



Rebecca Trowman

**Winston Churchill
Memorial Trust Fellow
2006**

***Cancer Research and
Fundraising Techniques***

Section Two

Introduction

For my Winston Churchill fellowship I was interested in cancer research from a fundraising perspective. I was interested in conducting systematic reviews of chemotherapies and a Masters degree in health services research. Since returning to the UK, I have been accepted to study for a PhD in nutritional epidemiology investigating the effects of eating frequency and dietary patterns on cancer risk at the University of Leeds. The fundraising component of my fellowship was borne from a long-standing involvement with charities and experience of fundraising. I am currently involved with fundraising for Marie Curie Cancer Care and Cancer Research UK. Through personal experience of losing my mother to cancer, I have a desire to understand how money can be raised and how it can best be used to make a real difference in the fight against cancer and to the lives of cancer sufferers and survivors.

For my fellowship I chose to visit a number of eminent professors in cancer research and board members of charities for brief interviews, work shadowing and seminars in Canada, Australia and New Zealand. These countries were primarily chosen due to the many similarities that the health care systems and the populations share with the UK; allowing for the most meaningful comparisons with the UK.

I had a particular interest in discovering more about systematic reviews and epidemiological research that were being conducted worldwide. These types of research can be regarded as 'secondary' (in the case of systematic reviews) or 'population level' research (in the case of epidemiological research). I was interested to know more about the funding that was available for these types of research and perhaps whether it fared any differently to any other types of research, such as molecular level research etc. I was also keen to investigate and learn about any novel or unique fundraising initiatives, as well as develop a deeper understanding of funds that are typically available to conduct cancer research and the processes that are involved in sourcing this money. I hoped to be able to gain insights and in doing so develop my own opinions on the role of cancer research and fundraising techniques.

Aims

To summarise the aims of my fellowship were:

- To investigate cancer research, in particular population level and secondary research
- To investigate fundraising initiatives
- To investigate how the two are integrated
- To make comparisons across the countries visited and the UK
- To enjoy an amazing travel experience!

Itinerary

I commenced the planning for my trip in February 2006, and emailed many organisations using personal contacts and internet searches. I found the internet invaluable in arranging the whole of the fellowship.

During my fellowship I met a wide range of experts and many people dedicated to cancer research in some form. I generally conducted interviews with everyone that I met. I also attended a 3 day conference on epidemiology, a number of

seminars and presentations – as well as delivering my own presentations on my work. My fellowship was eight weeks in total, of which, two were spent in Canada, two in New Zealand and four in Australia, a detailed itinerary is set out below:

<p>CANADA 15th August – 24th August, 2006.</p>	<p>Sunnybrook Health Sciences Centre Ottawa University – nutritional epidemiology Ottawa University – genetic epidemiology Ottawa University – population health Canadian Agency for Drugs and Technology in Health</p>
<p>NEW ZEALAND 27th August – 10th September, 2006.</p>	<p>Auckland University Cancer Trials New Zealand Auckland Cancer Society Genesis Oncology Trust Dunedin Cancer Society Otago University – Hugh Adams Cancer Centre Otago University – preventative and social behaviour</p>
<p>AUSTRALIA 10th September – 6th October, 2006</p>	<p>Sydney University Cancer Council New South Wales Australasian Epidemiological Association Conference Cancer Council Victoria Melbourne University Queensland Institute of Medical Research National Breast Cancer Foundation ASERNIP-S Adelaide Health Technology Assessment</p>

Findings

Cancer in Canada:

It is estimated that there will be 153,100 new cancer cases (51% males) and that there will be 70,400 deaths (53% males) from cancer in Canada in 2006. Cancer is the leading cause of premature death in Canada. Lung cancer causes the most deaths and colorectal cancer is the second leading cause of cancer deaths in both men and women combined. Based on the estimated current incidence and mortality rates, it is anticipated that 38% of Canadian women and 44% of men will develop cancer during their lifetimes and approximately one in four Canadians will die from cancer.

Cancer Research and Fundraising in Canada:

The University of Ottawa is recognised as a top-class research institution, and many eminent researchers are based here and in other institutions close by, which means that many strong relationships have been forged and it is felt that there is a positive attitude to collaboration. Medical research at the University of Ottawa aims to generate new knowledge to improve human health and promote academic excellence for the benefit of Canadian society. Whilst visiting the university, I met academics with interests in

epidemiology and population health research who are currently investigating genetic predisposition to cancer and population level preventative interventions.

The Canadian Institute for Health Research (CIHR) and the National Cancer Institute of Canada (NCIC) are two of the most common Canadian sources of cancer research funding for researchers at the University of Ottawa. The CIHR is the government of Canada's health research funding agency and reports to the parliament through the Minister of Health, and is comprised of 13 virtual institutions: one of which is the Institute for Cancer Research (ICR). In 2005/06, out of a total of \$700 million of CIHR grants, the ICR awarded \$118 million in grants. Thousands of applications are received for each annual grant round, and the CIHR employs a peer review system to ascertain which applications will receive funding. The ICR have identified eight strategic research priorities, which are (in order of identified priority): palliative and end of life care; molecular profiling of tumours; clinical trials; early detection of cancer; risk behaviour and prevention; molecular and functional imaging; access to quality cancer care and research training.

The NCIC is funded by the Canadian Cancer Society and the Terry Fox foundation and annually gives grants to a range of programme missions. The NCIC use 14 different, dynamic grant panels to review applications. Each application is rated according to whether it is felt that the research is "likely to lead to an understanding of the mechanisms of cancer development, progress, spread, and regression, improvements in diagnosis, prevention or treatment or to an enhancement of the lives of individuals touched by cancer". In 2004, the NCIC provided \$64 million in grants, which included 103 new operating grants awarded, which translated into a success rate of 31% for applications.

There are also many smaller institutions that raise money for cancer research. An example of such an institution that I visited was the Sunnybrook Centre in Toronto. The Sunnybrook Centre has three major focuses in the cancer programme of breast cancer, prostate cancer and colorectal cancer, and they are currently building a \$20 million breast cancer research centre at the Sunnybrook hospital. The Sunnybrook Foundation supports a wide range of disease areas, not only cancer and they themselves make no decisions on the destination of the money that they raise. These decisions are made independently by the Sunnybrook hospital that designates funding priorities on an annual basis. There is a research institute at Sunnybrook where over 50% of supported programmes are related to cancer, and are supplemented by government grants. The funds that are raised also buy vital equipment such as MRI scanners.

The preferred method of fundraising at the Sunnybrook centre is currently "major gift" fundraising. This technique was championed in the United States and can be regarded as a more 'aggressive' form of fundraising and was adopted about 3-4 years ago at Sunnybrook and now creates about 90-95% of donations. At Sunnybrook there is a dedicated team to major gift fundraising who aim to identify potential donors who could give at least \$25,000 using publicly available information. At Sunnybrook, they believe that the essential ingredients for successful major gift fundraising are building relationships with potential donors and nurturing these relationships and recognising any gifts appropriately. This strategy is proving very successful at Sunnybrook and they aim to raise \$300 million in the next 7 years.

Health Technology Assessment in Canada:

The Canadian Agency for Drugs and Technology in Health (CADTH) is one of Canada's leading sources of health technology information. It is funded by Canadian federal, provincial and territorial governments, and aims to provide timely, relevant, rigorously derived, evidence-based information to decision makers and support for the decision-making processes. CADTH provides information through three programmes: health technology assessment (HTA); common drug review (CDR) and Canadian Optimal Medication Prescribing and Utilization Service (COMPUS). I was primarily interested in the HTA programme.

The HTA programme is similar to that in the UK: it conducts impartial and scientifically rigorous evidence-based reviews into the clinical and cost-effectiveness of drugs, health technologies and health systems. However the HTA programme in Canada has a budget of about 10 times less than the UK budget and a less elaborate process for short-listing research proposals. This process begins with the (passive) identification of topics for assessment. Topic suggestions are received from Canadian policy makers; medical directors and managers; health care providers; professional associations and the public. Topics are also identified through a Horizon Scanning Service, which alerts CADTH to new and emerging technologies that may have an impact on the delivery of health care in Canada. Vignettes are then created for discussion on each potential topic (this is done separately for drugs and devices/systems) and a qualitative system is then used to rank each proposal on importance, which is based on a variety of issues, such as: user preferences; burden of disease; economic factors. An advisory committee then decides if the topic is appropriate and if the capacity is available. Reviews are then conducted with a 9-month timeline and 'knowledge partners' are sourced to ensure topic expertise.

Cancer in New Zealand:

In New Zealand, it is estimated that cancer is the leading cause of death, accounting for 29% of deaths each year. An estimated 17,000 new cancer cases are diagnosed (52% male) and there are 7,800 cancer deaths (53% male) each year. In 2001, 71% of deaths from cancer occurred in those aged 65 years and over. Main causes of cancer death for males were lung cancer, colorectal cancer and prostate cancer. For females, breast cancer, lung cancer and colorectal cancer were the most common causes of cancer death.

Cancer Research and Funding in New Zealand:

In 2003, the Ministry of Health and the New Zealand Cancer Control Trust jointly produced the *New Zealand Cancer Control Strategy*, in response to the objective to reduce the incidence and impact of cancer in New Zealand announced by the New Zealand Health Strategy. The New Zealand Cancer Control Strategy consists of six main goals: prevention; early detection; diagnosis and treatment; quality of life; service delivery and to improve the effectiveness of cancer control through research and surveillance. In a stock-take of cancer control research conducted in New Zealand during 2003-2005, it was found out of a total investment in research of \$95.2 million, 77% of the funds went to research into the diagnosis and treatment of cancer. Funding into research into improving the quality of life for those with cancer and their families accounted for just 1% of the overall research investment. Approximately three-quarters of the funding into cancer research in New Zealand comes from the Health Research Council (HRC), Foundation for Research Science and Technology (FRST) and the Cancer Society of New Zealand. In terms of sites of cancer, 87% of all funds were invested into five cancers: melanoma; prostate; breast; leukemia and colorectal cancer (in order of greatest investment).

The Cancer Society of New Zealand is a not for profit organisation with funding mainly from donations and fundraising. The society is split into six regional divisions with each division raises its own funds, mainly through public donations and bequests and fundraising events. One of the most widely recognised events is the national 'daffodil day', which is a one-day appeal and raises about \$4 million each year. The aims of the society are to fund research into determining the causes of cancer, preventing and treating various types of cancer, with an ultimate goal to reduce the incidence and impact of cancer. The society also has very active roles in other services, including health promotion, health information and support services, although the range of services differs between the regional divisions.

I spent time at the Auckland Cancer Society division and was very impressed by the range of research and services funded by the division. They have an annual budget of about \$8 million, raised principally through public donations and bequests, fundraising events and through operations. Around \$2 million of the budget is allocated to cancer research, the majority of which funds approximately 25% of the Auckland Cancer Society research centre, which is based at the University of Auckland. The research centre also receives some funding from the university, research agencies and drug companies and employs about 80 scientists. Decisions about spending at the research centre are made by a management board comprising 50% cancer society staff and 50% university staff with the ultimate decisions made by an executive board. The Auckland Cancer Society also provide grants to small , mainly laboratory based, research project and use a medical committee made up by society members to allocate the money.

The remaining budget is allocated to the other services provided by the cancer society. The Auckland Cancer Society is uniquely positioned in very close proximity to the Auckland City Hospitals, where a considerable amount of cancer treatment is provided to patients. This has enabled the division to provide a hotel, called Domain Lodge, for about 50 cancer patients and their husband/wife/support person to stay free of charge whilst they are receiving treatment. Domain Lodge is specifically for cancer patients who live away from Auckland and provide nurses, counselors and support groups for the hotel guests. The Auckland Cancer Society also has an education campaigns department, which focuses on smoking cessation, sun awareness and healthy eating. In the near future, they will be linking up with a large supermarket chain to take the healthy eating message from the society into a supermarket context with a tagline: "Fruit and Vegetables are your friend". The success of this intervention will be measured over time.

The Auckland Cancer Society also provided a three year foundation seeding grant to establish the basic structure of Cancer Trials New Zealand (CTNZ). CTNZ is a small group that sits within the Discipline of Oncology at the University of Auckland. It has an overarching aim to contribute to the New Zealand Cancer Control Strategy and aims to do this by providing a national resource to facilitate clinical trials research in cancer. Currently the primary focus of CTNZ is to encourage and support investigator initiated phase I and II (early stage) oncology trials; ultimately it is hoped that an infrastructure will be developed for researchers to tap into to get their ideas robust enough to source funding. CTNZ is also hoping to facilitate clinical trial research on a more national level, for example enabling tissue banking. To date, CTNZ have been involved with about 20 clinical trials in some form and hope to acquire more continuous and stable funding to continue expanding.

I also visited researchers based in the nutrition department in the faculty of medical and health sciences at the University of Auckland. The University of Auckland has 37 departmental and faculty research centres and in 2004, the University achieved the highest quality score in the Performance-Based Research Fund review. Over half of the researchers in the faculty are funded from money awarded annually from external funding agencies and the faculty is responsible for more than sixty percent of all research money awarded to The University. The nutrition department is currently researching the causes of cancer and establishing ways of protecting the population, particularly by understanding the properties of food and plant components and their mechanisms of action in cancer protection. The majority of researchers that I met here felt that the focus of future research will be on nutritional genomics – what is good dietary advice for one group of people may not affect, or be harmful for others based on genetic makeup and predisposition to cancer. A succinct term used for this by many was: "nature loads the gun; environment pulls the trigger".

Another very interesting fundraising concept was the Genesis Oncology Trust (GOT). GOT was established by Genesis Energy as a response to a government directive to rebate customers or communities after droughts in 2003. Rather than offer individual customers small one-off rebates, or make a one-off donation to charity, the director decided to establish GOT, a trust fund, with \$5.4 million. This has also been made perpetual by giving the customers of Genesis Energy the option to donate \$1 a month with their energy bill. Currently, this method raises approximately \$600,000 per year. Although the administration procedures were timely to set up, people are now choosing Genesis Energy due to GOT and customers are now given the choice to donate up to \$2 a month.

The money that GOT continues to raise has been used to fund a variety of cancer research annually. The research proposals are considered by an assessment committee with seven members, sent for external peer review and ranked out of ten. The main criteria for a successful proposal is that the research is of high quality; the purpose of GOT is not to fill in the gaps in cancer research. A wide range of research has been supported, including palliative care, drug development, clinical trials and guideline writings a six-monthly newsletter is also produced to tell customers where money is being channelled and to also deliver timely messages about certain cancers. The current aim is to be able to be totally independent from Genesis energy and to fund up to \$1 million cancer research each year.

The University of Otago is based in Dunedin, on the south Island of New Zealand. Here, I visited two of the major research groups in the Department of Preventive and Social Behaviour: the Hugh Adam Cancer Epidemiology Unit and the Social and Behavioural Research in Cancer group. I met researchers who had a wide range of interests and in the Hugh Adam Centre, research included: vasectomy and prostate cancer survival; cervical and breast screening processes; early diagnosis of cancer; occupational risk of cancer of nurses and delays in lung cancer treatment. The work of the Social and behavioural Research group has included investigating methods of tobacco control and sun protection for skin cancer control and they hope to concentrate future efforts on research into healthy physical activity and nutrition. Generally the researchers in the department tried to focus on conducting specific studies where the exposure maybe unique to New Zealand and thus increasing the impact of the studies. They also had an attitude of not wanting to duplicate efforts and conduct studies that had previously been undertaken elsewhere in the world or even New Zealand. A large amount of the work that is produced by the research teams is funded by the Cancer Society. They also receive funding from smaller charities and they receive a substantial amount of funding from bequest research funds. Core salaries in the Hugh Adam Centre are provided by the Hugh Adams Unit; a cancer research trust fund made up mainly by bequests, which is a relatively stable source of income.

Cancer in Australia:

There are an estimated 88,000 new cancer cases diagnosed in Australia each year and cancer is the leading cause of death, with more than 36,000 cancer deaths each year. Excluding non-melanoma skin cancer, the most common cancers in Australia are: colorectal cancer; breast cancer; prostate cancer; melanoma and lung cancer. It is estimated that 1 in 3 men and 1 in 4 women will develop cancer before the age of 75, although now more than half of cancers that are diagnosed will be successfully treated. In 2000-2001, \$215 million was spent on cancer research, which accounted for just over 18% of all health research expenditure in Australia.

Cancer Research and Fundraising in Australia:

The largest research funding agency in Australia is the National Health Medical Research Council (NHMRC). The NHMRC is responsible for the allocation of Commonwealth funds for health and medical research and in 2004 cancer research received the second highest research funding commitment of \$59.9 million (16% of the total NHMRC funding in 2004). Many of the researchers that I met in Australia had been successful, at some stage, in receiving funding from the NHMRC. The review process that is employed by the NHMRC in allocating funds to research proposals has recently undergone a review itself, known as the Grant review. As a result of the review there was a strong recommendation for funding policy and getting knowledge into practice. The review process for project grants (which form the majority of funded research) has also very recently changed. The NHMRC no longer send out applications for research proposals and in theory is quicker and should enable two application rounds each year, rather than just one. The proposals that are received are not subject to external peer review, but instead are assessed by a review panel, which consists of about 10 members with a wide range of expertise. The proposals are reviewed by two members and presented to the rest of the panel who discuss the proposal and assign a score to each. Proposals are then funded based on these scores and the relevance and potential impact of the research.

Outside of the NHMRC, the Cancer Council Australia provides a substantial amount of funding for cancer research. The Council is a non-governmental organisation which is comprised of eight state and territory members and has a mission to lead in the development and promotion of national cancer control policy. It does this through a variety of methods, which includes: defining national priorities for cancer; promoting better practice in cancer control and promoting research across the full spectrum of cancer control. The council is fully funded through fundraising alone, and in 2006, the Council granted more than \$32 million to cancer research, research scholarships and fellowships.

Whilst in Australia, I spent time at several of the Cancer Council state members: the Cancer Council New South Wales (CCNSW); the Cancer Council Victoria (CCV) and the Queensland Cancer Fund (QCF). All of the individual member states run a variety of fundraising activities, which include: daffodil day; Australia's morning tea; girl's night in; 'posh' auctions; 'face-to-face' donation drives; bequests and mass mail outs. Members of the public also organise smaller events and individuals and companies sometimes offer one-off donations. There are also a few shops that are run by the state members that sell Cancer Council merchandise, such as sunscreen, sunhats, cards, gifts and cosmetics. These outlets are used not only to raise money from the sale of products, but

also to inform and raise awareness of cancer and its prevention – particularly in relation to sun protection and skin cancer control, which is known as the ‘SunSmart’ campaign.

The funds that are raised by the individual state members have diverse uses. Some examples of funding expenditure include: clinical trials nurses; Cancer Helplines; support groups; producing and distributing support and information packs and providing transport and accommodation for newly diagnosed cancer patients and their families. The member states and the over-arching Cancer Council also lobby and advocate the Australian government on issues related to cancer care and control, such as: smoking bans in public places; affordable medicines and patient transport services.

The external research proposals that are supported by the Cancer Council are now channelled through the same process of scientific peer review as the NHMRC, and it is thought that this is likely to continue for the foreseeable future. The CCNSW also has an interesting added dimension and the proposals that they receive go through a nominated consumer panel which consists of people with experiences of cancer. This panel give ratings to the proposals based on the relevance, importance and perceived impact of the research. The ratings from the consumer panel are then merged with those from the NHMRC review panel and the research committee of the Cancer Council then make the final decision on the allocation of funds.

All of the state members that I visited also fund their own epidemiological and behavioural research units that undertake a variety of important research intended to improve cancer prevention and detection. At these units, the researchers receive core funding only for salaries and overheads from the Cancer Council: the research conducted at these internal units is not funded directly in order to maintain transparency. There is a vast amount of research that is being performed by these internal units which receives a substantial amount of funding from the NHMRC and other charities. Some examples of large scale studies that have been established by the epidemiological units include: the Melbourne Collaborative Cohort Study (Health 2020); the ‘45 and up’ study and the Queensland cancer risk study. They are also investigating specific cancers such as: lung cancer; thyroid cancer; colorectal cancer; prostate cancer; ovarian cancer; testicular cancer and melanoma. Vital work is also being undertaken on screening and testing techniques by the epidemiology units.

There are also research collaborations into family and twin studies and rarer diseases so that that as much data can be collected as possible. Some of the internal units also run the state cancer registries, which enables them to have excellent access to a wealth of data to study and calculate basic, descriptive cancer statistics. It is hoped that in the future there may be collaborations with other researchers so that the data can be used to study cardiovascular, diabetic, macular degenerative and other disease outputs.

I also visited a number of research departments at the Universities of Sydney and Melbourne. All of the researchers that I met were mainly funded through the NHMRC and local Cancer Councils, as well as university operating grants, fellowships and bequests. The University of Sydney have recently established a cancer research network, which aims to bring all researchers into cancer together to discuss and share projects and ultimately improve the infrastructure for cancer research within the university. Whilst I was there, a preliminary meeting was held and there is a great deal of optimism about how it may progress. The work that has been done included investigating links between asbestos and lung cancer, development of cervical cancer

screening, prostate cancer risk factors and a vast amount of research on the effects of sun exposure on skin cancer. For the future, many researchers were of the opinion that it was increasingly important for research proposals to contain a genetic component in order to be successful when applying for funding.

I also visited the Queensland Institute of Medical Research (QIMR), which was established in 1945 as part of the Queensland government's 'smart state' strategy. QIMR is one of the largest medical research institutes in the southern hemisphere, and is recognised worldwide for the quality of its research. Originally established to further the study of tropical diseases in North Queensland, QIMR now has broadened its scope to include the immunological, biological and molecular basis of a wide range of infectious diseases, including cancers and other disorders. In 2004-2005, QIMR received \$5.35 million from the Queensland government which essentially pays about 50% of the core costs of running the institute and employing staff. Extra funds are provided by the QIMR trust that source donations and bequests and run a variety of fundraising events. The researchers that are employed by these funds are then enabled to compete for research grants from bodies such as the NHMRC, Cancer Councils and a host of other charities.

I spent time with the Cancer and Populations Studies group and the Genetic Epidemiology Group who are part of the Population Studies and Human Genetics Division. Here I was informed of a wealth of research that is being conducted into cancer prevention and control. Some of the work included the large Nambour Skin Cancer Prevention Trial; links between smoking and obesity and Barrett's oesophagus (a pre-malignant condition); familial cases of melanoma and the role of the gene BRAF as a melanoma risk factor. Increasingly, the population level research studies will involve investigating how genes modify the effect of environmental factors to cause or prevent cancer, and there will be more collaboration with laboratory colleagues to use molecular markers to investigate mechanisms of carcinogenesis. Recent advances will also allow the identification of particular genes involved in complex disease make-up.

A charity that raises funds for cancer research that had an interesting approach to grant allocation was The National Breast Cancer Foundation (NBCF). The NBCF was originally established in 1996 with 50% government money and 50% Cancer Council money. Those sources of money shrunk, and eventually dried up; so now they are now reliant on proactive fundraising. They have developed very strong links with supermarkets, real estate companies, bottled water companies and various other companies that make regular donations through sales of products. Since they were established, they have provided over \$22.2 million in research funds to 133 projects. They have a very detailed and transparent website, which they pride themselves on.

The NBCF receive proposals for research annually and they provide funding for: projects; PhD, post-doctoral and career development fellowships; pilot projects; novel concept projects and infrastructure development awards. Only the project applications are reviewed through the NHMRC process, and the rest of the applications are reviewed 'in-house' by the research advisory committee (RAC) of the NBCF. For the in-house proposal reviews, the NBCF group the proposals into 'bench' research work (e.g. laboratory work) and 'applied' research work (e.g. epidemiology and qualitative research). The applications are then ranked in each group separately, which means that the funding for applied research is more protected. The NBCF have also have assigned priority areas for research in conjunction with consumer panels made up from breast

cancer sufferers, clinicians, researchers, policy makers and industry groups. Proposals in these priority areas are then allocated 'bonus marks' on top of any review scores so that they are more likely to be successful in funding applications.

The unique approach to novel and pilot research by the NBCF means that applicants don't necessarily need a long track record in order to get funding and a wide range of research is subsequently funded. Particular highlights of the research that the NBCF have funded include projects aimed at quality of life and survivorship issues that will have a real impact on the lives of breast cancer sufferers and survivors, but don't aim to find a cure or prevention for cancer. One example of such a project is an investigation into new designs and materials of bras for women who have undergone treatment for breast cancer, as traditional bras are thought to precipitate or worsen oedema/lymphoedema (swollen and uncomfortable breast tissue).

Health Technology Assessment in Australia:

I visited two agencies that receive funding to undertake health technology assessment in Australia: Australian Safety and Efficacy Register of New Interventional Procedures – Surgical (ASERNIP-S) and Adelaide Health Technology Assessment (AHTA). ASERNIP-S aim to provide quality and timely assessments of new and emerging surgical technologies and techniques and they have contracts with the Department of Health and Ageing. Through these contracts, ASERNIP-S is commissioned to produce six ASERNIP-S systematic reviews with consumer information pamphlets and four reviews for the Medical Services Advisory Committee (MSAC) each year. The contracts also enable ASERNIP-S to undertake audits and currently they are conducting three, one of which is the national breast cancer audit. AHTA also have contractual work with the department for health and ageing and produce systematic reviews on behalf of MSAC and also the Pharmaceutical Benefits Advisory Committee (PBAC) and others.

The reviews that both agencies produce utilise recognised best practice review methodology to integrate and synthesise empirical research. The reviews provide a rational basis for health care decision-making including determinations of the safety, efficacy and cost-effectiveness of devices, procedures and treatments. The MSAC and PBAC reviews are similar to NICE reviews in the UK as they are used to ascertain whether a device or procedure should be given a Medicare number, which determines whether patients will receive reimbursement if treated (in the UK, NICE reviews are used to determine whether a treatment has to be made available on the NHS or not). The MSAC reviews take around 9-12 months and the PBAC reviews take around 2-3 months to complete. AHTA also conducts horizon scanning on new and emerging technologies and procedures and both AHTA and ASERNIP-S write brief appraisal reports. These reports are written on behalf of the Health Policy Advisory Committee (Health PACT) which then reports to the Australian Health Ministers' Advisory committee and MSAC. Horizon scanning is intended to provide an 'early warning' to policy makers about technologies and procedures which may have a significant impact on the health system and may require full reviews at a later date.

Conclusions

Fundraising methods:

There are a huge number of charities worldwide that are essentially now competing for public donations. In Canada there seemed to be a focus on major gift fundraising, whereas this was not apparent in New Zealand and Australia. The method was recognised as being a 'high yield' form of fundraising – it is feasible to raise a lot of money in a short space of time – however there was concern that it is not the most sustainable form of raising funds. In New Zealand and Australia there appeared to be a greater importance placed on perpetual methods of fundraising – such as donating a very small amount each month with a utility bill. Both methods are proving very successful at the moment, but it will be interesting to see how they fare in a decade or so. None of the countries that I visited placed very much emphasis on charity shops – a common feature in many towns in the UK. Some institutions had tried such ventures but had failed, which was put down to reduced foot traffic and higher rent than the UK.

Another issue that was mentioned worldwide was the challenge in raising money for research and specifically for epidemiological rather than laboratory-based research. Many fundraisers believed it was easier for people to donate to physical equipment that they can see and touch and can immediately understand the impact of their donation, rather than research. There is also a feeling that the public want research that will provide quick a dramatic cancer prevention and cures, perhaps without considering the basic epidemiological and background research required and the long timescales involved. These attitudes and the huge number of charities that now exist make it a very competitive arena and charities are constantly having to create new ideas and are using technology more to attract public donations. Some fundraisers that I met were of the opinion that healthcare and research is becoming more commercial than benevolent. However others were of the viewpoint that if there was public concern combined with good research ideas and practice then funding would be attained.

Funding resources:

All of the countries that I visited had well established government and charity organisations that could be approached for research funding. One other source of funding that was common to all of the countries was the National Institutes for Health (NIH), which is part of the American Department of Health and Human Services. The NIH comprises of 27 research institutes and centres, one of which is the National Cancer Institute (NCI), which supports a large international research portfolio. Although this resource was highly regarded by most researchers I met, it was the general opinion that the application processes were time consuming, had about a 10% success rate and that in the future this success would decrease (perhaps due to events such as Hurricane Katrina and the Iraq war requiring more American resources).

Another issue that was common worldwide is what actually gets funding when applying for the various grants. For example, often overhead charges are not included in applications for funding, which mean basic facilities are required to be in place to conduct research (it is felt this favours universities). Some felt that even when indirect overhead costs are factored in then this may disadvantage epidemiological research and research that relies on 'person-time' rather than 'machine-time'. I didn't meet many researchers that sought funding from the pharmaceutical industry. The few people that I did meet that had pursued this route had found the experience generally positive and felt that they had a reasonable level of control over the funds they were awarded. Overall there was a feeling of a constant cyclical battle, necessary to achieve funding for research projects, and that the application processes were often lengthy and time consuming. The few researchers that I met with stable salaries highlighted the luxury of the situation.

Peer review and allocation of resources:

Every funding institute that I visited operated some form of a peer review process in order to allocate grants, although some were more elaborate and some were more transparent than others. Many researchers felt it was increasingly important to make the review process as transparent as possible, rather than just having to rely on the honesty and integrity of the review panel. Most review panels have established some form of priority areas for research which are considered alongside the scientific rigour of the proposals. In Australia in particular, I was impressed by the efforts that were being taken to incorporate the views of the public in determining these research priorities and relevance of research. I felt this was important, providing that the public panels consisted of well-informed and well-trained individuals with open minds. Another common challenge for peer review in every country was the burden to the reviewers themselves – they are required to review a large number of proposals and there is an inevitable risk that if the workload becomes too great then the quality of the reviewing may fall. With this there is also the risk that the dynamics of the panel may influence decisions on allocation of resources and skewing the whole peer review process.

When I began my fellowship, I was keen to develop a feeling of whether there was any bias in terms of the types of research (epidemiological compared to laboratory studies for example) and the types of cancers that received funding. I heard a myriad of opinions on this subject. Many felt that there is indeed a bias towards laboratory and bench research, and that there is often a danger that epidemiological research does not fare as well in terms of ranking due to a lack of understanding, and should be protected and ranked separately (as is the case at the NBCF). Many believed that epidemiological type research was often unsuccessful due to the high initial costs and maintenance costs that are involved and the long timescales that are required before results are available. Others believed that funding was allocated purely on the merit of the research, regardless of its type, and that if a researcher puts forward a timely, high quality proposal then it should - and indeed will - get funded.

In terms of the research that is conducted into the various types of cancers, again I heard a multitude of opinions and I was informed of the vast range of research that is being conducted into multiple cancers. Some people did believe that there is an imbalance in cancers that are researched and that the public perception of cancer, rather than the evidence gaps about different cancers was directing the resources. For example, there was concern shown by some about the amount of funds allocated to childhood cancers and breast cancer (both have high survival rates) as opposed to oesophageal cancer or ovarian cancer (both have lower survival rates). It was felt that perhaps this was because childhood and breast cancers have very effective lobby groups and thus their voices are heard more. However, others felt that there it was important for certain cancers, such as breast cancer, to have specific charities dedicated to raising funds for research, and ultimately the public must have such a desire, or the charities simply would not exist. Although it is important that cancers are not researched simply because they do not have effective lobby groups.

Future Research:

The majority of researchers that I met believed that in the future research will generally have to contain a genetic component in order to be funded, and many were already including genetic aspects in their current work. Although most considered that understanding genetic predisposition to cancer will be vital in developing cancer cures, treatments and prevention advice, some were more cautious. They believed that we are yet to see the practical benefits of the relationships that have been identified, as we don't understand in enough detail the intricacies of genetics. A better understanding is required before genetic research can actually be translated into meaningful cancer prevention or cancer management strategies.

Collaboration:

In every country that I visited, collaboration was viewed as an important issue. In Canada and New Zealand, many researchers felt that they were very well networked to other individuals who were often working on similar types of projects, and thus there seemed to be a lot of within country collaboration. Everybody believed that collaboration was essential to increase efficiency, use of resources and importantly reduce duplication and even where collaboration was good; all said that it could be improved. One other particular problem that both Canada and New Zealand cited was 'brain drain', defined as "emigration of talented individuals to other nations" to America and Australia respectively.

In Australia I noticed that a lot of research and its funding are perhaps more constrained by state boundaries and that there was more international collaboration compared to Canada and New Zealand; although I was surprised how little collaboration there appeared to be between New Zealand and Australia. The form of collaboration that interested me most was that between disciplines. Some researchers believed that epidemiologists are often viewed as

'soft' social scientists by molecular scientists and that there is a bias against the work that population level researchers produce. However I did meet molecular level and population level researchers all working together on projects, an approach that was particularly prevalent in Australia.

Research Assessments:

All of the universities I visited had some form of research assessment in place, and are quite similar to the research assessment exercise (RAE) in the UK. The assessments are generally made by a specialist peer review group and based on research grants that are obtained and the quality of research outputs (typically deemed to be publications in peer reviewed journals). The assessments assign quality rankings to universities which then will be tied to the government funding of universities. They have been introduced with the aim of improving overall level of research quality and shift the focus of research to have an impact of everyday life. However, most of the researchers that I met viewed the assessments in rather a negative light. Many felt that the quality of research output is not measured appropriately and doesn't necessarily recognise the full impact or quality of research – particularly so for epidemiological or novel research. It was also felt that the assessments will require a lot of effort for gains that are not yet known, it may reduce collaboration and increase competition between institutions.

Health Technology Assessment:

All of the health technology assessment agencies that I visited used very similar 'best-practice' methods and received funding from government, although many felt that the budgets they received were relatively small (in particular compared to the UK). Everybody felt that it is vital that the safety, quality and cost-effectiveness of procedures, technologies and treatments are evaluated systematically and thoroughly using rigorous scientific methods, in order for policy makers to best allocate public resources. It was also suggested that the horizon scanning that is performed could be harnessed more effectively to help inform policy makers about potential gaps in knowledge and to create proposals for future studies.

Concluding Remarks

During my fellowship I merely touched the tip of the iceberg of the wealth of cancer research and fundraising that is being undertaken worldwide. I was impressed by the passion and commitment shown by so many. My overarching opinion that there needs to be a balance between types of research and the types of cancers that are investigated, with research being driven by sensible real-life problems and evidence gaps rather than anything else. I also firmly believe that there needs to be a stronger focus on palliative and quality of life research for cancer sufferers and survivors; as cancer treatments become more successful this will become a more pressing need. Education about cancer prevention is also essential – it is thought that between 30 – 70% of cancers are now preventable.

I think it is crucial to increase collaboration and communication to use the limited resources most efficiently and to reduce duplication, which is likely to waste precious time and money. Similarly, it is important that all research is disseminated effectively to other researchers and the public alike, in order to make funding research as worthwhile as possible. Essentially all research is funded by the public in one way or another – either through direct donations to charity or through taxes paid to the government - therefore it is important that the public are always well informed and perhaps can influence resource allocation, if appropriate.

There was much discussion about the review methods that are used to allocate resources; obviously the funding that is available and its perception by researchers will impact research that is conducted enormously. Generally I think the processes should be kept as transparent as possible, to reassure everybody that good quality and important, relevant research will get funding. The time and costs involved in applying for grants can be exhaustive and so it is vital that researchers are not misled and the processes are as efficient as possible. Perhaps frequent independent of the review panels themselves may be a worthwhile venture.

Overall, I was incredibly encouraged by the wide range of high quality cancer research that is being conducted and how it is funded. Ongoing commitments in innovative research are still required to bring cancer completely under control and to improve the lives of those affected by it.