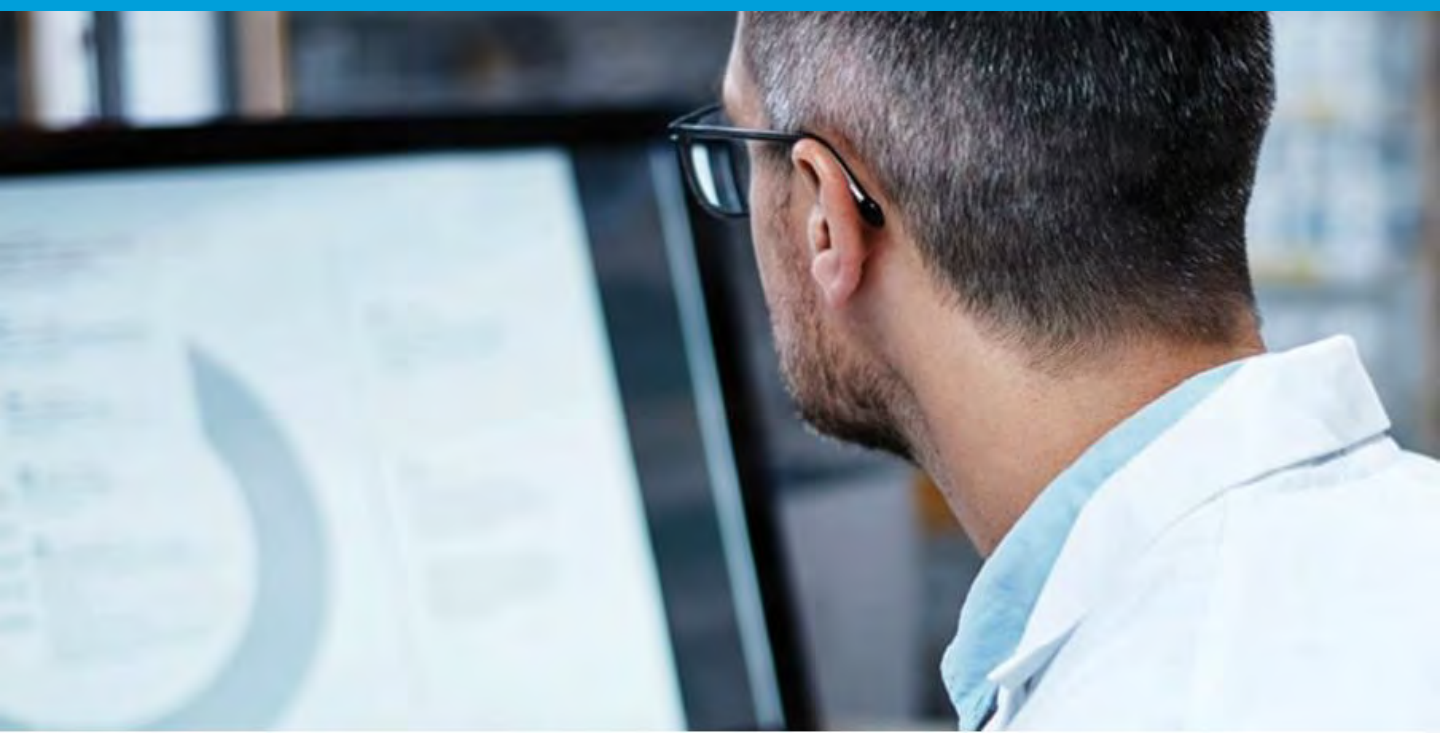
Physiotherapy Research Foundation

Measuring the Impact of Grant Funding



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survey matters.

About

From management of lower back pain to stroke rehabilitation, advances in the treatment of physical conditions are largely informed by clinical research. Clinical trials produce a scientific evidence base that enables practicing physiotherapists to adopt the latest, safest and most effective techniques when providing care and treatment. The PRF provides grants to support innovative physiotherapy research.

The PRF was established in 1988 as a charitable trust from the profits of the 1988 conference held by the World Confederation for Physical Therapy in Sydney. The trust deed enables the Foundation to support a range of physiotherapy research and research-related initiatives and the APA is the trustee.

The mission of the PRF is to support the physiotherapy profession by promoting, encouraging and supporting research that advances physiotherapy knowledge and practice. It is largely funded by APA members, providing the opportunity for practitioners to directly contribute to the research that informs their practice.

The PRF 'Measuring the Impact of Grant Funding' report provides the findings of a detailed impact analysis of the PRF grant funding program. The research assessed impact on knowledge production, teaching and learning, clinical practice and the wider health system. The PRF commissioned the research, with outcomes based on the responses to an online survey distributed to PRF grant recipients and APA members during November 2020.

We thank everyone who responded to the surveys. Your feedback will help the PRF understand the impact of the grants, as well as the value it provides to APA members and the wider physiotherapy community.

Contents

Executive Summary

To understand the value proposition and inform future funding strategies, the PRF has undertaken a review of the impact of PRF research grants on both internal and external stakeholders.

Background

The Physiotherapy Research Foundation (PRF) was established as a charitable trust in 1988 from the profits of the 1988 conference held by the World Confederation for Physical Therapy in Sydney. The absence of a research foundation in Australia dedicated solely to physiotherapy, in addition to a desire to foster physiotherapy research, brought about the PRF concept. It is a registered charity with the Australian Charities and Not-for-profits Commission (ACNC).

The mission of the PRF is 'to support the physiotherapy profession by promoting, encouraging and supporting research that advances physiotherapy knowledge and practice.'

The first grant was awarded in 1990. As of the end of 2019, approximately 224 grants have been issued to the value of $1.6 million. This represents an average value of $7,142 per grant. Data is available on 85% of grant allocations from 1990 to 2019.

The average PRF grant amount has increased over time, from $2,481 in 1990 to $9,903 in 2019. The total annual value of grants issued by the PRF has also increased steadily, from $11,365 in 1990 to $69,326 in 2019. This equates to an average of over $52,000 each year since 1990.

About the Research

The PRF engaged Survey Matters in mid-2020 to undertake a review of the impact of PRF research grants as it is becoming increasingly important to assess the benefits provided by medical research, in order to demonstrate accountability to current and future donors. It is also necessary to understand impacts in order to build a foundation on which to plan future research funding strategies and provide evidence of research success for fundraising and advocacy work.

The objective of the project was to provide information to enable the formulation of a value proposition for the PRF. Specifically, this includes an evaluation of the impact of PRF grant funding on research capacity, knowledge production and clinical practice in the physiotherapy profession. The value of the PRF to members of the Australian Physiotherapy Association (APA) was also investigated.

Methodology

The assessment of the impact of PRF grant funding was based on The Payback Framework, a widely accepted model for evaluating the impacts of health services research.

Developed by Martin Buxton and Stephen Hanney at the Health Economics Research Group at Brunel University, the Payback Framework assesses the impact of research along the dimensions of knowledge production, benefits to future research and research use, benefits to informing policy and product development, health and sector benefits and broader economic benefits.

The results presented in this report are based on information collected from 110 recipients of PRF grants in an online survey, distributed on 9 November 2020. The survey was offered to 185 grant recipients, and so achieved a 60% response rate. The survey sought information about research output and impact along the five categories of the Payback Framework.

A survey of Australian Physiotherapy Association (APA) members was also conducted to assess the value provided by the PRF to physiotherapists, in particular APA members. Distributed on the 25th November 2020, the survey was sent to 26,000 APA members. A total of 446 completed surveys were received, providing 95% confidence that the stated results are within a +/- 4.6% confidence interval.

To supplement the surveys, a publications audit was undertaken of all peer reviewed papers published from the PRF funded research projects. Five case studies were also conducted to provide rich illustrations of the impacts of PRF grant funding.

It should be noted that the survey relied on self reporting of the impacts of the PRF funded research. While prior studies [1] have noted that survey respondents tend to under-estimate the impacts of their research rather than overstate the benefits, the inherent bias of self reporting remains. Being outside the scope and budget of the project, the information provided by grant recipients has not been independently verified by the PRF or Survey Matters.

Another factor that should be considered when reviewing the results is that the impacts of research, particularly health benefits, often take a very long time to materialise and are very difficult to measure. It has been estimated that it can take 17 years [2] for the benefits of health research to materialise. Nevertheless, with PRF grant funded projects since 1990 included in the assessment, many PRF funded projects are having or expect to have an impact on clinical policies and practices.

Impacts

PRF grant funded research projects have had many impacts across a range of areas, including knowledge production, research capacity, policy and clinical practice.

Knowledge Production

In total, 134 peer reviewed publications were generated by survey respondents as a result of PRF grant funded research. Seventy one percent (71%) of research participants indicated that their PRF funded research had been published in a peer reviewed journal. The average impact factor for the journals in which PRF grant recipients most frequently published was 4.248.

While recognising that limitations exist in the use of citations as an evaluation of the quality of research, their use in conjunction with other impact measures provides a good indication of the academic reach of research. In total, the PRF funded research projects included in the sample were cited 8,853 times.

In addition to being published in peer reviewed journals, research generated by PRF grant recipients was disseminated in a number of ways, with conference presentations the most common. Eighty seven percent (87%) of the PRF grant recipients who responded to the survey presented their research findings at a conference. Nearly two thirds (64%) shared their research with a presentation to academics. Public presentations (22%) and conference workshops (17%) were used by nearly one in five grant recipients.

Benefits to Future Research and Research Use

Over half of the PRF grant recipients who participated said that the PRF research grant was the first grant they had ever received, from any source. Further, over a third of PRF research grant recipients indicated their research would not have proceeded without PRF funding.

Respondents indicated that funding was used to cover research expenses such as equipment, blind assessors, imaging costs and research assistants to collect the study data. Other grant recipients suggested that without the grant they would not have had “time away from my clinical work to complete the study” or that it enabled them to complete the research full time.

1. Donovan, C. Butler, L. Butt A et al; Evaluation of the impact of National Breast Cancer Foundation-funded research. MJA 2014; 200: 214-218
2. Wooding, S. Hanney, S. Buston, M. Grant, J; Payback arising from research funding: evaluation of the Arthritis Research Campaign. Rheumatology, 2005; 44:1145-1156

Researcher Training and Career Development

Sixty two percent (62%) of grant recipients conducted the PRF funded research as part of a research degree, with 51% indicating that the research contributed to, or is likely to contribute to, them achieving further qualifications. In total, respondents reported that the PRF research had contributed to the attainment of 61 higher degrees including 1 post-graduate certificate, 3 masters degrees, 50 PHDs, 4 post doctoral fellowships and 4 FACP qualifications.

Over nine in ten (91%) grant recipients who responded to the survey have gone on to pursue or continue a career in research. Several respondents indicated that their initial PRF funded research had started their research career and led to their involvement in follow up research in the subject area. Others reported that they had gone on to publish subsequent papers and had supervised PhD students undertaking further research in the area. Nearly two thirds (66%) of grant recipients reported that the PRF funded research findings, methodology or theoretical developments generated subsequent research by themselves or others.

Impact on Teaching or Training

Contributing to capacity building, PRF funded research has also had an impact on teaching or training of physiotherapists. In total, 56 respondents (51%) provided details of the ways in which their research is used in teaching or training methods. Several respondents mentioned that their research is incorporated into the syllabus of university programs and that the outcomes of the PRF funded research are now routinely taught to undergraduate or postgraduate physiotherapy students.

Generating Further Funding

According to many research participants, a major benefit of PRF grant funding is that the provision of initial funding to early career researchers enables them to demonstrate the experience required to access funds from other funding bodies in future.

Positively, half of the participants in the study indicated that the PRF funded research had led to further research funding, for themselves or others, from other sources. Of these, 42% indicated that this funding would not have been available without the PRF grant.

Research recipients reported that the PRF funded research had led to further research funding of $47,514,832 from 65 separate funding sources. Of the additional funding generated by the outcomes of their PRF funded research, respondents indicated that a total of $8,646,370 in further funding would not have been available without the PRF grant. This suggests that for every $1 invested in physiotherapy research by the PRF, a further $6.35 has been generated by recipients directly from the PRF grant.

Informing Policy and Product Development

Health research can also impact on the decision making and policy of government or health authorities. Overall, 17% of respondents (19) advised that their research had influenced the decision making or policy outcomes of government or health authorities.

Details of specific impacts on the policy or decision making of government or health authorities included contribution to specific policy discussions and documents, hospital and local practice and government standards.

Health and Health Sector Impacts

One of the main benefits of medical research are the direct impacts on clinical practice, including the development of assessment procedures, diagnostic tools and techniques, clinical guidelines and treatments. Overall, 73% of PRF research grant recipients who responded to the survey indicated that the PRF funded research had an impact on clinical practice, including diagnostic tests, clinical guidelines or treatments.

Other grant recipients indicated that their research had been included in or led to a change in practice guidelines. Of note, the outcomes of PRF grant funded research have been included in the Clinical Guidelines for Stroke Management, IFOMPT Guidelines for Musculoskeletal Physiotherapists and Australian Clinical Practice Guidelines for Respiratory Care.

Just over a third (35%) also indicated that the output of their PRF funded research had influenced the behaviour or practice of clinical or health services staff, while patient behaviour was influenced by 15% of the research projects funded by PRF. It should be noted, however, that many comments indicated that the research 'could' change the behaviour of health services staff or they 'expected' that it would in time. Similarly, many comments pertaining to the impact on patient behaviour suggested the research 'could' or 'should' lead to changes in patient behaviour.

The Value to APA Members

Over eight in ten (83%) APA members agree that the PRF has a role to play in physiotherapy research.

Members provided many comments about the value provided by APA support for physiotherapy research. Most commonly members mentioned that research helps to build an evidence-base for clinical practice. Others suggested that research-based interventions are what distinguish physiotherapy from other allied health professions and raise the credibility of physiotherapy.

Nearly half (48%) of the APA members who participated in the survey choose to donate to the PRF when they renew their membership each year. While the proportion who donate increases to 60% of members aged over 50, however, only 33% of members aged 40 or younger choose to donate. Amongst this younger group, awareness is the main reason for not donating.

Over four in five (83%) APA members support PRF research as it contributes to the knowledge base of the profession, with many comments from members that the main value provided by PRF support of physiotherapy research is that it adds to the evidence-base of the profession and supports them to provide effective and proven interventions and treatments in their clinical practice.

Members also mentioned that they donate due to the value that is provided by supporting early career researchers. There was also mention that, given the competitive nature of medical research funding, it provides an avenue to support physiotherapy research not being funded by other bodies.

Consequently, nearly three quarters of members (74%) would like the PRF to focus support on research with clinical applications, while approximately two in five believe that the APA should fund projects conducted by early career or new researchers who may not be able to obtain funding elsewhere.

Conclusion

This research has demonstrated the many benefits of the PRF research grant funding program, both for grant recipients, the physiotherapy profession and the wider society.

Many grant recipients have gone on to distinguished academic careers, generated funding for their research from other sources and become world leading experts in their chosen field. Research outputs have had an impact on many different areas of clinical physiotherapy and influenced practice around the world. Many hope to have impact in future.

While the value of grants provided by PRF are small in comparison to larger medical research funding bodies, and many of the impacts of research conducted by PRF grant recipients are not directly attributable to the initial project, many respondents mentioned the value that is provided by supporting early career researchers.

There is strong support for the PRF to focus grants on new researchers, as it provides them with the research track record necessary to access larger grants. Given the competitive nature of medical research funding, this offers an important way for the PRF to support physiotherapy research not being funded by other bodies.

Key Findings & Recommendations

1

PRF grants provide invaluable support to early career researchers, and both recipients and members want grants targeted to this group.

Many recipients indicated that the PRF grant was instrumental to their early research career, with over a third suggesting their project would not have gone ahead without the PRF grant. Two in five APA members believe the PRF should fund projects conducted by early career or new researchers who may not be able to obtain funding elsewhere.

2

PRF research grants add to physiotherapy knowledge, with over seven in 10 PRF funded research projects published in peer reviewed journals.

In total, 134 peer reviewed publications were generated as a result of PRF grant funded research, or 1.22 per research grant. These papers have been cited 8,853 times, and many PRF grant recipients have gone on to become experts in their field. Over half indicated that PRF funded research findings have had an impact on the teaching or training of physiotherapists.

3

PRF grants help develop capacity and generate further funding for physiotherapy research.

Many grant recipients indicated that the PRF grant kick-started their research career and helped them build the experience necessary to access further funding. Recipients claimed receipt of $8,646,370 in further funding that would not have been available without the PRF grant. This suggests that for every $1 invested in physiotherapy research by the PRF, a further $6.35 has been generated by recipients.

4

Members use research to inform their practice and want PRF grants to focus on research with clinical relevance.

Overall, 73% of PRF research grant recipients indicated that their PRF funded research had an impact on clinical practice, including diagnostic tests, clinical guidelines or treatments. With four in five APA members using research to inform their work, nearly three quarters of members would like the PRF to focus support on research with clinical applications.

5

There is low awareness with members under 40 years of age that they can support the PRF and how it supports the profession.

Only 33% of members aged under 40 choose to donate to the PRF, with lack of awareness the main reason. Fifty-eight percent (58%) of members under 40 do not donate to the PRF because they were not aware they could donate or do not understand how the PRF supports the profession.

Insight for the PRF Value Proposition:
Supporting Early Career Researchers

There is strong support for the PRF to focus research grants on early career researchers. Many grant recipients indicated that the PRF grant was their first research grant, or was received early in their career, and helped them develop their credentials and establish their career as a researcher. Continued support for the development of new research capacity so that physiotherapy researchers can build the credibility to seek larger grants is recommended.

The value of supporting the careers of young researchers was also a source of value cited by APA members, with many highlighting the value of PRF grants in providing access to funds for novice researchers and for small or specific cohorts. Approximately two in five believe that the APA should fund projects conducted by early career or new researchers who may not be able to obtain funding elsewhere.

"Thank you for the research funding! This is a great avenue for early career researchers, particularly given the major funding schemes are so competitive now and often out of the reach for most physiotherapy researchers" Tagged Grant

"I think the PRF fills an extremely valuable role to support early career researchers and seeding research." Project Grant

"I greatly appreciate the funding made available from the PRF and believe the PRF serves a highly valuable role to support early career researchers and seed projects." Tagged Grant

"You cannot expect a $10,000 grant to lead to ground-breaking research outcomes for physiotherapy. I see the PRF as providing seed funding to develop pilot data or inform future studies. It should go to junior researchers or clinicians going into research." Seeding Grant

"The PRF has a huge impact on research careers of many early career research physiotherapists. The PRF is hugely important for our profession in order to ensure we research areas of physiotherapy practice and provide the best evidence-based care for our patients. Clinicians who are research active are more likely to translate research into practice more quickly with consequent health benefits." Seeding Grant

"PRF grants are essential in early stages of a career or in a PhD program to help people establish a track record - to seek larger grants." Tagged Grant

"..I strongly encourage the PRF to continue to fund seed grants like the $5000 grant I received at the start of my career. This is the best use of PRF funds - for new researchers not for established researchers." Tagged Grant

"Was my first grant, and although my smallest, it opened the door to future grant opportunities. I think it was critical in adding credibility and momentum to my research profile. Allied health research is generally poorly funded, especially for bespoke areas of physiotherapy, and existence of such an institution is to be supported and applauded." Seeding Grant

Research Findings: Assessing the Impact

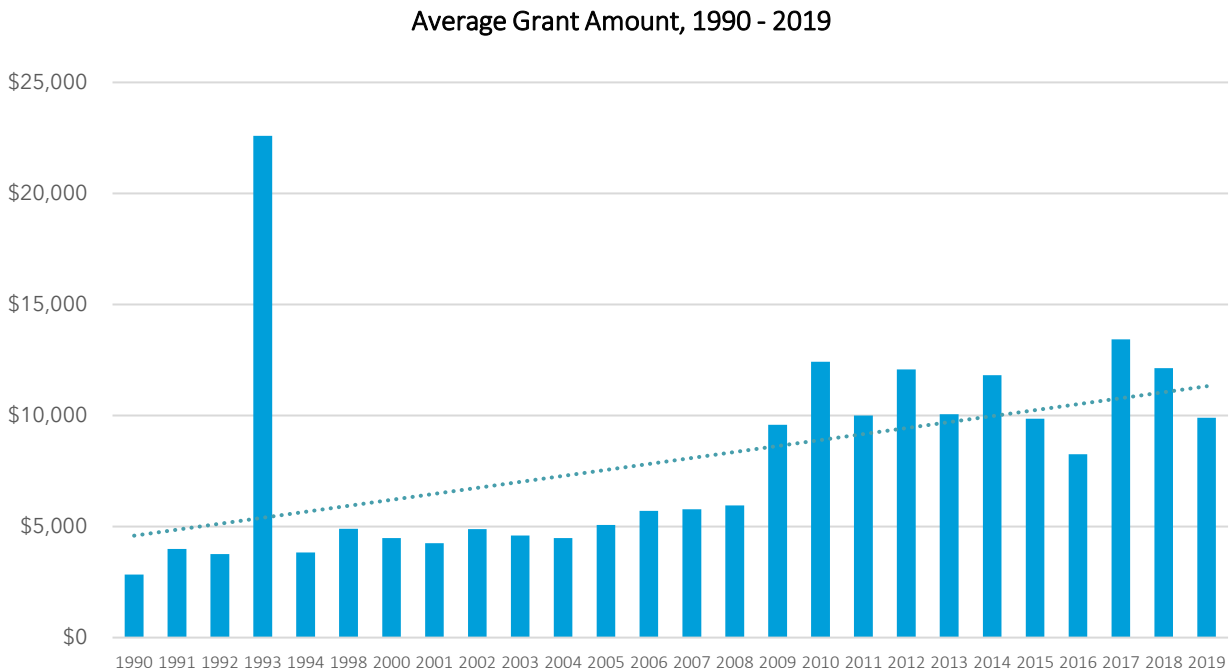
Introduction

The Physiotherapy Research Foundation (PRF) was established as a charitable trust in 1988 from the profits of the 1988 conference held by the World Confederation for Physical Therapy in Sydney. The absence of a research foundation in Australia dedicated solely to physiotherapy, in addition to a desire to foster physiotherapy research, brought about the PRF concept. It is a registered charity with the Australian Charities and Not-for-profits Commission (ACNC).

The mission of the PRF is '*to support the physiotherapy profession by promoting, encouraging and supporting research that advances physiotherapy knowledge and practice.'*

The first grant was awarded in 1990. As of the end of 2019, approximately 224 grants have been issued to the value of $1.6 million. This represents an average value of $7,142 per grant. Data is available on 85% of grant allocations from 1990 to 2019.

As can be seen in the chart below, the average grant amount has increased over time, from $2,481 in 1990 to $9,903 in 2019. The total annual value of grants issued by the PRF has also increased steadily, from $11,365 in 1990 to $69,326 in 2019. This equates to an average of over $52,000 each year since 1990.



Grant Categories

Seeding grants

These grants are for new researchers working on new or established clinical research projects. The primary purpose of these grants is to help new or inexperienced researchers begin a research career. Through the process of applying for a seeding grant, the PRF has also helped familiarise researchers in the application of more competitive grants. Prior to 2004, seeding grants were the only category of grants offered by the PRF. The inaugural seeding grants were awarded in 1990.

In 2019 and 2020, seven and six seeding grants respectively of approximately $10,000 each were awarded.

Tagged grants

These grants were offered by National Groups for specified areas of research (e.g Neurology, Cardiothoracic, Continence and Women's Health, and Paediatrics). They donated funds and the PRF managed these grants. Records indicate that they were offered from 2005 until 2015, when funds were exhausted.

Tagged grants were also offered from bequests such as the Beryl Hayes Memorial Grant and Jill Nosworthy Grant. While funds from the Jill Nosworthy Grant were exhausted in 2020, the Beryl Haynes Memorial Grant was reviewed to give it a higher profile.

Project grants

These grants replaced the Tagged Grants in 2017 and were for new or experienced researchers working on new or established physiotherapy research projects. They were last offered in 2018.

Grant Category	Number of Grants	Total Value of Grants	Average Value of Grants
Seeding grants	122	$754,943	$6,239
Tagged grants	58	$524,500	$9,043
Project grants	5	$82,459	$16,491

Objectives

The PRF engaged Survey Matters in mid-2020, to undertake a review to understand the impact of PRF research grants to both internal and external stakeholders.

Hence, a detailed retrospective evaluation was required; with the aim of formulating a value proposition for the PRF. Being able to clearly articulate the PRF value proposition will be particularly important in attracting and justifying future funding.

Specifically, the objectives of the review of the PRF research grants program are to:

- Understand the extent the initial PRF investment has leveraged further funding.
- Understand the role that the PRF has played in the training, development and retention of researchers and their subsequent career progression and achievements.
- Understand research productivity.
- Understand the contribution of PRF research to clinical interventions / application.
- Demonstrate accountability to current and future donors (including APA Members).
- Build a foundation on which to plan a future research funding strategy.
- Provide evidence of research success for fundraising and advocacy work.

Methodology

To assess the impact of PRF grant funding the project used elements of the Payback Framework, a widely accepted method for the assessment of the impact of health research.

The Payback Framework, developed by Martin Buxton and Stephen Hanney at the Health Economics Research Group at Brunel University, consists of five categories of benefits from health research, including:

- Knowledge production
- Benefits to future research and research use
- Benefits to informing policy and product development
- Health and health sector benefits, and
- Broader economic benefits

Table 1. Example of the multi-dimensional categorisation of paybacks of the Payback Framework

Category	Definition
1. Knowledge	Journal articles; conference presentations; books; book chapters; research reports
2. Benefits to future research and research use	• Better targeting of future research • Development of research skills, personnel and overall research capacity • A critical capacity to absorb and utilise appropriately existing research including that from overseas • Staff development and educational benefits
3. Benefits from informing policy and product development	• Improved information bases for political and executive decisions • Other political benefits from undertaking research • Development of pharmaceutical products and therapeutic techniques
4. Health and health sector benefits	• Improved health • Cost reduction in delivery of existing services • Qualitative improvements in the process of delivery • Improved equity in service delivery
5. Broader economic benefits	• Wider economic benefits from commercial exploitation of innovations arising from R&D • Economic benefits from a healthy workforce and reduction in working days lost

Source: Adapted from Buxton and Hanney (1994, 1996, 1997) and Wooding *et al* (2004)

Research activities

1. Review of PRF Research Grant Data

The first step in the review was to collect and analyse PRF research grant records. This included a review of the 185 grants issued by the PRF for which records were available, including grant title, amount, year and category. Total and average grant funding per year have been tabulated and are included as Appendix 1.

2. Survey of Grant Recipients

To undertake the impact analysis, a survey of grant recipients was conducted. The questionnaire was informed by elements of the Payback Framework and sought information about the impacts of the PRF funded research on both the researcher, the physiotherapy profession and the wider community. The survey was distributed on 9 November 2020, to a total of 185 grant recipients. Recipients who had been allocated more than one grant were asked to complete a survey for each grant they received. A total of 110 responses were received, giving a response rate for the survey of 60%.

While much of the survey was quantitative, many open-end questions were asked to allow respondents to provide information about the impact of their research in free text form. Quantitative data was analysed using Q statistical software and Excel. Thematic analysis of verbatim feedback has been undertaken to identify and quantify research impacts in the various payback categories.

It should be noted that survey relied on self reporting of the impacts of the PRF funded research. While prior studies have noted that survey respondents tend to under-estimate the impacts of their research rather than overstate the benefits, the inherent bias of self reporting remains.

3. Bibliometric Analysis

To enable an assessment of the impact on knowledge production and benefits to future research a bibliometric analysis was also conducted. Based on information provided by research participants, a citation analysis of all peer reviewed papers published as a result of PRF grant funding were undertaken. Using Web of Knowledge, impact factors for journals in which papers were published were also complied.

4. Survey of Australian Physiotherapy Association Members

To assess the impact of, and importance of, PRF funded physiotherapy research on the physiotherapy profession, a separate survey of members of the Australian Physiotherapy Association (APA) was conducted. The survey canvassed awareness of APA members of the work of the PRF, as well as their views of the value provided by the contribution made by the PRF to physiotherapy research. The use of PRF research publications in practice was also investigated.

Distributed on the 25th November 2020, the survey was sent to 26,000 APA members. A total of 446 completed surveys were received, providing 95% confidence that the stated results are within a +/- 4.6% confidence interval.

5. Interviews with Selected Grant Recipients

Following completion of the data analysis and report preparation, interviews with five (5) selected grant recipients were undertaken. Interview subjects were asked about the impact of the PRF grant funding on their research, their career, on clinical practice and policy and on wider health outcomes.

A combination of more experienced and early career stage researchers were interviewed. Participants with various research subjects, completion status and dates were included in the interviews. Case studies were prepared to tell the story of the impact of PRF research grants and summaries are included in this report.

1.

Knowledge Production

1. Improving Knowledge

The first category of health research benefit is the traditional academic benefit of knowledge production. This is typically measured through a bibliometric analysis of the number of peer reviewed journal articles and citations that are generated by the research. It can also include a review of the other methods of dissemination of the research findings, such as presentations, reports and interviews.

1.1 Publications

In total, 134 peer reviewed publications were generated by survey respondents as a result of PRF grant funded research. Seventy one percent (71%) of research participants indicated that their PRF funded research had been published in a peer reviewed journal. Of the remainder, 11% had not been published and 18% indicated that it was too early to say. Of completed grant funded projects, 85% have been published in a peer reviewed journal.

On average, 1.22 peer reviewed research papers were produced for every PRF research grant awarded. Excluding current grants for which research is still be completed, this rises to 1.46 peer reviewed journal publications per PRF grant.

The average impact factor for the journals in which PRF grant recipients most frequently published was 4.248.

Top 16 Journals PRF Grant Recipients Published In	No of Publications	Impact Factor 2019	Impact Factor 2018	Impact Factor 2017
Journal of Physiotherapy	7	5.440	5.551	4.542
Physical Therapy	7	3.140	3.043	2.587
Gait and Posture	6	2.349	2.414	2.273
Ergonomics	5	2.190	2.181	2.019
Arthritis Care and Research	4	4.056	4.530	4.149
Journal of Orthopaedic and Sports Physical Therapy	4	3.839	3.058	3.09
Age and Ageing	3	4.902	4.511	4.013
BMJ Open	3	2.496	2.376	2.413
British Journal of Sports Medicine	3	12.022	11.645	7.867
European Journal of Pain	3	3.492	3.188	2.991
European Respiratory Journal	3	12.339	11.807	12.242
European Spinal Journal	3	2.458	2.513	2.634
International Urogynecology Journal	3	2.071	2.090	2.078
Manual Therapy	3	2.622	2.330	2.158
Physiotherapy	3	2.478	2.534	3.120
Respiratory Care	3	2.066	1.736	2.073
Average Impact Factor		**4.248**	**4.094**	**3.766**

1.2 Article Citations

Citations are often used to provide an indication of the scientific impact of research. While recognising that limitations exist in the use of citations as an evaluation of the quality of research, their use in conjunction with other impact measures provides a good indication of the academic reach of research. In total, the PRF funded research projects included in the sample were cited 8,853 times.

The most commonly cited journal articles generated from PRF funded research are shown below.

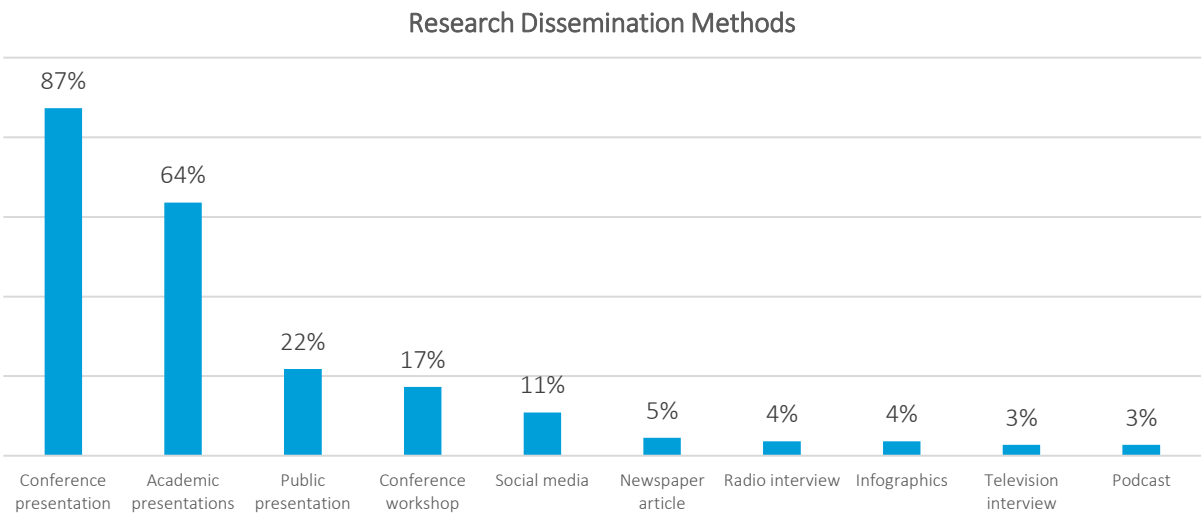
Article	No of Citations (Google Scholar)
JA Hides, CA Richardson, GA Jull. Spine, 1996. Multifidus muscle recovery is not automatic after resolution of acute, first-episode low back pain	1526
NW Mok, SG Brauer, PW Hodges - Spine, 2004. Hip strategy for balance control in quiet standing is reduced in people with low back pain	320
GS Kolt, RJ Kirkby - British Journal of Sports Medicine, 1999. Epidemiology of injury in elite and sub-elite female gymnasts: A comparison of retrospective and prospective findings	291
AG Schache, PD Blanch, TW Dorn, NAT Brown - Medicine & Science in Sport and Exercise, 2011. Effect of running speed on lower-limb joint kinetics	250
ML Callisaya, L Blizzard, MD Schmidt, KL Martin -Age and Ageing, 2011. Gait, gait variability and the risk of multiple incident falls in older people- A population-based study	246

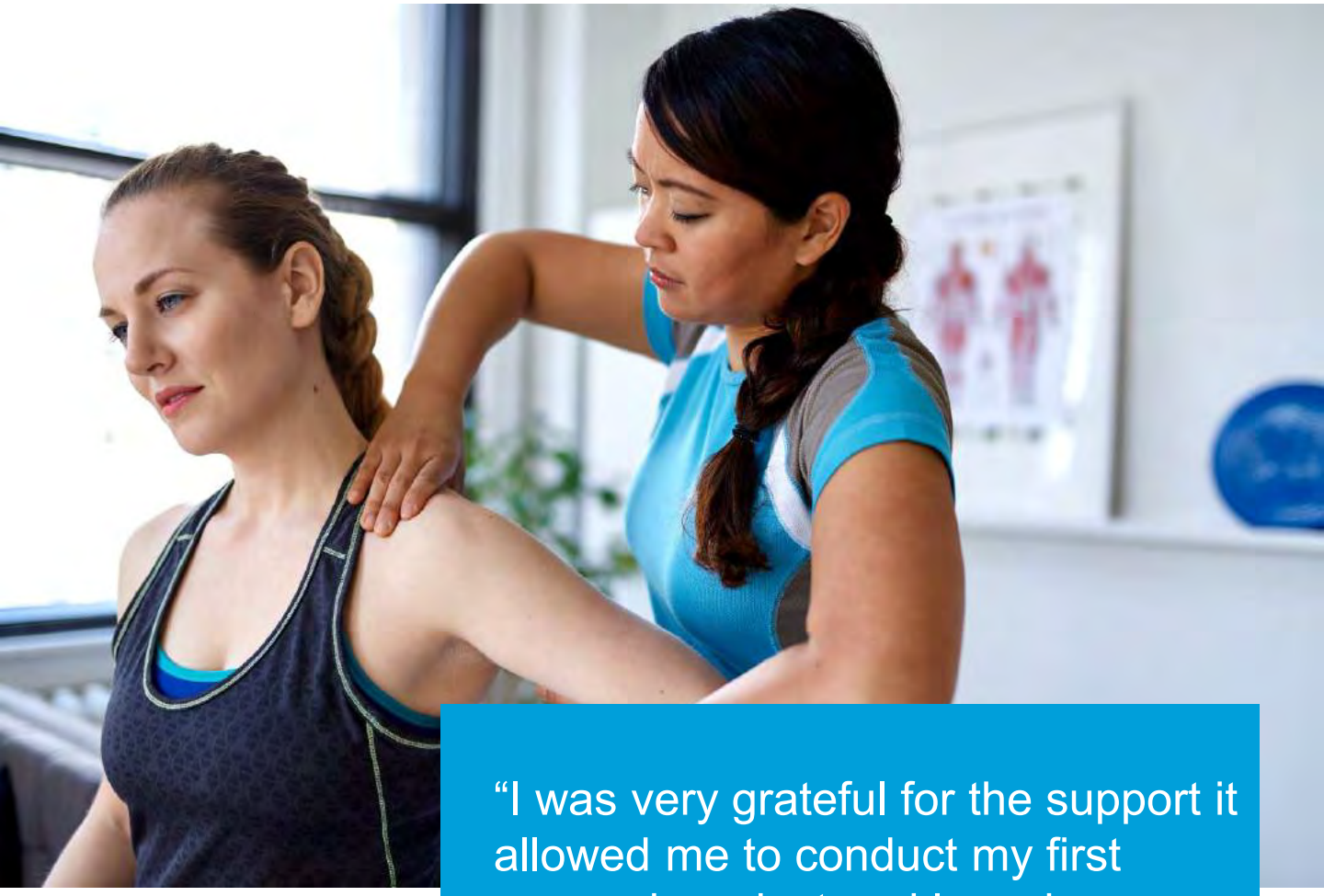
1.3 Dissemination

In addition to being published in peer reviewed journals, research generated by PRF grant recipients was disseminated in a number of ways.

Conference presentations are the most common means by which research results are shared, with 87% of the PRF grant recipients who responded to the survey presenting their research findings at a conference. Nearly two thirds (64%) shared their research with a presentation to academics.

Public presentations (22%) and conference workshops (17%) were used by nearly one in five grant recipients. This was followed by social media (11%), newspaper articles (5%), radio interviews (4%), television interviews (3%) and podcasts (3%).





“I was very grateful for the support it allowed me to conduct my first research project and launch my research career. It also allowed me to scale my project and we recruited 4500 participants instead of the 500 we initially aimed for. It also allowed me to conduct research to a quality that I have been able to present my findings on an international platform. ”

Tagged Grant

1.3 Impact on Teaching or Training

Contributing to capacity building, PRF funded research has also had an impact on teaching or training of physiotherapists. In total, 56 respondents (51%) provided details of the ways in which their research is used in teaching or training methods.

Impact on University Programs

Several respondents mentioned that their research is incorporated into the syllabus of university programs and that the outcomes of the PRF funded research are now routinely taught to undergraduate or postgraduate physiotherapy students.

> "The results of the PRF funded research are used in teaching undergraduate physiotherapy students." Seeding Grant

> "Taught in undergrad and postgrad courses as part of the courses on spine." Seeding Grant

> "The results from this research have directly informed curricula for pre-licensure physiotherapy training." Tagged Grant

> "We have incorporated our findings in the undergraduate and graduate entry program s in Physiotherapy at University of Sydney." Seeding Grant

Teaching and Training Knowledge Areas

PRF funded research grants have had an impact on teaching and training across a wide range of practice areas, including women's health, lung disease and Parkinson's disease management, critical care, musculoskeletal rehabilitation and ultrasound imaging.

> "Physiotherapy students are currently taught how to use ultrasound imaging to provide feedback of muscle contraction for people with LBP." Seeding Grant

> "Following my research, I then developed the Curtin University Masters in Clinical Physiotherapy (Continence and Women's Health)." Seeding Grant

> "I have incorporated preliminary findings of favourable effects of foot orthoses for patellofemoral osteoarthritis into my undergraduate and postgraduate masters teaching (University of Queensland, University of Melbourne, La Trobe University)." Seeding Grant

> "Cognitive Functional Therapy is now embedded in the Physiotherapy undergraduate and post-graduate training program." Tagged Grant

> "Academic teaching in Australia Physiotherapy UG and GEM university courses include the position statements and toolkit for pulmonary rehabilitation curriculum." Seeding Grant

> "We teach our students the importance of which activities and outcome measures are most reliable for use amongst people with Parkinson's disease, and highlights the importance of addressing specific impairments with intervention." Seeding Grant

Direct Teaching and Supervision of Research Students

Several grant recipients also noted that they have supervised many students and so had a direct impact on teaching and training in physiotherapy.

> "I have supervised over 50 research higher degree students." Seeding Grant

> "The result of my studies becomes part of my teaching material." Seeding Grant

> "Acting as a mentor to younger physios - reminding them of what good quality research looks like and how to read/understand it." Tagged Grant

2.

Benefits to Future Research and Research Use

2. Building Research Capacity

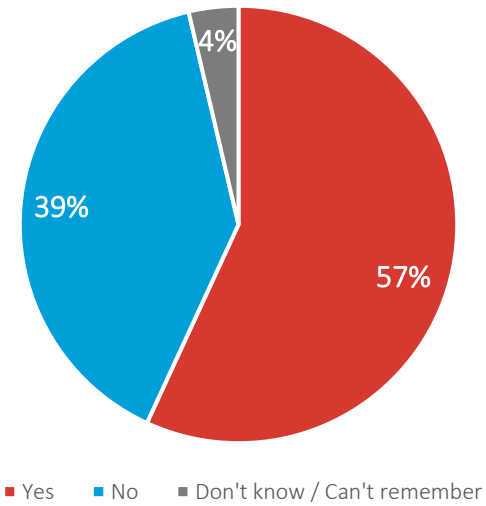
While nearly four in ten (39%) PRF grant recipients, who participated in the impact assessment, indicated that they had received grants previously, over half said that the PRF research grant was the first grant they had ever received, from any source.

Further, over a third of PRF research grant recipients indicated that their research would not have proceeded without PRF funding. Respondents indicated that funding was used to cover research expenses such as equipment, blind assessors, imaging costs and research assistants to collect the study data. Other grant recipients suggested that without the grant they would not have had "time away from my clinical work to complete the study". Others indicated that it enabled them to complete the research full time.

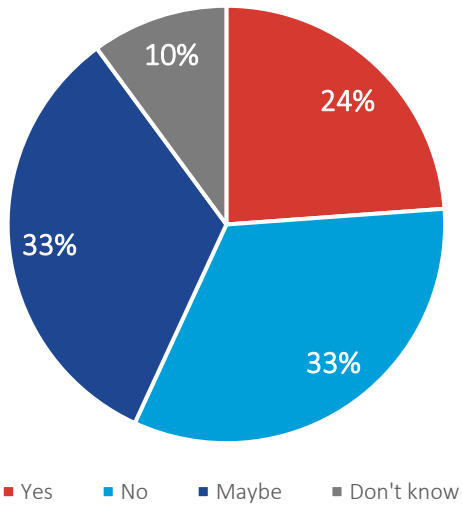
A similar proportion (33%) suggested that their research may or may not have gone ahead. A variety of reasons were given. Several participants indicated that while they might have applied for alternative funding, they may not have been successful. Others mentioned that while they may have proceeded, it would have taken a different, possibly scaled back form, or taken a longer to complete. Proceeding without a research assistant would have been the reality for several grant recipients.

> "The PRF grant was pivotal in providing funding so that the research was of higher quality, enabling blinded assessment and a research assistant"

Was the PRF grant the first research grant you ever received (from any source)?



Would your research have proceeded without the PRF funding?



2.1 Researcher Qualifications

Sixty two percent (62%) of grant recipients conducted the PRF funded research as part of a research degree, with 51% indicating that the PRF funded research contributed to, or is likely to contribute to, them achieving further qualifications.

In total, respondents reported that the PRF research had contributed to the attainment of 61 higher degrees including one post-graduate certificate, three masters degrees, 50 PHDs, four post doctoral fellowships and four FACP qualifications.

Over nine in ten (91%) grant recipients who responded to the survey have gone on to pursue or continue a career in research.

2.2 Career Advancement

The PRF funded research has led to career development or advancement opportunities for seven in ten recipients of a PRF grant who responded to the survey.

Respondents reported that various career opportunities had opened up subsequent to their involvement in the PRF funded research. Many said that the PRF grant kick-started their research career, and provided them with the credentials to pursue an academic or applied research career. Attainment of PHD qualifications, promotion to lecturer and professorial positions were commonly mentioned. Several reported becoming internationally recognised in their chosen field, with others stating that the research had led to them being invited to present nationally and internationally. Commercial career advancement opportunities improved for other respondents.

"The PRF grant kick-started my research career. I am now a Professor of Respiratory Physiotherapy at University of Sydney and have supervised 20 PhD students and three masters students to complete their research degrees. A number of these students have been recipients of PRF grants which have really helped their research projects. I am a huge advocate for the PRF." Seeding Grant

"Lecturer (Education Focused) role at the University of Sydney. In the new year, I will commence a Senior Acute Physiotherapist (Medical/Surgical) / Clinical Education Coordinator role with Macquarie University Hospital, with opportunities for teaching and research into Macquarie University's Doctor of Physiotherapy program." Seeding Grant

"The research conducted with PRF funding contributed to advancing my research profile which has led to academic promotion to professorial level." Tagged Grant

"Completing my PhD enabled me to get an academic position and pursue a career of education and research." Tagged Grant

"Progressed to be Lead Sports Science and Medicine for Water Polo Australia. Required a research background to be appointed to this position." Tagged - Beryl Haynes

“The paper from my PRF-funded research was my gateway to international recognition and the start to my academic career as a researcher in respiratory medicine. Its success was pivotal to me obtaining international funding for 2 post-doc fellowships that I subsequently undertook.”

Seeding Grant

Case Study
Supporting Early Career Researchers

Researcher Name: Robyn Brennen

Grant Type and Year: Seeding Grant, 2018

Research Title: Can pre-and post-operative pelvic floor muscle training reduce pelvic floor dysfunction in patients undergoing gynaecological cancer treatment? A pilot randomised controlled trial.

Research Background
Approximately 6,500 women were diagnosed with gynaecological cancers in Australia in 2020, with an estimated 2,000 deaths in the same year. Treatment often involves surgery, radiotherapy, chemotherapy and hormonal therapies, with a five-year survival rate of 70%. These treatments can lead to long term side effects, including pelvic floor dysfunction with associated impacts on quality of life.[1]

While evidence exists supporting the effectiveness of physiotherapy conservative treatment via pelvic floor muscle training as a first line treatment for urinary incontinence for women (NICE Guidelines, 2013)[2] specific pelvic floor physiotherapy is not routinely offered to gynaecological cancer patients.

About the Grant Recipient
Robyn Brennen is a Senior Physiotherapist at Monash Health in the provision of continence and pelvic floor physiotherapy. Prior to this Robyn has held positions as a Grade 4 clinical lead in the Women's and Men's Physiotherapy team at Monash Health, and clinic lead in the Monash Health Community Continence Service at Monash Health. She is currently undertaking her PhD at Monash University.

The PRF grant is Robyn's first grant as principal researcher, having previously received one as an associate investigator.

Grant Impact
The grant provided funds for necessary equipment and interventions, such as sensors and ultrasound. According to Robyn, without the equipment funded by the grant, the research would have been restricted to questionnaires and suboptimal assessment methodologies, impacting the validity and reliability of the study.

As a current project, the research has been impacted by the COVID-19 pandemic. While the original study protocols using in person assessment, this has been changed to a telehealth study using a biofeedback device. The PRF grant has been invaluable in providing funds for a high-quality biofeedback device that enabled the study to continue.

The research also enabled Robyn to undertake the project on a full-time basis, with the PRF grant providing support for her successful scholarship application. She is a strong advocate for the value of PRF grants in supporting early career researchers for the support it provides them to build experience and establish themselves.

Outcomes and Impact
The research is in its early stages, ongoing with results yet to be published. However, to increase awareness Robyn speaks widely about the topic. She was awarded the best paper in the women's health stream at the APA National Conference in 2019. She also presents to private practice groups about the evidence and how they can support women recovering from gynaecological cancer treatments.

Robyn has also been invited to co-author a chapter in a textbook on pelvic floor physical therapy. This will be the first time the topic has been included in the publication, which is used internationally to teach pelvic floor physiotherapy.

Increased awareness of, and referral to, physiotherapy for treatment of pelvic floor dysfunction within medical and surgical gynaecology-oncology units following stakeholder engagement activities is also evident.

Looking to the Future
On demonstration of feasibility, Robyn would like to see the research progress to a large scale randomised clinical trial to demonstrate clinical effects. Ultimately, she hopes to see defined pathways so that "all women who've had gynaecological cancer treatment are automatically offered pelvic floor and continence physiotherapy".

1. Neron, M., Bastide, S., Tayrac, R.d. *et al.* Impact of gynecologic cancer on pelvic floor disorder symptoms and quality of life: an observational study. *Sci Rep* **9,** 2250 (2019). https://doi.org/10.1038/s41598-019-38759-5
2. https://www.health-ni.gov.uk/articles/nice-endorsed-clinical-guidelines-20132014

“Demonstrating that you can use a budget wisely and keep to appropriate timelines and communicate appropriately with a smaller budget, is how you work towards getting those larger grants as well.”

Robyn Brennen, Seeding Grant, 2018

2.3 Targeting Further Research

Nearly two thirds (66%) of grant recipients reported that the PRF funded research findings, methodology or theoretical developments generated subsequent research by themselves or others.

Several respondents indicated that their initial PRF funded research had started their research career and led to their involvement in follow up research in the subject area. Others reported that they had gone on to publish subsequent papers and had supervised PhD students undertaking further research in the area.

> "This funded research has led to the development of a broader research program I am involved in for improving outcomes for CALD communities in physiotherapy, pain and other rehabilitation research. This has led to the development of other culturally adapted interventions for other CALD communities (current PhD project I am supervising), a new CALD consumer driven model of care that I am currently piloting across different areas of rehabilitation (physiotherapy, pain, rheumatology and orthopaedics) and providing the impetus for other physiotherapy research I am involved with to be more inclusive of CALD communities." Seeding Grant

> "The PRF grant kick-started my research career and I went on to do a PhD in the area of arm exercise. I now have 176 publications in peer-reviewed journals and have supervised 20 PhD students and 3 masters students to completion. I have gone on to receive national competitive grants from NHMRC and other national funding bodies. The PRF grants for some of my PhD students have been pivotal in enabling them to compete their degrees." Seeding Grant

> "We have extended the program of research and used the results of this project as the foundation. The product of this work is internationally used, including by WHO, and is publicly supported by 54 international organisations." Tagged Grant

Many others suggested that the research data formed the basis of subsequent research by themselves or others. Subject areas for future research ranged from joint replacement surgery, ultrasound of pelvic floor muscles and rehabilitation and training for Parkinson's Disease.

> "The data was used to form the basis of subsequent grant applications and also to inform future research around the burden of joint replacement surgery in Australia." Tagged Grant

> "Real-time ultrasound assessment of pelvic floor muscle exercises has now been well researched by numerous authors and this is now widely used in clinical practice." Seeding Grant

> "These findings allowed us to test the impact of muscle power training for people with Parkinson's disease. My research funded by the PRF has been cited by other authors, as they continue to research factors contributing the motor and cognitive impairment in people with Parkinson's disease, and to test the impact of interventions to address these impairments." Seeding Grant

2.4 Attracting Further Research Funding

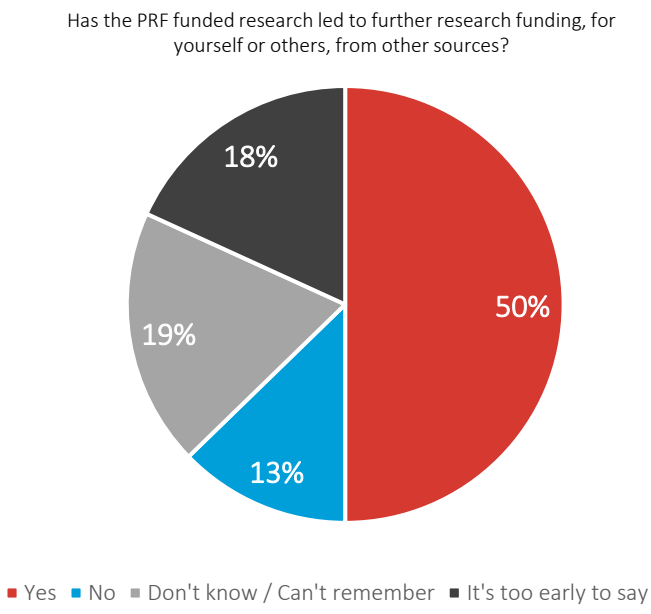
Half of the participants in the study indicated that the PRF funded research had led to further research funding, for themselves or others, from other sources. Of these, 42% indicated that this funded would not have been available without the PRF grant.

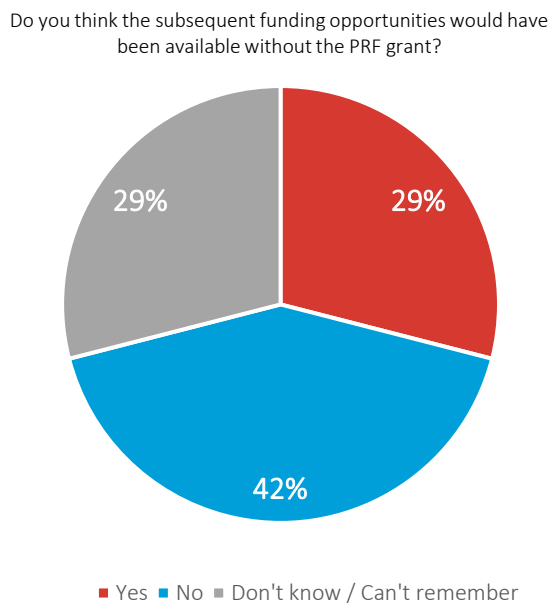
Research recipients reported that the PRF funded research had led to further research funding of $47,514,832, from 65 separate funding sources. This excludes funding received from 18 respondents, who reported that the PRF funded research had led to further funding, but declined to provide the amount of the subsequent funding.

It should be noted that one project attracted funding in excess of $25,000,000 from various sources. A further five projects attracted in excess of $2,000,000 from other sources as a result of the outcomes of their PRF funded research. Excluding the largest additional funding receipt, respondents indicated that a total of $22,514,832 in funding from other sources was received as a result of outcomes of PRF funded research.

Of the additional funding generated by the outcomes of their PRF funded research, respondents indicated that a total of $8,646,370 in further funding would not have been available without the PRF grant. This suggests that for every $1 invested in physiotherapy research by the PRF, a further $6.35 has been generated by recipients directly from the PRF grant.

Additional funding was received from various sources, including the National Health and Medical Research Council (NHMRC) (22), Research Advisory (2), the Epworth Research Foundation (1), the Alfred Research Trust (1), various universities (5) and government departments (4). Funding was also received from Arthritis Australia (3), the National Heart Foundation (1), the National Stroke Foundation (1), the National Breast Council Foundation (1) and Parkinson's NSW (1). International funding was reported by several respondents, including from the Canadian Institute for Health Care Research (2) and the European Respiratory Society (1).

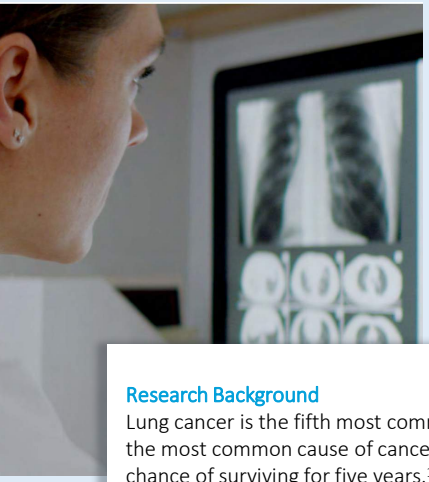




Project Title	Grant Type	Grant Year	Grant Amount	Additional Funding
Motor control of reaching and grasping actions in stroke	Seeding	1992	$2,000	$25,000,000
A comparison of the efficacy and safety of manual and ventilator hyperinflation.	Seeding	1998	$4,394	$3,178,334
A randomised controlled trial of the efficacy of protocol to train sitting balance early after stroke	Seeding	2000	$4,928	$2,634,560
Falls and balance dysfunction in adults with cerebral palsy	Seeding	2009	$9,156	$2,500,000
Ageing, gait and falls risk - a population-based study	Tagged	2005	$5,000	$2,202,000
Exercise rehabilitation for patients following surgery for lung cancer: a pilot randomised controlled trial	Tagged	2008	$5,000	$2,000,000

“This PRF grant was essential in the start of my research career. This grant was my first grant and funded my first ever research study. I went onto conduct a PhD, post-doc and now full time academic career (as an Associate Professor) all based on extensions of this work. I have since published 75+ papers and been award $2million+ funding. This grant kicked-started my research career and I am very, very grateful to the PRF for it. ”

Tagged - Jill Nosworthy



Case Study:
Building a Base for Further Funding

Researcher Name:	Catherine Granger
Grant Type & Year:	Tagged Grant, 2008
Research Title	Exercise rehabilitation for patients following surgery for lung cancer: a pilot randomised controlled trial.

Research Background
Lung cancer is the fifth most common cancer in Australia, with an estimated 13,258 new cases of lung cancer diagnosed in 2020. It is the most common cause of cancer death in Australia, with 8,586 deaths in 2018. Individuals diagnosed with lung cancer have a 19% chance of surviving for five years.[1] Treatment for lung cancer commonly involves surgical resection and leads to functional decline and an immediate deterioration in exercise tolerance [2].

About the Grant Recipient
Associate Professor Catherine Granger is an Associate Professor and Dame Kate Campbell Fellow in the Department of Physiotherapy at The University of Melbourne. She is also Head of Physiotherapy Research at The Royal Melbourne Hospital.

The PRF grant led to Associate Professor Granger undertaking a PhD at The University of Melbourne, after which she transitioned from clinician to full-time academic. She is a leader in the field of exercise and lung cancer and is on Health Department advisory committees in New South Wales and Victoria.

With opportunities for career progression a common challenge for physiotherapists, Catherine believes the key benefit of the PRF grant program is the support it provides early career researchers, particularly PhD students, gain the experience needed to progress along a research pathway.

The Impact on Knowledge Production and Further Funding
The original PRF funded research paper "Safety and Feasibility of an Exercise Intervention for Patients Following Lung Resection: A Pilot Randomised Control Trial" was published in Integrative Cancer Therapies in 2013. It was one of the first studies to assess the safety and feasibility of exercise interventions following surgery for lung cancer in the world. It has been cited 50 times and has been cited in 2 international clinical practice guidelines, 2 textbooks and 11 systematic reviews.

While the initial PRF grant funded project was small, it demonstrated that exercise interventions following lung cancer surgery were safe and generated interest in the topic. It also became a pilot for a subsequent body of research. Associate Professor Granger has gone on to attract over $2 million in funding for research into lung cancer and cardiorespiratory physiotherapy between 2010 and 2020, from various sources including the NHMRC, Victorian Cancer Agency, Cancer Council Victoria and others.

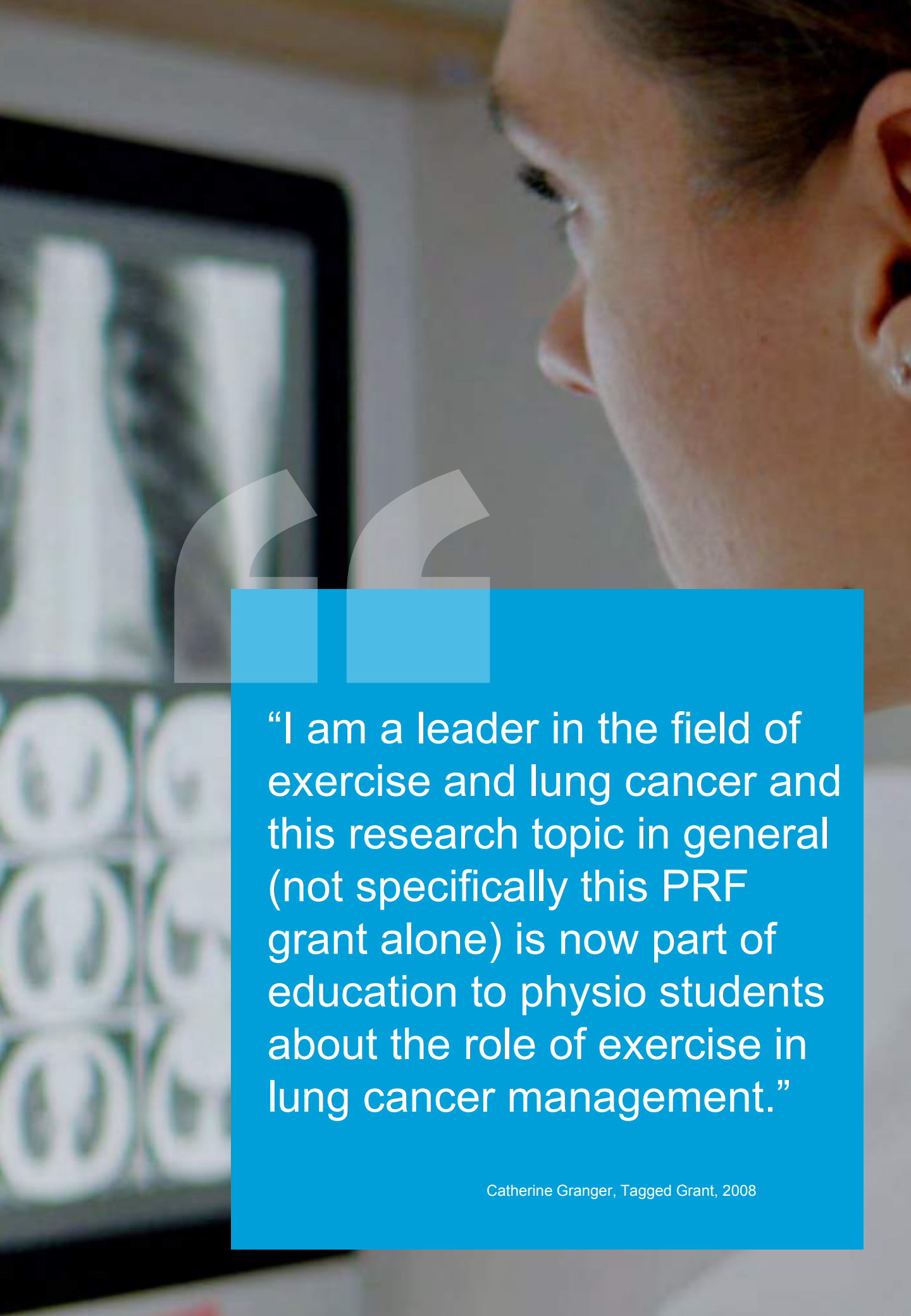
Impact on Teaching and Training
Research in this area is now part of education to physiotherapy students about the role of exercise in lung cancer management. Associate Professor Granger has written a section in one of the core cardiorespiratory physiotherapy textbooks used internationally. She also works extensively with the APA, presenting at conferences, workshops and webinars, to upskill and train practicing physiotherapists.

Associate Professor Granger is also focussed on getting the word out to the public. In 2018, she was a recipient of the ABC Top 5 Scientist of the Year Award, giving her a platform to educate patients and the public about the importance of keeping active and exercising. She regularly gives radio interviews, has taken part in ABC national television interviews and recently recorded a podcast, The Health Report.

Looking to the Future: Impact on Clinical Practice
While exercise therapy following lung cancer surgery has had an influence on clinical practice, it is not yet routine in Australia. To change this, and with funding from the Australian Government, the Victorian Cancer Agency and Cancer Council Victoria, Associate Professor Granger is currently conducting a large-scale, high-quality trial into the impact of post-operative exercise programs for people with lung cancer. Looking towards a feasible delivery model, the trial comprises over 100 people in a home-based program, with patients exercising in their homes with physiotherapy support.

Associate Professor Granger's biggest hope is that patients diagnosed with lung cancer in Australia will be referred to a physiotherapist or exercise program through the public system, so they can easily access the support they need in a timely manner.

1. https://www.canceraustralia.gov.au/affected-cancer/cancer-types/lung-cancer/lung-cancer-australia-statistics Accessed 4/3/21
2. Granger CL, Chao C, McDonald CF, Berney S, Denehy L. Safety and feasibility of an exercise intervention for patients following lung resection: a pilot randomized controlled trial. Integr Cancer Ther. 2013 May;12(3):213-24. doi: 10.1177/1534735412450461. Epub 2012 Jul 16. PMID: 22801943.



“I am a leader in the field of exercise and lung cancer and this research topic in general (not specifically this PRF grant alone) is now part of education to physio students about the role of exercise in lung cancer management.”

Catherine Granger, Tagged Grant, 2008

3.

Informing Policy and Product Development

3. Informing Policy and Product Development

Health research can also impact on the decision making and policy of government or health authorities. Overall, 17% of respondents advised that their research had influenced the decision making or policy outcomes of government or health authorities.

3.1 Influence government policy or decision making

A total of 19 respondents reported that their PRF funded research has had an impact on the policy or decision making of government or health authorities. Details of specific impacts on the policy or decision making of government or health authorities were provided, with respondents citing contribution to specific policy discussions and documents, hospital and local practice and government standards. Actual policy contributions included input into National Continence Management Strategy and the Victorian Allied Health Research Framework. Grant recipients also reported making contributions to government policy in relation to falls management for adults in DHSS care settings and residents of aged care facilities, children in digital society and NDIS funding of cycling participation.

"The findings have been cited in policy documents." Seeding Grant

"Victorian Dept of Health and Human services contracted me to write their policy about falls management for adults with neurological disabilities living in DHHS group homes." Tagged Grant

"Victorian Allied Health Research Framework." Seeding Grant

"Risk assessment process developed for the RCT project cited in national guidance on manual task risk assessment." Seeding Grant

"Working with health/disability/sport and rec leaders to influence NDIS policy to fund cycling participation." Seeding Grant

"The findings have influenced hospitals commitment to culturally responsive healthcare and emphasized the importance of partnering with CALD consumers. While these are aspects of current accreditation standards the findings have led to the development of guidelines for how to operationalise these elements of care. " Seeding Grant

"Input into international policy and discussion on children in digital society." Seeding Grant

"I have made significant contribution enhancing and promoting the role of physiotherapy within and across the National Continence Management Strategy." Seeding Grant

17%

of PRF Grant Recipients indicated that their research had influenced the decision making or policies of government or other health authorities.

Case Study
Informing Health System Impact & Policy

Researcher Name: Ilana Ackerman

Grant Type and Year: Seeding Grant, 2009

Research Title: Equitable treatment of severe osteoarthritis: a population-based assessment of burden and barriers

Research Background
Knee and hip osteoarthritis is associated with significant pain and reductions in quality of life. According to the Australian Orthopaedic Association National Joint Replacement Registry, 48,449 hip replacement and 61,954 knee replacement surgeries were performed in Australia in 2020.[1] The estimated cost of hip or knee replacement surgery in Australia is between $AUD19,000 and $AUD30,000 per person, with $1.2 billion spent on hospital admissions annually.[2]

With the number of hip and knee joint replacements increasing, and a revision burden of 8% for hip and knee replacements,[3] the cost to the Australian healthcare system is significant.

About the Grant Recipient
Associate Professor Ilana Ackerman is a leading musculoskeletal epidemiologist and orthopaedic physiotherapist specialising in the impact of hip and knee osteoarthritis. She is Deputy Director (Research) of the CCRET in the School of Public Health and Preventive Medicine, Monash University, Chair of the Editorial Board of the Journal of Physiotherapy and sits on the National Advisory Council of the Australian Physiotherapy Association.

Widely published, Ilana has produced over 100 peer reviewed publications which have been cited more than 31,000 times.[4] She has received many awards for her work, supervises PhD students and has held expert advisory roles at state, national and international level. She is the Principal Advisor to the Australian Orthopaedic Association National Joint Replacement Registry for their national patient-reported outcomes program.

Grant Impact
Associate Professor Ackerman was awarded an NHMRC Public Health Early Career Fellowship (2008-2015) to support her research into the impact of severe hip and knee osteoarthritis in Australia. The PRF grant contributed to this program, providing funding necessary to conduct the first national survey of hip and knee osteoarthritis in Australia. The outcome from the project "Comparison of Health-Related Quality of Life, work status and health care utilization and costs according to hip and knee joint disease severity: Results from a national Australian study" was one of the first national studies on hip and knee osteoarthritis in Australia. It was published in Physical Therapy in 2013 and has been cited 48 times.

This project informed Ilana's future work, shifting her focus from clinical research to epidemiological studies investigating the broader societal and health system impacts of osteoarthritis and joint replacement surgery in Australia. She has gone on to attract over $5 million in funding for research from various sources including the NHMRC, Victorian Government, HCF, Arthritis Australia and Musculoskeletal Australia.

Associate Professor Ackerman believes that the main benefits of the PRF grant program is that it helps researchers build their track record for future grant applications and provides funds for discrete elements of projects that would not normally be funded from other pools. Given the competitive nature of fellowship funding, and how difficult it is for physiotherapists to access, Ilana would support the introduction of PRF fellowships to early career researchers to further build researcher capacity.

Looking to the Future
With the cost and incidence of knee and hip joint replacement surgery increasing in Australia, Associate Professor Ackerman recently published a paper that estimates the annual burden of primary total knee and hip replacement surgery for osteoarthritis in Australia will increase by 276% and 208% respectively by 2030, at a cost of over $5 billion to the Australian healthcare system.[5] She is currently working on Victorian Government funded research into ways of monitoring the burden of revision joint replacements, as well as investigating ways to reduce inappropriate joint replacement surgery through the implementation of effective non-surgical programs.

Associate Professor Ackerman is also a strong advocate for improving the quality of care for people with osteoarthritis and hopes to raise community awareness that osteoarthritis is a chronic condition that affects younger as well as older individuals with broad impacts on wellbeing and quality of life, beyond pain and stiffness.

1. Australian Orthopaedic Association National Joint Replacement Registry (AOANJRR) https://aoanjrr.sahmri.com/hips Accessed 21/04/21
2. Ackerman, I.N., Bohensky, M.A., Zomer, E. *et al.* The projected burden of primary total knee and hip replacement for osteoarthritis in Australia to the year 2030. *BMC Musculoskeletal Disord* **20,** 90 (2019). https://bmcmusculoskeletdisord.biomedcentral.com/articles/10.1186/s12891-019-2411-9#citeas Accessed 22/04/21
3. AOANJRR Annual Report 2020 https://aoanjrr.sahmri.com/documents/10180/689619/Hip%2C+Knee+%26+Shoulder+Arthroplasty+New/6a07a3b8-8767-06cf-9069-d165dc9baca7 Accessed 21/04/21
4. https://scholar.google.com.au/citations?user=lfJL9aAAAAAJ&hl=en
5. Ackerman, I.N., Bohensky, M.A., Zomer, E. *et al.* The projected burden of primary total knee and hip replacement for osteoarthritis in Australia to the year 2030. *BMC Musculoskeletal Disorder* **20,** 90 (2019). https://doi.org/10.1186/s12891-019-2411-9

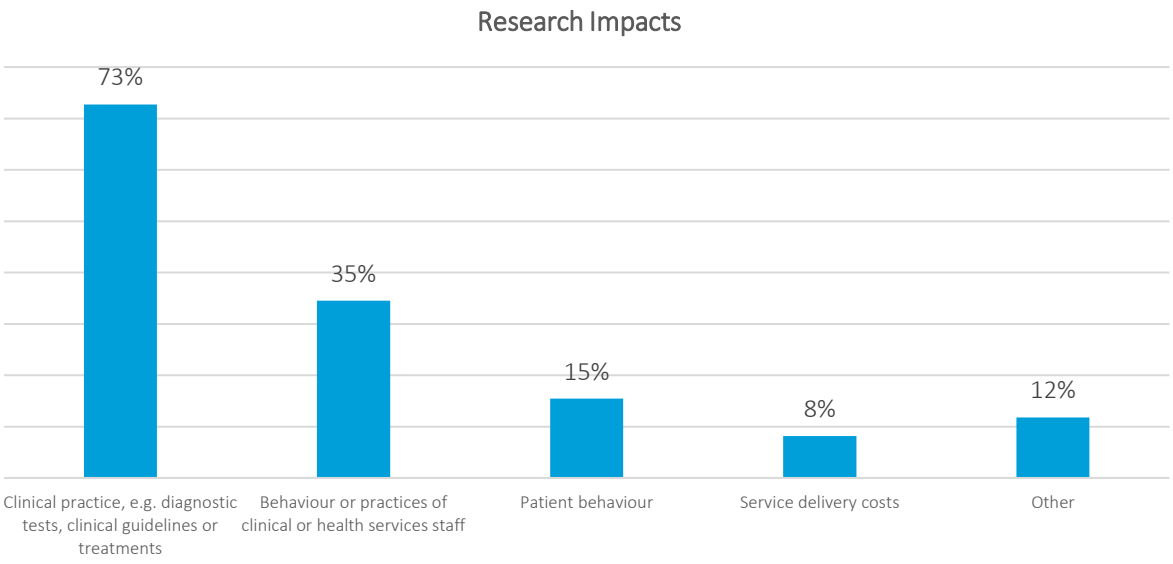
4.

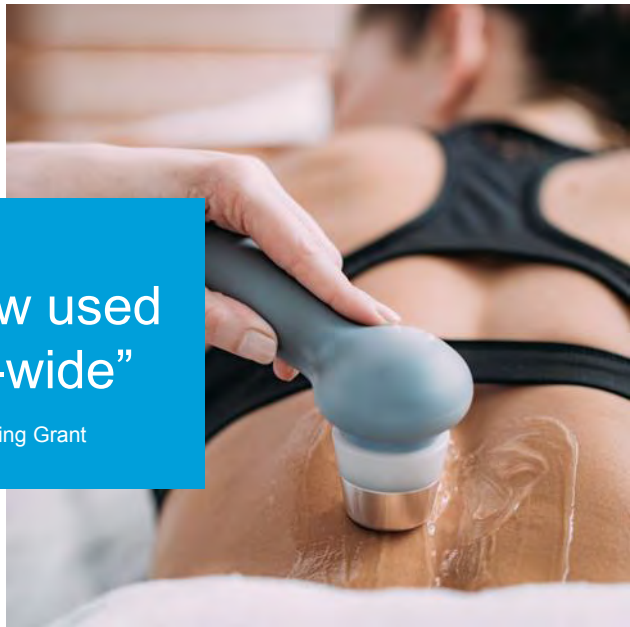
Health and health sector benefits

4. Health and health sector benefits

Overall, 73% of PRF research grant recipients who responded to the survey indicated that the PRF funded research had had an impact on clinical practice, including diagnostic tests, clinical guidelines or treatments.

A half suggested that the research had lead to changes in teaching or training, while just over a third (35%) indicated that the output of their PRF funded research had influenced the behaviour or practice of clinical or health services staff. Patient behaviour was influenced by 15% of the research projects funded by PRF, while 8% reported an influence on service delivery costs.





"Ultrasound imaging is now used by physiotherapists world-wide"

Seeding Grant

“(The research) has for first time provided a set of minimum standards of clinical practice for physiotherapists working in critical care settings in Australia and New Zealand.”

Tagged Grant

4.1 Informing Clinical Practice

One of the main benefits of medical research is the direct impact on clinical practice, including the development of assessment procedures, diagnostic tools and techniques, clinical guidelines and treatments. Overall, 73% of respondents indicated that their PRF funded research had influenced clinical practice.

Change in clinical assessment procedures

Reflected in the comments below, several mentioned that their research findings had led to a change in clinical assessment procedures.

"Change in assessment procedures to a more accurate clinical assessment." Seeding Grant

"Realtime transabdominal and transperineal ultrasound is now regularly used in physiotherapy clinical practice to assess pelvic floor function." Seeding Grant

"My research simplified assessment of children by validating and ensuring reliability, in normal and children with a disability, of an efficient easily understood functional gait test previously only used in elderly people." Seeding Grant

"The Physical Mobility Scale is now a recommended measure of mobility and falls risk in residential aged care." Seeding Grant

Influence on clinical practice guidelines

Other grant recipients indicated that their research had been included in or led to a change in practice guidelines. Of note, the outcomes of PRF grant funded research have been included in the Clinical Guidelines for Stroke Management, IFOMPT Guidelines for Musculoskeletal Physiotherapists and Australian Clinical Practice Guidelines for Respiratory Care.

"Sensorimotor training is included in guidelines for the management of cervical disorders." Seeding Grant

"It is in the stroke guidelines." Seeding Grant

"My research has been taken up in clinical practice guidelines for respiratory care in Australia and internationally. It also informs local practice at hospitals (e.g. physiotherapy decision making tools)." Seeding Grant

"Inclusion in IFOMPT guidelines." Tagged Grant

Change in treatment

There were also several mentions that that PRF funded research had led to changes in treatments, in areas as diverse as rehabilitation of spinal cord injury, post joint replacement treatments, athletic injuries and COPD.

"Targeted physiotherapy treatments post joint replacement." Tagged Grant

"The research showed that arm exercise training within pulmonary rehabilitation improved outcomes for patients with COPD." Seeding Grant

"It highlighted a possible role for electrical stimulation in the rehabilitation of people with spinal cord injuries." Seeding Grant

"Provides a physiological basis for prescription of motor control exercises in PFP management." Seeding Grant

"Research findings have implications for the rehabilitation of hamstring strain injures in athletes." Tagged Grant

Case Study

Leading Physiotherapy Research & Education

Researcher Name:	Catherine Dean
Grant Type and Year:	Seeding Grants, 1994 and 2000
Research Title	Intersegmental coordination during reaching in seated subjects (1994) / A randomised controlled trial of the efficacy of protocol to train sitting balance early after stroke (2000).

Research Background

Nearly 400,000 Australians have had a stroke, with approximately 38,000 stroke events reported in 2017. The cost to the Australian health system on stroke management and care was more than $633 million in 2015-2016, with stroke the tenth largest cause of disease burden in Australian in that year. [1]

About the Grant Recipient

Professor Catherine Dean is the Deputy Dean and Associate Dean, Learning at the Faculty of Medicine, Health and Human Sciences at Macquarie University. She joined Macquarie University in 2011, as Head of the Physiotherapy Program, following ten years at the University of Sydney as an academic with teaching, research and administrative responsibilities.

She is a leading researcher and educator in physiotherapy, has received numerous scholarships and awards and is widely published in high impact journals. Her research has been integrated into Australian and international clinical practice guidelines.

The Impact on Knowledge Production and Further Funding

The original PRF funded research paper "Sitting balance I: trunk-arm coordination and the contribution of the lower limbs during self-paced reaching in sitting" was published in Gait and Posture in 1999. It has been cited 125 times. Subsequent studies provided evidence for task specific training after stroke and the first randomised controlled trial. This work, "Task related training improves performance of seated reaching tasks after stroke: A randomised controlled trial" was published in Stroke in 1997.

Professor Dean received a second PRF grant in 2000. This led to the paper "Sitting training early after stroke improves sitting ability and quality and carries over to standing up but not to walking: a randomised controlled trial" which was published in the Australian Journal of Physiotherapy in 2007. The article has been cited 112 times.

Professor Dean has over 50 publications and continues to supervise research students across a wide variety of topics. She has secured over $4 million in funding for research into stroke rehabilitation from bodies such as National Stroke Foundation, National Heart Foundation and the NHMRC. While small in comparison to larger grants, Professor Dean credits the PRF grant with improving the quality of her early research, by enabling the purchase of consumables and the use of blind assessors.

Impact on Clinical Practice

Professor Dean's research "challenged the myth of the importance of trunk in sitting balance and instead highlighted the critical role of the legs and how to improve sitting balance after stroke". The study changed understanding around biomechanics and provided clear evidence for task and context specific training in stroke rehabilitation.

Professor Dean used her research to develop treatment programs which are used in physiotherapy practice and rehabilitation units across Australia and North America. The findings remain the best evidence for intervention in stroke and have been included in clinical practice guidelines in Australia and Canada, including the NHMRC approved 2010 Clinical Guidelines on the Management of Stroke.

Impact on Patients and Public Health

According to Professor Dean, rehabilitation that provides training related to everyday tasks like sitting and reaching, standing and walking training after stroke is critical. With stroke one of the most disabling adult conditions, and the ability to reach for objects beyond arms length while seated necessary for independent living, effective physiotherapy can determine whether a patient goes home and gets back into the community, or they end up in an assisted living or nursing home.

With a focus on optimising function, physiotherapy rehabilitation after stroke has a significant impact on quality of life.

1. https://www.aihw.gov.au/reports/australias-health/stroke Accessed 09/03/2021

“It is in the stroke guidelines ….. (and) provides clear evidence for task and context specific training in stroke rehabilitation”

Professor Catherine Dean, Seeding Grant, 2000

4.2 Behaviour or practices of clinical or health services staff

A total of 38 researchers indicated that their PRF funded research has had an influence on the behaviour or practices of clinical health services staff. It should be noted, however, that many comments indicated that the research 'could' change the behaviour of health services staff or they 'expected' that it would in time. Several indicated that they believed the research would have an impact, but that the timeframe since receiving funding from PRF has been insufficient for this to have occurred. Based on a subjective review, there were 13 examples of definitive changes in the behaviour or practices of clinical or health services staff, including:

"Increased awareness of, and referral to physiotherapy for, symptoms of pelvic floor dysfunction within the associated medical and surgical gynecology-oncology units, who have participated in stakeholder engagement and participant recruitment." Seeding Grant

"Our research findings have been incorporated in pulmonary rehabilitation programs by physiotherapists who provide these programs." Seeding Grant

"The findings have been presented widely in our local health district. In physiotherapy, pain medicine and rheumatology aspects of the cultural assessment and tailoring are integrated into the assessment and management of patients from CALD backgrounds. The culturally adapted programs piloted have now been embedded as part of routine care. " Seeding Grant

"…The use of real-time ultrasound has influenced clinical practice in Australia and overseas." Seeding Grant

4.3 Influence on patient behaviour

A total of 17 respondents reported that their research had the capacity to change patient behaviour, including by increasing the knowledge of both patients and physiotherapists. Again, many comments pertaining to the impact on patient behaviour suggested the research 'could' or 'should' lead to changes in patient behaviour.

"Physios can use the skills I report to change patient behaviour." Tagged Grant

"Knowledge of exercises." Seeding Grant

"Actively educating patients on risks they take when returning to drive following upper limb trauma will help them to decide when to return to driving following their injury, to aid road safety, optimise return to work and also ensure their injury healing is not impacted." Seeding Grant

"The uses of real-time ultrasound biofeedback for pelvic floor muscle training has helped many men, women and children with incontinence, pelvic organ prolapse, pelvic pain improved pelvic floor muscle function and quality of life by improving their understanding of their pelvic floor muscles." Seeding Grant

"We have incorporated patients' education that we have demonstrated improved their knowledge about benefits and harms of treatments offered for shoulder pain." Tagged Grant

4.4 Impact on service delivery costs

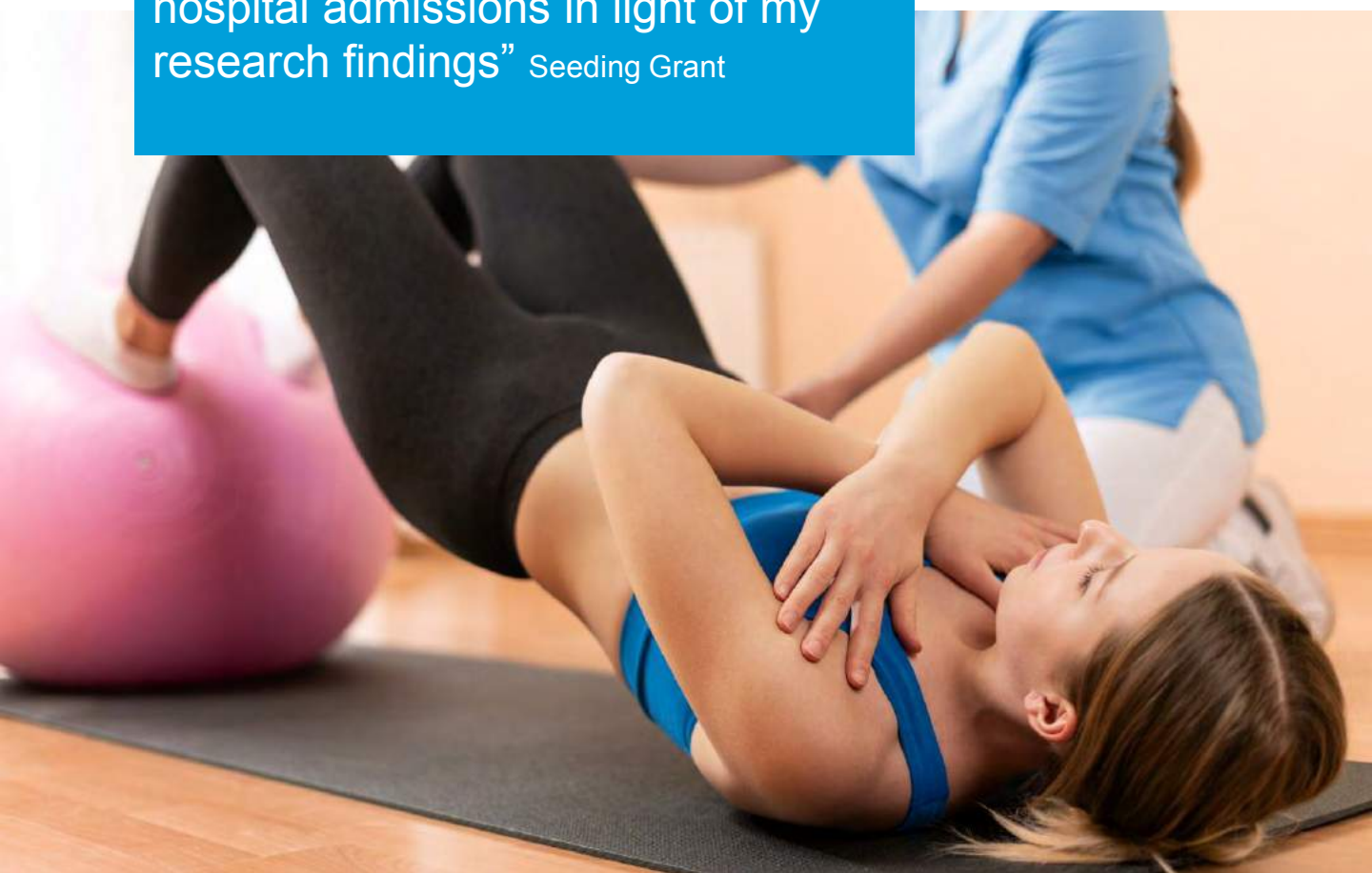
A small number of respondents (9) indicated that their PRF funded research has the potential to have an impact on service delivery costs, although all of these indicated that the new procedures had yet to be adopted, or cost effectiveness was yet to be assessed. Respondents suggested that while cost effectiveness had not been proven, they anticipated that costs could be reduced due to more effective or efficient treatments, reduced length of hospital stays or reduced hospital admissions.

"The therapy provided is significantly cheaper than alternatives --> may potentially reduce health delivery costs in future also by perhaps preventing acute admissions (hypothesis - to be proven)." Seeding Grant

"We will assess cost effectiveness of our group based telerehab approach." Tagged Grant

"As it is a time-efficient test it is likely that clinical delivery is more time efficient, but this has not been investigated." Seeding Grant

"Costs may reduce or patient care quality may improve via redirection of physiotherapy care during hospital admissions in light of my research findings" Seeding Grant



5.

Broader health and economic benefits

5. Broader economic benefits

Another factor used to assess the value of health services research is the broader societal and economic benefits. This is often assessed in terms of the wider economic benefits arising from commercial exploitation of innovations arising from the research, improvements in health services quality, delivery and costs, health and wellbeing benefits, as well as the economic benefits of a healthy workforce and a reduction in working days lost.

While it was outside of the scope of this project to undertake an economic analysis of the outcomes from individual research projects, respondents were asked to provide details of the wider benefits to health services delivery, economic or health outcomes arising from their PRF funded research.

Overall, more than half (55%) of the PRF research grant recipients believe that their PRF funded research will provide wider health and economic benefits. A further 36% say that it is too early to assess the wider impacts of their research.

Amongst other things, respondents mentioned that the research had led to improved health and wellbeing, injury reduction, surgery avoidance and more effective rehabilitation treatments.

While this information is self-reported and has not been independently assessed, it provides an indication of the impact areas of PRF funded research.

55%

of PRF Grant Recipients expect that their research will lead to benefits to health services delivery, economic or health outcomes.

"Improved health and wellbeing in Parkinson's disease." Seeding Grant

"The PRF funded research and subsequent research has led to improved health outcomes for people with COPD." Seeding Grant

"Better prevention of work-related back injuries." Seeding Grant

"Has added to the body of evidence supporting effective lifespan health outcomes of those ageing with cerebral palsy." Tagged Grant

"Not everyone with an ACL deficient knee, needs a reconstruction. Some people can avoid it. Unfortunately, this is heard by physios, but not necessarily by surgeons. Now there is a lot of evidence for what I showed, back in 2005." Tagged Grant

"Reduce inappropriate provision of physiotherapy services (cervical musculoskeletal intervention) in patients with migraine who do not need it, and direction of these patients to appropriate migraine management. This will improve outcomes of migraine which has substantial economic benefits to the patient and to society with regards to sick leave and health costs." Project Grant

Case Study:
Impact on Health Services Delivery

Researcher Name: Peter Malliaras

Grant Type and Year: Tagged Grant, 2005 and Seeding Grant, 2018

Research Title: The effectiveness of hip adductor versus hip abductor strengthening for groin pain among young athletes (2005).

Internet-based management of rotator cuff tendinopathy with remote physiotherapist led support: a pilot and feasibility randomised controlled trial (2018).

Research Background
Tendinopathy is a common condition that refers to pathology and pain of the tendon, generally caused by overuse, repetitive movement, overload or excessive weight. Achilles, patellar, lateral elbow and rotator cuff tendinopathies are examples of four common tendinopathies. While the true incidence and total burden of tendinopathy on the healthcare system is unknown, they can impact quality of life and ability for people to be active and some take many months to resolve.

About the Grant Recipient
Peter Malliaras is a leading musculoskeletal physiotherapist, with a clinical interest in managing tendinopathies. He is an Associate Professor at the Department of Physiotherapy, at Monash University.

Associate Professor Malliaras completed his PhD in tendinopathy in 2006 and has gone on to conduct research that has generated over 120 peer reviewed papers and been cited nearly 5,000 times. [1] His studies focus on understanding the efficacy of tendinopathy interventions and treatments and have resulted in changes to practice guidelines for the treatment of Achilles and patellar tendinopathy in Australia and the UK.

Peter has received numerous awards, presents regularly at conferences and provides clinical postgraduate education for clinicians in Australia and overseas. He continues to work in clinical practice and has an international reputation as an expert in difficult to manage lower limb tendinopathies.

Grant Impact
Associate Professor Malliaras' first PRF funded grant research project resulted in publication of "Hip flexibility and strength measures: reliability and association with athletic groin pain" in the British Journal of Sports Medicine in 2009. While Peter did not go on to pursue further research in this area, it was a successful paper that has been built on by a growing body of researchers and has been cited 145 times. Due to the niche area of the research, he doubts the project would have gone ahead without the PRF funding. As his first grant Associate Professor Malliaras also credits it with helping him develop a funding track record that was important at the start of his post-doctoral research career. He believes it is important that the PRF continues to support early career researchers and provide funding for niche projects.

In 2018, Associate Professor Malliaras was also involved in a PRF funded grant research project titled "Internet-based management of rotator cuff tendinopathy with remote physiotherapist led support: a pilot and feasibility randomised controlled trial". The research investigated the potential to provide effective educational exercise treatment to patients with a specific type of shoulder pain using internet-based and telerehabilitation delivery of recommended care.

The output from this research was published in October 2020, which concluded it was feasible to progress to a full-scale trial. In the same month, the research team was awarded a $201,000 HCF Research grant to conduct the randomised controlled trial to assess the effectiveness and safety of the intervention. They have stated planning to recruit 300 people to participate in the larger trial.

Looking to the Future
The surge in interest in telehealth due to the COVID-19 pandemic and associated lockdown restrictions proved timely for the research undertaken by Associate Professor Malliaras. Despite this, concerns about the effectiveness of telerehabilitation persist amongst clinicians and patients. The outcomes of the current trial will be important to provide confidence in both effectiveness and safety, and to enable progression to more widespread implementation.

Associate Professor Malliaras believes there are many advantages of a telerehabilitation approach to managing shoulder pain, including costs savings, greater access to care and improvements in quality arising from a standardised treatment approach. If the current large-scale trials show that the approach is effective, Peter plans to create capacity building training courses to train physiotherapists to deliver the telerehabilitation approach. He also plans to lobby for appropriate MBS and private health insurance rebates for the intervention.

1. https://scholar.google.com.au/citations?hl=en&user=dij8mYkAAAAJ&view_op=list_works&sortby=pubdate Accessed 23/4/21

“Our project is centered on exercise interventions for improving health outcomes in young to middle-aged adults with musculoskeletal pain. Our findings will provide a rationale for the effectiveness of these interventions and improve treatment selection in a population that commonly seek surgery. Our findings may reduce the financial and public health burden by reducing unnecessary hospitalisations. The exercise-based treatments may also empower patients, building resilience and maintaining community/employment capacity.”

Seeding Grant

6. **The value to APA members**

6. Providing Value to Members

Over eight in ten (83%) APA members agree that the PRF has a role to play in physiotherapy research.

APA members working in research or academia are the most likely to support the PRF, with 95% in agreement that the PRF has a role to play in supporting physiotherapy research. While slightly lower, a majority of public sector (87%) and private practice (78%) members also agree that the PRF has a role in supporting research.

Members provided many comments about the value provided by APA support for physiotherapy research. Most commonly members mentioned that research helps to build an evidence-base for clinical practice. Others suggested that research-based interventions are what distinguish physiotherapy from other allied health professions and raise the credibility of physiotherapy.

Some members indicated that physiotherapists have an obligation to ensure that the evidence base of their profession grows and develops, and that as a large, well resourced organisation the APA has a role to play in this. Many also suggested the APA can fund projects that have relevance to clinical practice, as well as those that may not obtain support from other broader medical research funding sources.

The value of supporting the careers of young researchers was also a source of value cited by several members, with many highlighting the value of PRF grants in providing access to funds for novice researchers and for small or specific cohorts.

Consequently, nearly three quarters of members (74%) would like the PRF to focus support on research with clinical applications, while approximately two in five believe that the PRF should fund projects conducted by early career or new researchers who may not be able to obtain funding elsewhere.

Specific areas of physiotherapy research members want the PRF to support.

74%
Research with clinical applications

41%
Early career researchers

37%
New researchers

What value is provided by the APA's support of research?

"Those in private practice are not always in the position to be involved in research to support the interventions we provide. Evidence to support our interventions allows us in private practice to strongly and confidently advocate for the interventions that we provide." Private Practice

"APA is a large, well recognised professional body therefore it has a responsibility to assist with and provide opportunities for its members to conduct research." Private Practice

"Assists early career academics get funds to start their research. And we need research to inform our clinical practice and education work." Public Sector

"Supports research which would not attract funding from other sources. Provides vital seeding grants to help young researchers start to build their research track record." Private Practice

"Helps to build the evidence base to support clinical practice." Academia

"It underscores the importance the profession places on research and by extension its members." Private Practice

"It enables us to better do 'evidence-based practice' . This has been a point of difference between physio and other professions such as osteopathy and chiropractic, and we need to continue searching for best practice in all areas of physiotherapy. We need to be leaders in the health field. And APA needs to lead the profession." Private Practice

"Education of clinicians through research will result in better care for patients." Public Sector

Research Use

A majority of APA members rely on research to inform their clinical practice, with 24% indicating they always and 56% that they often refer to research to inform their clinical decision making. A further 16% indicate that they sometimes refer to research.

Young members are the most likely to use research regularly, with 89% of members under 40 saying that they always or often refer to research to support their clinical practice. This falls to 71% of members aged over 50.

The most common resource used by physiotherapist members of the APA is the Journal of Physiotherapy. Over three quarters (77%) of members have accessed the Journal over the last 12 months.

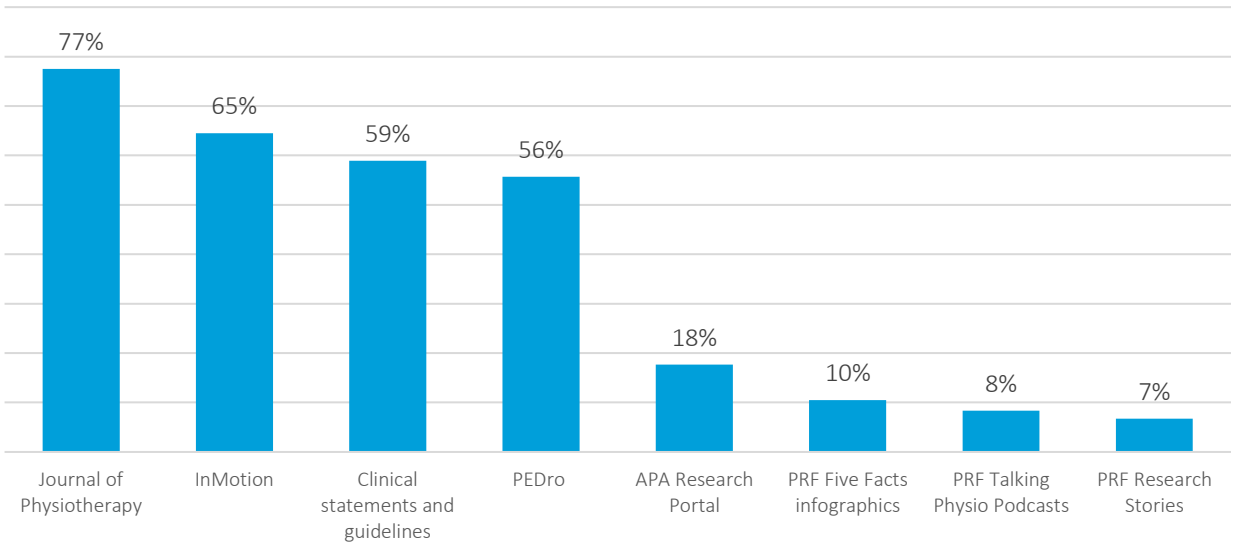
InMotion is also frequently used, with 65% of members indicating they have used InMotion over the last 12 months. Members over 50 (75%) are significantly more likely to refer to InMotion than their younger counterparts (56%). Over half of members have also referred to clinical guidelines and statements (59%) and PEDro (56%) over the last 12 months.

The APA Research Portal (18%), PRF Five Facts (10%), PRF Talking Physio Podcasts (8%) and PRF Research Stories (7%) are used by fewer members.

80%

Of APA members often or always refer to research outcomes to inform clinical decision making

Please indicate which of the following resources you have used to access research over the last 12 months?



“Research is fundamental to our profession. If we continue to strive to be a profession that engages in evidence-based practice, then we need high quality research. We require both experimental studies to further understand the mechanisms behind our interventions as well as translational research to ensure clinical feasibility. The APA should support research activities to help guide the profession into the future and ensure that clinicians can provide high quality and evidence-based practice.”

APA Member, Academia

The Decision to Donate

Nearly half (48%) of the APA members who participated in the survey choose to donate to the PRF when they renew their membership each year.

There are, however, significant differences between members. While the proportion increases to 60% amongst members aged over 50, only 33% of members aged 40 or younger choose to donate.

Amongst this younger group, awareness is the main reason for not donating. Fifty eight percent (58%) of members under 40 do not donate because they were not aware they could donate, or do not understand how the PRF supports the profession.

Reasons members donate are consistent across all membership categories. Over four in five (83%) APA members support PRF research as it contributes to the knowledge base of the profession. There were many comments from members that the main value provided by PRF support of physiotherapy research is that it adds to the evidence-base of the profession and supports them to provide effective and proven interventions and treatments in their clinical practice.

Two in five APA members donate to support the careers of researchers. Members mentioned the value that is provided by supporting early career researchers and that it is important as it provides seeding grants to help young researchers start to build their research track record. There was also mentions that, given the competitive nature of medical research funding, it provides an avenue to support physiotherapy research not being funded by other bodies.

Reasons members donate to PRF

83%
It contributes to knowledge base of profession

40%
It is important for me to support research

40%
It supports the careers of researchers through grants

Reasons members do not donate

43%
I prefer to donate to other charities

27%
I don't understand how PRF supports the profession

15%
I was not aware I could donate

Appendix

PRF Grants: 1990 to 2019

Of the grants issued by PRF, 184 have been included in the current review. These grants represent 86% of all grants issued by the PRF, at a total value of $1.362 million (average $7,365 per grant).

Year	Number of Grants	Total Value of Grants	Average Value of Grants
1990	4	$ 11,365.00	$ 2,841.25
1991	5	$ 20,000.00	$ 4,000.00
1992	6	$ 22,600.00	$ 3,766.67
1993	2	$ 45,187.00	$ 22,593.50
1994	10	$ 38,405.00	$ 3,840.50
1998	7	$ 34,318.70	$ 4,902.67
2000	5	$ 22,445.46	$ 4,489.09
2001	8	$ 34,052.96	$ 4,256.62
2002	7	$ 34,217.00	$ 4,888.14
2003	3	$ 13,784.00	$ 4,594.67
2004	3	$ 13,470.51	$ 4,490.17
2005	17	$ 86,332.05	$ 5,078.36
2006	12	$ 68,539.00	$ 5,711.58
2007	8	$ 46,280.00	$ 5,785.00
2008	14	$ 83,267.00	$ 5,947.64
2009	13	$ 124,511.00	$ 9,577.77
2010	6	$ 74,489.40	$ 12,414.90
2011	5	$ 49,998.00	$ 9,999.60
2012	5	$ 60,379.00	$12,075.80
2013	7	$ 70,418.15	$10,059.74
2014	5	$ 59,087.00	$11,817.40
2015	7	$ 68,954.00	$ 9,850.57
2016	7	$ 57,770.76	$ 8,252.97
2017	6	$ 80,617.20	$ 13,436.20
2018	6	$ 72,758.72	$ 12,126.45
2019	7	$ 69,326.61	$ 9,903.80
Total	**185**	**$1,362,573.52**	**$7,365.26**

Sample: Grant Recipient Survey

To undertake the impact analysis, a survey of grant recipients was conducted. The questionnaire was informed by elements of the Payback Framework and sought information about the impacts of the PRF funded research on both the researcher, the physiotherapy profession and the wider community. The survey was distributed on 9 November 2020, to a total of 185 grant recipients. Recipients who had been allocated more than one grant were asked to complete a survey for each grant they received. A total of 110 responses were received, giving a response rate for the survey of 60%.

While much of the survey was quantitative, many open-end questions were asked to allow respondents to provide information about the impact of their research in free text form. Quantitative data was analysed using Q statistical software and Excel. Thematic analysis of verbatim feedback has been undertaken to identify and quantify research impacts in the various payback categories.

Research Area	%	Count
Musculoskeletal	32%	35
Cardiothoracic	19%	21
Neurology	16%	17
Paediatrics	7%	8
Continence / WH	6%	6
Gerontology	6%	6
Sports	4%	4
Orthopaedics	3%	3
Pain	2%	2
Cancer	1%	1
Occupational	1%	1
Other	5%	5

Sector	%	Count
Research / academia	67%	74
Public sector	15%	16
Other	6%	7
I am not currently working	5%	6
Private practice	5%	5
Private hospital	2%	2
Total	100%	110

Grant Status	%	Count
Completed	84%	92
Current	16%	18
NET	100%	110

Grant Amount	%	Count
0-$2,500	7%	8
$2,501-$5,000	42%	46
$5,001-$7,500	5%	5
$7,501-$10,000	34%	37
$10,001-$15,000	4%	4
$15,001-$20,000	7%	8
Over $20,000	2%	2
Total	100%	110

Year Grant Received	%	Count
Pre 2000	17%	18
2000-2005	20%	22
2006-2010	26%	28
2011-2015	17%	18
2016-2020	20%	22
Total	100%	108

Grant Type	%	Count
Project	4%	18
Seeding	63%	22
Tagged	27%	28
Tagged - Beryl Haynes	5%	18
Tagged - Jill Nosworthy	2%	22
Unknown		2
NET	100%	110

Sample: Member Survey

To assess the impact of, and importance of, PRF funded physiotherapy research on the physiotherapy profession, a separate survey of members of the Australian Physiotherapy Association (APA) was conducted. The survey canvassed awareness of APA members of the work of the PRF, as well as views of the value provided by the contribution made by the PRF to physiotherapy research. The use of PRF research publications in practice was also investigated.

While much of the survey was quantitative, many open-end questions were asked to allow respondents to provide information about the impact of their research in free text form. Quantitative data was analysed using Q statistical software.

Distributed on the 25th November 2020, the survey was sent to 26,000 APA members. A total of 446 completed surveys were received, providing 95% confidence that the stated results are within a +/- 4.6% confidence interval.

Sector	%	Count
Private practice	44%	190
Private hospital	3%	15
Public sector	16%	71
Aged care	7%	32
Research / academia	14%	59
Other	8%	34
I am not currently working	7%	30
Total	100%	431

Age	%	Count
Under 30	16%	70
31-40	20%	85
41-50	21%	91
51-60	26%	111
Over 60	16%	68
Prefer not to say	1%	6
Total	100%	431

State	%	Count
ACT	3%	14
NSW	28%	120
NT	0%	1
QLD	19%	80
SA	9%	40
TAS	2%	8
VIC	27%	118
WA	12%	50
Total	100%	431

Member Category	%	Count
Full Time	53%	229
Part Time	21%	90
Graduate /Post Grad	11%	47
Student	4%	16
Associate / Affiliate	4%	17
Retired + Honorary	4%	16
Other	4%	16
Total	100%	431

Location	%	Count
Metropolitan area	66%	285
Regional town	24%	104
Remote town	2%	9
Other	8%	33
NET	100%	431

Member Category	%	Count
Less than 1 year	7%	31
1-4 years	17%	72
5-10 years	22%	95
Over 10 years	54%	233
Total	100%	431

“The PRF funding I received was crucial for helping me establish a track record in research funding and dissemination through peer review publications. This was crucial for me in establishing and advancing my academic career.”

Seeding Grant

About Survey Matters

This report has been prepared on behalf of the Physiotherapy Research Foundation.

Survey Matters specialise in providing research services to associations and not-for-profit organisations, their customers, and members. Survey Matters have helped a wide range of associations understand their value proposition - what is important to members, how the association can help them and how satisfied they are with their associations' performance. We also work with associations to generate and build industry data and knowledge to support advocacy, promotion, industry development and marketing activities.

As authors of the Associations Matter Research Series, Survey Matters have a significant knowledge base of the Australasian association sector.

Survey Matters is a member of the Australian Market and Social Research Society.

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