nattress have contributed to this excellent publication. The individual chapters are well referenced and the references are current.

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 hand-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 accompany the use of methadone, the authors’ statement that this drug is a “last-line” management for neuropathic pain.

The authors then focus on seven symptoms (nausea, vomiting, dyspnoea, depression, anxiety, fatigue and delirium) associated with cancer patients, for which they highlight the pharmacological interventions, but omit any reference to non-pharmacological/allied health interventions for these various symptoms.

Despite the heading of the book, it is interesting that palliative care does not get a mention until chapter 11. There is minimal reference to the multidisciplinary team throughout the book, which is the cornerstone of the philosophy of palliative care. Cultural issues are mentioned but it is extremely limited with discussion relating to African-American issues only. Chapter 9 is entitled ‘Special Situations’, of which bone metastases and post neuralgia are discussed. It is remiss that these authors’ have failed to discuss medical emergencies such as spinal cord compression, superior vena cava obstruction or severe haemorrhage. The final two chapters focus on the stressors and challenges faced by medical oncologists looking after dying patients, which is a positive affirmation, but fails to acknowledge the “other team members” who also participate in the patient/families journey.

Overall, Drs/Re: 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.
BOOK REVIEWS

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 book 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 chapter 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 covering radiotherapy and surgery. The book 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 worth a look at, but I am not convinced that it is a must for every oncology department.

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

BOOK REVIEWS

Neuro-Oncology of CNS Tumors
JC Toon, M Westphal, JT Rutka, SA Grossman (eds)
ISBN: 3-540-25833-7
696 pages plus index
RRP: £US229.00

This textbook presents 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 unpalatable 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
RRP: £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 nurses working with the other three groups of patients would specifically seek out this book as it

MOLECULAR CARCINOGENESIS AND THE MOLECULAR BIOLOGY OF HUMAN CANCER

D Warshawsky, JR Landolph (eds)
Taylor & Francis (2006)
558 pages plus index
RRP: £85.00

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

Karen Gorzyńska, Oncology Unit, Coffs Harbour Health Campus, Coffs Harbour NSW
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 chapters 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 (when 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
RRP: $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 and 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, Royal Adelaide Hospital, SA
The desired audience was intended to be all people. This book is a good starting point to further refine an detailed and the chapters easy to find with each page a more balanced view of the total care and issues facing tumours, neuroblastoma, nephroblastoma, the sarcomas, syndromes, the lymphomas, histiocytoses, brain authors are involved in clinical trial groups and therefore providing current data.

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 are 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 Mazaferri, 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 knowledgeable team of contributors who have provided an excellent and up-to-date review of thyroid cancer.

Mazaferri 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 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, surgery and non-surgical management and follow-up. The section on initial surgery is particularly well-written with an up-to-date overview of contra-vascular 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...
## AUSTRALIA AND NEW ZEALAND

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<tr>
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<th>Name of Meeting</th>
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<td>2006</td>
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<tr>
<td>November</td>
<td>20 Nov - 1 Dec 33rd Clinical Oncological Society of</td>
<td>Melbourne</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@anevents.net.au">congress@anevents.net.au</a></td>
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<td>May</td>
<td>13-16 Australian College of Dermatologists 40th Annual</td>
<td>Adelaide</td>
<td>Australian College of Dermatologists PO Box 2065 Boronia Park NSW 2111 Australia Tel: +61 (02) 8765 0242 Fax: +61 (02) 9768 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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<td>MOGA Conference Secretariat c/o Pharmaevents PO Box 265, Annadale NSW 2018 Tel: +61 2 9280 0577 Fax: +61 2 9280 0533 Email: <a href="mailto:moga@pharmaevents.com.au">moga@pharmaevents.com.au</a> Web: <a href="http://www.moga.org.au">www.moga.org.au</a></td>
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<td>9th Australian Palliative Care Conference</td>
<td>Melbourne</td>
<td>APCC 07 Conference Secretariat C/ IICE Australia P/L 6 Clanendon Place, South Melbourne VIC 3205 Tel: +61 3 9681 6288 Fax: +61 3 9681 6653 Email: <a href="mailto:apcc@tia.as">apcc@tia.as</a> Australia 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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<td>1-7 RANZCR 58th Annual Scientific Meeting</td>
<td>Melbourne</td>
<td>Royal Australian and New Zealand College of Radiologists (RANZCR) Level 5 51 Drum Street, SYDNEY NSW 2000 Tel: +61-2-9268 9777 Fax: +61-2-9268 9799 Web: <a href="http://www.rancr.edu.au">www.rancr.edu.au</a></td>
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<tr>
<td>November</td>
<td>14-16 34th Clinical Oncological Society of Australia</td>
<td>Adelaide</td>
<td>Pharma Events Ph: +61 2 9280 0577 Fax: +61 2 9280 0533 Email: <a href="mailto:cosa@pharmaevents.com.au">cosa@pharmaevents.com.au</a></td>
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**CALENDAR OF MEETINGS**

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<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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<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 Wagramer Strasse 5 P.O. Box 100, 1400 Vienna Tel: 43 1 2600 21315 Fax: 43 1 2600 7 E-mail: <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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<td>16 - 18</td>
<td>Cancer and Pregnancy</td>
<td>Orta S. Giulio, Italy</td>
<td>European School of Oncology Daniela Mangato - Francesca Marangoni Viale Beatrice d’Este, 37 20122 Milano Tel: 39 02 8546 451 Fax: 39 02 8546 4545 E-mail: <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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<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 11 463 4064 Fax: 27 11 1041 E-mail: <a href="mailto:nrnp@yabo.co.za">nrnp@yabo.co.za</a></td>
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<td>21-22</td>
<td>Cancer World Conference on Improving Cancer Services</td>
<td>Brussels, Belgium</td>
<td>European School of Oncology Marianna Cassese Viale Beatrice d’Este 37, 20122 Milan Tel: +39 02 8546 4522 Fax: +39 02 8546 4545 Email: <a href="mailto:mcassese@esoncology.org">mcassese@esoncology.org</a> Web: <a href="http://www.cancerworld.org/">www.cancerworld.org/</a></td>
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<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 Parel, 400 012 Mumbai Tel: 91 222 417 7000 Fax: 91 222 414 697 E-mail: <a href="mailto:info@apamt.org">info@apamt.org</a> Web: <a href="http://www.tatamemorialcentre.com/newsreleases/apastb.htm">www.tatamemorialcentre.com/newsreleases/apastb.htm</a></td>
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<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 7878 Fax: +1 630 571 7837 E-mail: <a href="mailto:reginfo@rsna.org">reginfo@rsna.org</a> or <a href="mailto:sdev@rsna.org">sdev@rsna.org</a> Web: <a href="http://www.rsna.org/">www.rsna.org/</a></td>
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<td>BASO-ACS Scientific Conference</td>
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<td>1st African Conference on Tobacco or Health</td>
<td>Casablanca</td>
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<td>6th Annual Meeting of the Israel Society for Clinical Oncology &amp; Radiation Therapy (ISCORT)</td>
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<td>American Academy of Hospice and Palliative Medicine</td>
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<td>Sao Paulo</td>
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<td>Cedric Petit-Musin, Meeting Coordinator</td>
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<td>Primary Therapy of Early Breast Cancer, 10th International Conference</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

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

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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
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Professor D Goldstein MBBS, FRACP

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Vacant

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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
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Gastrointestinal Oncology
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Lung Oncology
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Social Workers
Surgical Oncology
Urological Oncology