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List of Contents

Indicators of Quality Outcome for Management of Cancer Patients

Overview – reflections on quality in cancer care

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Four authors in this issue of Cancer Forum examine aspects of improving quality in cancer care.

Quality in health care is not unique in the diversity of terminology that divides its practitioners. The definition of quality , for instance, receives different treatment. The NSW Health Department, in its Framework for Managing the Quality of Health Services in NSW defines quality in health as doing the right thing, the first time, in the right way, at the right time[1], leaving the definition of "the right thing", or how it might be derived, an open question. Neither funders nor providers of health care would be satisfied with a quality objective constructed like that of the General Electric Company around "satisfying customer needs profitably", notwithstanding that a greater emphasis on consumer perceptions is desirable. Wilson and Goldblatt[2] encompass these perspectives in observing that "doing the right thing" involves four dimensions:

- Technical quality – measured by likelihood of improving health status
- Caring quality – how well care met patient needs and expectations
- Cost – measured by resources consumed during care
- Value – the satisfactory resolution of trade-offs between the previous three dimensions

Defining technical quality has been at the heart of the program of the Australian Cancer Network in recent years, and in this edition, Abernethy, Phillips and Currow[3] consider the process whereby evidence is compiled into guidelines, and the issues involved in translating these guidelines into practice policies that are implemented locally. This process of local adaptation has less formal treatment than upstream measures in evidence-based medicine, and this contribution is a welcome one. Health care professionals may be nervous about the emphasis on economic methods to define and evaluate trade-offs, but this is central to the value dimension of quality, and one where consumer participation to define acceptable trade-offs is essential.

The organisational environment in Australian health care is complex. The hospital, at least in the public system has been placed under financial pressures that have often been cost minimising rather than value optimising. At the same time, professional and organisational structures in hospitals have changed remarkably little, despite revolutions in technology and consumer expectations. (The industrial model of quality in contrast has involved fundamental re-engineering of organisations and production in order to take best advantage of new technology.) The anecdotal difficulties faced by health professionals in achieving effective change find some empirical support in the paper by Sorensen[4] which highlights the barriers to managing quality that exist in the organisational environment surrounding a health care team. The centrepiece of her paper is the results of a survey of hospitals and health care staff undertaken by the Centre for Clinical Governance Research. It should be of concern that structures and practices to systematise clinical work appear rudimentary, and that quality opportunities appear to go begging. It underlines the need to reorganise for quality management, and the limitations of our current emphasis on qualifications, and audit of individual competence as ways of achieving quality.

These concerns unquestionably underlie the agenda of the Australian Council for Safety and Quality in Health Care (ACSQHC), outlined by Barraclough[5], which was initiated in January 2000. Given its provenance in the Quality in Australian Health Care Study, the emphasis on adverse events is understandable, but as he acknowledges, there are several dimensions to quality.

Through its program of national standards, the ACSQHC may help to bridge some of the gap between the availability of evidence and guidelines, and the need for benchmarks that address translation into local practice. Ultimately quality is a health service level function, and there need to be local leadership and commitment to deliver effective outcomes. Indeed, the experience of improving cancer care relates to local and regional experiments. A 1998 US review could find no published data on attempts to improve an entire system of care[6].

Multidisciplinary care is recognised in cancer to be an important, even a necessary precedent to quality, but how to implement this in all Australian health care environments, and avoid the cost impediments of some models is a challenge.

Quality management is a data intensive discipline. Deficiencies in data and in information systems in Australian health care are a major barrier to measuring the outcomes of care in the Australian population, and to determining the specific causes that underlie particular outcomes. The paper by Semmens, Fletcher and Brameld[7] shows the power of record linkage

databases in the assessment of outcomes in cancer care. They help answer the question whether the benefits of scientific and technical progress are being reflected in outcomes for the community. The great virtue of the Western Australian database is the speed and ease with which such studies can be performed to provide the loop closing step in the quality cycle. Surgical outcomes can presently be most efficiently measured in this way as procedures are better documented in routine hospital reporting.

With the ability to relate these results to the care received, it is feasible to more effectively associate outcomes with variations in practice, to identify quality problems, and to raise questions about the validity of practice policies that may be addressed by revision of clinical pathways, or by clinical trial. Improvements in recording of standardised data about the process of care are required together with the resources and systems required for supporting structured quality review, and quality problem identification at health service level. The use of limited sets of clinical indicators, separate from clinical pathways, as measures of quality in care is more problematic, especially when comparisons are made among institutions.

Survival analyses from state cancer registers compare Australian outcomes to overseas benchmarks. In these studies, Australia performs comparatively well. However, survival from cancer is but one yardstick of quality, and even it is affected by the quality underlying the benchmark. A recent US review, in generally the best performing jurisdiction on the survival scale, confirm that outcomes could be significantly improved there[8].

Although there are other dimensions of quality, the papers in this issue deal mostly with the technical dimensions of quality. But, with long waiting times for treatment, it is possible that access to radiotherapy is currently the greatest quality issue facing the NSW Health system, while responsiveness and appropriateness are key consumer-focussed attributes. Although research, much of it Australian, has documented the extent of unmet supportive care needs among patients[9], has researched and trialed efficacious measures to improve communication with and support for patients[10,11], we are a way short of efforts to incorporate these systematically into cancer care. Although models of excellence proposed for cancer care in the United States attempt a consumer perspective6, expect it to be some time before communication skills rank alongside technical proficiency in credentialing criteria for clinical oncologists at Australian hospitals. n

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Striking a Balance: individual competence and systems capability as precursors of quality care

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Abstract

There is a growing tendency in some quarters to define quality in terms of the absence of adverse events. A number of high-profile reports have quantified the prevalence of adverse events and their impact on quality and cost. These findings have caught the attention of clinicians, policy players and managers.

Strategies to address identified issues swing between two poles. The first emphasises the competence of individual clinical performance. The second, taking a system's perspective, highlights the totality of factors entailed in clinical production processes.

This paper examines how prevailing approaches reflect the first of these strategies to the detriment of a system's perspective. Against this background we report findings of a recent study of the organisation of care in a number of Australian hospitals and discuss some of the opportunities for service improvement.

Background

Over the past ten years, health researchers have developed sophisticated methods to measure the extent and causes of adverse events as indicators of poor quality. The evidence shows that adverse events were not particular to individual health care systems[1]. For example, an Australia study reported that 16.6% of hospital admissions were associated with an adverse event[2]. In Britain, the estimated rate is 10.8%[3]. In the US, the adverse event rate was initially reported as 3.7%[4]. More recently, using a similar methodology to that of the Australian study, the American rate was reported as 17%[5]. Importantly the evidence also suggests that up to half of the adverse events were preventable.

Within the media and in medical and policy circles, these findings were initially judged as casting doubts on clinical competence. This being the case it is not surprising that for medical clinicians remedy was seen to lie in the structures and methods that retrospectively focus on clinical practices of individual clinicians in individual cases[6]. Among others included here are mortality and morbidity meetings, clinical audit and medical peer review[7-10]. For their part, players in policy and management circles have acted to complement these strategies by developing surveillance mechanisms and by instituting systems to manage complaints.

Some of the deficiencies inherent in this approach have been well documented[11-13]. For example, clinical audit meetings in the NHS have been characterised as antagonistic forums. As with their "peer review" equivalents in Australia, these meetings are dominated by medicine; usually identifiable individuals whose preferences determine both the focus of specific meetings and what is deemed to be within the scope of clinical audit. Consistent with this finding, there is little evidence of a systematic approach to problem identification or of an overall plan for clinical quality improvement. Equally, the evidence points to the way that the clinical audit process is de-coupled from organisational processes such as research and development and clinical risk management[12,13].

While the foregoing pre-occupation with clinical performance serves to underline the accountability of doctors, there is growing evidence that its individualised and medicalised focus is counter-productive. For example, a reliance on medically-dominated clinical audit and peer review as mechanisms for addressing adverse events serves to underwrite the belief that medical interventions are the primary dimension of clinical service delivery. On a different front the culture of fault, and hence blame, that characterises clinical audit/review processes in some settings has been shown to invite defensive stances that are counter-productive for measured consideration of cause and effect. Moreover, it is likely that this defensiveness will be heightened in the event that audit and peer review are linked to credentialling and revalidation.

Additional to these considerations, the tendency to focus on the performance of individual clinicians flies in the face of mounting evidence about the way that adverse events may be sourced to system-based factors [2,14,15]. For example, what are termed "system errors" accounted for 16% of all adverse events in the Australian study cited earlier[2]. Additionally, 77% of the adverse events reported by Wilson et al resulted from errors of omission or commission that cannot necessarily be attributed to individual practitioner incompetence. In a similar vein, an American study found that 74% of the errors detected in a common DRG (heart failure and shock) were due to systems problems and only 26% to clinical performance problems[16] (1). Equally, a recent Australian study of emergency Caesarean sections found that only 10%, 14% and 28% respectively in Level 1, 2, and 3 hospitals met College standards for decision-to-incision times. Failure to meet standard times was attributed to delays in communication and a lack of understanding by some operatives of the preparations required for such an operation. Systems-based processes were involved in each of the 16 steps described in the study as necessary preparation for the procedure[17].

In summary, these findings suggest that while individual clinical competence is necessary to achieve safe high-quality care, it is not sufficient. Rather, service quality and the ability to manage the separate elements of product design, the production process and patient satisfaction is integral to achieving good patient outcomes[13]. This means that clinical quality is not guaranteed by the competence of individual clinicians. Rather its attainment requires systems that are capable of supporting and monitoring composites of the skilled contributions of people drawn from a wide range of specialties and professional groupings.

Some 30 years ago Hughes[18] showed that for each doctor, five other health professionals were involved in a patient's care. The importance of this insight is graphically demonstrated in the results of a recent study of the organisation of care for three surgical procedures(2) in 12 clinical settings[19]. These settings were located in seven Australian teaching hospitals. The study was designed to examine how factors pertinent to the organisation of care in individual settings affected quality.

On the organisation of care the study showed that in each setting, on average, 193 nurses and 65 doctors were involved in caring for its sample of 40 randomly-selected patients. Furthermore, reflecting the bed management policies of the hospitals in which they were located, in five of the 12 settings patients with the same condition were spread across seven or more wards. In two of the settings, patients were spread across at least 15 wards.

The data further showed that most settings were characterised by the absence of mechanism for coordinating work and monitoring its performance. For example:

- 80% of doctors and 90% of nurses reported that they did not receive data on quality;
- 82% of doctors and 92% of nurses did not meet to review the management of care within their unit; and
- 76% of doctors and 59% of nurses did not use a written document that specified tasks and activities related to treating patients.

Notwithstanding these worrying results, the data also showed that 57% of doctors and 44% of nurses believed that "… there (were) better ways of managing patients" for the conditions under study. This response begs the question "To whom would they address their concerns and questions?". The results suggest that the organisational arrangements of individual clinical settings involved in the study were such that the ideas of these doctors and nurses were likely to fall into a void.

The implications of these findings are threefold. Firstly, they confirm earlier findings on the interdisciplinary nature of clinical service provision. Secondly, they indicate how systems-based factors such as a hospital's bed management policies may affect the organisation of care. Finally, the findings point

(1) Systems problems are defined as occurring when health care workers: do not know and understand expectations about their performance; lack the necessary information to perform and/or review their work; and finally, when organisational factors create obstacles to high-quality care[16] (p173).

(2) The conditions studied were appendicectomy, transurethral resection of the prostate and Caesarean section without complications.

FORUM

to benefits that would derive from efforts by both managers and clinicians to establish structures and practices which were oriented to systematise clinical work.

Among others, included here would be structures and practices that promote multidisciplinary agreement about the:

- composite of clinical processes that characterise the diagnosis and treatment of specified conditions
- quality standards and outcome measures that will be used to assess care, and
- organisational systems that are required to coordinate multidisciplinary work, monitor performance and deal with variances that are brought to light.

How systems-based factors such as these may affect quality is suggested by findings in the research cited earlier. Findings showed that clinical settings which exhibited elements of the foregoing structures and processes produced better quality care than those that did not, without adversely affecting cost [19]. n

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Systems redesign for better cancer care

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Cancer care is a complex and important component of health care and safety and quality in cancer care is dependent on the approach that the whole health system takes to the issues of safety and quality of care. Setting benchmarks for quality performance in complex systems is difficult and may involve many different dimensions including appropriateness, effectiveness, efficiency, responsiveness, accessibility, safety, continuity, sustainability and capability. Of these dimensions, safety has been identified as the foremost dimension of quality and the most important to patients and their families[1].

The Australian Council for Safety and Quality in Health Care (ACSQHC) was formed by all the Australian Health ministers in January 2000, with its role being to lead national efforts to promote systemic improvements in the safety and quality of health care in Australia with a particular focus on minimising the likelihood and effects of error. The Council's first report to Health ministers in July 2000, Safety First[2] identified a broad five year plan. The ministers agreed in principle to allocate $50 million for this work to improve safety. By doing this they identified safety as core business of the health system. After wide consultation with professionals and consumers, the Council's "National Action Plan for 2001"[3] was produced. The work detailed in this plan has a major emphasis on developing and strengthening national standards with educational support to enable these standards to be put in place across the system. All areas of the Council's work will help those giving care to cancer patients. However, the focus in the next few months will be on key priority areas.

High risk aspects of the system will be addressed by the development of national standards with associated education and compliance support to reduce hospital-acquired infection, promote safer use of drugs and blood products and improve assessment of patients. Other key priorities include developing national standards for:

- credentialing and performance assessment of all who have independent decision making responsibility; specialist vocational registers;
- curricula for educational modules in systems safety, human factors and communication;
- national audits and benchmarking;
- full disclosure of adverse events and saying "sorry"; and
- improved organisational accreditation, certification and licensing, addressing best practice, structured risk management, team work, team training, resource use, skill mix and safety standards.

The Council's work will also address the better use of data to ensure that lessons are learnt. This will involve:

- improved reporting and review of deaths in health care facilities;
- analysis and dissemination of results of coronial investigations;
- national standards for incident monitoring and assessment; and
- improved methodology to allow reporting of quality improvement in the system.

There has already been a national consultative consumer workshop and seminar and the first Asia Pacific Forum will be held in Sydney in September 2001 to share international experiences in safety improvement.

We anticipate that the end product of the work of the Council will be that those working in health will be working in a culture of safety which will allow the system and its facilities and resources to be better managed as individuals feel secure and are rewarded for seeking, identifying and reporting errors and opportunities for improvement. The system will provide care informed by the needs of consumers and there will be national standards to be met in key areas with better and more appropriate data collection, analysis and feedback.

This work, focused on improving safety, will complement other national work by the National Breast Cancer Centre, the Australian Cancer Network, the National Health and Medical Research Council, National Cancer Control Initiative, Cancer Councils and the Royal Colleges to foster best practice using evidence-based care and the production of evidence-based guidelines. All of these groups also encourage organisational change for safe, high quality care by encouraging the provision of multidisciplinary care and evidence-based decision-making. Evidence-based medicine has been defined by Sackett and others as "the conscious and judicious use of current, best evidence from clinical care research in the management of individual patients"[4] and therefore evidence-based decisions are those involving knowledge of the research evidence, clinical expectations and patient preference[5].

The National Breast Cancer Centre is currently investigating models for multidisciplinary care that fit the Australian health care system. The Centre has defined the five principles of multidisciplinary breast cancer care that are equally applicable for other cancers:

1 A team structure is necessary with a core team of health professionals that can be expanded as necessary to provide a full range of opinions and care.

2 Provision of a full therapeutic range is necessary and this should be made possible by establishing collaborative links, not limited by geography or unit size.

3 Standards of care must be identified and agreed to and these standards should be consistent with guidelines. Treatment plans must involve the patient and be informed by all possible information available at the time. This may involve collaborative links with other units and of course, all clinicians involved must be actively accessing a Continuing Provisional Developing Program.

4 There must be a communication framework to ensure interactive participation of the full team and while this may be a face to face meeting, our population density, scattered resources and great distances mean other means of communication may be necessary.

5 Involvement of the patient. Often the informal links that individual clinicians use for multidisciplinary consultation are not known to the patient. It is important that patients have appropriate information, supportive care and understanding of the input of the team.

There is no doubt that local or linked "virtual" multidisciplinary care teams require much better data recording analysis and feedback as well as other organisational change to establish links but with this extra support and following the principles of evidence-based decision making and multidisciplinary care we should be able to provide "best practice" care to all.

To look into the future, one would see clinicians credentialed according to both quality and competence, with performance agreements related to evidence-based medicine and multidisciplinary care in a structure with adequate data support and benchmarking so that they are contributing to national audits, registering patients on appropriate trials and with regular accurate feedback of their own performance in relation to agreed clinical pathways. They will have appropriate support for information exchange and patient education and will work in facilities accredited on the basis that this situation exists and that the organisation has an appropriate integrated risk management program, appropriate linkages to other facilities, appropriate skill mix of staff and actively encourages teamwork and team training.

While it is often not the case now, it will be expected that palliative care and rehabilitation experts will be part of the core cancer care team and that reporting the outcomes of care to the community will be usual practice. Modern information technology and data collection analysis and the virtual environment will be the technology that underpins these changes. The Australian Council for Safety and Quality in Health Care looks forward to working closely with all who provide health care to bring about systemic change to make care safer and of better quality. n

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The role of epidemiology in achieving clinical best practice

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Introduction

The escalation of health care costs during the 1980s and 1990s resulted in the demand for accountability of the health care industry by policy makers, health service providers and consumers. This call for accountability has provided the impetus for the rapid development and progression of evidence-based medicine philosophy. The Cochrane Collaboration internationally has lead to the analysis of clinical trial data and also lead to its dissemination via the Web. Priorities identified in the National Health Information Development Plan[1] and the Taskforce on Quality in Australian Health Care[2] emphasised the importance of record linkage of health data to assess health outcomes, and the increasing demand by the health care industry and consumers for explicit standards of care for the evaluation of surgical practice and outcomes.

Governments and health authorities are increasingly taking seriously their responsibility in ensuring best outcomes. This has been seen with its support of Cochrane Centres and, more recently, with its establishment of Australian Council for Safety and Quality in Health Care (ACSQHC). Rather than concentrating on bureaucratic issues associated with quality, funding is finally being made available to clinicians to enable them to improve outcomes. There has also been a realisation that many of the adverse events that occur are associated with structure and process of health care delivery, rather than individual clinician error.

Providing the best practice information and encouraging evaluation, however, is only part of the story. To try to encourage uptake of what is known to be best practice, the Federal Minister for Health and Aged Care established the National Institute of Clinical Studies in December 2000. Its role is to work with consumers, health professionals and health organisations to close the gaps between evidence and clinical practice in those areas that will effect significant change in health outcomes.

There are multiple reasons as to why best practice does not occur. First, it may be lack of research data confirming what is best practice. Second, there may be a failure to disseminate that information for clinicians. There also could be structural impediments in the way the health care system is organised to prevent best practice at individual clinician level but also in teamwork. This potentially applies to the multidisciplinary care of cancer.

A further, and major, impediment is the evaluation of health care and its outcomes for the individual clinician, organisation, and its subsequent feedback to those clinicians and organisations to 'close the loop'. Herein lies the value of epidemiology. Epidemiology is the study of the distribution and determinants of morbidity in populations[3]. It focuses on the factors that influence health, the control of disease and disability and the measurement of health outcomes and it is integral to public health. It can define the population-requiring service and, with record linkage, as occurs in Western Australia, can track long-term outcomes of care.

In keeping with the move to assess the quality and outcomes of surgical care, the Quality of Surgical Care Project (QSCP)[4] was established in Western Australia (WA) in 1996 as a collaborative venture of the Royal Australasian College of Surgeons (WA), Department of Public Health (University of WA) and the Health Department of WA, and facilitates multidisciplinary collaboration towards better planning, provision and evaluation of surgical services. The QSCP is a unique quality assurance program in Australia with a focus to promote best practice in surgical and procedural care. The specific objectives of the QSCP are to:

1 describe the clinical epidemiology of selected diseases requiring surgical care;

2 monitor trends in utilisation of surgical procedures;

3 establish benchmark standards of surgical care;

4 compare results with national and international standards of best practice;

5 evaluate and compare the outcomes of new procedures with those of established surgical procedures;

6 recommend and evaluate the implementation of appropriate changes in surgical practice; and

7 disseminate the results of the evaluation process to surgeons, the RACS, health service managers and policy makers, and consumers.

The surgical procedures for review have been selected on the basis of national priority, in consultation with the RACS and with input from the Australian Safety and Efficacy Register of New Interventional Procedures-Surgical (ASERNIP-S).

The QSCP's contribution to quality assurance in surgical care in Australia is possible due to the existence of the unique WA Record Linkage Project.[5] Record linkage of health service data will allow the development of models to evaluate health service outcomes, particularly at the community level and is one of the top priorities of the federal Government. Large-scale, systematic applications of record linkage in health research are uncommon due to the necessary commitments to long-term planning and inter-agency cooperation. The WA Health Services Research Linked Database (WA Linked Database) brings together around 9 million records and consists of population-based hospital morbidity data, birth and death records, mental health services data, cancer registrations and midwives' notifications, linked back to 1980[4]. In addition, it is intended, in future extensions, to include data on primary, residential and domiciliary care and health surveys. Linkage is performed using probabilistic matching of patient names and other identifiers. Geocodes for spatial analysis are assigned using address linkage and mapping software. The use of record linkage in health services research has attracted support because it has distinct advantages over methods involving case series based at one or more hospitals or clinics[4,6-8]. The real value is that the determined surgical outcomes are for all patients of all surgeons, ie all comers not just those in clinical trials or teaching institutions.

Hospital-based cancer registers are the most common source of information on the processes and outcomes of cancer care[8]. Although they are rich in detail on the disease and its management and outcomes, these collections are not representative of the care and outcomes of cancer in the whole population. To complement the knowledge-base provided by these specific registers, the integration of data on care and outcomes from administrative systems of health care institutions covering the whole population offers the possibility of representative information at comparatively little cost[4,5,7,8].

Clinical epidemiology

The WA Data Linkage Project has already been used to evaluate the demographics, clinical epidemiology and outcomes of cancer care including colorectal cancer[9,10]; breast cancer[11]; benign prostate hyperplasia[12,13]; oesophageal, stomach, and pancreatic cancer; and ovarian, cervical and uterine cancers. These features include age-specific and age-standardised incidence and mortality trends back to 1982; procedural treatment patterns, including shifts in practice; post-operative complications; hospital readmission by time period, eg within 30-days; and survival analysis including crude, actuarial, Kaplan-Meier and relative survival. This data is of particular value for the less common cancers requiring major surgery as the concentration of cases in limited specialist centres may improve outcomes. It is planned that surgeons will be provided with state-wide standards as well as their own results and so be able to compare themselves against these standards. In rectal cancer for example, concentration of practice has resulted in lower local recurrence rates and sexual dysfunction[14], as well as a trend in Western Australia towards performing sphincter-saving operations (anterior resection), as opposed to abdominoperineal resection[9,10]. This has resulted in marked improvements in the quality of life of these patients. This latter trend (10% improvement between 1988-9[5]) has been supported by the use of circular stapling devices, improved operative technique, the acceptance of a distal clearance of 2cm in low rectal cancers and an increased public awareness of alternatives to permanent colostomy. While the shift in surgical practice is consistent with the international recommendation to preserve the anal sphincter and is comparable to other recently-published community series, it is still well below the standard reported in specialist centres. This means that for low rectal tumors, patterns of rectal repair may need to change even further.

Prevalence modelling

Historically, planning of cancer services tends to have been based on estimates of cancer incidence rather than prevalence. The prevalence of a disease is the number of patients alive with the disease at a specified point in time, whereas the incidence of a disease is the number of new cases in a defined period of time. However, recent innovations in methods to measure cancer prevalence that take account that many patients may be cured mean that we can now make meaningful estimates of cancer prevalence that allow for greater precision in the planning of cancer services. This is particularly desirable due to the wide range of services that are available, for example, post-operative adjuvant therapy, physical and psychosocial support services and palliative care.

At the simplest level, all cancer registries that collect follow-up information may calculate cancer prevalence in terms of the number of patients diagnosed in the last X years. These estimates need not be affected by the length at which the Cancer Registry has been in existence. A registry that has only been in existence 12 years, for example, can still produce estimates of the number of prevalent patients diagnosed in the last year, the last five years or the last 10 years. Such estimates of prevalence are more useful than trying to estimate the number of all prevalent patients as any trend data will be based on a varying number of years' data. In addition, the time since diagnosis is reflective of the type of treatment required by the patients. This approach has been used by the European and Nordic Cancer Registries as well as South Australia and Western Australia[15-18].

An estimate of the proportion of prevalent patients who will require treatment for their disease at present or in the future may also be calculated using a relative survival model as proposed by Coldman et al[19]. Using relative survival, a "time to cure" can be calculated[19]. This is the stage at which the relative

Table 1

Cancer incidence, prevalence, hospital admission rates and length of stay in hospital, Western Australia, 1997

	Cancer type						
	All	Bladder	Breast (f)	Colorectal	Leukaemia	Lung	Prostate (m)
Incidence*	3.5	0.1	1.0	0.5	0.1	0.4	0.8
Prevalence measures*:							
Active prevalence	7.4	0.1	2.5	0.9	0.2	0.4	4.0
Diagnosed in last year	2.7	0.1	1.0	0.4	0.1	0.2	0.9
Diagnosed in last 5 years	11.2	0.2	4.7	1.4	0.2	0.5	5.3
Diagnosed in last 10 years	16.7	0.3	7.3	2.1	0.3	0.6	6.4
Admission rate1†	2.9	9.4	2.4	4.9	18.9	3.3	0.3
Admission rate2†	1.3	6.1	0.7	1.0	6.9	1.6	0.3
Length of stay1††	11.0	22.4	5.0	14.1	66.8	15.8	2.1
Length of stay2††	8.7	18.7	3.2	8.7	43.7	13.1	1.8

* Incidence and prevalence per 1000 population
† Admission rate per 1000 prevalent patients (active prevalence)
†† Average length of stay per prevalent patient (active prevalence)
1 = including chemotherapy and radiotherapy
2 = excluding chemotherapy and radiotherapy

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survival curve straightens out, when there is no longer any excess mortality from the disease. The proportion of patients who die before this point will be those who have ongoing disease requiring treatment.

Having defined a population of patients requiring treatment for cancer, it is then possible to study service utilisation in that group of patients. For example, record linkage of hospital morbidity data to Cancer Registry data, as in the WA health services research-linked database, allows the calculation of hospital admission rates and length of stay in hospital per prevalent patient[12]. This is illustrated in Table 1.

Prevalence measures provide a more accurate indicator of the level of disease in the community than incidence measures and will better reflect the mix of cancer patients presenting to General Practitioners. Recent research in Western Australia shows that the active prevalence of cancer is rising and indicates that General Practitioners, as well as cancer specialists, will be increasingly required to provide on-going care to patients who are living with active disease, many for a considerable number of years[18]. As stated in the latest report of the South Australian Cancer Registry, "Trends in prevalence are of direct interest to health-service planners and should be included routinely in outputs of population-based cancer registries"[17].

Survival analysis

The observed survival rate from cancer represents the proportion of cancer patients that survive for a specified time after diagnosis. The relative survival rate adjusts the observed survival rate for expected mortality and thus takes into account that the patient may die from a cause not specifically associated with their cancer.

While South Australia has been producing reports on cancer survival for a number of years, more recently reports on survival have also been published by New South Wales, Western Australia and Queensland and the first national reports on cancer survival in Australia are planned for release shortly[21-23]. Despite various problems with data quality and in comparing data between Australian States and Territories and other countries we can now begin to monitor cancer survival over time and to compare cancer survival in Australia with other countries. Without such data we have no basis by which to compare the effectiveness of treatment programs, to see if new treatment regimes are improving patients outcomes and to identify the structures, processes and outcomes of care that may give patients in one state/country an advantage over those in another state/country.

Monitoring of population-based data on cancer survival ensures that we consider the outcome of care for all cancer patients and not just those who are eligible for clinical trials. To inform patients of their prognosis following cancer diagnosis, accurate survival data by age-group, sex, period of diagnosis, histological type of cancer and cancer stage is required.

The WA Record Linkage Project has renewed the vision initially proposed by Hobbs and McCall three decades ago and provides the facility to produce routine measures of the performance of health services[24]. The increased public awareness of the benefits of record linkage, and the facility to include additional datasets such as the state electoral roll, specific hospital-based cancer registers, and Commonwealth datasets like the Pharmaceutical Benefits Scheme and National Death Index will increase the potential of record linkage to contribute to the investigation of disease aetiologies, prevalence modelling, identification of factors influencing health and the utilisation of health services, and establish standards for surgical care and consequently planning and allocation of resources. An imperative of these research activities is that the results are provided to clinicians and organisations to close the loop if research outcomes are to contribute to the knowledge base of evidence-based medicine and influence clinical practice. n

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Applying the evidence to improve the quality of our system of cancer care: What do the words mean?

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Abstract

Translation of the medical literature into real programs that will improve the quality of cancer care in Australia requires assessment of the validity of the research plus application of the data. In order to assess the results readers must understand fundamental differences about the presentation of research data. What is the difference between efficacy and effectiveness? How do I assess the applicability of a study? What are the different types of synthesized presentations, such as a systematic review, clinical decision analysis, and economic analysis? How do I interpret various economic analyses? This paper answers these questions within the framework of cancer care in Australia.

Introduction

Research initiatives expand our understanding of what is optimal care, including biomedical, clinical, epidemiological and health services research. But, it is not easy to take research studies and turn them into real clinical practice. Translation of the medical literature requires tools. The general Evidence-based Medicine (EBM) toolkit starts with a well defined clinical question or scenario, asks "Are the results valid?", and follows with "What are the results and how will they help me in caring for my patients?". Health care systems, cancer professionals, patient advocacy groups and patients are defining the important questions in quality cancer care; the body of information to answer these questions is growing. In this article we will concentrate on the third EBM step – applying the evidence. This step can be extrapolated into "What are the results and how will they help me in caring for my population?", "Should we make everyone follow these rules?", "How strong are the recommendations?" and "How much will it cost the system?".

Effectiveness versus efficacy

The results can be deceiving. Some research occurs in a vacuum—the output is only applicable to the sterile world where it is generated. That world may or may not look like the health care environment where clinicians practice. For example, lung cancer trials that require full-body positron emission tomography (PET) scanning to identify candidate patients are difficult to recapitulate in the community setting. Other studies are designed to evaluate a therapy or intervention within the constraints of real-world clinical settings.

When deciding whether to adopt a new therapy or intervention system-wide you should consider the research design and decide if it is an efficacy or an effectiveness study. An efficacy study measures the clinical benefit of an intervention under the ideal conditions of an investigation; it answers the question: "Does the practice do more good than harm to people who fully comply with the recommendations?"[1]. For example, the New England Journal of Medicine recently published a report of STI571[2]. STI571 is a specific inhibitor of the BCR-ABL tyrosine kinase that causes chronic myeloid leukemia (CML). This phase 1 dose-escalating study demonstrated that 98% of the CML patients studied achieved a haematological response with minimal side effects and gives promise for a new therapy for CML. But, based upon these data, should your health care organisation order STI571 as primary therapy for all CML patients as soon as it is available? The results were dramatic. STI571 seemed to do more good than harm to the people in the study who fully complied with the study criteria. Yet, the study was not randomised, patients were highly selected, and all evaluated patients received the drug. Is it truly better than Interferon therapy or bone marrow transplantation? Will STI571 continue to do more good than harm in a more diverse patient population who are less likely to be compliant and have more co-morbid disease?

An effectiveness study measures the clinical benefit of an intervention under usual conditions of clinical care[1]. This form of evaluation considers both the efficacy of an intervention and its acceptance by those who will be treated, answering the question: "Does the practice do more good than harm to people to whom it is offered?". An effectiveness trial should be randomised and include an intention to treat analysis. In an intention to treat analysis individual research outcomes are analysed according to the group to which they have been randomised, even if they never received the treatment they were assigned[3]. For example, Borras and colleagues recently published their randomised controlled trial of home versus outpatient chemotherapy for colorectal cancer in the British Medical Journal[4]. All adult patients living within 30km of the teaching hospital who needed bolus fluorouracil-based chemotherapy were considered for the study and participants were evaluated in the home-based or hospital-based groups to which they were assigned. Voluntary withdrawal from therapy was higher in the outpatient group, treatment-related toxicity was similar between the two groups and satisfaction was higher in the home therapy group. This effectiveness trial evaluated a chemotherapeutic option in a practical clinical setting.

As always, the methodology and the results should be scrutinised but, in general, effectiveness trials simulate practical experience and should form the basis for system-wide evidence-based clinical practice. Use effectiveness studies as the gold standard for comparing local experience of clinical outcomes and quality audits with the literature. Note, though, that good effectiveness studies are hard to find.

Applicability or generalisability

How confident are you that you can safely apply the results of Borras et al's study to your clinical setting or organization[4]? Applicability or generalisability relates to the ability to transfer research knowledge to your environment in a practical manner to suit your needs[5].

First, look at the participants who were recruited into the study. The inclusion and exclusion criteria are not usually aimed at applicability but rather at improving study power and maximising safety. Good researchers choose high-risk groups, avoid deaths from other causes, ensure good compliance, and minimise potential adverse effects. Consider the baseline characteristics of the patients studied. Your population may have different demographics, co-morbidities, compliance and other important prognostic factors. Compare the research participants to your population before implementing trial results and convince yourself that any differences might not

alter the result. If you are evaluating the introduction of a clinical test rather than an intervention, make sure that the test will be reproducible and well-interpreted in your practice setting. In the Borras study 80% were receiving adjuvant therapy. Is that similar to your population? Is it practical for you to give your adjuvant therapy patients their chemotherapy at home? Would you rather concentrate your at-home services on sicker patients needing primarily palliative interventions?

Second, consider aspects of the setting that might alter the safety and effectiveness of the treatment, including the physical plant, equipment and clinical providers. Consider whether there are important differences in provider compliance and competence. In Borras et al's study all patients lived within 30km of an academic medical centre where we presume there was 24-hour on-call coverage. An oncologist was always available via telephone to help the home chemotherapy nurse with concerns. Is that a practical requirement for your setting? Will your doctors pleasantly accept frequent anxious queries from a home chemotherapy nurse?

Systematic reviews, decision analyses and practice guidelines

As a health care system, we seek results from randomised effectiveness studies that are applicable to our population. Generally, we end up with information from randomised efficacy studies. EBM becomes difficult when results are inconsistent, the methodology is poor, or the studies available do not answer the exact question at hand. A synthesised presentation of the literature circumvents this obstacle.

Systematic reviews aim to appraise and summarise the results from multiple methodologically-sound studies that all ask the same clinical question[6]. The Cochrane Library is an anthology of systematic reviews[7]. In May 1999 McQuay et al published their review of radiation for the palliation of painful bony metastases[8]. Twenty trials met their search criteria and complete pain relief at one month was the primary outcome variable. Summary data demonstrated that 25% of patients achieved complete relief at one month and 41% achieved at least 50% relief at some time during the trials. Due to the nature of the trials only the focused clinical question of palliative pain relief of 50-100% could be answered. Number of fractions, speed of onset of the relief, nor duration could be ascertained.

A systematic review like McQuay et al's answers a very narrow clinical question. If the question is more complicated then a series of relevant trials may lead to the answer of interest. A clinical decision analysis involves the application of explicit, quantitative methods to systematically synthesise evidence from multiple studies in order to compare clinical options[9]. The clinical decision analysis moves through the individual steps necessary to make a clinical judgement, provided that research data exists to support these steps. For example, it has been difficult to compare strategies of cancer pain management and advocate one strategy over another because the literature lacks controlled studies about the relative effectiveness or cost of the various approaches. Abernethy and colleagues prepared a clinical decision analysis that moves through a series of evidence-based steps in order to highlight the burden of cancer pain in a population and compare efficacy and cost outcomes of different strategies of cancer pain management[10]. All data for calculations were derived from an efficacy study of two strategies of cancer pain management and cost inputs from a regional centre in the United States. The applicability of this analysis to your population will be constrained by whether your population is similar to the research population and how US costs differ from the Australian health care environment.

The next step from the clinical decision analyses is clinical practice guidelines. Clinical practice guidelines are "systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances"[11, 12]. They "represent an attempt to distill a large body of medical knowledge into a convenient, readily usable format"[12]. Guidelines are designed to address all of the issues relevant to a clinical decision and incorporate varying levels of evidence-based information. The developers must make judgements about the strength of information, missing information, when to include expert testimony and the consequences of various options that they advocate. Sometimes developers must make recommendations based upon poor or non-existent data.

When reading guidelines, consider whether all important options and outcomes have been included, whether an explicit process was used to develop the guideline and the author's biases. Guidelines should be living documents, subject to constant review and updating. For example, the World Health Organisation (WHO) published its cancer pain management guideline that advocated the use of the "WHO Analgesic Ladder" and revolutionised cancer pain management in the early 1990s[13]. Statements about the use of opioid and adjuvant analgesics were based upon high level data but recommendations about where to start and how to move through the ladder were much weaker. A 1995 systematic review from Jadad and Browman argued that the evaluation and updating process was insufficient; newer cancer pain management guidelines are being developed[14, 15].

The clinical questions answered become less constrained and encompass more of the necessary steps needed to formulate a clinical plan as we move through the hierarchy of synthesised literature from systematic reviews to clinical decision analyses to clinical practice guidelines. But the data become less reliable and therefore the conclusions more questionable. For all three processes the assertions need to be explicit, all assumptions outlined and background data transparent. Before implementing the recommendations, consider the applicability to your population.

Economic analyses

When applying research data to a whole health care population, ensuring quality means that funding is available to adequately implement the program and all of its components. In other words, "What is the cost and what am I going to get for it?" An evidence-based economic analysis is a corollary of the clinical decision analysis[16, 17]. When making decisions for groups of patients, clinicians and policy-makers must weigh clinical benefit and the health care resources consumed. Economic analyses use the same formal quantitative methods as decision analyses, but the final comparison includes the clinical effectiveness of a strategy and its economic impact. Different types of economic analyses include:

- Cost-Benefit Analysis: Converts effects into the same monetary terms as the costs and compares them.
- Cost-Effectiveness Analysis: Converts effects into health terms and describes the costs for some additional health gain (eg cost per additional cancer prevented).
- Cost-Utility Analysis: Converts effects into personal preferences (or utilities) and describes how much it costs for some additional quality gain (eg cost per additional quality-adjusted life-year, or QALY).

The hierarchy of economic analyses moves from the most rigorous – cost-benefit analyses, where costs and effects are compared in equal terms (ie dollars), to the most questionable—cost-utility analyses, where costs are compared to value judgements in terms of preference (ie utility). When evaluating the analysis, consider the background data, assumptions and methods used to derive the unit of comparison. For example, many cost-effectiveness analyses, like that of Abernethy et al, are based upon efficacy studies and are really "cost-efficacy" analyses[10].

Like any study, consider the applicability. For example, if Borras et al were to do a cost-utility analysis the improved quality of life and satisfaction that their home-care patients in Spain report may be different than the experience of the average Australian living 30km outside of Adelaide[4]. A limitation of most economic analyses is that patient groups and health organisations have individualised costs and the standardised costs used in the model may not be applicable to individual situations. The ideal economic analysis is based on a systematic, evidence-based decision analysis that also allows the user to tailor the cost inputs in order to compare individualised, real-world outcomes for clinical benefit and resource consumption.

Individuals not populations

Quality health care systems are still responsible for the management of individuals not just populations. Day to day clinical experience proves that it is tremendously difficult to extrapolate from the literature to the patient sitting in front of you. Look for the best trial but pay attention to what the results mean in terms of the person.

Conclusion

Translating the medical literature to improve the quality of cancer care is both art and science. The science includes the research product and the EBM tools to evaluate that product. The art is knowing how reliable the product is and whether it should be applied to patients in the local population. With both efficacy and effectiveness studies, you should scrutinise the methods and feel comfortable with the application of the results to your health care system. Synthesised data like clinical practice guidelines can be useful but also unreliable; implement them judiciously. And when you analyse economic analyses and cost estimates ensure that the data are reasonable and transferable across your local health care environment. n

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National Database of Cancer Control Activities

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Abstract

The National Cancer Control Initiative (NCCI) undertook the development of a National Database of Cancer Control Activities to identify cancer control activities in place across Australia. The database lists cancer control activities along the continuum of care from primary prevention to palliation, however, it does not contain activities involved in either cancer research or cancer treatment. This paper describes the contents of the database at December 2000. All states and territories in Australia had activities listed on the database and 80% of activities were targeted at the state, territory or local regional level. Fifty-nine percent of activities serviced all communities ie metropolitan, rural and remote. For 31% of activities, particular steps were taken to involve specific groups within the community. Seventy-four percent of activities registered on the database were relevant to both sexes. There were 435 activities relevant to all forms of cancer, and all points along the primary prevention to palliation continuum of cancer care were represented. One-third of activities were educational, 37% were involved in program implementation and 22% had the goal of improving quality of life.

The National Database of Cancer Control Activities hosts over 450 cancer control activities and is available on the Internet (http://www.ncci.org.au).

Introduction

The idea of establishing a national database of cancer control activities emerged in the context of developing a national cancer strategy. The aims were to identify the government and non-government bodies involved in cancer control, the cancer control activities currently being undertaken, areas whare needs were not being met, areas of unnecessary duplication, and opportunities to enhance collaboration.

Cancer control involves the application of evidence-based interventions at all points along the continuum of care, and is defined as all actions taken to reduce the impact of cancer on people. This includes research, policy development and action in cancer prevention, screening, early diagnosis, treatment and supportive and palliative care[1]. However, neither research nor treatment is included on this database. The Ludwig Institute's Database of Cancer Research in Australia (CARA) (http://www.ludwig.edu.au/cara2/index2.html) provides information on cancer research activities in Australia. Information about cancer treatment was not included as the collection of data on cancer treatment would be a huge logistical task. In addition, there are better mechanisms for obtaining this type of information, such as patterns of care surveys or exploring existing data from sources such as the health departments and the Health Insurance Commission (HIC).

Methods

A questionnaire was designed to identify organisations involved in cancer control in Australia and their relevant activities. As the survey involved Commonwealth funding and required information from small businesses, approval from the Australian Bureau of Statistics' Statistical ClearingHouse was obtained (#00434-01).

The questionnaire was sent to the list of contacts compiled by the NCCI since 1997, when it undertook a national consultation to generate a list of priority actions as part of the cancer control plan towards 2002[1]. From this list, bodies involved or thought likely to be involved in cancer control activities were identified and notified about the purpose of the database. Relevant individuals and organisations were then sent the questionnaire and their assistance was requested with its further distribution. The questionnaire originally was mailed to 734 organisations and individuals and a snowball dissemination strategy was used with questionnaires sent to additional contacts suggested by the respondents. The survey was conducted between July and December 1999 and during this time 332 activity outlines were received.

Results

As of December 2000, 450 activities are listed on the National Database of Cancer Control Activities, which is available on the Internet at http://www.ncci.org.au

Responses by state

Completed questionnaires were received from all states and territories. Over half of the activities were received from New South Wales and Victoria (Figure 1). With respect to both cancer incidence and population per state, the Australian Capital Territory, Tasmania and South Australia contributed a higher proportion of activities to the database. In contrast, Queensland contributed the lowest proportion of activities to the database (Figure 1).

Activity focus

Approximately 20% of activities registered had a national focus whereas, the remaining 80% of activities on the database were targeted at either the state, territory or local regional level.

FIGURE 1 – State Responses

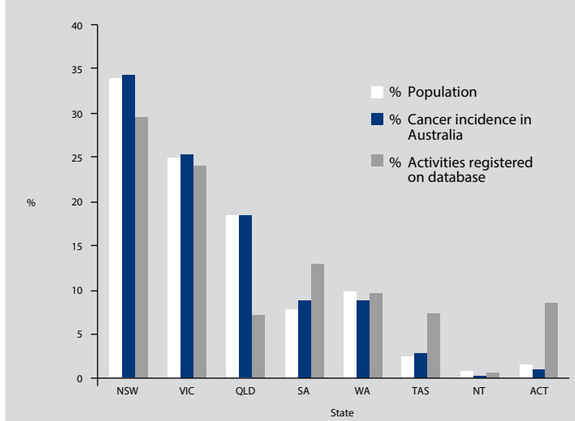


TABLE 1

Specific type of activity		Nature of activity		Point of intervention		Goals	
Professional education	17.9% (79)	Program Implementation	37.1% (166)	Primary prevention	18.2% (81)	Improve quality of life	22.0% (218)
Public education	15.4% (68)	Program/policy monitoring and evaluation	15.2% (68)	Screening for cancer precursors	6.9% (31)	Reduce incidence	16.5% (164)
Health Promotion	9.8% (43)	Needs analysis	8.5% (38)	Screening for asymptomatic disease	5.4% (24)	Ensure equity	15.6% (155)
Monitoring of treatment	8.8% (39)	Evaluation of proposals	1.8% (8)	Early diagnosis	3.4% (15)	Prolong survival	14.5% (144)
Monitoring of risk factors	3.6% (16)	Other	32.4% (145)	Clinical diagnosis	10.5% (47)	Reduce economic cost	12.2% (121)
Monitoring of statistics	2.5% (11)	Combined activities	4.9% (22)	Treatment	11.9% (53)	Improve consumer satisfaction	12.1% (120)
Other	16.3% (72)			Psychosocial support	2.0% (9)	Other	7.0% (69)
Combined activities	25.6% (113)			Rehabilitation	12.8% (57)		
				Palliative care	11.7% (52)		
				Other	15.9% (71)		

Value in parentheses refers to the number of

Communities serviced

Respondents were asked to define what communities their cancer control activity services.

Fifty-nine percent of activities serviced all communities. Twenty-four percent of registered activities indicated that they specifically serviced metropolitan communities, 10% serviced rural communities, 4% serviced metropolitan and rural communities, 2% serviced rural and remote communities and 1% of activities registered on the database specifically serviced remote communities.

Specific groups

Specific steps to involve particular groups within the community were reported for 31% (n=138) of activities. Of these, 97 took additional steps to involve indigenous Australians, 29 took specific steps to involved people from non-English speaking backgrounds and 12 involved the economically-disadvantaged.

Target population

Approximately 74% of activities were relevant to both men and women; 23% were directed towards women and only 3% were specifically directed towards men.

Cancer sites

Approximately 32% (n=191) of activities related to 'all forms' of cancer ie, not site specific (Figure 2). Of the 408 cancer control activities targeted at specific cancers, 90% related to the National Health Priority Cancers (2). Ninety-four activities were associated with breast cancer, 54 with melanoma, 50 with cervical cancer, 50 with colorectal cancer, 45 with non-melanocytic skin cancer, 33 with prostate cancer, 32 with lung cancer and 10 with non-Hodgkin's lymphoma. Forty other activities were directed toward other cancers including; ovarian and uterine cancer, leukaemia, myeloma, duodenal and oesophageal cancers.

With respect to cancer incidence in Australia, there was a lower proportion of activities in the areas of colorectal, lung, melanoma, prostate, non-Hodgkin's lymphoma, bladder, kidney and stomach cancer. In contrast, breast and cervical cancer had a higher proportion of activities relative to cancer incidence.

Specific type of activity

Approximately one-third of all activities were involved in education and approximately equal numbers were directed toward professional (n=79) and public (n=68) educational activities. A further 43 activities were described as 'health promotion'. The next most common group of activities was described as involving 'monitoring', either monitoring treatment (n=39), monitoring risk-factors (n=16) or monitoring of cancer statistics (n=11) (Table 1).

Approximately a quarter of activities on the database (113) involved more than one type of activity and 72 respondents indicated that their cancer control activities were outside the range of options provided on the questionnaire (Table 1).

Nature of activity

Several options were provided on the questionnaire to describe the nature of the cancer control activity around the cycle from needs analysis to program monitoring and evaluation. However, approximately one-third of respondents indicated that the nature of their cancer control activity was outside the options provided. The largest number of activities (n=166) were involved in program implementation and management. Sixty-eight cancer control activities were involved in program/policy monitoring and evaluation, 38 in needs analysis and eight in the evaluation of proposals (Table 1).

Point of intervention

All points along the primary prevention to palliation continuum of cancer care are represented in the database. The largest number of activities (n=81) identified primary prevention as their point of intervention (Table 1). The next most common point of intervention was palliative care followed by psychosocial support, treatment, screening for cancer precursors, screening for asymptomatic disease, rehabilitation and early diagnosis (Table 1).

Sixteen percent of activities indicated that they had more than

one point of intervention and approximately 12% of activities indicated that the point of intervention of their cancer control activity was outside those listed in the questionnaire (Table 1).

Goals

In many cases, several goals were described for each activity. Improving the quality of life was the most frequent goal, followed by reducing cancer incidence, ensuring equity, prolonging survival, reducing economic costs, and improving consumer satisfaction. In addition, 69 respondents indicated that the goal of their cancer control activity was outside those listed on the questionnaire.

Discussion

The National Database of Cancer Control Activities hosts a variety of cancer control activities in every state and territory in Australia.

Multiple cancer control activities were often registered by a single organisation. Registrations of this nature were most commonly received from New South Wales and Victoria where between three and eight responses from a single organisation were common, demonstrating that the most populous states have organisations which provide a range of cancer control activities.

The registrations on the database indicate that most cancer control activities are run at the state or territory level and service metropolitan, rural and remote communities from a metropolitan base. Rural and remote communities appeared to be the least well-serviced.

Less than one-third of activities registered on the database indicated that additional steps were taken to involve specific groups within the community. Less than 10% took additional steps to involve people from non-English speaking backgrounds or the economically disadvantaged suggesting a potential need for cancer control activities to focus on specific minority groups within society.

Most cancer control activities were related to both men and women and to 'all forms' of cancer. Of the 407 activities that targeted one or more specific cancer sites, 90% were related to at least one of the eight National Health Priority Area Cancers[2].

The larger number of cancer control activities targeted to women, rather than men, is representative of the higher number of registered activities in breast cancer and cervical cancer compared to prostate and testicular cancer.

The database does not describe all the cancer control activities in Australia and the number of activities does not reflect size, expenditure or effort. However, it is noteworthy that the number of activities on the database does not directly relate to the burden of disease of specific cancers. For example, the third highest number of site-specific cancer control activities was directed towards cervical cancer, in particular, state based screening programs. Cervical cancer does not rank within the top ten sites for cancer incidence in Australian women[3] and this is probably reflective of the success of these screening programs nationally.

In contrast, prostate cancer and lung cancer have respectively the third and fifth highest incidence in Australia[3], yet less than 8% of registered cancer control activities are targeted specifically to these cancers. Similarly, less than 13% of registered cancer control activities targeted colorectal cancer, yet colorectal cancer has the highest incidence in Australia[3]. Therefore, the number of specific cancer control activities targeted at particular types of cancer is neither reflective nor proportional to the incidence of these cancers within Australia.

When asked to identify the point of intervention of their cancer control activities, most respondents selected 'primary prevention' demonstrating that cancer control through primary prevention is considered to be an important aspect of cancer control. In addition, numerous activities registered on the database had several points of intervention and were described as having several goals highlighting the multifaceted nature of the cancer control activities.

Defining the scope of the inventory was a complex issue from the outset. Questions such as: what constitutes a cancer control activity, what points along the continuum of care can be included or excluded, and what size and types of organisations should be approached to complete the questionnaire, were identified early. The instructions to the questionnaire were written accordingly. Terms used in the questionnaire were not defined and consequently there has been ample opportunity for differences of interpretation to be manifest. For example, palliative care could be interpreted as "end of life" care, or any care directed towards the palliation of symptoms. In addition, it was apparent that the classification of projects was extremely subjective and this also led to differences in the interpretation of classifications. For example, activities involved in sun protective behaviour could be classified as either public education or health promotion.

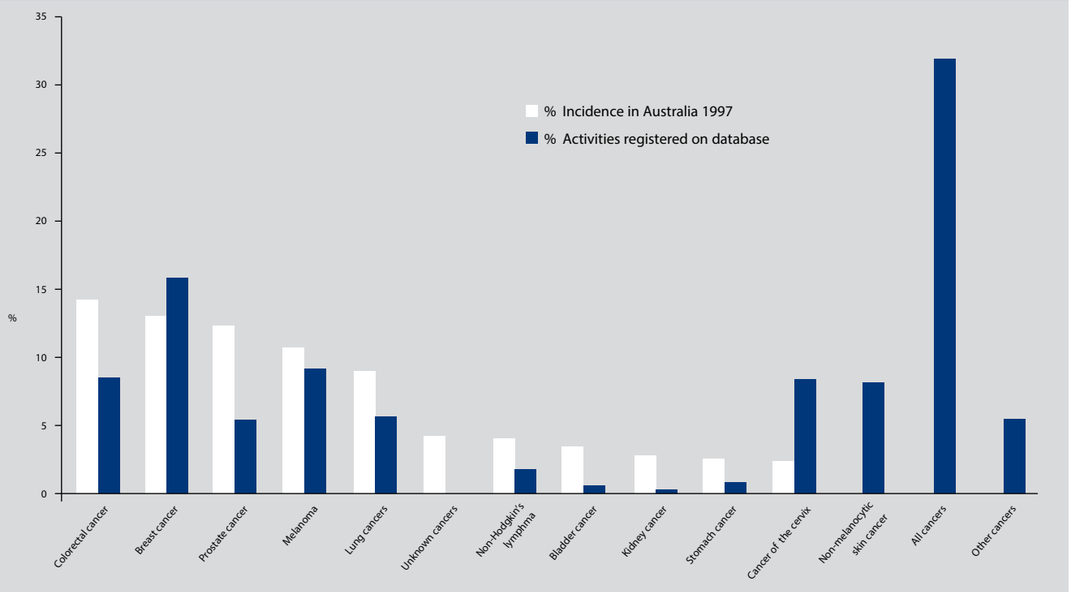
The primary function of the database was to give individuals and organisations the opportunity to record activities in which they were involved. Therefore, all registrations were included on the database as no exclusion criteria were used.

The database has been least successful in relation to identifying unmet needs and areas of unnecessary duplication because meaningful cross tabulations were not possible given the high number of multiple responses for many questions.

The main function the database can serve is that of a clearing-house where anyone with an interest, including consumers, can perform a search and find information and contacts on a particular subject.

The response to the questionnaire shows support for the value of a central, accessible web-based database of cancer control activities. By promoting awareness of existing activities and areas of interest, the database provides a mechanism to facilitate collaboration among stakeholders in different parts of the country. n

FIGURE 2 – Cancer Sites



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Screening for Prostate Cancer: A Consideration of Screening Factors in Comparison to Screening for Breast Cancer

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Abstract

Cancer is a leading cause of death in developed countries; 27 per cent of all Australian deaths are due to cancer, with 35,000 people dying annually. Prostate cancer is the most common type of cancer amongst men in most Western countries. Breast cancer is the most common cancer in women aged over 30 years, and causes the highest proportion of cancer deaths in women.

At present in Australia there is a debate about the public health value of screening for prostate cancer. This paper examines the issues that must be weighed up in reaching a conclusion to this debate, by comparing the issues in prostate cancer screening to those of screening for breast cancer in women. Unlike breast cancer, there is no clear consensus among experts as to whether prostate cancer screening should be provided on a population basis. Many of these experts have developed recommendations which state, in part, that all the information should be presented to the patient by the physician and that the patient should make the final decision. However, if the experts cannot decide, this leaves the layman in a rather difficult position in making an "informed" decision.

At present, there is insufficient evidence to conclusively determine the value of prostate cancer screening on population basis. Health promotion practitioners are often responsible for educating and advising men as to the necessity for cancer screening. We need to be aware that, at this point in time, there is insufficient evidence to justify prostate cancer screening. Until further research has been undertaken to better understand the natural history of prostate cancer, improved diagnostic procedures have been developed, risk and protective factors have been determined, and treatment for prostate cancer conclusively shown to extend life-expectancy, we should be not be advising men to undergo prostate cancer screening, with the possible exception of individuals who are at a high-risk of developing the disease.

"Some experts describe screening for prostate cancer, while waiting for (trial) results, as 'rational', 'appropriate', 'economical', and 'ethical', while other authorities describe screening without better evidence of effectiveness as 'unconscionable', 'costly', 'self-serving', and 'unethical'."[1]

Primary prevention – The case for (and against) screening for cancer

There are several generally accepted prerequisites for a screening program[2]. These prerequisites fall into two categories – aspects of the disease and aspects of the test:

Characteristics of the disease:

- the disease should have serious consequences for the total population (ie should cause mortality or severe morbidity, and should affect members of the target population);
- the disease should have a recognisable, detectable, pre-clinical phase (DPCP) which is reasonably prevalent amongst the target population; and
- there should be available a treatment which is more effective if commenced during the screen-detected stage rather than after the appearance of symptoms. For example, both breast cancer and cervical cancer have considerably higher survival rates if detected and treated prior to the appearance of symptoms.

Characteristics of the test:

- suitable for detecting the disease and acceptable to the

target population;

- high sensitivity (ie a high proportion of tested persons who have the DPCP should test positive), high specificity (ie a high proportion of tested persons who do not have the DPCP should test negative), and high positive predictive value (ie high probability of cancer when the test is positive);
- the costs of applying the test on a population basis should be economically viable; and
- the test should not itself cause morbidity or mortality.

Gender-specific cancers – breast and prostate

Cancer is a leading cause of death in developed countries. In Australia cancer kills more people than heart disease, cerebrovascular disease, or respiratory disease. Twenty-seven percent of all Australian deaths are due to cancer, with 35,000 people dying annually.

Prostate cancer and prostate cancer screening

Prostate cancer is the most common type of cancer amongst men in most Western countries. Prostate cancer begins in the prostate gland, but may spread to nearby lymph glands, bones, bladder, rectal, and other areas. Generally, early prostate cancer does not cause detectable symptoms; however, the symptoms (such as frequent urination, painful urination and painful ejaculation), when they do occur, are very similar to the symptoms of benign prostatic hyperplasia. Prostate cancer incidence is strongly associated with age, increasingly considerably after the age of 50 years.

As with breast cancer, there are two main methods of screening for prostate cancer. The traditional test, the digital rectal examination, consists of the doctor inserting a finger into the rectum and palpating the prostate gland. The "scientific" screening procedure is a blood test to determine the level of prostate-specific antigen in a blood strain; the level of PSA may

Photograph courtesy of Curtin University of Technology Perth WA

rise in men with prostate cancer, benign prostatic hyperplasia, or some other infections.

Breast cancer and breast cancer screening

Breast cancer is the most common cancer in women aged over 30 years(1), and also causes the highest proportion of cancer deaths. Age is the single biggest risk factor for breast cancer[3]. It has long been known that, if detected and treated early enough, breast cancer sufferers have a high survival rate; and that screening and early treatment are effective tools in increasing breast cancer survival rates.

Screening for breast cancer consists of two separate, and quite different, strategies. The first, and most comprehensively investigated, method of screening for breast cancer is by mammography. The second method of screening for breast cancer is clinical breast examination. For the purposes of this paper, clinical breast examination can be likened to DRE, and mammography to prostate-specific antigen screening.

Characteristics of the disease:

- The disease should have serious consequences for the total population (ie should cause mortality or severe morbidity, and should affect members of the total population)

Prostate cancer

Prostate cancer is the most common cancer diagnosed in men in Australia, as in most Western countries, and both incidence and mortality are rising[4]. In the United States, for example, it is estimated that 40,000 men died from prostate cancer in 1995. In the US as in Australia, prostate cancer is now the most commonly diagnosed cancer among menv.

Breast cancer

Breast cancer is the most common cancer in women aged over 30 years. Over the last seven years, incidence rates have increased in Australia, due to an aging population and increases in mammographic screening, whilst mortality rates have been declining at around 3% per year[6]. Age is the single biggest risk factor for breast cancer[4], with incidence rates increasing progressively from the age of 30[6].

Comparison between prostate cancer and breast cancer

In 1996, 9,621 new cases of breast cancer were diagnosed in Australia, and 2,619 women died from the disease, equating to 30,955 person years of life lost (PYLL). In the same year, 10,055 new cases of prostate cancer were diagnosed in Australia, and 2,644 men died from the disease, equating to 6,228 person years of life lost (PYLL).[6]

- The disease should have a recognisable, detectable, pre-clinical phase which is reasonably prevalent amongst the target population

Prostate cancer

Prostate cancer does have a recognisable, detectable, preclinical phase that is prevalent in the population; in fact, some studies show that prevalence of histologic evidence of prostate cancer is as high as 42% at age 50-59, 58% at age 60-69, 66% at age 70-79, and 100% at age 80 and older[7]. However, screening cannot at this time differentiate between aggressive (and thus life-threatening) cancers and less aggressive ones (that will not lead to mortality or morbidity in the individual). Research shows that up to 30% of men over the age of 30 who are autopsied have detectable, if microscopic, prostate cancers. However, the risk of death from prostate cancer under the age of 75 is one in 70[8]. According to available statistics, the US Department of Health and Human Services estimates that millions of American men have prostate cancer, though less than 40,000 will die of the disease annually. This suggests that "only a subset of cancers in the population are clinically significant and that widespread screening is likely to detect a large proportion of cancers whose effect on future morbidity and mortality is uncertain"[9]. They further conclude that it is not yet known whether PSA will identify aggressive cancers at the stage where they are still potentially curable.

Breast cancer

(1) Whilst it is acknowledged that men can, and do, develop breast cancer, the incidence in males is extremely low; thus breast cancer is generally (and for the purposes of this paper) considered to be a female disease.

Breast cancer also has a recognisable, detectable, preclinical phase, and studies show that "moderate" reductions in mortality between 20 – 30% can be expected.[9] Breast screening aims to detect small cancers, ideally less than 1cm. Small cancers are less likely than larger tumours to have metastasised and are generally regarded as constituting early-stage disease[10].

However, it is important to note that mammographic screening also detects ductal carcinoma in situ (DCIS). Currently in Australia, approximately 10-20% of breast cancers detected by mammographic screening are DCIS[11,14,13]. DCIS is a non-invasive variant of breast cancer which involves abnormal growth of the cells lining the ducts in the breast which, by definition, has not spread beyond the ducts[12,13,14]. The natural history of DCIS and its link with invasive breast cancer is not well understoodxv. As with prostate cancer, "the most innocuous, low-grade looking forms of DCIS may never cause a clinical problem if left untreated"[13]. However, it has been estimated that 20-25% of DCIS lesions will progress to invasive breast cancer[13,15], and women with DCIS are more likely to develop breast cancer in the future. Invasive cancer recurrence rates are significantly reduced by treatment of the DCIS with mastectomy or conservative surgery with radiotherapy[15].

- There should be available a treatment which is more effective if commenced during the screen-detected stage rather than after the appearance of symptoms

Prostate cancer

There is considerable debate as to whether early detection of prostate cancer has any impact on survival. A large scale trial, commenced in 1992, is being undertaken by the National Cancer Institute (NCI) in the United States; 74,000 men will be randomly allocated to either annual screening for prostate cancer or no screening[16]. This is a long-term study, and conclusive results will not be available for several years[6].

In the meantime, some researchers believe that radical prostatectomy is an effective treatment for screen-detected prostate cancer[5]. A study at the University of Quebec reported: "137 deaths due to prostate cancer occurred in the 38,056 unscreened men, while only five deaths were observed among the 8,137 screened men ... or a 69% decrease in the deaths from prostate cancer in the group of men who were screened and received early treatment"[17]. Subsequently, the same author reported on five randomised studies of hormone therapy for screen-detected prostate cancer and concluded that "simple use of the available screening procedures and treatment for localised prostate cancer could cause a dramatic decrease in prostate cancer death"[18].

Other researchers, however, question the efficacy of prostate screening. For example, CCIHF state that "there is no information yet available that can tell us whether screening for prostate cancer makes any difference whatsoever to how long the patient will live after his prostate cancer is discovered"[19]. Gohagan criticised the 1998 Labrie study outlined above, as follows: "Of the entire group of men in Labrie's study, 31,000 were invited to come in for PSA screening, but only 7,100 showed up. Instead of sticking to the "randomisation" part of the process, anyone who didn't show up was put into the "unscreened" pile. And during the first round of screening, men whose test indicated that they already had cancer were also dumped into the unscreened category... Counting men that way skewed the data, making the unscreened group look like cancer magnets"[20].

Despite the earlier quoted figure that as many as 30% of men in their thirties have prostate cancer, the risk of death from the disease under the age of 75 is one in 70[10]. Additionally, autopsies of older men show that up to one-third have undiagnosed prostate cancer (which was not the cause of death) and two-thirds of men who have been diagnosed with prostate cancer will die from other causes[21]. In Chapman's words "there are many men walking about today with the 'sleeping dog' of prostate cancer. For many, this dog will never wake up and deliver a serious or lethal bite"[19].

The US Department of Health and Human Services[9] cautions that, as the extent of lead-time and length biases are currently unknown, and as it is difficult to differentiate between aggressive and indolent prostate cancers, it is not possible to determine whether many patients who have undergone radical prostatectomy would have survived just as long without treatment.

The debate is perhaps best summed up in the following two quotes (from the prostate cancer website – http://www.prostatepointers.org/ww/toscreen.htm):

"Since Prostate Cancer Awareness Week began in 1989, more than 3 million men have been screened. In numerous cases, screening save lives by detecting the disease in its earliest, most critical stages" (Prostate Cancer Education Council).

"It does not seem appropriate that we simply screen men or launch free screening programs, with the implied promise of benefit. This would deviate from the Hippocratic principle of 'first do no harm'." (National Cancer Institute)

The greatest "harm" comes not from the screening test itself, but from the diagnostic and treatment procedures which follow a positive diagnosis. Some of the possible consequences of these procedures include[9]:

- needle biopsy – the confirmatory diagnostic procedure – is relatively safe, although it results in infection, septicemia, and/or significant bleeding in a small percentage of patients (note that this is a similar procedure to the confirmatory diagnostic needle biopsy used to (dis)confirm suspected breast cancers detected by mammography);
- radiation therapy has been estimated to have a risk of death between 0.2-0.5%, gastrointestinal and genitourinary complications in 8-43% of patients, chronic complications in 2 %, impotence in 40-67%, urethral stricture in 3-8%, and incontinence in 1-2%[9];
- hormone therapy – to reduce, or eliminate, the production of male hormones – has side-effects which can include decrease in sexual desire, impotence, hot flushes, nausea, vomiting, tenderness and swelling[22]; and
- radical prostatectomy – the surgical treatment for prostate cancer – has significant side-effects. Estimates of operative mortality range from 0.7-2%, of impotence from 20-85%, incontinence from 2-27%, urethral stricture from 10-18%, thromboembolism 10%, and permanent rectal injuries 3%. In practical terms, some of these effects include 30% of post-operative men wearing pads to control wetting, 6 % undergoing corrective surgery for incontinence, 2% requiring a catheter, 60% reporting partial erections, 15% requiring treatment for sexual dysfunction, and 20% requiring dilatations or surgical procedure for strictures[9].

Breast cancer

The value of mammographic screening in reducing breast cancer mortality and morbidity has been investigated and proven over many years. Population-based screening was introduced in many countries, including Australia, as a result of many long-term studies which demonstrated that many breast cancers detected in the preclinical phase could be successfully

treated[23]. It is generally accepted that mammographic screening on a population basis results in a reduction in breast cancer mortality of around 30%[21,24].

The one caveat to this benefit is that it is age-related, with the greatest benefits for women aged over 50 years[4, 11]. There is some benefit in screening women under 50; however, due to the increased number of false positives it is not (as) cost effective and there is considerable psychological impact.

Breast self-examination, on the other hand, can clearly only detect symptomatic cancers (although at an earlier stage than they would otherwise be discovered), and has not been shown to reduce mortality[11].

As with prostate cancer, there are considerable side-effects of treatment for breast cancer. These include:

- surgery – scarring and disfigurement (although this is less so with new surgical techniques, particularly breast-conserving operations), need for further reconstructive surgery in the case of mastectomy, risk of infection, reduced sensitivity due to nerve damage, swelling of the arm (lymphoedema); and
- radiotherapy – general tiredness, some reddening or 'sunburning' of the skin, and the breast may change a little in size or shape or feel different in texture.
- However, it is important to note that, in the case of breast cancer, these negative effects are the result of a procedure which has been conclusively demonstrated to reduce mortality and increase life expectancy[25].

Comparison between prostate cancer screening and breast cancer screening

It is argued by many that prostate cancer is unlike breast cancer in that screening for the latter has long been demonstrated to reduce mortality and increase survival subsequent to the onset of the disease[17]. However, in relation to prostate cancer, it has been estimated that when quality-of-life adjustments are incorporated, "one-time screening of men aged 50-70 would increase life expectancy by 0-0.2 days and 0.6-1.6 days, respectively, but quality-adjusted life would be decreased by 1.8-7.1 days and 2.1-9.5 days, respectively, per patient screened"[26].

Further, it is posited "that using the PSA test for detecting prostate cancer in asymptomatic men is not analogous to mammography for early detection of breast cancer in asymptomatic women. Apart from the unproven benefit, there is a need for universally applied guidelines for the management of men with an abnormal test result, parallel to those built into the mammographic screening program" [27](p 9).

It is also suggested that, unlike breast cancer, the greatest benefits of screening are not for those in older age groups. The American College of Physicians[6] estimates that population screening of men over the age of 69 years will result in increased life expectancy of only a few days, and studies show that the 10-year survival rate for early-stage prostate cancer approaches 90%[9] (p 8). Thus, the recommendations of many expert bodies include not screening men over the age of 70.

Characteristics of the test:

- The test to be suitable for detecting the disease and acceptable to the target population

Prostate cancer screening

The traditional, and most well-known, method of screening for prostate cancer is by digital rectal examination. This test, whilst there is a lack of evidence from controlled studies to demonstrate its effectiveness in reducing cancer mortality, has few disbenefits[6]; it has no significant immediate risks, requires little time, and, as it is usually performed as part of a regular check-up, does not incur extra financial cost.

The newer and more "scientific" screening test is prostate specific antigen (PSA) testing. It is generally accepted that a level greater than 4.0ng/mL is clinically suspicious and worthy of follow-up[6]. However, there is considerable debate as to the use of age-specific PSA thresholds (see, for example, Oesterling, 1996). Anecdotal evidence suggests that, for many men, PSA may be a preferable screening test to DRE as it is a less physically and psychologically invasive procedure.

Breast cancer screening

Breast cancer screening is generally accepted by both the target population and the medical profession as a valuable preventive behaviour. A 1991 population survey[28] found that 78% of Australian women have conducted self-checks of their breasts, although only 23% conduct the recommended monthly self-examination. Similarly, the 1996 Breast Health Survey[29], a survey of 3,000 Australian women aged 30–69 years found that 93% of women reported doing BSE at least once, but only 37% of those surveyed reported practising BSE monthly. Mammographic screening rates in NSW have increased steadily since 1984, with an estimated 72% of women in their 50s and 67% in their 60s having had at least one mammogram[30]. Australia's population breast screening program – Breast Screen – commenced in 1991. Acceptance of the use of mammographic screening as a preventive tool for breast cancer is evidenced in target group surveys which show that women believe the benefits outweigh the risks[31]; high participation rates – approximately 70% of eligible Australian women(2); and high rescreening levels[21]. Several studies have shown that breast cancer mortality could be further reduced by increasing compliance with screening recommendations[32,33].

- The test should have high sensitivity, specificity, and positive predictive value

Prostate cancer screening

In discussing the accuracy of prostate cancer screening tests, it is important to bear in mind the following caveat: "the sensitivity and specificity of screening tests for prostate cancer cannot be determined with certainty, however, because biopsies are generally not performed on patients with negative screening test results"[9]. Thus, the following discussion will rely on widely varying estimates of sensitivity, specificity, and positive predictive value.

Whilst the DRE may have high acceptance, it does not appear to have either high sensitivity or high specificity. The US Department of Health reports, from a review of numerous studies, that DRE has a sensitivity of 55-68 %, although it can be as low as 18-22% using different screening protocols; and limited specificity, which results in a high proportion of false-positive results[9]. The American College of Physicians estimates that the positive predictive value is in the region of 15-30% and concludes that the negative predictive value is considerably lower (ie a negative digital rectal examination does not substantially decrease the odds of a subsequent prostate cancer)[6]. The US Department of Health[9] reports that positive predictive value in asymptomatic men tends to be higher when the test is performed by urologists rather than physicians.

Again, there is considerable debate as to the effectiveness of prostate-specific antigen testing; with some investigators reporting the test to have high sensitivity and high specificity[5]. In fact, Gann, Hennekens & Stamorer go so far as to say, "PSA has the highest validity of any circulating cancer screening marker discovered thus far"[34]. Other researchers, however, report that, whilst PSA may have high sensitivity (over 80%), the specificity is much lower (as low as 29%), depending on the screening protocols[9]. The sensitivity of the test, as would appear intuitively logical, increases as the level of PSA increases; an approximate positive predictive value of 20% for levels between 4-10 increases to 42-64% for levels greater than 10 ng/mL[6]. Conversely, the specificity of PSA testing decreases with increasing age; this is due to the age-related development of benign prostatic hyperplasia[6]. It is estimated that 50% of US men aged between 60 and 70 have benign prostatic hyperplasia (BPH), and as many as 90% of those aged 80 to 90 have this condition[19]. Additionally, the American College of Physicians state that "no published studies of PSA measurement in unselected populations have applied an acceptable reference standard ... the true sensitivity and specificity of PSA measurement are unknown"[6]. As Burton[35] points out, serum PSA is the first proposed population screening test that has a continuous range; all other currently used tests (such as Pap smear, screening mammogram and faecal occult blood test) have dichotomous results – positive vs negative.

Two other methods for detecting prostate cancer, transrectal ultrasonography and transrectal needle biopsy, are not intended as screening tests.

Breast cancer screening

Mammography is able to detect breast cancer in seven out of 10 women in whom disease is present[36]. Around 93% of women without the disease can be excluded from further assessment following the initial screen. These data suggest that the test has reasonable sensitivity and specificity. It is the best available technique for the early detection of breast cancer[12]. Additionally, some indication of the sensitivity of mammographic screening can be found in studies of subsequent interval cancers. For example, a study of the incidence of interval breast cancers in the 12 months following mammographic screening concluded that "screening quality was acceptable and should result in a significant mortality reduction in the screened population"[37].

- The costs of applying the test on population basis should be economically viable

Whilst, in an ideal world, economic factors would not be a part of decisions as to whether to screen for potentially fatal diseases, the reality of opportunity cost means that all potential interventions must be considered in the light of the ratio of benefits to costs: "resources are scarce, requiring choices to be made about what health care to provide and what not to provide"[38].

Prostate cancer screening

It has been estimated that, if every eligible man in the US decided to undergo annual prostate cancer screening it would cost several million dollars per year[16]. More specifically, Waldman & Osborne estimate that if all men between the ages of 50 and 70 in the US were screened for prostate cancer the cost would come to in excess of $15 billion (if suspect PSA level were set at 10 ng/mL) or $27.9 billion (if set at 4ng/mL), plus an additional $23.6 billion for confirmatory transrectal ultrasonography[39]. The benefits of screening are not proven, making the benefit:cost ratio for prostate cancer screening prohibitive. An economic evaluation of potential prostate cancer screening program in France concluded that mass screening should not be recommendedxl. The US Department of Health and Human Services concurs that, without significant improvements in diagnosis and treatment, a population screening program would not be cost-effective. Further, given a 10-year survival rate of 90% for early-stage prostatic cancer, they recommend against screening of men aged over 70 on both economic and quality of life grounds[7]. Similarly, the American College of Physicians[5] suggests that the highest comparative benefit from screening would be obtained for men aged 50 to 69 years, although they still recommend against population screening.

Breast cancer screening

The costs of breast cancer screening are also very high; however, these costs are weighed up against the reduction in costs (both financial and social) from detecting and treating a cancer which has been clearly demonstrated to be often curable in its early stages. It is important to note that, on currently available evidence, the public health and economic benefits are gained from population screening of women aged 50-69. The benefit of screening women aged 40-49 on a population basis is currently the subject of considerable debate[33].

- The test should not cause morbidity or mortality

Prostate cancer screening

Although there are no immediate risks from PSA testing, other than those usually incurred from any blood-test, it is posited that there are a number of subsequent risks which are not countered by demonstrable benefits. For example, many false-positive testees will then suffer the discomfort of a subsequent, unnecessary, needle biopsy. The greatest risk, however, is for those false positives who undergo radical treatment for presumed prostate cancer with its subsequent significant negative side-effects. This also applies to true positives whose prostate cancer would not have led to their death before they died of other causes. These negative effects are discussed above.

Breast cancer screening

A mammogram is a form of x-ray which uses a very low dose of radiation. The benefit of screening far outweighs the risk of any harm from the x-ray[41]. Possible disbenefits of screening include: fear and anxiety associated with screening and assessment; false reassurance for women with false negative results; for women with incurable breast cancers, they will spend a longer time with the knowledge that they have the disease; the possibility of unnecessary diagnostic tests and associated morbidity for women with false positive results; lesions which might otherwise have regressed may be detected through screening and treated unnecessarily; and there may be a small radiation risk associated with the test itself[12]. It should be noted that all of these, with the exception of the last (radiation), apply equally to prostate cancer screening. The side-effects of breast cancer treatment are also discussed above.

So what do the experts think?

Prostate cancer screening

As discussed above, there is considerable debate as to the value of population screening for prostate cancer. This debate, and the current balance of opinion against screening – at least until further evidence is available – is reflected in the division between the minority of expert bodies who recommend population screening for prostate cancer, and the majority (including The Cancer Council Australia, American Cancer Society, International Union Against Cancer and World Health Organisation) who recommend against it. The general consensus is that the potential benefits and known harms of screening, diagnosis, and treatment should be explained to the individual patient who would then make their own decision as to whether to undergo screening.

(2) This figure is lower than that quoted in many other studies (eg Glasziou & Irwig, 1997), but it is noted that many of these studies are based on reported compliance.

(3) At the present time, however, there is an unresolved debate as to the value of screening younger women.

Breast cancer screening

There is no such division in relation to population breast cancer screening, with a consensus view that regular mammographic screening be provided to all women over the age of 50(3).

Conclusions

At present, there is insufficient evidence to conclusively determine the value of prostate cancer screening on a population basis. There are many issues and questions which must be resolved. For example, the natural history of prostate cancer needs to be better understood, and diagnostic procedures refined, in order to differentiate between aggressive (and thus life-threatening) tumours and latent (and thus not life-threatening) tumours. Similarly, it remains to be determined conclusively if, and by how much, current treatment for prostate cancer extends life-expectancy of men with even aggressive forms of this disease. Any analysis of this issue would need to take into account the negative consequences of treatment and subsequent quality of life issues. Related to this, there is the need for specific guidelines for clinicians on PSA reference ranges and velocity (ie the changes in PSA over time), including decisive guidelines on the value and use of age-specific reference ranges[42].

So what should the layman do? Many of the "experts" quoted above have developed recommendations which state, in part, that all the information should be presented to the patient by the physician and that the patient should make the final decision in their own case. Whilst this may have the advantage of removing the burden of responsibility from the physician and/or the advisory body, it transfers this thorny problem to the patient. In the words of Wolfe & Wolfe: "when professional and government organisations cannot agree on the standard for screening for this prodigious disease, how can lay individuals be expected to decide when to be screened or tested?"[43].

It is important to bear in mind that the predominantly negative assessment of prostate cancer screening is based on current techniques (screening, diagnostic and treatment). Advances in any, or all, of these techniques in the future may well lead to a shift towards population screening. For example, the American Association for Cancer Research are working on a new approach to detection, based on the testing of urine to detect an early genetic change which occurs in 90% of prostate cancers[44]. n

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REPORTS

Cancer in the Bush – optimising clinical services

Summary report from a meeting held at the National Convention Centre, Canberra, 8-9 March 2001

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The idea for the "Cancer in the Bush" conference was proposed by Dr David Goldstein, a Sydney-based medical oncologist who, for the past five years has been providing a weekly outreach clinic to the New England Health Area based at Tamworth Hospital in country NSW. At first hand he has seen the significant disparity between services available in the city and those available in the bush.

The concept was enthusiastically supported by both the president, Professor John Zalcberg, and Council of the Clinical Oncology Society of Australia (COSA). The conference was then also taken up as a joint activity with The Cancer Council Australia. The Cancer Council Australia declared it a priority issue and a steering committee was established. The Commonwealth Department of Aged and Health Care became involved, also made it a priority, and provided guidance and financial support. Macquarie Bank provided sponsorship while Telstra Countrywide and Integrated Vision provided facilities for a telemedicine demonstration.

While several new initiatives in improving service deliveries have begun the conference provided an opportunity to gain an overview, better understand the issues facing rural patients and set the agenda to guide future improvements. It was hoped this conference would initiate "a flood of change". The first step in this process would be providing the Government with practical and constructive recommendations for its program on cancer care in rural and regional Australia.

In officially opening the conference, Dr Michael Wooldridge, Minister for Health and Aged Care, talked of the challenge of distance and the dispersion of Australia's remote communities. Dr Wooldridge said he firmly believed that so long as the quality of care was not compromised, cancer should be treated and managed in local communities, to avoid dislocation from family, friends and familiar surroundings at what could be an enormously difficult time. "I also believe in the power of such familiar surroundings to assist the recovery process and improve quality of life as treatment progresses," he said.

The two-day conference had three aims to:

- gain a more informed understanding of the issues facing rural cancer patients;
- develop proposals aimed at overcoming barriers to equity of access for both clinical and supportive care services outside metropolitan areas; and
- identify pathways to better health outcomes for people living in the bush who are diagnosed with cancer.

The organising committee was headed by Dr David Goldstein and included broad representation from medical and radiation oncology, nurses, consumers and cancer organisations. More than 120 people, including doctors, nurses, patients, health professionals, administrators and Government representatives attended this tightly organised conference to hear 25 speakers deliver short papers identifying key issues on seven topics:

- epidemiological differences between urban and rural Australia
- the rural perspective
- medical oncology
- radiation oncology
- surgical oncology
- palliative oncology
- Government policy

These were followed by five workshops in which participants helped to draft practical recommendations for medical, surgical, radiation, palliative and psychosocial oncology. These recommendations formed the blueprint for the conference writing committee to prepare a working set of proposals to be discussed at the final conference session.

The next day, the workshop facilitators reported back to the conference and open, lively discussion followed. While participants watched a telemedicine demonstration, the consensus panel finalised recommendations, which were put to the conference in its closing session.

Senator Grant Tambling, Parliamentary Secretary to the Minister for Health and Aged Care, officially closed the conference saying the Government was committed to improving health services in rural Australia. As a Senator for the Northern Territory, he was familiar with the concerns and needs of people living in rural Australia.

The full report including recommendations was presented to the Minister for Health and Aged Care and the Department of Health and Aged Care in April 2001.

Topic Summaries

Epidemiology: differences between urban and rural Australia

Little information is available on this subject. Two speakers provided some preliminary data from their studies in South Australia and NSW. There were no comparisons available on morbidity or quality of life, only crude mortality figures.

Survival

Professor David Wilkinson, from the Centre for Rural and Remote Health in Whyalla (SA), provided some evidence for variation in survival. In the South Australian data, country men had consistently lower survival for prostate cancer, there was lower survival for chronic lymphocytic leukaemia and multiple myeloma and a trend to lower survival for acute lymphocytic leukaemia and Hodgkins Lymphoma. There was trend to higher survival for women with cervical and ovarian cancer.

David Smith, of the Cancer Epidemiology Research Unit of The Cancer Council NSW, showed that in NSW there was no

significant difference in incidence or mortality between highly accessible or remote populations for all cancers considered together. However, the incidence of lung cancer in women, and prostate, head and neck cancers in men, were significantly higher in the bush.

All cancer patients from the bush had about a 30 per cent excess risk of death at five years compared to all patients from urban NSW. At five years, men in the bush who had pancreatic, head and neck, prostate and rectal cancer had higher relative risks of death compared to their urban counterparts. The same was true for women with cervical cancer in the NSW bush.

Access

Professor Wilkinson noted a grossly inequitable distribution of general practitioner services and said there was a three-fold difference in access to these services between rural and urban areas.

Dr Liz Kenny, from the Queensland Radium Institute, said infrastructure requirements meant radiation oncology services were principally city or regionally based. The minimum population base to support a two machine department was approximately 250,000. From NSW data, it was evident that the utilisation of radiation treatment was region dependent but this was mainly influenced by availability of radiation oncology consultations rather than proximity to linear accelerators. Access was a problem whether the patient was rural or urban based and rural patients in NSW did not appear to be disadvantaged in their use of radiation oncology services.

However, for the country patient, travel and accommodation were major issues. Patients were often away from their homes for up to seven weeks. In some States patients could only get travel and accommodation assistance if they lived more than 200km from their treatment centre. This was a great burden for country patients. The inequity between States required urgent review.

The rural perspective

While there are numerous disadvantages being a cancer patient in the bush compared to the city, there are some relative advantages. In this segment, speakers described both and offered innovative solutions to overcome disadvantages.

Advantages

A high quality of emotional and social support exists in rural communities, according to Helen Snodgrass, a palliative care and oncology nurse from the Mid Western Area Health Service (NSW). She noted that people volunteered readily and spontaneous cancer support services had often been established in small towns by those who had experienced cancer themselves or had a loved one with the disease.

This had to be seen, however, against the background of changing social demographics in rural communities. Kate White, associate professor of Cancer and Palliative Care at Edith Cowan University (WA), said as rural communities aged and families moved away, fewer people were left to fill voluntary roles. Ms Snodgrass said doctors and nurses in the bush were more proactive in getting things done and tended to be more resourceful.

Results from a national survey of women diagnosed with early breast cancer showed that in many respects the experience of women living in rural areas was similar to that of women in urban areas. Professor Sally Redman, director of the National Breast Cancer Centre, told the conference both rural and urban women with breast cancer are being told their diagnoses over the telephone.

Disadvantages

Just as the smallness and closeness of rural communities makes them more supportive, so it also can make privacy an issue, said Professor White. She noted that special needs of paediatric patients were difficult to meet in the bush and that generally one of the key problems in rural Australia was access to after-hours health care.

Jane Redmond (a cancer patient and a clinical nurse consultant in women's health in Cooma, NSW) said the absence of multidisciplinary teams in the bush meant patients were entirely dependent on the GP. Their journey was determined by the GP they saw on the day, by his or her network, understanding and psychosocial skills, particularly in breaking bad news. Many country GPs did not bulk bill and it was not unusual for patients to wait a week or two for an appointment.

Breast Care nurses did not exist in the bush, Ms Redmond said. Through screening programs women had access to such nurses but as soon as they return to their country homes, they no longer have support on the ground.

The lack of an on-going Medicare rebate for breast prostheses also was a problem. A prosthesis was necessary for balance and posture and being unable to afford one, she said, some country women were improvising with football socks or pouches of birdseed.

Oncology nurses are the unsung heroes of the rural cancer service and usually carry an excessive burden. Ms Snodgrass described how nurses had to be simultaneously "social worker, counsellor, dietician, occupational therapist, VMO's registrar, health professional's information source, GP's sounding board, patient or carer's best friend and, on a bad day, everybody's frustrated target as they tried to get what they needed from the wasted brain of the poorly supported oncology nurse".

Solutions

Ms Sandi McCarthy, nurse, of Toowoomba Hospital (Qld), suggested solutions to isolation and lack of professional support might be found in improved distance education for health professionals in their own communities; specialist outreach services and telemedicine.

Later in the conference, Dr Robert North, a surgeon from Dubbo Base Hospital (NSW), suggested another way of reducing this problem through "inreach" – with a surgeon at a regional hospital bringing in a more remote doctor to assist in an operation on a rural patient. This builds valuable links back to the rural community. At the regional centre there was a need for increased medical and radiation oncology visits, the re-creation of a position for a specialist breast cancer nurse and a palliative care specialist, Dr North said.

Professor White said a palliative care model that could work in a rural setting and could be sustainable long term was the "Pop Up Service" which was based on using existing health care resources in a new and coordinated way when a cancer or palliative patient required it, as opposed to creating a specified cancer palliative care service in each town. Work was underway on this model in WA.

To help rural patients receive treatment in their own communities, planning of pathways of service must be done at a senior level, according to Dr Hayden Baillie, general practitioner of Port Lincoln (SA). Pathways should link tertiary and rural centres making use of new technologies such as telemedicine, on-line pathology, digital email and teleradiology. Time needed to be allocated for teleconferences at which fee-for-service doctors could attend.

Kim Hardwick, the coordinator of the Cancer Shared Care Project at Sir Charles Gairdner Hospital (WA), described another solution, a model of care, shared between general practitioners and specialists in haematology, that encouraged the patient to be an active participant in decision making. One of the key outcomes of this project was the development of a patient held record.

Rather than impose a "hub and spoke" model or introduce breast care nurses, Dr Sue Robertson, a country general practitioner from Hamilton (Vic) made a case for building on local services. She suggested better use of communication technology and a travel allowance to cover expenses of doctors and district nurses needing to travel out of town particularly to deliver palliative care. Dr Robertson also supported the establishment of single machine radiation oncology centres in small towns because of the ease of access, particularly in the case of palliative radiation.

Clinical services

Medical oncology services

The vast majority of medical oncologists are based in metropolitan or major regional centres. In 1999, 85 per cent of medical oncologists had their practices located in a capital city, with a further 10 per cent in metropolitan cities and large rural centres and four per cent in small rural or remote areas. Outreach clinics from major metropolitan or rural centres provided services in some other areas.

Optimal medical oncology practice requires careful assessment of patients before, during and after cytotoxic drug treatment. Where an outreach service is provided to a rural area, the visiting medical oncologist normally prescribes the chemotherapy regime and reviews the patients on subsequent visits, but the responsibility for the administration of these drugs is delegated to local medical practitioners and nurses who provide a part time service. In many cases, such a medical oncology outreach service is motivated by individual enthusiasm and is conducted in an ad hoc manner.

Dr Geoffrey Beadle, medical oncologist at the Royal Brisbane Hospital (Qld) and Dr Craig Underhill, a medical oncologist at Border Medical Oncology, Albury Base Hospital (NSW) compared the advantages and problems of outreach and regional cancer centres.

Describing the advantages of properly performed outreach, Dr Beadle said it could provide a more convenient service for patients and the possibility of regular attendance, and bring skills and technology to the community.

The disadvantages included: the prescribing medical oncologist was not at the treatment interface, there was no possibility of holistic care, extra time and effort were spent in communication, an increased likelihood of errors in cytotoxic drug delivery, increased legal exposure and a lack of remuneration for the extra effort required.

A systematic approach was necessary to optimise a high quality service. He said Government policy should recognise and finance outreach services as an area of need for the rural community.

Dr Underhill described the benefits of moving from an outreach clinic at Albury-Wodonga to a regional cancer centre. The benefits were a substantial increase in the number of new patients able to be treated, from 150 a year to 750; an eight-fold increase in chemotherapy day treatments; the establishment of a clinical trials unit; and the availability of dedicated oncology pharmacists and a two machine radiotherapy service. He said certain tumour types and surgical oncological procedures were not treated on site but referred to specialist units in the city. He cautioned that technology should not be viewed as a cheap solution to avoid the establishment of regional cancer centres that would provide a better service than outreach clinics. Metropolitan centres should support regional centres rather than attempt to replace them. Barriers to progress included lack of funding, access to training, access to allied health services, access to psychosocial support and locum relief.

Radiation Oncology Services

Earlier in the conference Dr Liz Kenny noted there was a well-documented national crisis in the provision of radiation oncology services that affected rural and non-rural Australians alike. Waiting lists were commonplace in most public departments, with some patients waiting up to six weeks. In some this could compromise cure.

Dr Craig MacLeod, Radiation Oncologist, Murray Valley Radiotherapy, Albury-Wodonga and Dr Christopher Milross, radiation oncologist at the Prince of Wales Hospital (NSW), discussed the role of regional radiation oncology and outreach service provision from major centres.

Dr MacLeod said it was not yet clear which model was optimal for providing radiotherapy to the bush. The three main options were: having all patients brought to capital cities, having large regional centres with two or three linear accelerators providing service to smaller towns or having many small country centres.

Single machine units were the most expensive to build and run. By contrast, optimal utilisation of radiotherapy could be achieved in the country by regular outreach clinics from either well-resourced city hospitals or large regional centres such those in as Geelong and Townsville. Both models required access to an outreach clinic.

The problems of rural radiation included higher delivery costs, staff acquisition, ensuring long-term quality, the potential clash with current outreach services and community expectations.

Dr Milross suggested a centralised system of radiotherapy together with an organised satellite clinic program could provide equitable service delivery and improved survival for cancer patients. There was a need to be concerned not only with providing acceptable access but also with providing the best possible radiotherapy.

Palliative care services

Each year, small numbers of cancer patients die in rural communities. While local doctors have too many responsibilities to make palliative care their only priority, there often are strong local community support networks.

Issues

Dr Will Cairns, Director of Palliative Care Services, Townsville General Hospital and President of the Australian and NZ Society of Palliation Medicine, believes people like to die in their home community, if not actually at home. Compared to those in the city, country people have different attitudes to death and dying. They were more accepting of the reality of limitations of cure, less likely to pursue futile treatment, and appeared more accepting of death and dying. This could be because they were exposed to the whims of nature and death in day to day life, and had fewer illusions of control.

Dr John Troller, Director of Palliative Care, New England Health

Area Service (Tamworth, NSW), noted that problem areas for palliative care in the bush included distance, smallness, isolation, sole practitioners, shared roles, home services, after hours care, respite in the home, bereavement support, fixed palliative care funding and old time attitudes.

Solutions

To help rural people die in their communities, Dr Cairns said a realistic assessment of the probability of this happening was needed, followed by early, open discussions with the patient and family. Planning and collaboration was needed between oncologists, palliative care specialists, rural health workers and the family.

Through early referral to palliative care services in a tertiary centres there could be an assessment of the level of support required and arrangements made for necessary equipment. Symptom management and psychosocial issues could be addressed and liaison established with the home community. There was a need for networks of palliative care, with tertiary oncology centres having in-house palliative care service and formal relationships with their referral catchments.

Surgical oncology services

Ten percent of Australians could currently be classed as living in rural and remote, as opposed to regional and metropolitan, areas of Australia. The old problems associated with "tyranny of distance" have not changed and while many accept the need to travel for an assessment of their cancer and for some treatment, they would prefer to have as much as possible near home.

In this program segment issues of general, specialised and super-specialised cancer surgery were examined.

Two general surgeons describe a "hub and spoke" model where it is possible to perform general cancer surgery in a regional centre or hub providing there is good medical, radiation and nursing oncology support and providing there is outreach to remote communities. Some tumours and surgical procedures had to be referred to urban centres.

A specialist breast cancer surgeon described how it was equally possible for him to operate in a regional hub providing all the support infrastructure was in place. However, super-specialised surgery, such as gynaecological oncology, had to be performed in a major urban centre where a full and specialised multidisciplinary team was available.

Issues

In rural and remote areas, multidisciplinary care requires a high level of communication and collaboration. While the general practitioner often has a key role in supporting the patient and coordinating care, there is also a role for a designated care coordinator to act as a patient advocate and confidant. This might be a local oncology nurse, the GP or the primary surgeon.

Dr Tony Green, representing the Divisional Group of Rural Surgeons, Royal Australian College of Surgeons, described the "hub and spoke" model used by Atherton Hospital for the delivery of multidisciplinary assessment and care.

In the hub, diagnostic tests and staging of the cancer occurred and some aspects of treatment, particularly radiation therapy were performed. The spokes were the outreach services to nearby centres, providing ongoing follow-up of patients by the primary care physician (GP) or the treating surgeon. Such a model had the potential to promote education and upskilling of the medical staff on the ground and could provide an ongoing back up advice service whenever necessary. Dr Green said the rural or remote centre could provide most initial treatment, usually surgery or chemotherapy and even adjuvant post-operative chemotherapy if there was appropriate hub support.

Dr Bob North, a general surgeon at Dubbo Base Hospital (NSW) since 1968, gave the conference a detailed description of the logistics, frustrations and difficulties of providing oncology services in the bush, from the lack of secretarial help to the conflict in funding that existed between the State and Commonwealth and between the State and the base hospital and a private hospital. He provided a similar model of Dubbo as a hub and flagged the new concept of "inreach", where doctors are brought from the bush to assist in the operations on their patients at regional centres.

Specialist breast surgeon Dr Frank Sardelic from Tamworth, NSW described a model for specialising in an area of cancer surgery in a regional setting. This required the support and help of colleagues. For breast cancer surgery it meant access to a screening program, diagnostic mammography and ultrasound, adequate pathological and cytological services and multidisciplinary care. Given the smaller caseload, subspecialisation in breast cancer surgery was only practical in a major regional centre. Voluntary division of labour with regards to the local surgical community was vital to allow greater concentration of cases for the interested surgeons. Appropriate supportive services and surgical supports were critical.

Dr Greg Robertson, a gynaecological oncologist at the Royal Hospital for Women in Sydney, said this branch of gynaecology had been recognised as an area of sub-specialisation within the Royal Australian and New Zealand College of Obstetricians since the late 1980s and most women were referred to one of the 25 gynaecological oncologists working in the 11 major city-based centres. Improved overall and disease-free survival statistics supported this. A recent prospective study conducted in Scotland showed that among women with Stage III ovarian cancer, survival was longest among those whose surgery was performed by a gynaecological oncologist rather than other gynaecologists or surgeons.

Dr Robertson said the current model of care for rural patients was based on geographical lines of referral underpinned by communication at a tertiary level between the referring gynaecologist and the gynaecological cancer centre. All patients were discussed at a multidisciplinary peer review forum then referred back to their home town for ongoing management such as chemotherapy or to a regional radiotherapy centre if required. Post-surgical patients were managed by the referring gynaecologist on discharge.

Difficulties encountered by such rural patients included dislocation from community support, difficulties with care of dependents and costs of travel. All were recognised and limited as much as possible. On-site accommodation was increasingly available and allowed relatives to be close at hand.

Government policy overview

Socio-economic status has a significant impact on cancer in Australia. Most mortality gains are due to protective behaviours, which are invariably taken up more readily by the better educated and better off. The impact of socio-economic inequality is particularly apparent in rural Australia.

Professor Bruce Armstrong, Chair of the Cancer Strategies Group, told the conference that cancer control planning remains firmly on the national agenda in Australia. The approach being taken is not comprehensive but selective, based on priorities. It is supported by the recent experience of the plan developed by the National Cancer Control Initiative (NCCI) – Cancer Control towards 2002 – that recommended 13 priority actions after a process that was open to all comers. Just four years later, substantial new action has been taken in 10 of these 13 areas. It's too early to tell what the health outcomes will be, but things look promising, Dr Armstrong told the conference.

In developing Priorities for action in cancer control 2001-2003, the Commonwealth's Cancer Strategies Group took a similar approach and sent 13 recommended priorities for action out for public comment. These priorities were developed from high priority items considered by the NCCI but not included in the top 13 and others advanced in a national stakeholder workshop conducted in 1999.

In developing these priorities, consideration was given to initiatives that would increase quality of life as well as extend life, and in selecting those to be recommended impacts on the equity of distribution of the burden of cancer were explicitly considered.

Priorities for action in cancer control 2001-2003 is being revised in the light of comments and advice received and will be sent to the National Health Priorities Action Council, the "parent body" of the Cancer Strategies Group, for consideration for implementation.

Professor Kearney, SA Department of Human Sciences, showed that differences in outcome varied between city areas and between country regions but overall the outcomes in South Australia did not show a significant disadvantage for persons living in rural and remote areas. It should be noted that in South Australia 80% of the population was urban or close to the metropolitan area.

Decisions about the provision of cancer services in rural and remote areas – such as what services are provided, where they are provided and how they can be sustained – reflected a range of vested interests, Dr John Best, of Diagnostics Pty Ltd told the conference. Communities often determined their needs from the base of personal experience – the particular medical condition being experienced by an individual at the time may set the priorities.

"Individuals within communities often generalise the needs of the community around their personal priorities. Thus, a small community may seek tertiary level services on this basis, notwithstanding the reality that the service would be unsustainable. This is not a new phenomenon; it simply reflects the desire to provide the best health care to everyone," Dr Best said.

The difficulty in Australia however, was working in a country where 2 million Australians live in settlements of less than 200 people; and there were approximately 10,000 of these settlements. There were 1500 settlements with a population of between 200 and 5,000. Larger settlements (with populations of between 48,000 and 249,999) such as Albury/Wodonga, Ballarat, Geelong and Toowoomba were essentially urban. These ARIA* Class B cities (which also include Darwin, Hobart and Launceston) increasingly emulated the workforce in the cities where the population was 300,000 plus in that there was recruitment of sub-specialists and a decline in the number of general specialists, together with the gradual elimination of general practitioners from the hospitals. There was significant difficulty recruiting specialists resulting in "fly-in fly-out" specialist services that did not leave any expertise on the ground. A dispersed population and a disease treated in a specialised environment represented a particular challenge to health planning.

Dr Best said the planning framework needed to be established to maintain the core of specialist expertise outside metropolitan areas so that a greater proportion of the rural population requiring treatment could access those services. Initiatives such as the establishment of rural clinical schools and university departments of rural health encouraged professional opportunities in rural and remote areas. This did not suggest economically and clinically unsustainable services such as single unit radiation in multiple small communities be created, but rather the development of expertise to manage a greater proportion of acute episodes, chronic conditions and palliation in a sustainable manner.

*Accessibility/Remoteness Index of Australia developed by the National Centre for Social Applications of Geographic Information

Telemedicine in rural and remote oncology

Presentation by Professor Ian Olver
Clinical Director, Royal Adelaide Hospital Cancer Centre (SA)

The management of cancer has become increasing multidisciplinary. An effective way of planning patient management is to hold regular multidisciplinary team meetings.

There can be a disadvantage to patients who have cancer, who live in remote or small centres that do not have the full complement of cancer specialists.

A videoconferencing link was established between the Royal Adelaide Hospital cancer Centre and the Royal Darwin Hospital and evaluated. All clinicians found the telemedicine link to be either useful or very useful in at least one aspect of their practice. The major benefit was cited as enabling remote area clinicians to participate in multidisciplinary cancer meetings.

Three of the five remote clinicians who practiced solely in the Northern Territory found that the telemedicine consultation increased their workload, while only two of 13 clinicians who practice solely in South Australia reported an increase over their normal activities, the others reporting no difference.

Benefits identified included better support of isolated clinicians, decreased travel for patients, and enhanced education and peer review. Perceived difficulties were technical problems, the impersonal nature of the interaction, inability to examine the remote patient and lack of reimbursement for the consultation.

Seven of the eight patients surveyed were satisfied or very satisfied with the telemedicine consultation. Four patients wished to have access to video tapes of the multidisciplinary meeting. Of those requiring travel for treatment, all believed that the prior telemedicine consultation influenced their care and shortened their time away from home.

The future will see more teleradiology and telepathology and POTS teleoncology links between patients at home and their clinicians in hospital.

Issues

Professor Olver noted that while small desktop cameras for personal computers and Internet conferencing could be used, and would indeed be cheaper and easier than ISDN telemedicine equipment, he personally has had difficulty with their reliability and quality. He has found that people are actually not using Internet conferencing extensively in the medical field even if they find it preferable.

From the telemedicine perspective in rural health two outstanding legislative issues are barriers to its widespread use:

- Reimbursement for telemedicine and multidisciplinary

Lorne Cancer Conference

E Finkel

One of the major themes at the 13th Lorne Cancer Conference on 8-11 February 2001 was the ongoing search for the genes that predispose women to breast cancer. In other words, "after BRCA1/2". Presentations by Bruce Ponder (Cambridge Institute of Medical Research), Georgia Chenevix-Trench and Kum Kum Khanna (Queensland Institute of Medical Research) addressed this issue. John Hopper (University of Melbourne) and Mark Skolnick (Myriad Genetics, Salt Lake City) addressed the future challenges for breast cancer screening.

Another report story concerned the new finding that the paracrine hormone VEGF, secreted by tumours, recruits not only the vasculature but also lymphatic vessels. This suggests lymphoangiogenesis may be as important for metastasis as angiogenesis. Presentations from Kari Alitalo from the University of Helsinki and Steve Stacker from the Ludwig Institute in Melbourne are described below.

After BRCA1/2

The cloning of BRCA1 and BRCA2 was a tour de force, collectively representing some 500 person years. But for all that, these genes still only account for some 17% of hereditary breast cancer. That means the vast majority of high risk women in the population would be none the wiser for testing; a negative result for BRCA1/2 does not mean they are clear for other predisposing genes. But how does one nail the remaining genes?

According to Ponder, these genes are either going to be like BRCA1/2 – rare, but highly penetrant single mutations – or may be a constellation of weakly-acting gene variants or polymorphisms that creates the high-risk genotype. Such genes rather than being part of growth signalling or DNA repair pathways (like Ras, p53 or BRCA1) might influence ancillary processes like the connectivity of the intercellular matrix , immune surveillance, angiogenesis, or paracrine factors.

In Ponder's East Anglia study, he selected 29 candidate genes that might plausibly influence the way cancers develop or spread and looked at whether particular single nucleotide polymorphisms (SNPs) associated with these genes were more often associated with breast cancer cases than with controls. Overall he looked at SNPs in 3000 cases and several thousand controls, generating some 194,000 DNA samples.

Despite its size, so far the study has failed to reveal any major new breast cancer predisposition genes and has shown only a weak association for a few known genes. For instance polymorphisms in three genes showed an increased relative risk in cases versus controls BRCA2 (RR= 1.3), the paracrine hormone, TGFbeta (RR=1.4) and a gene involved in DNA repair, XRCC3 (RR=1.36). But as Ponder pointed out, even these associations were at the limit of statistical reliability. He believes much more needs to be known in terms of validating the SNPs; some may not even be usefully associated with the gene. And he says that this approach will probably only start yielding dividends when researchers don't make hunches about which genes will be important, but scan "the entire deck of cards". Such whole genome scans are still beyond anyone's budget, but new techniques are on the way.

Georgia Chenevix-Trench's presentation addressed the question of what role the ATM gene plays in hereditary breast cancer. She reported on results emerging from KConfab, an Australia-wide study of some 300 breast cancer families, 83 of which do not show mutations in either BRCA1/2. In collaboration with Kum Kum Khana, Chenevix-Trench examined whether mutations of the ATM gene (which underlies Ataxia Telangiectasia) may be involved. Current epidemiological evidence suggests that breast cancer is 5-7 fold more common in carriers of ATM, and according to one estimate (Swift et al) ATM heterozygotes could account for some 7% of breast cancer. Chenevix-Trench's question: is ATM a low-risk breast cancer gene, or a high-risk gene like BRCA1?

So far, studies have produced different findings. Daniel Haber at Dana Faber Institute failed to find a relationship between ATM protein truncation mutations and breast cancer cases relative to controls in the general population. But a recent study (Malcolm Taylor) of two Scottish families with a mild form of AT, but a 12-fold increased risk of breast cancer, revealed that they carried a missense allele of the ATM gene. A German family, carrying a mutation that produced a truncated ATM protein also showed an increased risk of breast cancer.

Chenevix-Trench reported that the Scottish mutation has been found in one of the KConfab families and segregates with breast cancer in this family. Five out of five affected members carry the mutation, as well as three unaffected members. Kum Kum Khanna's work (more below) has shown that this mutation creates a dominant negative protein, as evidenced by its ability to inhibit normal ATM kinase activity in the test tube. Further evidence that this mutation is dominant comes from studies of the tumour tissue in heterozygous individuals. Unlike BRCA1, where both copies of the gene become defective in tumours (loss of heterozygosity), there is no loss of heterozygosity in the ATM tumours. Two families were also found to carry an ATM protein truncation mutation. The significant incidence of ATM mutations in these breast cancer families (three out of 78) raises a dilemma. Since ATM mutations render cells less able to repair damage, should such families have frequent mammography or radiotherapy?

To see if less severe changes to the gene may also contribute to breast cancer, Chenevix-Trench and collaborators are also looking at the prevalence of an ATM polymorphism (TSer707Pro) in a population-based case-control study (1353 cases and 688 controls). So far no significant difference in the frequency of the polymorphism versus the more common allele have been found.

Kum Kum Khana described her team's focus on discovering what the ATM protein actually does. They have previously shown that ATM plays a key role in sensing and repairing DNA double-strand breaks. These molecular wounds are wrought by gamma radiation and oxygen free radicals, or they can be generated during the normal course of DNA replication or homologous recombination. Khanna has shown that ATM is a kinase (a member of the PI3 kinase family), an enzyme that phosphorylates its substrates. Some of these turn out to BRAC1, p53, Chk2 and Nibrin, all genes involved in either DNA repair or cell cycle arrest. ATM is probably part of a multi-component repair engine, but the evidence from Khanna's group suggests ATM is the driver. Just how ATM drives the process remains to be worked out, but the phosphorylation and consequent stabilisation of p53 is probably the key. This process fails in ATM mutants.

ATM works in parallel with at least two other DNA damage-sensing proteins, ATR and DNA protein kinase (DNA PK). The different proteins appear to be triggered by different sorts of damage. ATR for instance is triggered by UV radiation (which causes pyrimidine dimers and single-strand breaks) rather then double-strand breaks. But to a large extent, DNA PK can cover for ATM. In ATM mutant cells 90% of double-stranded DNA breaks are repaired by DNA PK, but cells fail to arrest at checkpoints.

The link between the protein and its most extreme manifestation, Ataxia Telangectasia, is still enigmatic. Patients appear normal until about two years of age then show balance and walking difficulties, attributable to the deterioration of Purkinje cells in the cerebellum. Neurological effects remain paramount; they are usually wheelchair bound by eight or nine years of age and have a life expectancy only into the teens. This form of the disease is associated with protein-truncating mutations. On the other hand, missense mutations manifest differently. Individuals have microcephaly rather than ataxia and cancer is more prevalent. Knock-out mice on the other hand, fail to develop ataxia, but die of cancer after three to four months.

Khanna suspects that the impact of the dysfunctional ATM gene on breast cancer will depend on the type and location of the mutations in this huge (200kb) gene.

The carrier rate of ATM is 1%, and if the kConfab studies continue to show that carriers are at high risk of breast cancer, "that will have immense public health impact", says Khanna.

Mark Scolnick adressesed the brave new world of genetic screening. He made the point that most cancers have a strong family component. And while the past progress in identifying such predisposition genes has been painfully slow, that is likely to change in the coming era of high throughput methods for SNP analysis.

But Scolnick wonders whether society will be ready to accept the consequences – a windfall of genetic tests. The experience with testing for BRCA1/2, which Myriad genetics has now offered for several years, is that the test is underused. They test about 100 American women per week, less that 10% of those who could benefit, he says. The reluctance to test may reflect a fear of discrimination, but Scolnick says the perception of discrimination is greater than the reality. He points to laws passed since 1996 in several states that make genetic discrimination illegal. And he points to numerous interventions that could actually help BRCA1/2 carriers ranging from preventive use of tamoxifen to prophylatic oophorectomy.

John Hopper's presentation countered that this sort of public health advice needs to be tempered with the right statistics. Hopper's unique population-based study of breast cancer cases, controls and their families has indicated that the true risk from BRCA1 for women in the general population is significantly lower (40%) than that estimated from high-risk families (80%).

Lymphoangiogenesis

Once a tumour reaches a diameter of 2cm, it will suffer hypoxia. Most tumours start producing vascular endothelial growth factor, VEGF that binds to receptors on endothelial cells and coaxes them to grow toward the tumour and vascularise it. Since the tumour thus gets supplied both with a lifeline and transport, a major thrust of cancer research has been to find ways to block this process known as angiogenesis. But says Kari Alitalo, from the University of Helsinki, "nobody put the lymphatics into the picture". Though the lymphatic system has long been known to spread cancer, the flimsy, lymphatic vessels were not themselves thought to be able to penetrate into a tumour. Rather they were thought to enter the scene late in the piece to help mop up the fluid leaked by the ingrowing blood vessels.

However, recently a VEGF receptor, VEGFR3, was found to be expressed in lymphatic endothelial cells. Evidence that this receptor played an important role here came from the finding that a rare case of familial primary lymphoedema was shown to map to 5q 35, the locus of the VEGFR 3 gene. And mice treated with antibodies against the VEGFR3, also showed signs of oedema. Since tumour cells produce the ligands VEGFC and VEGFD, that bind to this receptor, the question has been whether these actually recruit the lymphatic endothelium to the tumour as well as blood vessels.

Kari Alitalo showed that introduction of VEGF-C into mouse models of pancreatic beta-cell tumours or breast carcinoma, stimulated the growth of lymphatic vessels around the tumours and metastasis. Adding a soluble form of the receptor, VEGFR-3, reversed these effects, presumably by preventing VEGF-C binding to its membrane bound receptor. Steve Stacker from Melbourne's Ludwig Institute found that VEGF-D when introduced into a slow-growing mouse tumour model (introduced into human 293 cells which normally lack VEGF family members and grow as xenografts in mice), stimulated the formation of lymphatics within the tumour as judged using Lyve-1, a marker for lymphatic endothelium, and the spread of the tumour to the lymph nodes. That effect could be blocked by an antibody specific to VEGF-D. On the other hand, introducing VEGF into the tumour did not stimulate lymphatic spread. The findings show that lymphatic vessels can be established in solid tumours and provide a route of spread. They also show that the particular VEGF made by the tumour can determine its route of metastatic spread.

Australian Behavioural Research in Cancer

This is a regular feature in Cancer Forum describing behavioural applications in cancer prevention.

Australia has four behavioural research centres: the Centre for Health Promotion and Cancer Prevention Research (CHP&CPR) of the University of Queensland, the Cancer Education Research Program (CERP) of The Cancer Council New South Wales, the Centre for Behavioural Research in Cancer (CBR) at the Anti-Cancer Council of Victoria and the Centre for Behavioural Research in Cancer Control (CBRCC) at Curtin University of Technology, Perth.

This report has been edited by Anne Gibbs (CBRC) from the reports received.

New Results

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

Tobacco sales to minors
The Western Metropolitan Regional Tobacco Steering Committee, including representatives from Quit and CBRC, was formed in June 1996 to investigate tobacco sales to young people under the age of 18 years (minors) and to implement strategies designed to reduce the incidence of such sales. The Committee is an excellent example of a successful collaboration between the state and local government and non-government sectors. It has raised local government and community awareness of smoking prevention and illegal sales to minors as important public health issues.

Based on research suggesting that successful interventions to reduce illegal cigarette sales to young people involve effective law enforcement, retailer and community education and publicity throughout the community, the Western Region Tobacco Project was designed as a longitudinal study over 18 months between 1998 and 1999. The project was based around implementing a comprehensive community education strategy, promoting a designated telephone number to report sales to minors, designing a Tobacco Act Enforcement Protocol for use by Environmental Health Officers and maximising media publicity of the enforcement of the sales to minors sections of the Act.

To analyse the impact of intervention strategies on tobacco retailer compliance, Tessa Letcher and Jason Boulter of CBRC conducted two studies in the participating municipalities. A community attitude telephone survey, designed to assess knowledge of and attitudes towards illegal cigarette sales to young people, was conducted before and after the implementation of the education and enforcement strategies. Results indicated a high level of community concern over sales to minors. The vast majority of respondents across both surveys thought those selling cigarettes to minors should be fined, and most thought the fine was too low. Results also suggest that enforcement combined with extensive media coverage as well as community education regarding sales to minors was associated with increased community awareness of the issue, increased interest in penalties being applied, and increased knowledge regarding the legal age for cigarette sales.

Three waves of compliance checks using test-purchases by young people below the age of 18 years were conducted before, during and after the implementation of the education and enforcement strategies, among approximately 400 randomly selected retail outlets from the control and experimental council areas. There was a significant reduction in cigarette sales to minors in the experimental condition, due to an increase in compliance rates in the experimental council that achieved the most frequent and comprehensive media publicity throughout the project, associated with the highest number of prosecutions.

The Tobacco Project was awarded a Public Health Award for Innovation in Public Health Development from the Department of Human Services in 1999.

n Cancer Education Research Program (CERP), NSW

The use of Nicotine Replacement Therapy (NRT) among the NSW community
Nicotine Replacement Therapy (NRT) in the form of nicotine patches, gum or inhalers has been demonstrated as an effective strategy for promoting smoking cessation. As part of a larger community survey, Dr Chris Paul and colleagues examined the prevalence and patterns of NRT use among the NSW community, and the level of NRT advice NRT users reported receiving from doctors and pharmacists. The NRT component of the computer assisted telephone interview (CATI) survey was administered to NSW residents aged 18 years and older who were randomly selected from the NSW telephone directory. Of the 2459 eligible participants, 1509 (61%) completed the survey.

The results indicated that 33% of current smokers and 27% of former smokers reported using an NRT product in their most recent quit attempt of which 57% reported using a patch only, 22% used gum only, 15% used both the patch and gum and 2% used a nicotine inhaler only. Forty-four percent of NRT users reported that neither a doctor nor pharmacist had recommended that they use the product and 41% of NRT users reported that they had not received any instructions about using the product from a doctor or a pharmacist. Overall, the results suggest that further strategies are needed to promote NRT as an effective smoking cessation strategy.

n Centre for Health Promotion and Cancer Prevention Research (CHPCPR), Queensland

Needs assessment of families from rural and remote areas of Queensland when an adult cancer patient travels to a metropolitan centre for radiation treatment – A project funded by Rotary Australia

Cancer patients and their families living in rural and remote areas of Queensland face particular difficulties and challenges in coping with the disease. This study examined the needs of cancer patients and their families, resulting from an adult cancer patient travelling to a metropolitan centre for radiation treatment. The study also examined the impact this has on family functioning when the patient is required to stay away from home for considerable periods of time. Twenty-eight consecutively enrolled patients and 18 family carers completed a structured needs assessment questionnaire as well as an indepth interview

The study identified a number of unmet needs of cancer patients and their families and there were some important differences between them. Both patients and carers reported high levels of unmet need with psychological issues (61% of patients and 84% of caregivers). Based on Hospital Anxiety and Depression scores, carers were found to have higher levels of anxiety than patients, although both were above that of general population. For patients, the partner taking more responsibility for household tasks, the reaction of children to the illness and subsequent emotional support needs, and the family having to make new decisions, were the most frequently identified demands of illness. While household decisions concerning the family and the children's emotional needs were significant issues for carers. Based on The Caregiver Reaction Assessment it was found that nearly 40% of carers reported some disruption to their schedule, half had financial difficulties, and the majority (89%) felt supported by their family. All felt that caregiving imparted considerable self-esteem.

The results of the qualitative interviews clearly highlight the disruption that parents and children experience under the present system, particularly in relation to the demands of family life and the need to maintain some level of continuity and security for children in the context of a serious illness and the demands of treatment.

Research in the pipeline

n CBRC

Sports Clubs Study
Over the past decade SunSmart and VicHealth have worked with the Victorian State Sporting Associations of various sports to promote healthy environments in the sport setting. For SunSmart this means promoting the use of sun protective equipment and practices through encouraging policy development. The strategy relies on communication of our health messages to individual club committees via their peak bodies, the state sporting associations.

A study of sports clubs was initiated by SunSmart and the Centre for Behavioural Research in Cancer in partnership with VicHealth in January 2001. Suzanne Dobbinson is conducting the study which is primarily designed to explore whether specific club structures and supports aid the establishment of health-related policy; and to provide baseline data on sun protection, smoke-free and other health-related policy development at the club level. Data collection is nearly complete with approximately 700 CATI telephone interviews conducted of club secretaries from lifesaving, diving, canoeing, board-riding, women's cricket, men's cricket, tennis and the AFL.

n CERP

Research has shown that access to accurate information about treatment options is of major importance to women with breast cancer. As part of its work of ensuring the information contained in the NHMRC Clinical practice guidelines for the management of early breast cancer is available to women in a range of formats, the iSource National Breast Cancer Centre (NBCC) has developed an interactive CD-ROM entitled All about early breast cancer. While consumer publications cannot replace good provider-patient communication, CD-ROM has several advantages over other information formats. For example, CD-ROM presentations 'layer' information which enables patients to access the amount or detail of information they want, and can include video clips showing 'real life' treatment procedures or interviews with people describing their experiences. CERP has been commissioned by the NBCC to evaluate early breast cancer patients' patterns of use of the All about early breast cancer CD-ROM, and to assess the acceptability of the CD-ROM to them in terms of format, content and ease of use. Women receiving a new diagnosis of early breast cancer are currently being recruited through a number of surgeons across Australia. In addition to any other information usually provided to them during the consultation, eligible women are offered a copy of the CD-ROM and written information about the study by their surgeon. Consenting women complete a Computer Assisted Telephone Interview (CATI) four weeks later. This evaluation will provide the NBCC with valuable information about the appropriateness of presenting information in CD-ROM format.

n CHPCPR

Mental health, substance use and co-morbidity of adolescent health risk behaviours – a UQ small grant
Two reports summarise the health of Australian adolescents, namely the Health Goals and Targets for Australian Children and Youth (Department of Health, Housing and Community Service, 1992) and Better Health Outcomes for Australians (Commonwealth Department of Human Services and Health, 1994). These documents identified a number of issues affecting youth health all of which are related to an increased risk to cancer, such as: 1 smoking and binge drinking, 2 food and nutrition, 3 physical activity, 4 injury, and 5 sun exposure.

The Health of Young Australians (Commonwealth Department of Human Services and Health, 1995) formulated several action areas for improving adolescent health. One such action area was the need for research information and monitoring. The Centre developed an instrument suitable to monitor adolescent health issues, which places emphasis on determining prevalence levels of a range of health issues and health behaviours to assist with identifying clustering patterns of negative health outcomes. The development of the instrument occurred in three phases: collection of existing surveys, workshops with relevant health professionals and focus groups with adolescents. The topics for inclusion were refined using Health Goals and Targets for Australian Children and Youth and consultation with health professionals, and included alcohol/illicit drug use, smoking, nutrition, exercise, injury, mental health, violence and sexual abuse.

In preparation for a longitudinal study, the Centre is currently conducting a state-wide survey including more than 2000 students in years 8-12. The results of this survey will be analysed to identify the priority behaviours, which cluster together, and to identify patterns of clusters of health inequalities across geographic factors (such as rural/urban location and population level), and across socio-economic indicators based on self-report and the socio-economic indexes for areas.

n Centre for Behavioural Research in Cancer Control (CBRCC), WA

The CBRCC has commenced work in earnest on our three new Healthway-funded research projects (described in the previous Cancer Forum). Geoffrey Jalleh is managing the sun protection project; Sandra Jones is managing the health perceptions project; and Nadine Henley is managing the moral disgust project. Director, Rob Donovan is valiantly managing the managers and meddling in all of these projects.

n Evaluation of the Cancer Foundation of Western Australia's 2000/2001 "SunSmart West Aussies" media campaign. The main communication objective of the media campaign which Geoffrey is evaluating is to promote and reinforce the importance of sun protective behaviour among young Western Australian adults aged 18 to 35 years.

n Perceptions of cancer among the Australian population
This project was funded by the Cancer Foundation of Western Australia. Sandra has been working on the questionnaire development, and recently visited CERP (NSW) for some valuable advice, as they have recently completed a similar undertaking.

Reports

- The moral disgust project is exploring the effectiveness of associating the emotion of disgust with smoking as a way to deter 14-16 year olds from taking up smoking. At this early phase of the project, Nadine is interviewing child psychologists and other professionals working with children to obtain their advice on the message strategy.

Rob and Nadine are in the throes of writing a textbook on social marketing. Rob and Geoffrey are also writing a book chapter reporting details of the tracking survey undertaken by the National Tobacco Campaign Research and Evaluation Committee, as part of a comprehensive evaluation of the National Tobacco Campaign.

Sandra is finalising a review of breast cancer screening messages in Australia, looking at both materials produced by health authorities (such as BreastScreen and the various cancer organizations) and items in the popular press.

n CBRC

CBRC was well represented at the First National Tobacco Control Conference in Adelaide in June. David Hill, the keynote speaker, delivered an address on "Tobacco control: how far we have come, where we are now, with a hint of where we go next". Melanie Wakefield gave a plenary session on "Anti-smoking advertising and teenage smoking", Lisa Trotter presented "Smoking Cessation in Pregnancy: evidence based practice for health professionals" and Tessa Letcher discussed "Doctors' advice to their patients about smoking".

n CERP

In November 2000, Associate Professor Jane Hall, Professor John Lowe and Dr Andrew Penman undertook an Administrative Review of CERP. The review team recommended that CERP continues to be funded for five years to 2006 and that Associate Professor Afaf Girgis be appointed as full-time Director. The Cancer Council Board has endorsed these recommendations.

Congratulations are extended to former PhD student Nicole Rankin who has been accepted for the degree of Doctor of Philosophy in the Faculty of Medicine and Health Sciences, University of Newcastle for her dissertation "Accessing and participating in psychosocial care: Australian women with breast cancer". Dr Rankin is now working as part of the psychosocial team at the iSource National Breast Cancer Centre.

n CHPCPR

David O'Riordan, a PhD student with the Centre since 1997 was awarded his PhD on 1 March. David left the Centre in February to take up a post-doctoral position with Boston University's School of Medicine.

The final phase of a 12-month organisational restructure at The University of Queensland impacting on the Centre for Health Promotion and Cancer Prevention Research was completed in April. The Centre now comes under the umbrella of the School of Population Health and has moved from the second floor to the third floor of the Public Health Building at Herston.

CHPCPR welcomes Monika Janda, a visiting academic from Austria who will be at the Centre for the next eight months. She is currently working on "the mental health, substance use and co-morbidity of adolescent health risk behaviours" project. Monika is from the University of Vienna, Department of Radio-oncology, where she is employed as a clinical psychologist. Her main research interest is in the quality of life of cancer patients. n

With thanks to Allison Boyes (CERP), Cathy Swart (CHPCPR) and Sandra Jones (CBRCC) for contributions to this report.

LETTERS

Mr L A Wright
Managing Editor (Letters)
Cancer Forum
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SYDNEY NSW 2001

breast cancer action nsw

Sir

Cancer Prevention & Risk Information for the Community

Several of the articles in Cancer Forum March 2001 refer to community understanding of cancer prevention and risk factors. The tone is on the lines of why doesn't the community get the message, or why aren't we better educating the community?

As a reasonably well informed consumer and experienced cancer consumer advocate, I would like to offer a suggestion which could answer both these questions.

The community, often through the medium of the media, gets a pretty blurry idea of cancer prevention and risk factors. Yes, we understand about smoking and lung cancer, and indeed about exposure to the sun and melanoma. Then it becomes less exact. Eat more fruit and vegetables and maintain a healthy lifestyle. Well yes….we all know we would all have less illness or disease of any sort if we all followed that wise old maxim. Even the recently published National Cancer Prevention Policy 2001-03 speaks only in generalities – where are the appendices to back up the statements? – we do hope this doesn't mean that the information is not actually known.

We see it as time that health consumers are provided with the information they require to assist their health decisions. No-one seems able to clearly tell us what difference what risk will make, and for which cancers. Without some idea of the degree of risk, how can we reasonably follow prevention guidelines? Some cancer organisations say 50% of cancers are preventable, others that diet and lifestyle are responsible for 30-40% of cancers. Lots of paperback books are written by authors who "know" their view is right, and these are passed on through magazines and newspapers as "scientific fact". But what we need is an evidence based source to give us the plain facts, on which to base well informed decision-making.

Now most of us who have experienced cancer, would like access to some real risk factor information – absolute please, not relative – so that we can make adjustments if necessary to the few modifiable factors which could be risks in our lives and those of our friends, families and colleagues. Comparative risk factors could come in two groups – for those who have never had cancer, and for those who have. The whole community would appreciate a bit more authoritative and accessible information!

There have been some welcome noises about asking cancer consumers to suggest topics for research projects that they would value. This may not be classic bench-top stuff, and is probably more a regular literature sweep, but such a study and its broad release would be extraordinarily useful to patients, clinicians and the community at large. (Let's see it as information, not the patronising term "education", as though we haven't any!)

In the absence of evidence based risk information, strange and quite misleading rumours and theories flourish as we all know. Without numerical weighting even real risks can balloon or diminish beyond recognition in the public mind. If cancer organisations would publish risk factor information in an updateable format (eg factsheets and websites) the cancer control community would be doing a great service to the rest of us. This sounds like a coordinating job for The Cancer Council Australia.

We like the new look format for Cancer Forum, as well as its breadth of coverage.

Yours faithfully

Sally Crossing

SALLY CROSSING
Chair Breast Cancer Action Group NSW
Acting Chair, Cancer Voices NSW

6 June 2001

cc Dr Andrew Penman, CEO, The Cancer Council NSW
Dr John Zalcberg, President COSA
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NEWS & ANNOUNCEMENTS

New President

Medical oncologist Professor Ray Lowenthal was elected President of The Cancer Council Australia at the annual meeting in May.

Vice President, Mrs Judith Roberts and President, Professor Ray Lowenthal

Professor Lowenthal is Director of the Department of Clinical Haematology & Medical Oncology at the Royal Hobart Hospital and a Clinical Professor at the University of Tasmania. His research interests are mainly in leukaemia, lymphoma and bone marrow transplantation. He is also an enthusiastic participant in national and international clinical trials and a strong believer that Australia needs to increase the opportunities for patients and clinicians throughout the country to be involved in cancer clinical trials.

A member of Council since 1996 and Vice President for the past three years, Prof Lowenthal was Chairman of the Cancer Council of Tasmania from 1996 to 2000. He also has served as President of the Tasmanian Branch of the Australian Medical Association and a member of the AMA's Federal Council, and has been a member of the federal councils of the Royal Australasian College of Physicians, the Medical Oncology Group of Australia, the Haematology Society of Australia, and various clinical trials groups.

Prof Lowenthal succeeds Chief Justice Paul de Jersey AC, who had served the maximum three one-year terms as President.

Vice President

Mrs Judith Roberts AM has been elected to the position of Vice President.

Mrs Roberts has represented South Australia on the Council for more than four years. She remains Chairman of the Anti-Cancer Foundation of South Australia – a position she has held since 1996.

Mrs Roberts has worked in the community for over 30 years at local, state, national and international levels, including most notably, 10 years as a councillor on the National Health and Medical Research Council. She is a trained nurse by profession, but has participated in a wide range of Government and non-Government organisations as a volunteer worker. She has advised State and Federal Governments in the policy areas of health, education, welfare and women's affairs.

Queen's Birthday Honours

Clive Deverall, former chief executive officer of the Cancer Foundation of Western Australia, for more than 20 years, has been made a member of the Order of Australia (AM).

Professor David Hill, Director of the Anti-Cancer Council of Victoria's Centre for Behavioural Research in Cancer, was awarded an AM for his "service to the promotion of community health, particularly in the development of cancer awareness and prevention programmes".

Christina Brock, who established CanYA – a support group for young adult cancer patients and their families – also received an AM.

Morning Tea success

Australia's Biggest Morning Tea (ABMT) is The Cancer Council Australia's second largest fundraising event. The event provides an opportunity for communities to build awareness of cancer, while raising funds to defeat this disease.

Throughout May, more than 30,000 hosts nationwide held morning teas and had a cuppa for cancer research with their friends or co-workers.

At the time of publication, ABMT had already raised more than $3.5 million and we are confident of reaching this year's national target of $4 million.

This year marks the seventh year of Lipton's sponsorship of this event and the beginning of Westons Biscuits association. The support provided by Lipton and Westons Biscuits means money raised by the community goes directly to support vital cancer research programs.

Asia Pacific Hospice Palliative Care Network

Palliative care services across the Asia Pacific Region will now receive a greater focus with the formation of the Asia Pacific Hospice Palliative Care Network (APHN), a formal network of 14 countries, including Australia, committed to improving the level and quality of palliative care services.

APHN members will ensure skills and knowledge are shared across national boundaries and champion the development of much-needed hospice and palliative care services in all member countries, with the specific aim of ensuring all countries attain a minimum standard of services.

Ellen Nightingale, Australian representative of the APHN and president of Palliative Care Australia, said while Australia has well-developed hospice and palliative care services, many countries need to do more to ensure access to good pain control and supportive care for all people at the end of their lives.

"The formation of the Asia Pacific Hospice Palliative Care Network is a major step to achieving improved levels and quality of palliative care services across the region," Ms Nightingale said.

"The need for palliative care has never been greater – each year, approximately 24,000 terminally ill patients in Australia

UICC Research Fellowships

Applications for UICC Research Fellowships for Beginning Investigators have been invited.

The requirement for host organisations to be located in the USA has been lifted. Eligible candidates, who have a minimum of two or a maximum of 10 years postdoctoral experience, are therefore able to freely choose their host organisation from any country outside their own.

The application closing date for the Spring 2002 selection is 1 December 2001.

For further details on the fellowships, visit http://fellows.uicc.org/fel10abi.shtml

BOOK REVIEWS

Aromatase Inhibition and Breast Cancer

W Miller and R Santen (Eds)

Published by Marcel Dekker Inc. New York (2000)

ISBN: 0-8247-0412-6. 297 pages plus index.
RRP: US$150.00

This book is the product of a large number of contributors, including many of the leading lights in the pre-clinical and clinical investigation of endocrine therapy, predominantly for breast cancer. The historical and biochemical aspects of aromatase inhibition are covered well, and relevant clinical trial data are presented thoroughly up to the end of 1999.

The book begins with an excellent overview by Mitch Dowsett, well known for his endocrine research at The Royal Marsden Hospital in London. There follow sections on metastatic breast cancer, early breast cancer, prevention and future directions. The book concludes with a section on potential non-breast cancer indications for the use of aromatase inhibitors. Panel discussions appear at the end of each section.

A book like this inevitably suffers from a certain amount of repetition. Each contributor begins with a brief scene-setting introduction that, if done well, will sound much like everyone else's introduction. We are not expecting a novel however, and a bit of skimming solves this problem. All in all an important and relevant subject is dealt with comprehensively. I did not detect any inaccuracies nor any significant omissions, and the text is for the most part well written.

So why am I unhappy? There are two reasons, the first a generic complaint applicable to all publications like this. I mean no criticism of the contributors, but I cannot for the life of me think who would want to read this book. Those who know a lot about the subject will not learn anything, and those new to the area would be enlightened more quickly (and substantially more cheaply) by doing a quick Medline search and finding a review article.

Additionally, it is impossible for a medical book to be up-to-date at the time of publication. What clinicians need to know now is how well aromatase inhibitors compare with tamoxifen in the treatment of metastatic disease. The answer to this is not in the book but it is in the public domain, since these trials have now been published.

My second concern is a somewhat darker one. The cover of this publication, its title and the back page blurb all present what appears to be a book produced by two editors. The impression is that these two editors decided to produce a book because of the importance and relevance of the subject. However, on closer inspection, the book is clearly a summary of a meeting, with presenters asked to provide manuscripts. This is not mentioned overtly anywhere, nor is any information given as to how such a meeting might have been arranged and who might have sponsored it.

I can, however, have a very good guess. The cover illustration is a photograph very like the one used to advertise one of the aromatase inhibitors. The legend on the inside cover identifies the drug by brand name only. The same drug gets a whole chapter to itself – the only one to do so. The only three contributors not identified with an institution belong to the one company. And so on.

None of this is as obvious as it sounds, and it took me a while to ferret out these facts. This is disingenuous and probably lots of other "dis" words as well. The reader is entitled to know the environment in which the information was presented. He who pays the piper…

N Wilcken
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Bone & Soft Tissue Tumors

M Campanacci (Ed)

Published by Springer-Verlag (1999)

ISBN: 3-211-83235-1. 1,306 pages plus index.
RRP: US$379.00

This is a large book that provides a comprehensive coverage of bone and soft tissue tumors. It represents the author's (considerable) experience in one orthopaedic department. This is also the failing of the textbook. There is a heavy emphasis on straight surgical management, and while this is the cornerstone of soft tissue and bone tumor treatment, artful integration of radiotherapy, chemotherapy and rehabilitation must be discussed in a specialised textbook.

This textbook does not take the reader far beyond the basics of tumour excision; non-surgical managements are shamefully dismissed. The chapters have a distinct "home spun" feel exacerbated by a lack of direct referencing in the text. Chapters are annexed with references listed in order of year of publication; the origin of information encoded in the body of the text remains the secret of the author. This is a major flaw of the publication which severely limits both the reader's confidence in the text and its utility as a threshold to further investigation.

The early chapters give a broad outline of terminology, classification systems, surgical managements, etc. There are some useful portions, eg the table of bone tumour types and their tissue origin (pages 14-16). These outlining chapters, however, show glaring problems which include the absence of the UICC TMN system of classification as well as a variety of problems in definition of terminology. One example is the definition of low versus high grade tumours on the basis of their rate of growth and whether there is a well-defined tumour limit. This definition is disappointingly imprecise and the failure to at least mention the word 'mitosis' is sad.

Sadness moves to pathos when the text discusses local recurrence (page 54). "In malignant tumors, even few residual cells are capable of producing local recurrence and metastases" – true of course, as is the statement which follows: "A calculated risk of local recurrence can be taken 1 when there is practically no danger of metastases, and 2 when the local recurrence can still be adequately and conservatively treated". These statements need discussion including supportive references and a dissertation on adjuvant treatment – none is forthcoming.

The management of many of the tumour sub-types discussed in the book is in evolution and there is no allusion to the direction

of such changes in management. There is no mention of the International Rhabdomyosarcoma studies or the Intergroup Ewing's sarcoma studies; just seeing the word adriamycin or anthracycline anywhere in the book would have consoled.

The positive aspects are good black and white photos and a fairly comprehensive subject coverage. Some noted topic omissions include ameloblastomas, penile fibromatoses (Peyronies) and Keloids. A specialist in this field would expect more from a dedicated textbook as such do exist.

Lying flat, the book is 6cm tall and I could recommend the book for a short assistant surgeon as a aid to certain ergonomic aspects of musculoskeletal surgery.

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Cancer Medicine, 5th Edition

J Holland et al (Eds)

Published by Decker (2000)

ISBN: 1 55009 113 1. 2467 pages plus index.
RRP: A$506.00

This is the 5th edition of the world known multi author cancer textbook. With over 2500 pages it is a significant undertaking to read the entire book. I have dipped into a significant percentage of it. It has, as in previous editions, broad scope; it addresses cancer biology, prevention, principles of imaging, radiation oncology and chemotherapy, as well as principles of endrocrine therapy and biotherapeutics, and the newly developing area of gene therapy.

This book addresses all areas of cancer care in careful detail. The depth of the coverage, the up-to-date references, and the extensive nature of those references, live up to the standard which has come to be expected of this encyclopaedic textbook.

I am impressed with the attention to providing a breadth of resource with inclusion of sections on psycho-oncology, societal aspects of oncology including ethical and legal aspects of care as well as the impact of government on cancer treatment and an excellent chapter on questionable cancer remedies.

This is a very useful reference book for the range of rare and unusual tumours. The reference list for each chapter is exhaustive and as up-to-date as one could anticipate from a textbook which is reflecting the state of the art some 18 months to two years previously. It is useful to have a CD included. This makes searching for information somewhat easier however I believe it is hard to beat a hard copy.

Two aspects disappoint me about this book. First, the overwhelming predominance of American authors. This naturally leads to a very American slant on management of cancer. With increasing international consensus with respect to treatment of many malignancies it is disappointing that the authorship could not have been more international in scope. The second minor quibble is the quality of the paper and the layout of the book. The paper quality is poor and the font size is rather small. A larger font size and heavy quality paper would have made a very large book indeed but perhaps 2-3 volumes would have been more comfortable for reading.

This book should be available to all staff involved in the care of cancer patients.

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Cancer Metastasis, Molecular and Cellular Mechanisms and Clinical Intervention

W Jiang and R Mansel (Eds)

Published by Kluwer Academic Publishers (2000).

ISBN: 0-7923-6395-7. 420 pages plus index RRP: US$183.00

As correctly identified in the opening overview chapter, and reiterated in each chapter of this multi-authored book, new therapeutic targets are needed for cancer treatment as the fact remains that it is metastasis that results in the death of the majority of patients with cancer. This book endeavors to cover the cell and molecular biology of the process of cancer metastasis while briefly summarising the current status of clinical research that exploits such basic scientific research to assess novel anti-metastasis therapies. This information is covered in dedicated chapters (2 – 8) that address the role in cancer invasion and metastasis of cellular adhesion molecules and tight junctions, hyaluronan, polyunsaturated fatty acids, cancer metastasis genes, and hepatocyte growth factor. There is also a dedicated chapter on the development of immunological methods for the detection of bone marrow micrometastases. The final chapters in this book focus on clinical aspects of micro- and macro-metastases, methods of diagnosis and treatment, and prognosis, of metastatic endocrine, prostate, GI, breast, lymphoma, and gynaecological cancers (chapters 10–15, respectively).

While I found this book to be somewhat useful because it combines reviews of divergent topics pertaining to cancer metastasis in one text, two major problems seriously detract from it. First, there appears to have been some very sloppy editing as the book is strewn with typographical errors and repetitive information. There is little cross-referencing between chapters except perhaps where the editors have contributed to a particular chapter. The first chapter in particular, written by the editors, suffers badly from lapses in grammar and many typographical errors, as well as a cross-reference to the wrong chapter.

More importantly, this book suffers from the omission of a dedicated chapter on proteases, particularly of the urokinase plasminogen activation system and its significant role in cancer invasion and metastasis. Except for chapter 2 concerning integrins, which outlines in one page the emerging non-proteolytic role of this system in cell adhesion and migration, there is scant discussion of this heavily-researched pericellular proteolytic system in the entire book. This may reflect the research interests of the contributors (ie none with an interest in urokinase) chosen by the editors.

In the abstract to the chapter on prostate cancer by Mason, the author incorrectly refers to urokinase as a collagenase, reflecting very little understanding of this system indeed. The urokinase system is completely overlooked by Khonji et al in their otherwise thorough chapter on the clinical aspects of metastatic breast cancer. This is despite the overwhelming evidence for a major role of the urokinase system in the progression of cancer as shown by the abundant clinical data available. I'm afraid this oversight prevents me from strongly recommending the book. Furthermore, I would balk at paying such a prohibitive amount for a book littered with so many editorial problems.

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Clinical Radiation Oncology

Gunderson and Tepper (Eds)

Published by Livingstone (2000)

ISBN: 0-443-07609-X. 1236 pages plus index.
RRP: A$574.20

As recently as 12 years ago, authoritative American textbooks of radiation oncology were scarce – Fletcher was getting out of date and Perez & Brady had yet to hit the market. How things have changed in this short time. Perez and Brady is now in its 3rd edition and two additional quality textbooks have been launched — Leibel & Phillips in 1999 and most recently in 2000 Gunderson & Tepper. Although each of the texts offers a slightly different slant on the subject matter, the similarities by far outweigh the differences. Each is a multi-authored encyclopedic tome which seeks to provide a comprehensive review of the material by well qualified contributors all drawn from multiple institutions in the USA. The editors of this text, Len Gunderson and Joel Tepper are highly regarded academic radiation oncologists. The contributors are generally of high quality and the uniformity of presentation is a credit to the editors. Dr Tepper's experience as Editor of Seminars in Radiation Oncology is evident here.

The book, pages totalling 1236 is divided into three sections. The first consists of 8 chapters covering the scientific basis of radiation oncology and the principles of related oncologic disciplines. The second section again of 8 chapters covers techniques and modalities. The third, and longest section of 47 chapters provides a comprehensive discussion of the role of radiation oncology by disease and/or site. Each of these chapters begins with a synoptic summary of the key points relating to incidence and epidemiology, pathology and biology, staging, definitive and adjuvant therapy, treatment of recurrent disease and palliation. These sections provide a valuable tool for both introducing and revising the subject matter. Specific guidelines for treatment are given and the authors do not fall into the trap of providing an exhaustive review of a topic with no clear recommendations. One of the attractive features of the book is that the disease-site chapters end with an evidence-based treatment algorithm by which a logical decision on management can be reached. The only significant criticism I have of the book (as a 21st century text) is in relation to radiotherapy technique. For the most part, the contributors describe "standard" plans using relatively simple beam arrangements. Although there is a chapter on 3D conformal techniques in Section II, the actual application of cross-sectional target volume definition is not translated into everyday practice in the disease-site chapters. Unfortunately, none of the current standard textbooks grapples with this issue, but until training and certification of radiation oncologists requires demonstration of such skills, the utility of the sophisticated planning and treatment delivery equipment now available in many centres will not be fully realised.

The text is well referenced with most chapters being current as of 1999. The index is excellent and runs to 60 pages. Unlike some other modern texts however there is no CD ROM supplied for electronic searching of the text or for providing periodic updates.

In summary, this is a worthy text that can be confidently recommended to both registrars and consultants in radiation oncology as a reliable reference work. For the former in particular it offers advantages over its competitors in terms of the presentation of material and layout of the text. At $574, it is good value for money considering the AUD exchange rate.

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Combined Modality Therapy of Central Nervous System Tumours

Z Petrovich et al (Eds)

Published by Springer-Verlag (2000)

ISBN: 3-540-66053-4. 624 pages plus index.
RRP: US$250.00

This text of 624 pages (plus index) is part of a series entitled Medical Radiology/Radiation Oncology. Accordingly, there are introductory notes from the series editors as well as the editors of this issue.

The scope attempts a broad and comprehensive series of 34 chapters on subjects that are either discipline or tumour site specific, or both. After the descriptions in the early chapters on epidemiology, pathology and molecular biology, the remainder is concerned with various aspects of therapy. Although individual chapters are very well and consistently structured, the overall content is less optimally organised. The multi author approach leads to inevitable overlap and repetition, but to their credit, very little discord.

The depth is highly variable with radiation therapy receiving particular emphasis and detail, followed by surgical approaches and least of all chemotherapy. Along with the superficial approach to chemotherapy there are very brief chapters on immunotherapy and gene therapy. However, there are no chapters on other new and experimental approaches, such as inhibition of angiogenesis.

Although less than ideal as a reference resource, the book does provide some interesting reading on specific aspects of neuro oncology, with some excellent illustrations.

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Colour Atlas of Cancer Cytology

M Takahashi (Ed)

Published by Igaku-Shoin (distributed in Australia by Lippincott, Williams and WIkins)

ISBN: 4-260-14348-4 (2000). 466 pages plus index.
RRP: A$448.80

The third edition of Colour Atlas of Cancer Cytology contains chapters discussing practical cytology of various organ systems. It also has been updated to include topics such as FNAB samples, Immunocytochemistry, FISH and Telepathology.

Many of the photomicrographs are in colour and are of high quality, as are the black and white figures. They generally well illustrate the discussion points to be made. However overall the text is not up to the same standard. There is often much discussion on terminology, classification and historical aspects at the expense of morphology. For example, in the gynaecological chapter there is virtually no discussion and no photomicrographs illustrating classical architectural features of adenocarcinoma in situ. Disproportionate emphasis is given to discussion of normal findings rather than abnormalities.

Older terminology is used, for example fibrocystic and mastopathia rather than fibrocystic change. I also found the discussion of fibrocystic change of the breast confusing and some of the captions for the illustrations misleading. Fibroadenoma was only very briefly discussed yet it is one of the important causes of false positives in FNAB cytology. The bibliography does not contain many recent references. This book also suffers as much excellent material has been published on FNAB since its last edition.

It is difficult to know the intended target for this book. Whilst the photomicrographs are very good I feel the text may be confusing for trainees and would already be familiar to consult pathologists. I think that to function as an atlas more photomicrographs are desirable and that this book is of limited appeal.

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Hairy Cell Leukemia

M Tallman et al (Eds)

Published by Harwood Academic (2000)

ISBN: 90 5823 009 0. 185 pages plus index. RRP: A$114.40

"Hairy Cell Leukemia" is a welcome and timely book about a truly fascinating disease. Presented as part of a series on Advances in Blood Disorders, this is a compendium of brief and focussed contributions from many of the leaders in the field. After an engaging introduction chapter describing historical aspects of hairy cell leukaemia, 14 chapters, each describing different issues of biology, diagnosis and management, follow in logical fashion. With such a format, some overlap and redundancy is inevitable, but this does not detract from the book, as it is most likely to be read in chapter-sized bites rather than as a continuous whole. Scholarly overviews of past results with splenectomy and interferon therapy are useful.

The great advances in treatment using purine analogues are well summarised and all the key references are provided for those wishing to retrieve the source data. A minor disappointment was the lack of a concerted attempt to deal with the issue of disease recurrence after 2CDA treatment. In part, this reflects the lack of definitive studies in that scenario, and the very brief review on this topic highlighted this fact.

All in all, this book provides a ready and reliable reference for the busy clinician wanting to brush up on the specifics of treatment options for this rare disease. It is a handy addition to any Clinical Haematologist's library, and will remain current for most of the next decade.

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Health Effects of Interactions between Tobacco Use and Exposure to Other Agents

K Rothwell (Ed)

Published by WHOGeneva (1999)

ISBN 92 4 157211 6. 149 pages including index.
RRP: SwF36

This volume is No 211 in the Environmental Health Criteria Series of WHO. As the title states, it reviews the epidemiological evidence of interactions between tobacco use and exposure to other agents. It is one of the most compelling horror stories I have read.

The slim volume documents adverse links between smoking and a range of organic and inorganic chemicals, physical agents, and biological agents. The main take home message from this timely report is that tobacco smoke probably adds markedly to the harms associated with a broad range of exposures, including to ones like alcohol where high level human exposures are common. If you are exposed to just about any chemical or cocktail of chemicals that increases health risk, you probably multiply the risk, often by a factor of 10 or more, if you also smoke. For example, the evidence suggest that the effects of tobacco and asbestos are multiplicative in their effects on lung cancer death – a risk factor of about 5 for asbestos, nearly 11 for cigarette smoking, and over 50 for both. These are truly extraordinary risk estimates. Tobacco use is much more frequent than asbestos exposure, yet it has twice the risk for lung cancer, and it has these enormous multiplicative effects. This information furthers the case for tackling smoking as our number one environmental health problem.

The implications of the research documented in this volume go well beyond what we normally think of as environmental health. Of most general societal impact is that tobacco use is established as having adverse interactive effects with alcohol use.

We now live in a society where one of the few types of enclosed public place where people are allowed to smoke is bars and other places dedicated to alcohol consumption. Yet the evidence we have points to the fact that combing alcohol and tobacco increases a range of health risks, often multiplying risks. The information in this volume makes untenable any attempt to justify the continued public support for the joint use of tobacco and alcohol. To allow and even appear to encourage conjoint use of these two drugs makes a mockery of much of the rest of society's attempts to reduce the risks of exposure to chemicals. Why control lower order risks when risk number one is being effectively encouraged! I can only assume policy makers are not aware of the information in this volume.

As a researcher working to develop strategies to assist people not to smoke, I am ashamed to admit I had not really given much thought to the implications of interactive effects until I read this book. For me, the compelling evidence on the direct adverse health effects was more than enough to justify action against this insidious and extraordinarily harmful product. However, the information in this volume is important in helping us understand where the harms are greatest and thus can help shape the strategies we adopt, for example, challenging the nexus between tobacco and alcohol consumption. One simple first step would be to ban smoking on licensed premises. With the information this book contains we can no longer accept the gradual phase-in of smokefree areas at least in as far as it relates to alcohol consumption. Governments must be encouraged to act now.

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Hematologic Malignancies: Methods and Techniques

G Faguet (Ed)

Published by Humana Press (2001)

ISBN: 0-896-03543-3. 351 pages plus index. RRP: US$99.50

This is a recent addition to the extensive "Methods in Molecular Medicine" series. The introduction from the editor states "The aim … is to review those methods most useful for the diagnosis and subsequent management of hematologic malignancies. The scope of coverage is intentionally broad…". My first concern in whether a hard-back text is the optimal vehicle for the dissemination of such laboratory methods, which are rapidly evolving entities. This is reinforced by the dearth of references more recent than 1998.

The book comprises 16 chapters grouped in to the five major methodologic themes of cytogenetics: PCR, flow cytometry, cytochemistry and immunohistochemistry, and apoptosis and cytokine receptors. The selected authors all have extensive direct experience in their allocated fields, and include Brisco (Clone-specific PCR), Zola (Cytokine receptors) and Sykes (immunoglobulin and T-cell receptor PCR) from Adelaide. Each chapter attempts to provide a summary of the clinical impact of the methods under discussion, but these are too brief and lacking in detail to be of use to experienced clinicians, technicians or laboratory haematologists, but may serve as an introduction for less experienced technicians or trainees. This is exemplified by the six-page section on the clinical relevance of cytogenetics, which struggles to cover AML, MDS, ALL, NHL and CLL.

The depth and specificity of chapters varies significantly. The most frequently currently used PCR assays for specific gene rearrangements (bcl-2 and bcr-abl) are not separately dealt with in detail, yet a separate chapter is devoted to the NPM-ALK rtPCR method for detecting the t(2;5) of anaplastic large-cell lymphoma. A major deficiency is the absence of coverage of DNA microarray methods.

In my view the text falls short of achieving its ambitious goals. However, this assessment is made without having directly applied the methods included. The price is reasonable, and largely for this reason, the volume would have some attractiveness to those diagnostic/research labs where these methods are being introduced and standardised.

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Manual of Clinical Oncology

D Casciato et al (Eds)

Published by Lippincott Williams and Wilkins (2000)

IBSN: 0-7817-2563-1. 724 pages plus index.
RRP: A$90.20

The latest edition of the Manual of Clinical Oncology (4th in the series) follows the path of evolution from my well-thumbed copy of its predecessor. The most revolutionary shift has been the disappearance of the familiar spiral with the change in publishing house.

Aimed particularly at those early in the oncology stream – Residents, Registrars, and Fellows – but also of assistance to those dealing with cancers outside their special interest, it covers the scope of much larger texts with brevity and distilled wisdom. The summary/notation format, so beloved of students, works well when seeking the quick ready reference answer to a clinical question. Generous margin widths allow for annotation as desired. And the small size makes it almost a "pocket" text, not too heavy (not too light), readily transportable from home to hospital.

Whilst many chapters are largely unchanged, reflecting lack of movement in the status quo, the revision process carried out by the authors (some of whom are new to the book) and the editors is evident in others. For example, the expanded description of medical statistics and studies, the updated detail of cancer chemotherapeutic agents including anti-angiogenesis agents and rituximab, and the deletion of the legal issues section in the chapter on psychosocial aspects of cancer care. There is the increase in the number of tumour sites where multimodality care has become standard, not to mention the use of the term Hodgkin Lymphoma rather than Hodgkin's disease. And American capitulation with the preferential use of the TNM staging system in all sites.

Whilst a concise description of chemotherapy regimens is given, often placed within the context of a particular cancer, rather than the appendix, it remains outside the brief of this text to give a detailed description of radiotherapy. Doses, fractionation, and field arrangements are not given as a rule. However the role of radiotherapy as part of cancer management (and an overview of general side effects) is well enunciated. As consolation to those pursuing a radiation oncology interest I would point out that there are other readily available small texts covering this aspect of care. Due to the breadth of information to be encapsulated no summary text can ever be all to all.

Does this book deserve a place on your bookshelf? Well, the registrars to whom I have shown the fourth edition have acted affirmatively and ordered copies. Need a better recommendation?

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Matrix Metalloproteinase Inhibitors in Cancer Therapy

N Clendeninn and K Appelt (Eds)

Published by Human Press (2001)

ISBN: 0-89603-668-5 254 pages plus index.
RRP: US$135.00

This book provides a timely review and historical perspective on the development of inhibitors to the extracellular matrix degrading enzymes, the matrix metalloproteinases (MMPs). These proteinases can confer on malignant cancer cells the ability to invade and spread to other parts of the body, a major cause of morbidity and death in patients with cancer.

Initial compelling observations both in vitro and in vivo showed that invasive and metastatic ability of tumour cells could be dramatically altered by either directly manipulating MMP levels, or altering the levels of the endogenous inhibitors of these enzymes, the tissue inhibitors of metalloproteinases (TIMPs). The initial frenzy of activity held high hopes of dramatic effects resulting from MMP activity-based targeting of tumours. Despite promising results in animal models, the clinical trials have been somewhat disappointing – although there have been some positive, spectacular results in a few individual patients. It is now clear that the biology of MMPs is more complex than originally envisioned and what is needed is a better understanding and detailed knowledge of the molecular mechanisms involved.

MMPs play an important role in cell-matrix and cell-cell interactions controlling growth, morphogenesis, differentiation, migration, tissue repair and cell death in normal cells. While MMP expression is associated with a wide variety of tumours, there is a predominant association of MMP activity with the stroma surrounding tumour cells. Clearly interventions that target these enzymes must consider the importance of MMPs to normal physiological functions.

This book, which is part of a series in Cancer Drug Discovery and Development, follows the development of MMPs and inhibitors of MMP activity from the laboratory bench to the bedside, with chapters written by leaders in the field. The first chapter defines the MMP family and outlines the basic molecular structure of MMPs including the numerous classes of these molecules that exist in nature. Over 20 members of the MMP family have been identified, which may be classified into the following groups: collagenases, gelatinases, stromelysins, MT-MMPs and other MMPs.

Chapter 2 provides a detailed description of the substrate specificities of MMPs showing that many MMPs have a relatively broad substrate specificity with respect to various ECM components and non-extracellular matrix proteins. Chapter 3 provides detailed structural information on the TIMPs and outlines studies demonstrating the multifunctional effects of these endogenous inhibitors on cell growth and death. The varied effects of TIMPs in in vitro, knockout and transgenic studies provide the first clues that simple inhibition of MMPs can lead to undesired side effects.

Chapter 4 provides a lucid and thorough review of the models of tumour invasion and metastasis and the effects of modulating MMP activities. The breadth of the chapter extends from in vitro experiments of cultured cells through to whole animal xenograft models. Chapters 5-9 detail the story of MMP targeted drug design that began around 1993 presented by scientists from the major pharmaceutical companies including Agouron Pharmaceuticals, British Biotech, Bayer Corporation, Chiroscience and Roche Diagnostics. They recount the low bioavailability problems associated with the first developed hydroxamic acid class of MMP inhibitors. Subsequent compounds showed improved efficacy but were associated with unacceptable musculoskeletal side effects.

Chapter 6 describes the development of more selective inhibitors for specific MMPs and their use in combination chemotherapy to limit tumour progression in Phase III clinical trials. Chapters 7, 8 and 9 describe more recent classical medicinal chemistry approaches to develop nonpeptidic MMP inhibitors and mercaptoamide inhibitors as alternative starting templates for MMP inhibitor drug design. Finally, in the last chapter, Michael Niesman highlights the potential efficacy of MMP inhibitors for other diseases, with potential applications in arthritis, periodontal disease, ophthalmology, neurological and cardiovascular diseases.

Overall the book is excellent from a historical perspective of how a burgeoning field in anti-cancer drug development has progressed over the past 10 years. It represents a clear and unbiased account of various strategies and rationales, and includes the failures and successes. It represents an important resource as an example of molecular-based drug design in anti-cancer therapy.

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Ovarian Cancer Methods and Protocols

J Bartlett (Ed)

Published by Humana Press (2000)

ISBN: 089603 5832. 806 pages plus index. RRP: US$149.50

The book aims to provide a resource for both the novice scientist/clinician coming to grips with laboratory-based research for the first time as well as those more experienced investigators seeking to diversify their technological base. I believe this book which is the latest in a series of "methods" and "molecular medicine" meets these aims admirably.

The first eight chapters are on general topics and set the scene for the remainder of the book, which is devoted principally to laboratory techniques. The book then deals with tumour markers, model systems, cytogenetics, molecular genetics, mRNA analysis, protein expression, signal transduction, abductors and immunotherapy and gene therapy.

Each subsection is introduced with an overview, followed by a clear description of laboratory techniques. Each of these descriptions is in turn preceded by a three or four paragraph overview/introduction, which sets the scene for the technical aspects of the chapters. These are then followed in each case by either notes to the techniques, giving a valuable insight to some of the practical problems of the laboratory approach, or else conclusions and questions that need to be addressed for the future.

Such an approach makes this an eminently readable book, both for the clinician and the laboratory scientist. Although it is highly likely that this will become a major resource for laboratories, I would recommend clinicians read this book also, for it provides valuable insight into modern molecular biological techniques.

The book is well laid out, well edited and has good illustrations. A minor criticism is that it would have been useful for the affiliated institutions of each of the authors to be included at the chapter heads, rather than at the start of the book. Also, that contact details for the authors, in particular e-mail addresses, would have been very useful to have been included.

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The Pineal Gland and Cancer

C Bartsch et al (Eds)

Published by Springer-Verlag (2001)

ISBN: 3-540-64051-7. 565 pages plus index.
RRP: US$169.00

Why is it that I seem to receive these types of books for reviews? I thought a book on the pineal gland and cancer might be relevant to my interest in neuro-oncology. However, this book is essentially an apologia for melatonin and chronobiology of cancer.

The introduction smacks of defensiveness and rallies against orthodox opinion. The remainder of the book reviews the biology of the pineal gland, the role of melatonin in the neuro-endocrine system, its role in cancer, the effect of tumour growth on the production and secretion of pineal melatonin and the effects of melatonin on tumour growth. There is considerable discussion regarding the proposed mechanisms of action of melatonin, the "oncotherapeutic potential" of melatonin and then a long discussion regarding electromagnetic fields in cancer raising the possible role of melatonin in this circumstance.

This book will interest those who are fascinated by melatonin but essentially remains incomprehensible for other readers of the book. Personally I find the method of referencing using names within the body of the sentence completely distracting and unreadable. This is compounded by most sections having hundreds of references. The book has been poorly edited. For example, can anyone make any sense of this chapter heading "The pineal gland and chronobiologic history; mind and spirit as feed/sidewards in time structure for prehabilitation"? I don't think so.

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Practical Gynecologic Oncology 3rd Edition

J Berek & N Hacker (Eds)

Published by Lippincott Williams & Wilkins (2000)

ISBN: 0-683-307 19-3 913 pages plus index.
RRP: A$326.70

It gives me great pleasure to review the third edition of this well-known book on gynaecological cancer.

As the title implies the text takes a practical approach to the area of female genital tract malignancy. Section one covers general principles which are the foundation of any learning and understanding of oncology. Large parts of section one have been re-written including the chapters on Biology and Genetics, Tumour Markers & Screening and Immunology & Biologic Therapy. These are rapidly growing areas of knowledge and can date an otherwise good reference text if they are not kept up-to-date. What is missing is a general chapter that deals with the principles of managing a cancer patient. This is the foundation on which all other clinical oncological knowledge is based.

In section two, disease sites are treated individually, starting with pre-invasive cervical disease and going on to the expected sites including gestational trophoblastic disease and interestingly also breast disease. The last of these is of significant importance in a text on female genital tract cancer. It needs to be remembered that the breast is part of the female reproductive tract and that in many overseas countries breast disease, including breast cancer, is treated very well by gynaecologists. The reality is that there is no logical reason why this should not be the case in Australia, where the high level of training of certified gynaecological oncologists would fit them very well to manage this problem.

In section three, Medical and Surgical Topics, the chapter on Pre-operative Evaluation, Medical Management and Critical Care is very much welcomed. Many of the patients cared for by gynaecological oncologists are elderly and frequently have more that one other significant medical problem. It is also important that the post-operative care of these patients not be abrogated to others, thus leaving the gynaecological oncologist holding the knife. While it is pleasing to see a section of chapter 17 devoted to Critical Care, it could do with its own chapter. Along the same lines a more extensive section on venous thrombo-embolic disease would be useful given that it is the second biggest cause of death after cancer in these patients.

Finally, no text on oncology would be complete without chapters on quality of life issues. Robert Buckman's chapter on Communication Skills is very timely and informative of this all-important topic. Likewise the approach to pain management of using basic principles is very useful and gives understanding to this generally poorly understood and managed area of oncology.

This text serves two very useful purposes. Firstly, it is an excellent reference text that is easy to negotiate and in which to find required information. Secondly, it is an easily read text, well structured and comprehensive. It is easy to understand why it has become the preferred first text for those postgraduate students working towards their certification in gynaecological oncology in Australia. This book has an excellent future and I look forward to further editions.

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Prostate Cancer

W Leland et al (Eds)

Published by Humana Press (2001)

ISBN: 0-896-03868-8. 518 pages plus index. RRP: US$145.00

This is a fascinating book on prostate cancer examining in particular the biology and genetics of the disease. It has been written as a tribute to Donald Coffey, a highly regarded researcher in the field.

The book encompasses a wide range of issues ranging from cancer genetics, cancer biology through to modern prostate cancer therapeutics. Each chapter is an expansive discussion on aspects of prostate cancer. Chapters include tumour suppressor genes, hereditary prostate cancer, prostate gene expression, xenograph models and so on. The cancer biology examines various aspects of current issues in cancer as they relate to prostate cancer itself. Thus there is detailed and up-to-date analyses of the role for adhesion molecules, tyrosine kinases and signalling and other molecular pathways that underline prostate cancer. Discussion also includes targeting of antiapoptotic genes and angiogenesis.

The final section relates to therapeutics including chemo prevention, surgical and radiation techniques, chemotherapy and more experimental strategies such as vaccines, anti-angiogenic agents and gene therapy.

In general the text is clearly written with excellent tables and figures. There is a uniform quality of writing although some of the specific chapters seem to detail much about the author's personal work rather than giving it a broader context.

This is an excellent and relatively up-to-date description of prostate cancer biology and genetics, and I highly recommend it for those with an interest in prostate cancer who might be able to obtain a free copy.

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Tumor Suppressor Genes in Human Cancer

D Fisher (Ed)

Published by Humana (2001)

ISBN: 0-89603-807-6. 373 pages plus index.
RRP: US$125.00

Consisting of an almost exclusively American authorship, this book provides a timely and comprehensive overview of the complex field of tumour suppressor genes. There are many useful sections, including lengthy lists of genes that have been described as having tumour suppressor activity, as well as useful diagrams indicating the molecular pathways into which these gene products fit. As expected, many of the chapters go into substantial molecular detail, much of which is more than a clinician's attention span could bear. However, I found the sections describing the clinical correlations of these defects to be interesting, particularly when applied to clinical and familial cancer syndromes.

Some of the chapters appeared rather out of place. One fascinating chapter describes recent advances in technology that are leading to new therapeutic approaches in cancer. Many of these rely on a better understanding of the molecular abnormalities underpinning the malignant process, however much of the discussion was rather peripheral to the main focus of the book. However, I found this to be one of the most interesting sections of the book as well as the most up-to-date in terms of references.

Several of the chapters could have benefited from editing, since most of the major tumour suppressor genes such as p53 and Rb are described in exhaustive detail in several chapters. A single chapter for each would have been preferable, rather than expecting each of the contributors to cover all topics. Still, if they had not done so, they would not have been able to achieve the impressive average of 200 references per chapter.

Overall, this book would be a useful reference but it does not lend itself to casual reading. Clinicians without a particular research interest in this area would do better to read review papers that give less detail and more overview of this rapidly growing field.

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CALENDAR OF MEETINGS

CALENDAR Of MEETINGS – AUSTRALIA AND NEW ZEALAND

Date	Name of Meeting	Place	Secretariat
2001			
August			
12-17	Centenary Surgical Oncology 2001	Brisbane Qld	CSOM Secretariat PO Box 1280, Milton Qld 4064 Ph: 07 3858 5498 Fax: 07 3858 5510 Email: csom2001@im.com.au Website: www.csom2001.com.au
September			
11-14	6th Australian Palliative Care Conference	Hobart Tasmania	Conference Secretary Conference Design PO Box 342, Sandy Bay Tas 7006 Ph: 03 6224 3773 Fax: 03 6224 3774 Email: mail@cdesign.com.au www.cdesign.com.au/pall2001
20-22	Australasian Society for Breast Disease Meeting	Gold Coast Qld	Solei Gibbs Medical & Health Care Public Relations Ph: 07 3846 1585 Fax: 07 3846 3403 Email: infor@asbd.org.au
October			
7-9	"Childhood Cancer: From Mechanisms to Therapeutics"	Bondi NSW	Secretariat Children's Cancer Institute Australia for Medical Research PO Box 81, Randwick NSW 2031 Fax: +61 3 9887 8773 Email: symp@ccia.org.au www.ccia.org.au
10-13	33rd Meeting of the International Society of Paediatric Oncology (SIOP): Bone & Soft Tissue Sarcoma Maliginancy in the Adolescent	Brisbane Qld	Intermedia Convention & Event Management 33rd Meeting of SIOP Milton, Australia Fax: +61 7 3858 5510 Email: siop2001@im.com.au
21-24	The 2001 Joint Annual Scientific Meeting of HSANZ and ASBT	Brisbane Qld	Secretariat PO Box 1280, Milton Qld 4064 Ph: 07 3858 5488 Fax: 07 3858 5510 Email: hsanzasbt@im.com.au
28 Oct – 1 Nov	Royal Australian and New Zealand College of Obstetricians and Gynaecologists Annual Scientific Meeting	Melbourne Vic	RANZCOG 2001 ASM Conference Organisers Waldron Smith Management 61 Danks Street Port Melbourne VIC 3207 Ph: +61 3 9645 6311 Fax: +61 3 9645 6322 Email: wscn@convention.net.au November
November			
9-10	The Australian and New Zealand Head & Neck Society	Melbourne Vic	Head & Neck 2001 Secretariat Abacus Management Pty Limited PO Box 77, Pymble NSW 2073 Ph: +61 2 9439 7477 Fax: +61 2 9439 5616 Email: abacus@abacusconf.com
28-30	28th COSA Annual Scientific Meeting "From Global to Local"	Brisbane Qld	Mr L A Wright Clinical Oncological Society of Australia GPO Box 4708, Sydney NSW 2001 Ph: 02 9358 2066 Fax: 02 9356 4558 Email: cosa@cancer.org.au
2002			
November			
28-30	29th COSA Annual Scientific Meeting	Sydney NSW	Mr Lawrie Wright Secretariat Clinical Oncological Society of Australia Inc GPO Box 4708, Sydney NSW 2001 Ph: +61 2 9380 9022 Fax: +61 2 9380 9033 Email: cosa@cancer.org.au
2003			
November			
15-19	6th International Symposium on Paediatric Pain – "Pain in Childhood: The Big Questions"	Sydney NSW	Dianna Crebbin Director, DC Conferences Pty Ltd Secretariat P O Box 571, St Leonards NSW 2065 Ph: +61 2 9439 6744 Fax: +61 2 9439 2504 Email: mail@dcconferences.com.au

CALENDAR Of MEETINGS OF INTEREST – INTERNATIONAL

Date 2001	Name of Meeting	Place	Secretariat
July			
16-17	AICR'S 11TH Annual Research Conference on Diet, Nutrition and Cancer	Washington DC USA	American Institute for Cancer Research Washington, DC, USA Fax: +1 202 328 7726 Email: research@aicr.org www.aicr.org
18-21	8th World Congress on Cancer of the Skin	Zurich Switzerland	M Luthi, Dept of Dermatology, University Hospital of Zurich, Zurich, Switzerland Fax: +41 1 255 8998 E-mail: leuthim@derm.unizh.ch
August			
16-19	10th National Symposium on Smoking and Health "Assistance in Smoking Cessation"	Urumchi Xingiang, China	Chinese Association on Smoking & Health Anhuaxili, Beijing, China Fax: +86 10 6426 0978 Email: cash@mx.cei.gov.cn
September			
10-14	International Conference Seoul 2001: American Association for Cancer Research	Seoul South Korea	Cancer Research Institute, Seoul National Medical University, Seoul South Korea Fax: +82 2 742 4727
13-16	Germ Cell Tumour Conference V	Leeds UK	GCTC V Secretariat, Conference Office, University of Leeds, LS2 9JT Leeds, Great Britain Fax: +44 1 113 233 6107 Email: confoffice@leeds.ac.uk
14-15	"Cancer in Elderly" 6th International Conference on Geriatric Oncology and 2nd Meeting of the International Society of Geriatric Oncology	Lyon France	Imedex – Alpharetta, Georgia, USA Fax: +1 770 751 7334 Email: meetings@imedex.com www/imedex.com/oncology.htm
21-23	ASCO-Pan Asia Cancer Conference (A-PACC)	New Delhi India	Dr Rakesh Chopra Indraprastha Apollo Hospital Sarita Vihar, New Delhi, India Fax: +91 11 682 5582 Email: asconf@rediffmail.com
22-25	5th International Symposium on Hodgkin's Lymphoma	Cologne Germany	Darwin Medical Communications Ltd Abingdon, Oxon, United Kingdom Fax: +44 1235 558 240 Email: hodgkin2001@darwin-med.co.uk www.hodgkin2001.org
26-28	8th Hong Kong International Cancer Congress	Hong Kong China	8th HKICC Secretariat, Dept of Surgery University of Hong Kong Medical Centre Queen Mary Hospital, Pokfulam, Hong Kong, China Fax: +852 2818 1186 Email: mededcon@hku.hk
October			
9-12	Pacific Rim Laryngectomee Conference and Voice Institute	Honolulu USA	
9-13	9th International Cochrane Colloquium	Lyon France	Organising Secretariat Bertrand FAVRE Package Organisation 140 Cours Charlemagne 69002 – Lyon France Ph: +33 0 4 72 77 45 56 Fax: +33 0 4 72 77 45 77 Email: receptif@package.fr
18-21	American Association for Cancer Education Annual Meeting	Los Angeles California USA	AACR, Ohio, Cleveland, USA Fax: +1 216 444 8685 Email: gerlacr@cc.ccf.org www.aacr.org
19-23	3rd European Breast Cancer Conference	Barcelona Spain	K Vantongelen, FECS Conference Unit Brussels, Belgium Fax: +32 2 775 02 45 Email: EBCC-3@fecs.be www.fecs.be/Conferences
21-25	ECCO 11 - The European Cancer Conference	Lisbon Portugal	ECCO 11-FECS Conference Unit Brussels, Belgium Fax: +32 2 775 0200 E-mail: ECCO11@fecs.be www.fecs.be/ECCO11
26-29	6th Asia Pacific Conference on Tobacco or Health – "You Fight Back"	Hong Kong China	6th APCT/Hong Kong Academy of Medicine Aberdeen, Hong Kong Fax: 852 2871 8989 Email: hkam@hkam.org.hk
29 Oct-2 Nov	Molecular Targets and Cancer Therapeutics: Discovery, Biology, and Clinical Applications	Miami Beach Florida USA	American Association for Cancer Research Philadelphia, Pennsylvania, USA Fax: +1 215 351 9165 Email: meetings@aacr.org www.aacr.org November
4-7	Annual Meeting of the American Society for Therapeutic Radiology and Oncology (ASTRO)	San Francisco California USA	G Smith, ASTRO, Fairfax, Virginia, USA Fax: +1 703 502 7852 Email: gsmith@astro.org www.astro.org
5-9	Cancer Clinical Trials Methods and Practice	Brussels Belgium	D Zimmerman, EORTC Education Office Brussels, Belgium Fax: +32 3 772 62 33 Email: dzi@eortc.be www.eortc.be
November			
7-10	XIXth Chemotherapy Foundation Symposium: Innovative Cancer Therapy for Tomorow	New York USA	J Silverman, Medical Onocology Dept Mount Sinai Medical Centre New York, New York, USA Fax: +1 212 369 5440 Email: J_silverman@smtplink.mssm.edu www.neoplastics.mssm.edu/CTF/sympbrochure.html
9-11	Oncology Nursing Society 2nd Annual Institute of Learning	St Louis Missouri USA	Oncology Nursing Society Pittsburg, Pennysylvania, USA Fax: +1 412 921 6565 Email: member@ons.org www.ons.org
16-18	3rd International Conference on Cancer-Induced Bone Diseases	Awaji Island Hyogo Japan	T Matsumoto, MD, First Dept. of Internal Medicine, University of Tokushima School of Medicine, Tokushima, Japan. Fax: +81 88 633 7121
18-21	16th Asia-Pacific Cancer Conference "Cancer in the New Millennium"	Manila Philippines	16th APCC, Philippine Cancer Society Manila, Philippines Fax: +63 2 735 2707 Email: 16apcc@pcsi.com.ph www.philcancer.org
26-30	Data Management in Cancer Clinical Trials	Brussels Belgium	D Zimmerman, EORTC Education Office Brussels, Belgium Fax: +32 3 772 62 33 Email: dzi@eortc.be www.eortc.be
December			
7-11	43rd Annual Meeting of the American Society of Hematology (ASH)	Orlando Florida USA	ASH, Washington DC, USA Fax: +1 202 857 1164 Email: ASH@haematology.org www.haematology.org.meeting/
10-13	24th Annual San Antonio Breast Cancer Symposium	San Antonio Texas USA	L Dunnington San Antonio Cancer Therapy and Research Center San Antonio, Texas, USA Fax: +1 210 949 5009 Email: ldunning@saci.org www.sabcs.saci.org
2002			
March			
14-17	55th Annual Cancer Symposium of the of Surgical Oncology	Denver Colorado USA	D Kubis, Society of Surgical Oncology Arlington Heights, Illinois, USA Fax: +1 847 427 9656 Email: diannekubis@acaai.org www.surgonc.org
15-16	4th International Conference on the Adjuvant Therapy of Malignant Melanoma	London UK	CCI Limited, London, United Kingdom Fax: +44 207 720 7177 Email: cci@confcomm.co.uk www.fecs.be/Conferences
19-23	3rd European Breast Cancer Conference	Barcelona Spain	K Vantongelen, FECS Conference Unit Brussels, Belgium Fax: +32 2 775 02 45 Email: EBCC-3@fecs.be www.fecs.be/Conferences April
6-10	93rd Annual Meeting of the American Association for Cancer Research	San Francisco California USA	American Association for Cancer Research Philadelphia, Pennsylvania, USA Fax: +1 215 351 9165 Email: meetings@aacr.org www.aacr.org

Date 2002	Name of Meeting	Place	Secretariat
March			
12-13	3rd European Oncology Nursing Society Spring Convention	Venice Italy	K Vantongelen, FECS Conference Unit Brussels, Belgium Fax: +32 2 775 02 45 Email: EONS3@fecs.be www.fecs.be/conferences
17-20	11th Congress of the European Society of Surgical Oncology (ESS0)	Lille France	ESSO 2002 – FECS Conference Unit Brussels, Belgium Fax: +32 2 775 02 00 Email: ESSO2002@fecs.be www.fecs.be/Conferences/esso2002/
18-21	Oncology Nursing Society 27th Annual Congress	Washington DC USA	Oncology Nursing Society Pittsburgh, Pennsylvania, USA Fax: +1 412 921 6595 Email: member@ons.org www.ons.org
May			
18-21	Annual Meeting of the American Society of Clinical Oncology (ASCO)	Orlando Florida USA	American Society of Clinical Oncology Alexandria, Virginia, USA Fax: +1 703 299 1044 Email: info@asco.org www.asco.org
June			
8-11	EACR- XVII: European Association for Cancer Research	Granada Spain	L Hendrickx, FECS Conference Unit Brussels, Belgium Fax: +32 2 775 0200 Email: infro@fecs.be www.fecs.be/conferences/eacr17
30 June- 5 July	18th UICC International Cancer Congress	Oslo Norway	Congrex Sweden AB Stockholm, Sweden Fax: +46 8 661 91 25 Email: canceroslo2002@congex.se www.oslo2002.org/
August			
18 Aug – 1 Sept	12th International Conference on Cancer Nursing 2002	London Arena Docklands London UK	Liz Piem or Claire Manning Ph: +44 0 20 7874 0294 Fax: +44 0 20 7874 0298 Email: healthcare.conference@emap.com www.isncc.org
September			
1-4	9th Central European Lung Cancer Conference	Vienna Austria	Mondial Congresss Vienna, Austria Fax: +43 1 586 91 85 Email: congress@mondial.at
17-21	21st Annual Meeting of the European Society for Therapeutic Radiology and Oncology (ESTRO)	Prague Czech Republic	ESTRO Office, Brussels, Belgium Fax: +32 2 779 54 94 Email: info@estro.be www.estro.be
18-21	SIOP 2002: The 34TH Meeting of the International Society of Paediatric Oncology: Brain Tumours	Porto Portugal	Congress Secretariat Congrex Holland BV, Amsterdam, The Netherlands Fax: +31 20 50 40 225 Email: siop2002@congrex.nl
29 Sep – 4 Oct	World Assembly on Tobacco Counters Health 2002 (WATCH 2002)	New Delhi India	International Congress on Oral Cancer New Delhi, India Fax: +91 11 694 4472 Email: cancerak@ndf.vsnl.net.in www.watch-2000.org/
October			
6-9	44th Annual Meeting of the American Society for Therapeutic Radiology and Oncology (ASTRO)	New Orleans Louisiana USA	G Smith, ASTRO Fairfax, Virginia, USA Fax: +1 703 502 7852 Email: gsmith@astro.org www.astro.org
18-22	27th European Society for Medical Oncology (ESMO) Congress	Nice France	ESMO Congress Secretariat Lugano, Switzerland Fax: +41 91 950 27 07 Email: 16apcc@pcsi.com.ph
November			
1-3	Oncology Nursing Society 3rd Annual Institute of Learning	Seattle Washington	Oncology Nursing Society Pittsburgh, Pennsylvania, USA Fax: +1 412 921 6565 Email: member@ons.org www.ons.org
10-16	9th Hong Kong international Cancer Conference	Hong Kong China	9th HKICC Secretariat Dept of Surgery University of Hong Kong Medical Centre Queen Mary Hospital, Poklfulam Hong Kong, China Fax: +852 2818 1186 Email: mededcon@hku.hk www.hku.hk/
19-22	2002 Meeting of the European Organisation for Research and Treatment of Cancer (EORTC), the American Association for Cancer Research (AACR) and the National Cancer Institute (NCI): Molecular Targets and Cancer Therapeutics	Frankfurt Germany	L Hendrickx, FECS Conference Unit Brussells, Belgium Fax: +32 2 775 02 00 Email: info@fecs.be www.fecs.be
December			
6-10	44th Annual Meeting of the American Society of Haematology (ASH)	Pennsylvania USA	American Society of Haematology Washington, DC, USA Fax: +1 202 857 1164 Email: ASH@haematology.org www.haematology.org.meeting/
8-11	18th World Congress of Digestive Surgery	Hong Kong China	Congress Secretariat 18th World Congress of Digestive Surgery C/- Department of Surgery University of Hong Kong Medical Centre Queen Mary Hospital Hong Kong Ph: 852 2818-0232/052 2855 4235 Fax: 852 2818 1186 Email: isdshk@hkucc.hku.hk
11-14	25th San Antonio Breast Cancer Symposium	San Antonio Texas USA	L Dunnington San Antonio Cancer Therapy and Research Center San Antonio, Taxas, USA Fax: +1 210 949 5009 Email: ldunning@saci.org www.sabcs.saci.org

CALENDAR OF meetings

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.

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The Cancer Council ACT
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Cancer Foundation of Western Australia
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Professor J Zalcberg MB BS, PhD, FRACP

THE CLINICAL ONCOLOGICAL SOCIETY OF AUSTRALIA INC

The Clinical Oncological Society of Australia (COSA) is a multi-disciplinary 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.

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Membership fees for 2001

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