Recruiting & Retaining Scientists: Issues, Dilemmas, Diaspora & Strategies

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Abstract

Problems with recruiting and retaining our best scientists start at the beginning. We are not seeing the top graduates stay on in science. Bright young students enter the course, do brilliantly, receive awards and a PhD scholarship only to turn it all down. If students go on to a PhD they often leave science altogether at its completion. This appears to be happening more frequently. In subsequent de-briefings the reasons most often given by students are: (1) biomedical research in Australia does not offer a viable career path ; (2) remuneration is poor for the effort required; and (3) funding is normally short- term and uncertain. These students often end up in Law, Commerce and Medicine.

One of the dilemmas faced is that we want our best Postdoctoral Fellows to gain experience in overseas positions overseas but also want them to come back. What would attract them back? What would they come back to - an uncertain career path, low incomes, fewer options? For a returning Postdoctoral Fellow the ability to enter the various Senior Fellowship schemes is now very limited. Many do not attempt it and, of those that do, many fail and become demoralised. What about bringing home the senior scientists? Federation Fellowships were aimed at doing this, but they are now being awarded to senior Australian scientists. Does this mean that top-flight overseas researchers do not see even a Federation Fellowship as sufficient incentive to return? What can be done? Potential strategies and solutions will be discussed in this paper.

Introduction

There are a number of key issues and dilemmas that need to be addressed if Australia wishes to recruit and retain top-flight scientific talent. This will be discussed at several key career transition points and then it is proposed to suggest some strategies to deal with these problems. As my own background is in biomedical research I will concentrate on issues affecting researchers in this field.

The Undergraduate to PhD Transition

Some of the key transition points that ought to be focused on are those in the early stages of a career. One such transition point is from undergraduate to PhD degree. As a supervisor and course co-ordinator at The University of Melbourne of both Honours and PhD programs I meet excellent to outstanding students. However, in the last five years there has been a decline in the number of really outstanding students who elect to continue with a career in research. These are the very top 1% or 2% of students who are likely to receive the Dean's award for consistent outstanding academic achievement. In discussions with other co-ordinators around the country the

story appears to be very similar. Although only anecdotal, there appears to be a consistent trend for the very top biomedical science students to decline offers to undertake a PhD and embark on a research career.

The reasons offered to me by the outstanding students are well founded. Primarily, these students do not see a career in research as a viable option. They base this on their observation of postdoctoral fellows and other researchers who receive low salaries relative to the years of study, who are often on three-year project grants and every two and half years need to consider their next career move. This is a stressful, financially unrewarding and precarious career path. In order to partake in this unenviable research career you need to complete a PhD and ideally have several successful postdoctoral positions. In short, the 'effort to return' ratio is very skewed towards lots of effort for little return. In our society, the level of remuneration is taken as a measure of how we value that career. Perhaps this says something about Australian society given the high incomes and adulation accorded sportsmen and women. The low salaries we give researchers tends to reinforce a sense of low self esteem in this group. By contrast, these bright students see their peers in other careers such as: law, medicine and commerce that are considerably better paid and only require an undergraduate degree. Consequently, many of the top students who in the past would have undertaken a research career are now undertaking alternate careers that offer a better effort-for-return ratio. Research in Australia will suffer if our very best and brightest do not see a career in biomedical research as a viable career option.

Postdoctoral Dilemma

Another critical career transition point is at the postdoctoral level. Postdoctoral Fellows play a crucial role in driving biomedical research in this country and yet they are one of the most poorly treated groups within the research sector. There is a dilemma with the whole post-doctoral experience. We want the best post-doctoral fellows to have overseas experience. However, many will not return and will probably want to stay working in the USA or Europe where there is generally better funding and greater opportunities in biomedical research.

What sort of things are they looking for if they come back to Australia? They want to come back to a viable career in biomedical research. They want to enjoy the Australian lifestyle, particularly if they have children, but they also want to be doing excellent and exciting science. What would they come back to now? In fact, at the moment it's not particularly attractive for them to come back. Since the doubling of NHMRC funding in 1999 there has been significant investment and improvement in career development for younger researchers. However, the reality is that there is a severe problem for talented 'senior postdoctoral researchers who find themselves in limbo – the intermediate Career Development Awards are too scarce and the requirements for a Senior Research Fellowship are beyond reach.' (Editorial, 2004, p. 231).

The postdoctoral fellows who return to Australia struggle on many fronts – but the symptoms of the 'Re-entry Syndrome' are familiar to all who make the transition. Returning to Australia after an exciting postdoctoral experience in a top research group in Europe or the USA can often be a very depressing experience. Funding is not at the same level and there tend to be fewer postdoctoral fellows around who could offer support and stimulation. There is a sense of isolation and little information on the different schemes and career options available. It is still very much up to the individual to chart his or her own way. In Australia's larger cities housing is beyond the reach of most postdoctoral fellows trying to raise families on minimal incomes. Most are unable to secure a mortgage as they are on short-term contracts. By contrast, their peers in other professions are climbing a career ladder and being well remunerated. Although some survive 'Re-entry syndrome', for others it all becomes too much and they either leave research because they cannot see a way forward in Australia, or they return overseas.

NHMRC Fellowship Scheme

If a postdoctoral fellow survives 're-entry syndrome' and is successful in setting up a research group in Australia, at about 8 years

post PhD, they may consider applying for the NHMRC Fellowship Scheme. This offers a full-time research-only salaried position for five years with the option of renewal at the end of that period. Entry to this scheme is highly competitive. In 2003, there were a total of 275 fellows in this scheme, covering four levels of seniority. Unfortunately, most senior postdoctoral fellows, even those ranked internationally excellent cannot make the jump into the bottom rungs of this scheme because the selection criteria are too strict. Consequently, these excellent young researchers are left dangling at a critical juncture in a career limbo. The other major problem with this scheme is that few people are leaving, so that it is top heavy with the most senior researchers. Currently, there are few other career options for these people so the system is becoming more congested, making it harder still for younger researchers to enter. This problem can partially be overcome by an injection of funds but we also need to think of viable exit strategies for our most senior researchers in order to free up the system.

Australian Society for Medical Research (ASMR): Workplace Survey

In 1999 ASMR conducted a survey of researchers and workplace movement. (For details see: http://www.asmr.org.au/news/Wkplc/wkplce.html). This survey involved 266 respondents, ranging in age from 20 to 64, of whom 12% were based overseas. They held a range of degrees from PhD to MD with the majority completing their degrees in Australia. The respondents held a range of positions from tenure-track to fixed-term appointments and fellowships. The majority, 94% were in biomedical science and only 6% were from clinical and public health. The survey examined salaries and showed in almost all cases that Australian researchers were being paid, particularly in that post-doctoral range, considerably less than their overseas counterparts. In attempting to attract the top people to Australia we have to try and match the salary range they are being offered overseas. This is important, given the rising cost of living (particularly housing) in Australia's major cities.

For researchers working within Australia, 35% of the people surveyed were planning to change their research positions either locally or overseas. The reasons they gave for that were as follows: employment stability, research funding, broadening their scientific experience and increased salary (from highest priority down to medium priority).

What about our research diaspora? Here the reasons are similar: they wanted to broaden their scientific experience, find a career path and acquire new techniques and collaborations. About 85 per cent of those who were working overseas said they wanted to return to Australia, but they were very concerned about available research funds, poor job security, lack of a career structure and potential opportunities within Australia.

Strategies: Increasing Funds for Health & Medical Research

So what can we do to address these issues? One of the most obvious things is to increase funding for health and medical research. The Australian Society for Medical Research recently commissioned the Access Economics report entitled: *Exceptional Returns: the Value of Investing in Health R&D in Australia* (see http://www.asmr.org.au/general/Except.pdf). This independent economic analysis of heath & medical research in Australia showed the extraordinary returns that are derived from investment in health R&D. On average every dollar invested in Australian health R&D has delivered $5 in national economic benefit as a consequence of improved lifespan and quality of life. The report also shows the decline in public sector funding for Australian health and medical research, and that overall we lag behind our OECD competitor countries. We now look to the Federal government to take a lead on this and increase funding to this sector to ensure it is viable into the future. Obviously an injection of funds will help enormously and allow us to address some of the critical issues for recruiting and retaining

Australia's top health and medical research talent.

Strategies: Recruiting and Retaining Our Best Postdoctoral fellows

We need to make better use of our existing networks to track the careers of our postdoctoral fellows, particularly those who choose to work overseas. Our institutes and alumni associations need to set up a process to follow the careers of these researchers. Importantly, a formal mentoring scheme should be put in place for those people who would like to return to Australia. These mentors should advise on career options in Australia and ideally assist in the difficult transition period. I believe this would make an enormous difference to successful recruitment and retention of top-level researchers.

Strategies: NHMRC Scheme

What about the NHMRC fellowship system? At present there is no room at the top and little opportunity for younger researchers to enter the scheme. One proposal is to provide exit strategies for those already at the top people to free up funds to create more opportunities. For example, an NHMRC Fellow's salary package attracts 48 cents in the dollar from the Federal government that is directed to the host institution as infrastructure funds. For a senior fellow that amounts to approximately $60,000 a year and over a 17-year career this amounts to almost a million dollars. If those funds could be quarantined this would extend the life of that fellowship for another eight years. Alternately, those quarantined funds could be used to leverage state, private, federal monies to create an endowed Professorial chair. Either way this would provide exit strategies for people at the top of the scheme. In doing so it would free up funds to support younger NHMRC fellows.

Strategies: Recruiting Top Scientists from Overseas

How do we recruit top scientists to Australia? The most useful strategy is to minimise the difference in research environments between Australia and our OECD competitors. As the environments alter with new government policy we must constantly monitor our relative position as an attractive destination for the best researchers. Many expatriate researchers want to return to Australia to raise families or for lifestyle reasons. I also believe we have to offer flexible customised packages to the very best international researchers and move away from the 'one–size fits all' approach.

In summary, to recruit and manage our best health and medical researchers we need to address their concerns. Consistently these are: research funding levels, general research environment, job security and a career structure with opportunities. We must address these issues because Australia cannot afford to continue to lose its best scientific talent.

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Footnotes

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Encouraging the Return of Young Biomedical Scientists to Australia: A Personal Perspective

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Abstract

The 'brain drain', the loss of trained young minds overseas on a permanent or semi-permanent basis, is not an exclusively Australian phenomenon. Australians from many academic and professional fields are attracted overseas where they gain experience, skills and contacts highly beneficial to this country. However, our intellectual culture and geographical isolation create particular problems in attracting Australian expatriates home. As biomedical scientists, the major problem perceived by overseas colleagues is the lack of attractive positions in Australia available at a postdoctoral level or higher, and the difficulty of becoming aware of such positions while overseas. This problem is compounded by the attractions of working overseas where facilities and salaries are often superior and researchers have easy access to the world-wide academic community.

Australian scientists have a high reputation that leads to being actively encouraged to pursue careers elsewhere. One solution may be to establish a scheme whereby scientists working overseas can be kept informed about positions available at home. In addition, we must encourage an Australian culture where academic achievement is valued and rewarded in the same way as sporting excellence, as well as promoting the advantages of working in Australia.

Introduction

The 'brain drain', the loss of trained young minds overseas on a permanent or semi-permanent basis, is not an exclusively Australian phenomenon. Our intellectual culture and geographical isolation, however, are associated with particular problems in overcoming this loss. Like many countries, Australian scientists are trained in an environment that encourages and rewards young scientists who leave our shores at the completion of their higher degrees to work for a time in an overseas institution. This in itself is not part of the 'brain drain' and should not be regarded as being negative. Experience in a foreign work environment brings clear advantages not only to the new graduate, but also to Australia. As well as the obvious advantages of acquiring novel techniques, inherent to most new positions, the graduate also has the opportunity to see how other cultures view scientific research, as well as learning valuable new approaches which can be taken back to Australia. Further, most young Australian graduates gravitate towards post-doctoral research in America and Europe, where they have much greater opportunity to attend the large international meetings that are held almost exclusively on these continents. Participation at these meetings and the relative geographical proximity of research groups with interests related to their own, allow them to