



BAKER IDI HEART & DIABETES INSTITUTE SUBMISSION TO THE REVIEW OF INDEPENDENT MEDICAL RESEARCH INSTITUTES

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About Baker IDI Heart & Diabetes Institute

Baker IDI Heart & Diabetes Institute is an independent, internationally-renowned medical research facility, with a history spanning more than 88 years. The Institute's work extends from the laboratory to wide-scale community studies with a focus on diagnosis, prevention and treatment of diabetes and cardiovascular disease.

The Institute's mission is to reduce death and disability from cardiovascular disease, diabetes and related disorders; two prevalent and complex diseases responsible for the most deaths and the highest health costs in the world.

Baker IDI Heart & Diabetes Institute is well positioned to address these challenges. The Institute's highly diverse team includes cardiologists, diabetes physicians, bench-top scientists, epidemiologists, dieticians, psychologists, nurse educators, renal specialists and physical activity experts. Together, they are working to translate laboratory findings into new approaches to prevention, treatment and care.

The Institute's main laboratory facilities are located on the Alfred Medical Research and Education Precinct in Melbourne, Victoria. Baker IDI Heart & Diabetes Institute has a research facility in Alice Springs in the Northern Territory dedicated to Indigenous health. In keeping with a global research agenda, the Institute maintains international partnerships and collaborations in Europe, North America, the Middle East, South Africa and the Pacific.

For more information, visit: www.bakeridi.edu.au

EXECUTIVE SUMMARY

Australia's health and medical research sector is a world-class asset that delivers significant dividends and contributes to a vibrant and highly successful academic and biotech economy. This success is closely linked to a powerful and productive iMRI sector.

As well as playing a critical role in the transition from a minerals and manufacturing economy to a knowledge economy, the co-location of hospitals and iMRIs contributes to an environment in which enquiry is a natural part of health care delivery. Every day, in every hospital in Australia, people benefit from treatments developed by iMRIs ranging from the Colony Stimulating Factor drugs that allow modern cancer chemotherapy to preventative programs for chronic disease. In Victoria alone, over 10,000 hospital patients a year benefit from treatment through the performance of research-sponsored trials¹ - and large iMRIs such as Baker IDI and The George Institute lead global and national multicentre trials that *inter alia* bring less well developed health care systems into the research field. The result of the entire endeavour is that treatment that would otherwise be unavailable or at best, funded directly from the government's health budget.

iMRIs also provide a critical interface between research excellence, healthcare and community need in a way that no other research organisation model is able to achieve. Through excellent governance and nimble management and organisational structures, iMRIs continue to surpass other research organisations in outcomes and efficiency².

However, the ability of the nation's iMRIs to continue to deliver these benefits is at risk because of the decreasing viability of the funding mechanisms that support them. In light of these challenges, Baker IDI Heart & Diabetes Institute welcomes the opportunity to participate in this review.

From the outset, it is important to reflect on the fact that health and medical research in Australia takes place in the private sector, in universities, in hospitals, in primary care and other parts of the health system and in medical research institutes. However, the character of the research that takes place differs depending on the institution hosting the work. As health-outcome focussed charities, MRIs are uniquely focussed on translational health outcomes and because of their structure and focus, uniquely able to achieve these outcomes.

We contend that it is vitally important to retain this capacity and maintain the independence of iMRIs. To do otherwise would be to compromise their agility, efficiency, strategic freedom, innovativeness, public profile and links to the community and business sectors.

In summary, Baker IDI Heart & Diabetes Institute wishes to highlight the following key points in regard to strengthening the iMRI sector:

- **iMRIs are diverse and there is no one-size fits all model:** Business models for independent medical research institutes vary depending on their size, history and purpose; it is a diverse sector. It would be a mistake to impose an idealised business model on the sector as it would impact negatively on the very vibrancy, innovativeness and flexibility that is the iMRI sector's principal strength.

¹ Funding for the Future, The case for increase indirect cost funding for Victorian MRIs, LEK Consultancy (2009).

² Measuring Up 2013 -NHMRC-supported research: the impact of journal publication output 2005–2009, NHMRC

- **Underfunding of the indirect cost of medical research is one of the biggest issues facing the iMRI sector** and is particularly concerning for the smaller iMRIs. These costs are integral to successful research and cover such essential items as computing and bioinformatics centres, animal houses, administrative staff and ethics committees. When funding bodies, including government agencies contract with iMRI's to perform research it is reasonable to expect the fully absorbed cost to be covered and not just the marginal cost of performing the work. The gap between the indirect costs of research and the funding of those costs is growing and this is compromising the viability of iMRIs and forcing them into inefficient and inequitable administrative arrangements.
- **The gap in funding creates inefficient distortions in the system.** HERDC funding available to universities provides 10-20 cents per dollar more than the IRISS and State Government systems combined. This provides a strong financial incentive for iMRIs to enter into back – door agreements with universities in order to access higher levels of funding. As a consequence, the HERDC scheme is depleted and iMRIs expend a disproportionate allocation of their administration resources working through the red tape associated with such arrangements.
- The most significant initiative the Commonwealth Government could take to improve the efficiency of the entire health and medical research sector is **to establish a rational and equitable regime for funding the indirect costs of research at all institutions (Universities, hospitals and iMRIs) where Government funded research takes place.**
- AAMRI and the broader iMRI community have proposed some excellent ideas for **tackling these issues**, and we welcome the opportunity to review and contribute to a sector-wide solution. As a possible starting point for discussions, we propose:
 - Simplifying grant funding – create a system with fewer, larger grants funding a combination of salary support, career development support and project and program funding.
 - Fully funding research grants – the full indirect costs of research should be funded with the direct costs in a single grant, so that wherever the best research is done, it is fully and equitably funded.
 - Support leverage of third party funding – a program that provides a cents-in-the-dollar co-payment for philanthropic donations would greatly increase the sector's ability to attract a more diverse revenue base.
 - Provide the iMRI sector with block funding incentives to achieve economies of scale without losing flexibility – re-establish a limited block funding scheme based on a sliding scale of eligibility relative to iMRI size.

In addressing these issues, there is an opportunity to strengthen the iMRI model by providing the sector with equitable funding as well as supporting iMRIs to embed research in the health system, increase the efficiency and effectiveness of health services and improve health outcomes in Australia and world-wide.

TERMS OF REFERENCE AND BAKER IDI HEART & DIABETES INSTITUTE 'S SUBMISSION

The purpose of this submission is to review what is distinctive about the contribution medical research institutes make in the Australian health and medical research effort, and to consider how that distinctive contribution could be enhanced in a way that increases the quality and relevance of Australia's health and medical research output.

While Baker IDI Heart & Diabetes Institute has endeavoured to answer all questions in the issues paper, we have not structured the response in the format proposed, because the implicit assumptions underlying the specific questions warrant some discussion.

For example, the request to identify and describe key elements of a 'best practise model for iMRIs', suggests that such a single model exists; we contend it does not. Similarly, questions relating to size appear to hint at a preconceived position on economies of scale; while these are certainly achievable (and are being achieved) through collaboration, we see little advantage in taking this to the implied conclusion of institutional mergers. To the contrary we see evidence of substantial *diseconomies* of scale in some very large and diverse universities with whom we generally compete for grant funding. Finally, review questions relating to collaboration with other institutions hint at a lack of integration with other organisations (in particular hospitals and universities). By contrast, iMRIs should, in general, be acknowledged for their highly cohesive collaborative models.

Our submission therefore focuses on three core issues raised in several of the questions in the issues paper:

- (i) iMRI business models;
- (ii) The question of scale;
- (iii) The challenges arising from the inequitable funding regime within which iMRIs and Universities currently function.

We conclude with a series of recommendations that target both improvements in the Australian funding model for health and medical research, and recommendations for iMRI institutional management and governance.

In making this submission we acknowledge and support the recommendations put forward by the Association of Australian Medical Research Institutes in their response to this review. In addition, Baker IDI Heart & Diabetes Institute fully endorses the recommendations of the 2013 McKeon review and considers that implementation of these recommendations will strengthen the MRI sector as well as other organisations engaged in health and medical research.

1. Introduction: iMRIs Make a distinct and valuable contribution to national health

The Australian Government invests in funding for health and medical research with a view to improving the health of Australians. At its most basic, the objective is to create an environment in which the provision of health services and the advice people get about how to lead healthier lives is informed by the best available knowledge.

Importantly, this role in scientific innovation and its practical application is not limited to what Australian researchers can discover. ***Australian researchers play an important part in the international health and medical research effort and this effectively buys Australia a ticket to the world game; our research community gives us access to the 97% of the world's medical research that is not done here, and our research workforce is the human resource we use to apply that knowledge in our own healthcare environment.***

Despite the relative simplicity of this rationale for needing health and medical research, it is a complex, and diverse enterprise. It encompasses:

- molecular and cell biologists working in globalised teams whose insights and discoveries are confined largely to academic literature;
- preclinical investigators researching mechanisms of disease in animals in the hope this will shed light on similar conditions in humans;
- clinical researchers working to develop sensitive predictive tests that identify preclinical disease and testing new drugs, devices and treatment approaches in human populations in an attempt to establish new commercially viable therapies;
- population health researchers tracing *where* disease happens and using this knowledge to provide insights to the broader research community about *why*;
- health services researchers considering how to better provide services, and providing advice to hospital administrators;
- health economists advising government on the fiscal impact of admitting new drugs to the Pharmaceutical Benefits Scheme.

What we want out of medical research is relatively simple; the product itself is not.

The reason for this is that while health and medical research starts with straightforward questions (who is getting sick and why; how can this be prevented or at least slowed down; and when people are already sick how can they be cured or better treated?) the answers are invariably complex. Increasingly, researchers understand that any new 'solution' must invariably address a multitude of factors besides efficacy and safety, ranging from the practical application and economic impact of new ideas, to considerations around ethics, acceptability within professional practice and commercial viability.

Only a coherent and effective national approach to health and medical research that recognises that it is not one but a combination of these approaches will provide the kind of impact on Australian health outcomes that the Commonwealth Government seeks to achieve by funding research. The critical question is what kind of institutions are going to be most effective at delivering a multifaceted solution along these lines?

Most medical research in Australia is conducted, broadly speaking, in four sectors. While the outputs from the different organisations within these sectors is similar, the nature of the research and the character of its outputs is strongly influenced by the objectives of the organisation:

- (i) In the private sector – in Australian branches of pharmaceutical companies, biotechs supported by local and international venture capital, research focuses on the development of new intellectual property through health and medical research as a commercial imperative.
- (ii) In public hospitals – hospital CEOs and State Government Departments and Ministers know that patient outcomes (eg readmission rates, survival after discharge etc) are better in tertiary environments where research takes place than in those where it does not. Despite a general lack of research-focussed KPIs for hospital administrators, it is known that research in hospitals informs approaches to treatment and care, and improves its quality because research-active clinicians are, in general, at the top of their game in their own fields internationally. As a result, research in hospitals tends to focus on immediate improvements in patient outcome metrics.
- (iii) In universities - research in the higher education sector serves a dual purpose of providing a rich intellectual environment for the education of the next generation of scientists, clinicians and scholars, and of boosting the host university's comparative international ranking and status (and through this, enabling higher student fees and attracting stronger academic talent).
- (iv) In independent Medical Research Institutes – research programs are constructed around health-focussed missions and community stakeholder influence. Research in iMRIs tends to focus on the application of research effort to answer fundamental questions of human health, with the primary success metric being identifiable impact locally, nationally or globally on health outcomes.

2. The ideal iMRI business model

Baker IDI Heart & Diabetes Institute's clear view is that there is in fact no ideal iMRI business model, and that it would be damaging to posit one and force it onto the sector.

Australia's universities have struggled for decades to evolve into a diverse range of institutions offering different models of education provision based on diversified funding and institutional missions. They have been constrained from achieving this by a highly regulated and protectionist environment that mitigates against innovation and experimentation, forcing existing institutions towards homogeneity.

The iMRI sector's great strength is that no such idealised model exists, and institutions have been free to set up and run their businesses as their stakeholders and particular resource needs determine. The breadth of models includes iMRIs that have developed from the base of a highly successful commercial venture (eg the Bionics Institute); that are focussed on innovation in responding to disease in the developing world (eg the Burnet Institute); and that are 90+ year old institutions with extensive financial reserves and a proud record of discovery (eg WEHI).

Australian iMRIs do different things, in different ways, necessarily with different partners and stakeholders and this diversity is one of their great strengths.

Like most of the larger, longer standing iMRIs, Baker IDI Heart & Diabetes Institute has evolved over many years, passing through several phases of growth and development and building multiple valuable institutional partnerships along the way. It is a history that showcases the nimbleness and flexibility that are characteristic of the sector. Established in 1926 as a department of the Alfred Hospital, it was granted an Act of the Victorian Parliament in 1987 and in 2009 became a company limited by guarantee following a merger between the Baker Heart Research Institute and the International Diabetes Institute. Throughout its 88 year history the primary and most important affiliation of the institute has been that with the Alfred Hospital; nonetheless it also has a longstanding affiliation with fellow Alfred Medical Research and Education Precinct (AMREP) tenant Monash University; it shares ownership of an animal research facility at AMREP with the Burnet Institute and Monash; and is informally affiliated with several university partners including Monash and the University of Melbourne.

Baker IDI Heart & Diabetes Institute's work in Aboriginal Health in Central Australia provides further evidence of this innovativeness in the development of partnerships. From recruitment of a single lead investigator in Alice Springs in 2006, the Institute's work in Aboriginal health has become a key theme in the Institutes' research focus. The institute is based on the site of the Alice Springs Hospital in facilities it co-owns with Flinders University. Led by Indigenous clinician Professor Sandra Eades, the group now comprises more than 30 Aboriginal and non-Aboriginal staff working across a range of health services and clinical research programs in partnership with key community and primary care providers as well as the Central Australia Health Service, Flinders and Charles Darwin Universities and the Menzies School of Health Research (based out of Darwin) in a collaboration that epitomises the 'Integrated Health Science Centre' concept promoted in the recent McKeon Review.

Unconstrained by Baker IDI Heart & Diabetes Institute's traditional approach in biomedical research in Melbourne, the institute's work in Alice Springs has evolved quickly into a distinctive and highly valued program of work that is run across many of the Central Australian remote communities entirely in partnership with, and in response to the needs of, the Aboriginal community. It is characteristic of the iMRI model that Baker IDI in Central Australia – just like the Burnet Institute in Myanmar for example – has quickly become a valued local partner, working in ways and producing outputs that are consistent with the needs of, and greatly valued by, the community the institute seeks to serve.

Because they take on the character of their communities, and therefore produce such a variety of distinctive outputs, iMRIs do not readily conform to a single type of institutional model. There are for example:

Institutes that focus on policy translation (eg. Sax Institute) that do not require platform technologies but benefit from CBD offices close to Government. They generally register few if any patents, but have considerable opportunity to generate consulting revenue, competing with the private sector as advisors to government on policy initiatives. Their translational journey from publication to implementation is generally very quick, consistent with the brevity of political cycles. The business model for such institutes is based on diverse funding, responses to tender from Government, and partnership with the private sector. NHMRC funding is often a relatively small component of the funding mix for these extremely valuable institutes that make an informed and visible contribution to public policy.

Institutes that are deeply embedded within hospitals (eg. Qld Children's Medical Research Institute, Murdoch Children's Research Institute) that share resources with those hospitals in a way that is very efficient and helpful for the clinical work of the hospital. The business model for iMRIs whose work is closely intertwined with a tertiary hospital involves a mutual cross-subsidy, with the iMRI effectively subsidising hospital KPIs through (for example) the provision of free trial therapies, and the hospital providing access to patient populations and facilities without which the research would not be possible. Moreover, hospitals can attract very high level clinician scientists because they can offer them the opportunity to foster both their clinical and research ambitions.

In this business model, joint appointments are the norm, and clearly benefit both parties, either one of which alone could not afford, or at least could not attract, such people.

Institutes that are embedded within universities, (e.g. the Mater Medical Research Institute) that share resources and tend to take on the characteristics of their host institution, focusing on traditional academic metrics in regard to output, and providing excellent learning environments for the next generation of scientists, clinicians and scholars. The business model for a university-hosted iMRI takes significant financial advantage from the co-location of profitable teaching (especially of international students) to cross subsidise research efforts. The output of such research is in turn monetised via recognition in the international rankings through the imposition of higher international fees. This duality of purpose (i.e. the co-location of teaching and research) is arguably beneficial for students.

These and many other business models are valid, and each serves its purpose, including; policy translation, improved clinical outcomes, and excellent educational environments. iMRIs have both been created and flourished within each model, and each makes a valuable contribution to the sector as a whole.

This diversity is a strength, and is currently quite well served through existing mechanisms. Governance and funding problems sometimes exist in all three sectors – universities, iMRIs and hospitals - but derive most often from the complexity of State and Commonwealth funding and regulations in place for each sector rather than from their governance or management per se.

Importantly, where issues do exist, they are not in general a function of the size of the institution in question; small iMRIs are often nimble, responsive partners with the hospitals they reside next to or even within, and even large universities have been known to experience governance and financial difficulties that threaten their very existence.

In the university sector, having teaching and research co-located can impact the output efficiency of each; and a university with 70,000 undergraduates, campuses across Asia and significant community service obligations to its local region arguably provides a distracted environment for a focused research effort. As the academic profiles of the top 50 ranked universities worldwide show, research excellence tends to flourish in environments that focus on research, and in which undergraduate education plays a relatively minor role. Despite this, the current Australian University business model (in which undergraduate education – especially of international students – provides a profit base that is used to cross-subsidise loss leading research) makes the evolution of research-intensive universities like those in the world's top 20 unlikely in this country without significant reform.

MRIs are often told that fragmentation is the problem, and that integration (usually into universities) is the answer. However, the current level of integration is in fact demonstrably high given the diversity of the three sectors' purposes; and forced integration into the university sector would likely reduce the productivity of existing iMRIs.

3. A one-size fits all approach is an ill-fit for Independent iMRIs

It is important for this review to consider the various advantages and disadvantages of scale, and to recognise the value in the variety of ways in which the need for efficiency has been dealt with by institutes of different sizes.

For the purposes of this submission we will characterise Australia's iMRIs as small (under \$10m turnover, under 100 staff), medium size (\$10-\$50m, 100-500 staff); and large (over \$50m turnover, over 500 staff).

Small iMRIs can in general be characterised as nimble, resourceful and flexible. They tend to be dynamic and innovative, often with a very clear research and translation focus and as such, play an important role in the national research effort.

Medium sized iMRIs are in general the sector's most recent success stories – growing from a small base and tackling the challenges that come with the need to incur step costs to manage that growth through the development of partnerships and institutional collaborations, and resource sharing arrangements. AMREP is home to a powerful example of this – the Burnet Institute - whose partnership with Baker IDI and other AMREP tenants includes joint ownership and tenancy of buildings and close-knit partnerships across a range of functional areas (eg animal facilities; purchasing; facilities maintenance and management; platform technologies) is testament to the innovation shown in managing the period of transition from small to large-scale operations.

Large iMRIs, having achieved scale and critical mass, are generally well placed to tackle highly complex health issues, bringing a diverse range of capabilities and disciplines to bear on important questions in health. For example, depending on a researcher's disciplinary focus, the solution to the obesity epidemic might be: the development of a drug that mimics exercise; lap band surgery; funding for cycle paths; or a tax on sugary drinks. Large Institutes enable the disciplines behind each of these solutions to exist side-by-side in collaboration; and this synthesis of the output from multiple disciplines creates value that forms the basis for translational excellence across the spectrum from drug and device development to policy and health services research.

For the purposes of this review it is worth considering each of these – small medium and large iMRIs - in more detail.

3.1 **Small institutes (<\$10m, <100 staff)**

Small institutes deal with their lack of owned resources by being innovative in accessing resources from partners. A key characteristic of such iMRIs is that they are institutionally 'porous' with fewer institutional boundaries than the larger entities; they often rent rather than own their facilities; they tend to outsource more administrative functions than larger institutes. Often they will provide in-kind benefits to partners with greater resources in return for access to those resources.

The most common arrangement usually involves attribution of the publication output of iMRI staff to universities (which the universities monetise by means of improved international ranking performance) in return for access to university facilities such as libraries and platform technologies. They also tend to share rather than outright employ some research staff.

In this respect, the smaller institutes are no different to small businesses; some (such as Baker IDI Heart & Diabetes Institute, which began life in 1926 with an establishment grant of \$16,000) grow from this base into substantial institutions; others are focussed on a single area of interest or expertise and find operating at a small scale enhances their flexibility and freedom in a way that becoming a larger institution, which necessitates the accrual of infrastructure and costs, would not support.

The multiplicity and variability of these arrangements is indicative of flexibility, creativity and innovation. This is part of the advantage that Australia's health and medical research sector enjoys but it would lose this critical edge if an environment was created that made it impossible for small institutes to exist, and either flourish or fail. The dynamism of this part of our national research effort is a vital component of our current success.

Just like small businesses, small institutes develop support mechanisms and collaborations in response to the regulatory environment within which medical research is done. The administrative needs of research staff, and the requirements of funding bodies in respect of acquittal of funding, all imply a range of support services. Below a certain critical mass it is not possible for a single, small institute to fulfil all these obligations to stakeholders with the limited resources at their disposal. Where they cannot provide these in house, small institutes have generally responded to these challenges with great entrepreneurial efficiency, by integrating and developing partnerships with larger organisations that can provide facilities and/or specialist services.

3.2 Medium sized institutes (\$10-\$49m, 100-500 staff)

The medium sized institutes face some of the biggest challenges, yet their growth clearly indicates they are some of the greatest successes in the sector.

As a medium sized institute develops critical mass it tends to develop administrative and governance needs which imply step costs that revenues cannot match. As they grow, medium sized institutes start to pay commercial rent on facilities and sometimes invest in building their own; they become the principal employer of staff; and as administering institutions for NHMRC grants, they take on the governance obligations that go with this status, which again implies administrative cost. The transition from a small institute - that can rely on cleverly negotiated stakeholder relationships - to a medium sized organisation which is building up its own cost structures, is often a challenge until the period of step growth is over. On the basis of Baker IDI Heart & Diabetes Institute's experience, we estimate this to be around the \$50m / 500 staff mark. From \$10-\$50m, economies of scale are sometimes elusive; above \$50m Baker IDI Heart & Diabetes Institute's experience is that they are relatively easy to achieve (see below).

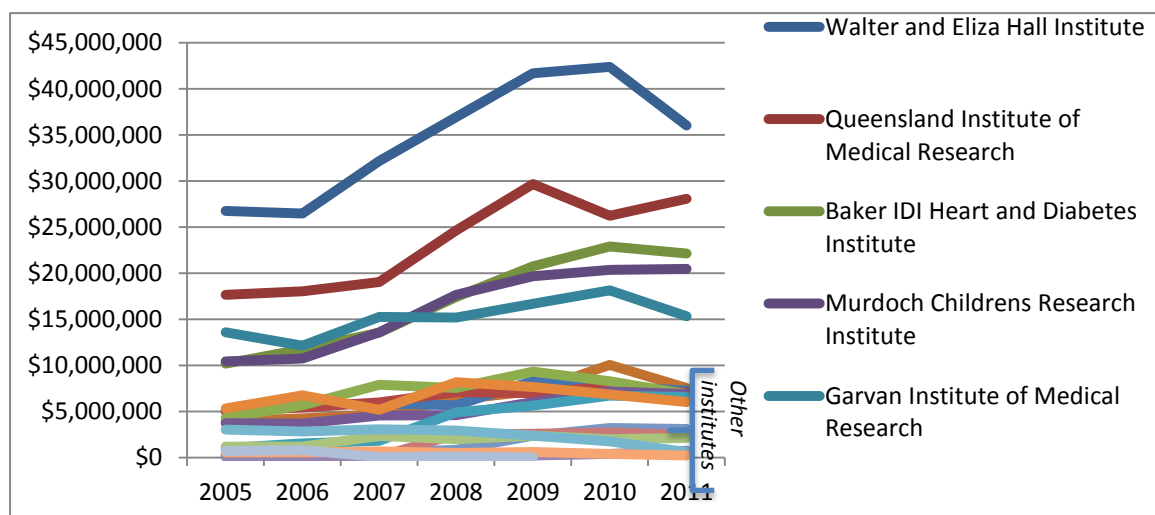
The source of this situation for the mid-sized institutes is again the funding environment. They have never had the advantage of a period of block funding enjoyed by the large institutes prior to the phasing in of the current funding arrangements in the early 2000s, and they have to incur step costs to manage growth while taking on new grants that are underfunded. Until an iMRI reaches the point of (we estimate) \$50m, new underfunded growth simply increases the funding gap. Only when this level of critical mass has been achieved can the growth be effectively subsidised from the economies of scale that the large institutes can achieve. The recommendations in Section Five of this submission are directly informed by this insight.

Scientific direction at an institutional level is also harder to achieve for mid-sized institutes, until they are able to draw on economies of scale and allocate funding to research direction themselves. The current grant system - whereby funding is allocated only to individuals and not to the institutions that employ them - makes it very hard for institutional leadership to create a coherent set of research activities within the one organisation. Indeed, it mitigates against this, as the co-location of successful applications in the one institute can even be counterproductive when review panels see too much of a limited pool of funding going to one institution. Research proposals are funded independently of any concern about the impact they will have on one another. The institute's capacity for strategy development is therefore limited by the funding it has at any given time, and the evolution of a strategic direction for its research has to be informed first by its current research profile, and then by the successes its research community has in applying for grants.

3.3 Large Institutes (>\$50m, >500 staff)

It is a stark reality that even after a decade of investigator-driven funding, Australia's five largest medical research institutes are the five that were block funded up until 2003. The block funding system provided the basis for the creation of a number of nodes of genuine excellence. When the current peer review system was introduced and all funding became contestable by individuals, it was these nodes that tended to attract most of the contestable funding. During the period 2005-2010, during which NHMRC funding disbursements more than doubled, the growth tended to go mostly towards those larger institutes. It was much easier during this period to grow a large institute into a very large one, than to lift a smaller institute out of the ruck:

Figure 1: iMRI funding trends 2005-2010

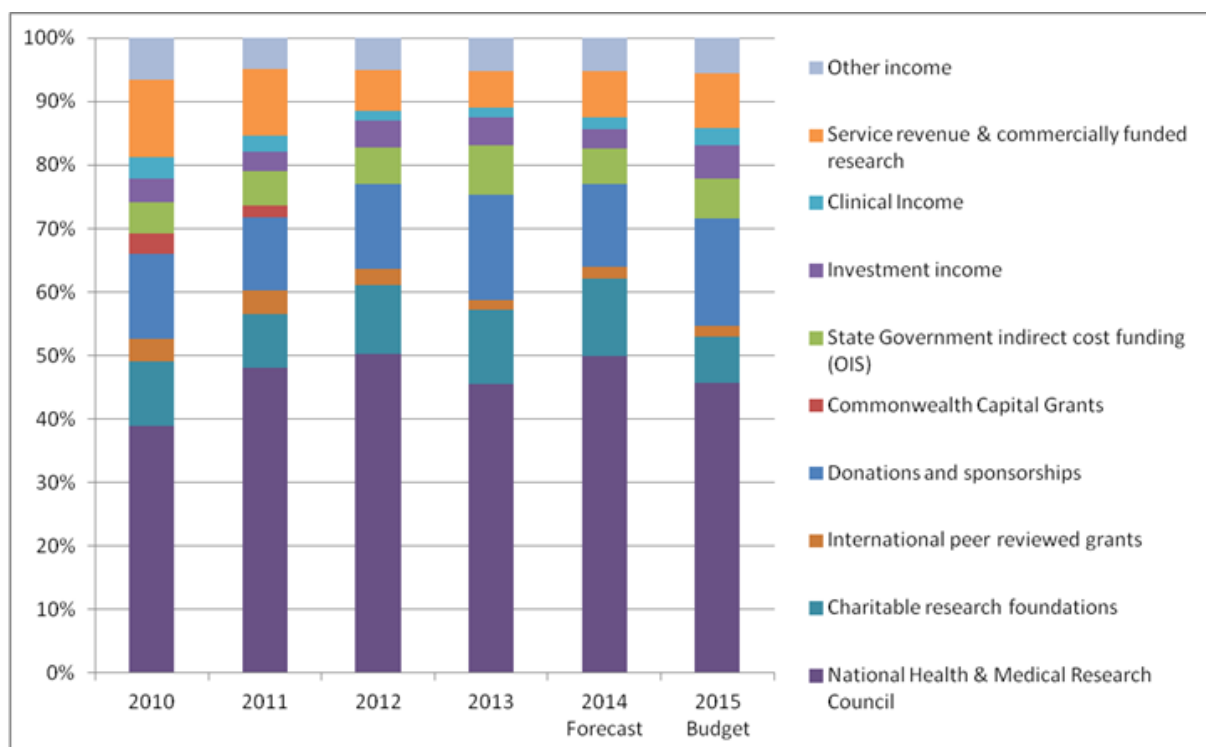


Baker IDI Heart & Diabetes Institute more than doubled in size over this period; the combined result of grant success; Commonwealth support for specific new ventures; the success of a commercial subsidiary; and a merger (involving Baker Heart Research Institute and the International Diabetes Institute).

Baker IDI Heart & Diabetes Institute's experience with economies of scale over this period is revealing. As two stand-alone institutes pre-merger in 2008, Baker Heart Research Institute and the International Diabetes Institute (IDI) maintained two administrations with a combined cost equivalent to 27.9 cents per dollar. Efficiencies driven in the first two years post merger enabled the combined institute to reduce this to 21.1 cents per dollar and by 2014 to 17.5 cents per dollar, while the quality and range of services provided to the research community, and the Institute's ability to generate funds beyond NHMRC grants, (e.g. philanthropic funding) increased. At 2014 levels (a group turnover of just under \$70m), there is no doubt that were Baker IDI Heart & Diabetes Institute to merge with another institute, further economies would be achieved. Having achieved the level of critical mass at which all of the regulatory and administrative support required by a diverse research community can be provided, further growth could be supported without a dollar-for-dollar growth in those supports.

The benefits of efficiency and scale achieved by larger institutes are further complemented by a more diverse funding base that provides greater financial stability as well as acting as an incentive to other commercial, philanthropic and grant income from non-Australian government sources.

In-turn, these revenues enable more diverse activities, fostering collaborations and partnership with the private sector in support of clinical and therapeutic innovation, better recruitment capabilities and enhanced translation in the clinical setting. **Fig. 2 below** demonstrates how large institutes like Baker IDI Heart & Diabetes Institute are able to draw on a highly diverse revenue base in support of innovative research and engagement programs that fall outside the competitive review system:



4. The challenge of indirect cost funding

The most significant initiative the Commonwealth Government could take to improve the efficiency of the health and medical research sector is to establish a rational and equitable regime for funding the indirect costs of research.

At present, NHMRC Project and Program Grants are awarded with an allocation of direct costs only, and the indirect costs of research – the platform technologies, buildings, administration and other costs incurred – are awarded in different ways, through different schemes, depending on the administering institution. This results in a highly inequitable funding profile across the universities, hospitals and iMRIs that conduct Commonwealth supported health and medical research.

The principal differences are:

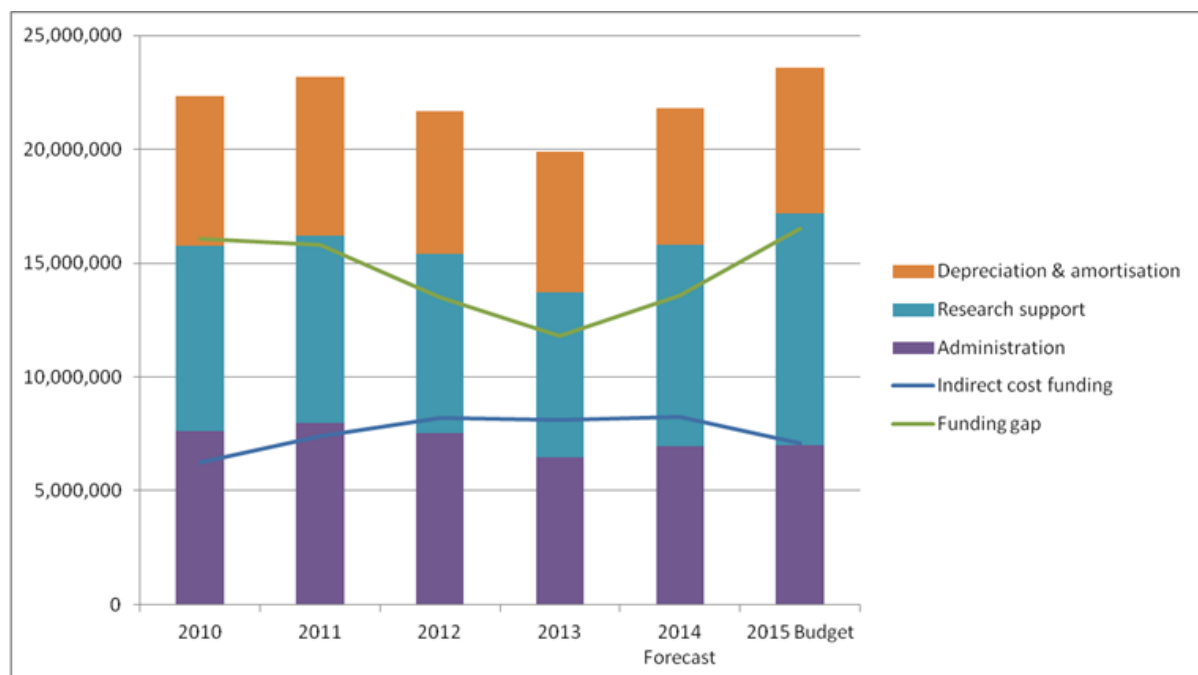
- (i) if the grant is administered by a hospital, no indirect cost funding is available;
- (ii) if the grant is administered by a University, funding is available through the block grant schemes, for all competitively won grants, which rely on Higher Education Research Data Collection (HERDC) information;
- (iii) if the grant is administered by a medical research institute, the NHMRC provides 20 c / \$ through the Independent Research Institute Infrastructure Support Scheme (IRIISS), for NHRMC grants only, and the relevant State Government tops this up through its own program (the OIS in Victoria, the MRSP in NSW etc).

The international benchmark for indirect costs is 60 cents per dollar.

The value of the State Government schemes varies, but in general the HERDC funding available to universities provides 10-20 cents per dollar more than the IRIISS and State Government systems combined. This provides a strong financial incentive for iMRIs to enter into agreements with universities in order to access higher levels of funding.

Inequitable funding of the indirect costs of medical research is one of the biggest issues facing the iMRI sector and is particularly concerning for the smaller iMRIs. These costs are integral to successful research and cover such essential items as computing and bioinformatics centres, animal houses, administrative staff and ethics committees.

Figure 3: Demonstrates growth in the gap between direct and indirect cost funding for Baker IDI Heart & Diabetes Institute over the past five years.



In total, the various block grant schemes that rely on HERDC data (the Research Infrastructure Block Grant Scheme, the Institutional Grants Scheme, the Joint Research Excellence Program and the Strategic Research Excellence Scheme) distributed \$1.71bn to Australian higher education providers in the form of block grants in 2013. In the context of this review, it is worth exploring this issue from the point of view of national policy as well as in regard to its impact on individual institutions

Gaps in funding create inefficient distortions in the system

NHMRC funding to universities in the same year was \$614m, and as HERDC funding in general totals approximately 50 cents in the grant dollar for direct grant income, it is therefore reasonable to assume that around \$307m of the \$1.71bn HERDC funding distributed in 2013 was generated by NHMRC grant revenue.

The same year, iMRIs earned \$183m directly from the NHMRC through grants the institutes administered, and of the \$614m earned by universities, it is reasonable to estimate that \$120m was in fact generated by iMRIs whose grants were administered on their behalf by universities that incorporated the iMRI output into the university's HERDC data. Thus, approximately \$60m of the \$305m HERDC revenue generated by and paid to universities in 2013 was in fact generated by iMRIs, and was paid by those universities to iMRIs that are not a part of the higher education system.

There are three problems with this:

- (i) Arrangements that allow the output of iMRIs to be attributed to universities serve to mask rather than expose the inequities in indirect cost grant funding between universities and iMRIs;
- (ii) They also reduce the proportion of the NHMRC-funded health and medical research effort that is managed through iMRIs (i.e. it looks like \$185m not \$300m).
- (iii) For universities that do not have iMRI affiliates, \$60m of the total HERDC funding allocation is effectively removed from the pool of available funds.

Several Australian universities and iMRIs have nonetheless established an arrangement whereby the institute is able to access higher levels of indirect cost support through the HERDC scheme than would be available from the combination of the NHMRC's IRISS program and the relevant State Government's indirect cost fund. Under these agreements, the University becomes the administering institution for the iMRI's grants and this enables it to include the institute's research activity in its annual HERDC claim.

The generosity of the universities in these arrangements vary – some pass on only a proportion of the funding they generate through the HERDC process, taking a 'tax' on the way through for administrative expenses, or to cross-subsidise other activities; others pass on nearly 100 per cent of the funding.

It is arguable that this delivers mutually beneficial outcomes. Universities increase their publication records on paper and iMRIs improve their access to critical funds for the indirect costs of research. In turn, increased publication records improve the university's international ranking, enabling them to monetise this benefit in the form of increased international student fees, and enhanced ability to recruit high quality students and staff.

While these agreements are now quite deeply entrenched in the administration of Australia's Health and medical research sector, senior bureaucratic opinions vary on whether they are legitimate. On the surface, it would appear that the output of one institution (an iMRI) is being attributed to another (a University) in order to gain access to a source of funding for which it would not otherwise be eligible. This provides a financial benefit to the iMRI and in doing so, reduces the overall pool of HERDC funds available to universities that do not have iMRI affiliates.

The red tape required by such agreements should not be necessary. As proposed by the McKeon Review, the NHMRC should distribute *indirect* cost funding in conjunction with *direct* costs, to any institution administering the grant – whether that be a university, an iMRI or a hospital. Baker IDI Heart & Diabetes Institute contends that this is the most equitable approach to addressing this issue and as such, this is the Institute's preferred remedy to the current situation.

Under this approach, the best research would be funded wherever it is taking place, and the current labyrinth of arrangements outlined above would no longer be necessary.

The funding to make this possible exists, but is held across two portfolios at Federal level (NHMRC in Vote: Health and HERDC in Vote: Education) and in various portfolios at State level. Piecing this funding together to create a single, adequately funded NHMRC will therefore be challenging, but the dividends in terms of efficiency would be considerable, and ensure that collaborations between iMRIs and universities develop because of mutual scientific interest rather than as bureaucratic fixes for the generation of Commonwealth funds.

5. Recommendations

As the foregoing analysis has identified:

Small institutes are nimble, responsive, deeply integrated with stakeholders and impressively able to generate third party funding; yet they rely on a variety of institutional and administrative agreements with partners and stakeholders in order to meet their obligations to funding bodies.

Many medium sized institutes are compelling success stories which are rapidly becoming the base from which the next generation of our national success will develop.

Large institutes are a powerhouse of national capability and have achieved sufficient critical mass to support the application of multi-disciplinary solutions to complex health problems.

Yet all are held back by the inequities inherent in the indirect cost funding / block funding regime described in detail in the last section of this submission. All have a part to play in a vibrant and diverse health and medical research sector.

The model we propose for the future of the iMRI sector in Australia is an attempt to build on the strengths of all three types of iMRI – small, medium and large – that currently exist, without forcing mergers and without imposing a single institutional model on a sector in which diversity is clearly serving an important purpose.

5.1 Simplify grant funding.

A distinguished 2013 international scientific advisory board review of Baker IDI Heart & Diabetes Institute identified that the current Australian grant funding model, largely dependent as it is on NHMRC national peer review for fellowship, project and program funding streams, ‘fosters mediocrity by encouraging an unfocussed approach’ (especially for multiple project grant applications).

Clearly, the grant system is in need of a fundamental overhaul. In 2013, the NHMRC made a total commitment of \$860m through the award of 1,306 new grants commencing that year. Total expenditure in the same year (ie including commitments made in prior years) was \$844m, with a total of 4,506 grants from that and previous years. The administrative burden inherent in the distribution of this number of grants (an average of \$187k each in 2013) is immense, and highly inefficient. Certainly the average grant size was smaller before the extended period of NHMRC expenditure growth which started in 2005, when the average grant size was \$139k; however over the period during which NHMRC expenditure doubled between 2005 and 2013, the average grant size in fact fell from 0.034% to 0.023% of the total pool available.

The results of this are that individual investigators spend a high percentage of productive time on grant applications, and on the process of presenting and re-presenting themselves to their peers. The funding they win is never sufficient to run a group of scientists working together in a single laboratory, and so further time has to be spent filling in the gaps.

The solution to this is clear – the current fellowship, program, project and related funding schemes should be overhauled, with a view to creating a renewed system of fewer, larger grants funding a combination of salary support, career development support, and project and program funding.

5.2 Fully fund research grants

If a simplified grant funding mechanism is developed then it must also provide for the allocation of indirect cost funding alongside the direct costs of research, rather than through separate processes which differ depending on the type and location of the institution from which the research is being conducted. A \$1m grant for the direct costs of research generates approximately \$500,000 in indirect cost support for a university (albeit three years after the research has been done) paid for from the Commonwealth Education budget; and yet the same grant will generate \$200,000 from the Commonwealth Health budget if it is held in an iMRI, with variable levels of additional support then being provided by the relevant State Government; and no indirect cost funding if the grant is held by an employee of a hospital. The provision of adequate indirect cost funding only in academic institutions is at odds with the firm recommendation of the McKeon Review that health and medical research should be ‘embedded’ within the health sector.

The solution to this was identified in the AAMRI submission to the McKeon Review, and endorsed in the report to government that followed. The full indirect costs of research should be funded with the direct costs in a single grant, so that wherever the best research is done, it is fully funded. As the AAMRI submission to McKeon said, this would “*remove the gross inefficiencies of sourcing indirect costs from multiple agencies and across jurisdictions, eliminate cost shifting, and remove barriers to collaboration*”.

Nonetheless, in order to retain the flexibility to develop a series of other initiatives as outlined below, we recommend that indirect costs attached to direct grants should be restricted to 30c/\$, with the balance being funded through other mechanisms.

5.3 Support leverage of third party funding.

While some small institutes are able to procure an impressively high proportion of their revenues from philanthropic sources, in general the large institutes are much better equipped to create a sustainable and diverse philanthropic program. The ‘flagfall’ for many types of fundraising program (for example a direct marketing donor campaign) is simply too high for a small institute to meet.

For large and small institutes, a key element of an improved health and medical research sector will be that leverage of philanthropic revenues is encouraged. The suggestion that the Commonwealth Government research effort in iMRIs and universities is underfunded is a significant disincentive to philanthropic supporters of research, who do not warm to the idea of their funding being used to close a gap left by Government. Yet the reverse is also true. A fully funded research environment in which all philanthropic support is directed towards an incremental increase in research effort is attractive to philanthropy; and beyond this a Government that is prepared to co-invest alongside philanthropic donors, who then see their funds leveraging further Government investment, provides an even greater incentive to donors to support health and medical research.

In the interests of leveraging greater levels of philanthropic support into the sector, Baker IDI Heart & Diabetes Institute recommends the creation of a program to support the indirect costs of research funded by philanthropic donors. Indicatively we suggest that this could be up to 10c/\$ on philanthropic revenue.

5.4 Provide the iMRI sector with block funding incentives to achieve economies of scale, without losing flexibility and without requisite mergers.

Finally, Baker IDI Heart & Diabetes Institute recommends the re-establishment of a limited block funding scheme.

The idea underlying this is that it would be simplistic and damaging for any program of rationalisation of the iMRI sector to put at risk the vibrant, responsive and highly productive small iMRIs; yet those iMRIs need to be given access to collegial structures and support from the wider iMRI sector which enable them to take advantage of economies of scale without being swallowed up by other institutions with diverse purposes such as universities or hospitals.

AAMRI and the broader iMRI community have proposed some excellent ideas for tackling the indirect costs of research and we welcome the opportunity to review and contribute to a sector-wide solution to this critical issue. In the meantime, this submission proposes some indicative models of how such a scheme might work by way of a starting point for discussions rather than identifying prescriptive figures per se. Our recommendations in this respect are as follows:

- (i) MRIs with turnover of >\$50m and staff of over 500 (i.e. large iMRIs) should be granted a further 20c/\$ as an institutional block fund. This would bring the funding of the indirect costs of research at the large iMRIs roughly on par with that in the University sector.
- (ii) Medium sized institutes (i.e. with turnover \$10-\$50m and staffing levels of 100-500) should be granted access to the same additional 20c/\$ on the proviso that evidence can be shown of sustainable economies of scale gained in platform technology or administrative collaboration with other iMRIs which have reduced total indirect costs of research to less than 55 cents in the grant dollar, from aggregated research catchments totalling more than \$50m / 500 staff. Such economies of scale may be produced by means of full institutional merger, collaborations or the establishment of collegial structures between co-located entities, or entities with similar platform technology or support needs.
- (iii) Small institutes (i.e. with turnover <\$10m and staffing levels under 100) should be granted access to the additional 20c/\$ on the proviso that evidence can be shown of sustainable economies of scale gained in platform technology or administrative collaboration with other iMRIs which have reduced total indirect costs of research to less than 55 cents in the grant dollar, from aggregated research catchments totalling more than \$30m / 300 staff. Such economies of scale to be achieved as in (ii) above.