INTRODUCTION

Cancer is an increasingly important issue in Australian society. Based on estimates from the Australian Institute of Health and Welfare\(^1\), 124,280 Australians were diagnosed with cancer (excluding non-melanoma skin cancers) in 2014 with 45,780 cancer-related deaths. It is estimated that cancer accounted for around 3 of every 10 deaths registered in Australia in 2014\(^1\). At the same time, developments in screening and treatment of cancer are resulting in improved survival, with age-standardised mortality rate decreasing from 199 deaths per 100,000 persons in 1968 to 167 deaths per 100,000 in 2012\(^1\).

Medical education should reflect the increasing pertinence of cancer to the community. Important areas of education include the basics of cancer, its broad range of clinical presentations, the issues surrounding prevention and screening, and principles of management and palliative care. Equally important is that medical students are taught and given opportunities to enhance their communication skills due to the implications of a cancer diagnosis and the consequent emotionally-charged nature of interacting with these patients and their families.

Despite the importance of oncology education in medical schools, it historically seems to be quite lacking. A 1993 survey\(^2\) of graduating Australian medical students and junior doctors showed that cancer education was poorly integrated, with little evidence of change in content or structure despite major changes in knowledge about cancer, and a large variability in students’ knowledge and clinical experience. The authors cited possible reasons as being due to difference of opinion, attitudes and knowledge of teachers. A 1999 follow up survey\(^3\) demonstrated similar issues; with high variability between medical schools and a relative lack of detailed curriculum outlines, despite the presence of cancer-planning groups. Other possible reasons for this could include the magnitude and multi-system nature of cancer as disease and subsequent difficulty in teaching, as well as recent developments in other areas of medicine necessitating a place in the curriculum.

Various oncology curriculums have been proposed to standardise oncology teaching and outline necessary and key knowledge. The Australian Cancer Society Statement of 1988 stated: “In all Australian medical schools a compulsory course in oncology should be established, this topic should be examinable, and the presence of an appropriate course should be a requirement for an accreditation review”\(^4\), and in 1989 the Australian Cancer Society developed guidelines for an “ideal” cancer curriculum, circulated to all Australian medical schools\(^4\). Cancer Council Australia has since
published an “Ideal Oncology Curriculum” to provide a framework for implementation in Australian medical courses.

Despite these aims at standardisation, curriculums still vary between medical schools around Australia. Commonly used methods of teaching include didactic lectures, problem-based learning (PBL) tutorials, clinical skills tutorials, clinical exposure, and computer-assisted teaching. In this essay, I will discuss the various dimensions of cancer education, the important points for improvement in each dimension, and strategies that could be implemented.

COMMUNICATION SKILLS

Arguably the most important aspect of cancer education in medical schools is the teaching of communication skills. From the perspective of the patient, it is not necessarily the doctor’s medical knowledge, but their ability to clearly communicate the facts and empathise with their situation, that leads to a more positive experience. Evidence shows that physicians’ communication skills lead to greater patient satisfaction and adherence to therapy.

Communication skills training is classically given at the beginning of the medical degree program, in pre-clinical years, and there is evidence that these skills decline over clinical years. Effective strategies have been shown to include the use of simulated patients, case studies, videos, and practice with real patients. The SPIKES protocol for breaking bad news has also been shown to be effective when applied to the cancer patient.

In an ideal world, pre-clinical students would have regular practice sessions with both simulated patients and real patients, before entering their clinical years, and this would be continued throughout the medical degree. Understandably, there are practical limitations to the ability to employ simulated patients for a large number of students on a regular basis. However, systematic approaches to breaking bad news should be a routine part of undergraduate education. While this may seem prescriptive or forced, it provides a structured framework for students to follow and build on throughout their careers.

BASIC SCIENCE

The basic biology of cancer should be taught in medical schools. While cancer is a highly complex process with a variety of cellular processes and aetiologies, the principles of cancer should be taught thoroughly alongside the normal cellular processes that usually prevent such dysregulated cell growth. This should ideally be done in preclinical years, so that students are well-equipped with basic knowledge before they begin to learn about specific cancer types. This teaching can be done in a variety of ways. It is often delivered in the form of lectures and didactic tutorials, and as part of prescribed pre-reading. This can be further reinforced in the form of assessment in both clinical and written examinations. As different students have different learning strategies, this core content should be delivered in a variety of ways. An alternative form of delivery could include as a student-run task in the form of assignments or PBL classes.
One of the most crucial elements of knowledge for medical students at undergraduate level is the recognition of “red-flag” symptoms, and common presentations of some forms of cancer. This knowledge should be reinforced to students through clinical examinations and history-taking practice. An effective model of teaching is the use of diagnostic triads and pentads, as outlined in Murtagh’s General Practice. These triads, for example “night sweats, loss of weight, fever” for Hodgkin’s lymphoma, if instilled in students from early in preclinical years, will help reduce the likelihood of a red-flag symptom being missed by young doctors.

Additionally, cancer-related clinical examinations, such as skin examination and examination of a lump, should also be thoroughly taught and assessed, with plenty of opportunity for practice and reinforcement throughout the medical course. Dajani & Geller discuss the direct correlation between opportunities to practice a clinical examination and students’ competence, with “hands-on” experience being most predictive of the greatest gains in competence in a survey of students’ confidence in performing pap smears, breast, digital rectal, and skin cancer examinations. Interestingly, this article demonstrated a discrepancy in confidence levels between males and females, with male students being more confident with testicular and prostate exams, and female students with breast and cervical exams. This trend was shown to continue through medical careers, with patients seeing female physicians more likely to be up to date with recommended breast and cervical screening than those seeing male physicians. Clearly, more practical clinical experience is required, with this being reinforced throughout the years of the medical degree.

While it is not necessary for medical students to understand the intricacies of cancer diagnosis and staging, it is important in cancer education to teach the basic investigations required when working up a cancer diagnosis. Important principles include the importance of a tissue diagnosis, various imaging modalities and when it is appropriate to use each, and basic principles of staging.

This information regarding clinical presentation and diagnosis can be delivered in pre-clinical years in the form of lectures, however in my belief the most effective and memorable learning experiences come from following real patients through from their initial presentation, through the various investigations they undergo, and the ultimate diagnostic and staging process. This can be achieved in students’ oncology and general practice placements in clinical years.

The issues around cancer screening are contentious and the topic of ongoing heated debate between clinicians. As such, medical students should be introduced to these topics by a neutral party, and be encouraged to research for themselves the advantages and disadvantages of certain screening programs, such as notably PSA screening and mammography. This could potentially be through self-directed tasks or assignments, where students are encouraged to critically evaluate the evidence for and against these screening programs and come to an informed opinion. Discussion should be encouraged on an open platform in a safe environment, potentially during PBL tutorials.
Students should be taught about universal recommended screening programs such as the pap test, and learn the principles of this and the evidence behind it.

Additionally, it is crucial to educate medical students in primary prevention strategies. A focus on primary prevention and the social determinants of health will lead to holistically-minded doctors who understand the role of lifestyle in the development of many cancers, and understand their roles, as physicians, in the holistic care of the patient and preventative medicine. This is especially pertinent since a large proportion of today’s medical graduates will move on to be general practitioners, dealing with chronic diseases. Dajani & Geller⁹ support the effectiveness of multidisciplinary approaches to teaching cancer prevention, combining traditional didactic teaching methods with techniques such as skills stations and computer-assisted instruction.

MANAGEMENT & PALLIATIVE CARE

Cancer management is complicated and variable based on the patient, the type of cancer, the stage, grade, and many other factors. It is not feasible for medical students to learn exact treatment protocols for each type of cancer, especially given that this can vary between clinicians. However, basic principles of cancer management should be an important component of medical education, particularly surgical, medical, and radiation therapy and principles surrounding these. Additionally, an important aspect of cancer management education for medical students is the management of oncological emergencies such as spinal cord compression. While other aspects of cancer management are generally left to specialised physicians, emergencies may have to be dealt with by junior doctors or in a general practice setting.

Concepts such as “curative” and “palliative” should be thoroughly taught and explored, with students given early exposure to the various dialogues surrounding whether a patient should be treated as curative or palliative and the multi-factorial nature of this choice. By this education, students will be prepared to have such discussions with patients. Ethical principles should be discussed regarding autonomy and the patient’s right to choose or refuse treatment, as these issues are especially pertinent in cases of a cancer diagnosis which is often life-threatening, and the treatments for which can have debilitating side effects and in some cases be themselves life-threatening.

Palliative care is poorly taught in medical schools, as are the principles of pain management. Glare & Virk¹⁰ report that Australasian medical schools place greater importance on pathophysiology and treatment, and little on the team approach in palliative care. This seems counter-intuitive, as every doctor will treat a dying patient in their lifetime, and many patients will have pain that needs to be controlled. Cairns & Yates¹¹ state that providing palliative care is an obligatory component of health services, but only in recent years have efforts been made to prepare young doctors to approach the dying patient. However, efforts are currently underway to improve this, with an undergraduate curriculum in palliative medicine developed by the Australian and New Zealand Society of Palliative Medicine¹².

Palliative care lectures should be commenced early in the medical degree. This should include the fundamentals of pain management, incorporating pharmacology, the role of palliative care in
Cancer is a complex condition, and a difficult one to teach and learn. Notwithstanding the complex science behind cancer as a process, the diverse manifestations, and controversial issues surrounding diagnosis, there is also the huge social and emotional impact of a cancer diagnosis on the patient and family, and the ethical issues surrounding this. Given the prevalence of cancer in our society that is by no means falling, every medical student should have a sound understanding of the condition, and a sound ability to communicate and empathise with the patient. This knowledge and skill should be fostered in medical schools from early on in the degree, and delivered in a variety of form, from the more traditional didactic methods, to the use of interactive problem-based tutorials, and most importantly, through exposure to real patients.
REFERENCES


