



Evaluation of National Blood Sector Research and Development Program

Final Evaluation Report

National Blood Authority -
E19/152-13-04

13 May 2024



Acknowledgement of Country

KPMG acknowledges Aboriginal and Torres Strait Islander peoples as the First Peoples of Australia. We pay our respects to Elders past, present, and future as the Traditional Custodians of the land, water and skies of where we work.

At KPMG, our future is one where all Australians are united by a shared, honest, and complete understanding of our past, present, and future. We are committed to making this future a reality. Our story celebrates and acknowledges that the cultures, histories, rights, and voices of Aboriginal and Torres Strait Islander People are heard, understood, respected, and celebrated.

Australia's First Peoples continue to hold distinctive cultural, spiritual, physical and economical relationships with their land, water and skies. We take our obligations to the land and environments in which we operate seriously.

We look forward to making our contribution towards a new future for Aboriginal and Torres Strait Islander peoples so that they can chart a strong future for themselves, their families and communities. We believe we can achieve much more together than we can apart.



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KPMG has indicated within this report the sources of the information provided. We have not sought to independently verify those sources unless otherwise noted within the report.

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Executive Summary

In September 2015, the National Blood Authority (NBA) received approval from funding governments to conduct two grant rounds as part of a National Blood Sector Research and Development Pilot Program. Following the success of the Pilot, the Research and Development Program (R&D Program) continued as a grant scheme.

In 2023, the NBA engaged KPMG to undertake an evaluation of the R&D Program to inform deliberations by the NBA and governments about future investment into, and sustainability of, the R&D Program and to demonstrate accountability to the Australian public.

Blood and blood related products are a critical component of health care, with approved products provided free of charge to patients. The annual cost of blood and blood related products in Australia exceeds \$1.5 billion.¹ For blood and blood related products to be used as optimally as possible, research and innovation are crucial. Promoting the safe, high-quality management and use of blood and blood related products and services is one of the NBA's primary responsibilities.²

The NBA R&D Program

The NBA R&D Program is a small niche program, focused on research priorities relating to patient blood management (PBM) and the appropriate use of immunoglobulin (Ig). To support the development of best-practice models of management and use of blood and blood related products and services, the NBA supports research to:

- Enhance the sustainability and affordability of the national supply of blood and blood related products, including through increased efficiency and reduced blood product usage and wastage
- Identify appropriate use and reduce inappropriate use of blood and blood related products
- Maintain or enhance clinical outcomes for patients.

To date, the NBA has run five of six approved rounds as part of the R&D Program, funding 40 projects to the value of just under \$6 million (including GST).

Evaluating the NBA R&D Program

Key evaluation questions

This evaluation assessed the value for money, research translation, communication efforts, survivability, capacity building, and collaboration of the R&D Program. To guide the data collection activities, this evaluation considered three overarching key evaluation questions:

- What are the markers of success for the R&D Program?
- What impact has the R&D Program had on survivability and capacity building in the blood sector?
- Does the R&D Program represent value for money in areas that will benefit the Australian blood sector?

A full set of evaluation questions and sub-questions is available in Section 2.1.6 of this report.

¹ *National Blood Authority Annual Report 2022–23.*

² *National Blood Authority Annual Report 2022–23.*

Evaluation methodology

The evaluation drew on three main workstreams: a desktop scan and NBA documentation review, semi-structured interviews and focus groups, and a grant recipient survey. KPMG reviewed NBA data to comprehend the R&D Program's placement within the larger context of health and medical research. KPMG also consulted with grant recipients, NBA staff, an NBA Board member, members of the Jurisdictional Blood Committee (JBC), members of the expert review panel and representatives from other organisations within the sector to inform the discussion and findings in this report. The detailed evaluation approach is described in Section 2 of this report.

Evaluation considerations and limitations

There are several limitations that need to be considered when interpreting the findings of this report. Research translation can be a slow process, with evidence suggesting the bench-to-bedside process can take as long as 17 years on average.³ At the time of the evaluation, one-quarter of the grants awarded under the R&D Program are still active and have not yet reached their completion date. This means that it could be some time before the full benefits of the R&D Program will be realised.

In addition, as with numerous other programs, the R&D Program experienced challenges due to the impacts of the COVID-19 pandemic on the research sector. Numerous projects underway when the pandemic began were significantly delayed as a result. Completion reports indicated the impacts of COVID-19 included:

- Delays in patient recruitment due to the closure of specific hospital wards, including the cancellation of surgeries
- Shifting research locations to accommodate COVID-19 cases, leading to research being conducted elsewhere
- Prohibitions on accessing certain hospital sites to minimise the risk of COVID-19 transmission
- Increased demand for clinical staff members in research teams, resulting in less time dedicated to research.

Despite these constraints, the evaluation was able to identify key markers of success of the R&D Program, the impact of the R&D Program on the Australian blood sector researcher base and assess value for money.

³ Morris, Z. S., Wooding, S., & Grant, J. (2011). The answer is 17 years, what is the question: understanding time lags in translational research. *Journal of the Royal Society of Medicine*, 104(12), 510–520. <https://doi.org/10.1258/jrsm.2011.110180> Accessed 15 November 2023.

Key findings

Findings from the R&D Program evaluation are summarised below against five thematic areas linked to the primary outcomes of the R&D Program: contribution to the safe and effective use of blood products, partnerships and collaboration, early researcher pipeline, research translation to improved clinical practice and value for money. To further demonstrate findings some references have been made to individual projects through the use of project IDs. Additional detail on individual projects can be found throughout this report through case studies and in Appendix C.

Table 1: Key findings based on stakeholder consultations and desktop scan

Outcome area	Findings
Contribution to the safe and effective use of blood products	Funding under the R&D Program has supported researchers to refine clinical practice and sector guidelines. The research findings from a round five project of the R&D Program (e.g. Grant ID 528) indicated that some PBM practices may not be suitable for First Nations patients. This benefit also extends to policy recommendations aimed at better clinical practice such as Grant ID PSc02 contributing to informing transfusion policy.
Partnerships and collaboration	<p>The R&D Program has supported a range of domestic and international collaborations, which can lead to higher quality research and supports translation of research into clinical practice such as Grant ID 417 assessing blood quality in cardiac surgery and Grant ID 127 whose researchers collaborated with trauma centres in the UK to improve patient outcomes.</p> <p>Collaboration across research projects in Rounds 1 – 5 has directly led to improvements in the safe and efficient use of blood products. In particular it has led to:</p> <ul style="list-style-type: none"> • Better practice guidelines and education in the blood sector. • Allowing researchers to advance their knowledge of the research area as well as their proficiency with handling data sets, undertaking data linkage tasks, conducting systematic reviews, and using statistical analysis software. • Supporting PhD and Master's students and early and mid-career researchers in the sector, providing them with a pathway. • Contributing to the education on blood and blood related products through teaching and outreach activities
Contributions to early researcher pipeline	Capacity building in the research sector can lead to several valuable and important long-term impacts, such as research generation, research priority setting, and contributing to advancement in innovation and technology for the blood sector. As vital part of supporting blood sector research in Australia, the R&D Program has directly funded five researchers through scholarship grants and other early career researchers through project and seed funds including Grant ID PSc02, Grant ID 528 and Grant ID 417. While there are a range of research institutions that support blood research, the R&D Program represents the only program focused exclusively on blood and blood products.
Research translation	<p>The R&D Program has supported a number research projects that have translated into clinical practice such as one where the project led to a description for a new disease (Grant ID 111) and another where the project contributed to learning and training for junior clinicians (Grant ID 417). Contributing to the objectives of the R&D Program, Grant ID PSc02 identified clinical practices to reduce adverse outcomes and Grant ID PP03 uncovered evidence for best clinical practice and optimising economic sustainability and supply. This provides evidence of research being translated into clinical decision-making and learning.</p> <p>The R&D Program also provides a pathway where research findings can be considered and incorporated into NBA processes, guidance, and policy as and when appropriate.</p> <p>The R&D Program's reach is demonstrated by the range of forums that grant recipients reported presenting their results through. To date completed projects for the R&D Program have produced over 39 publications and research has also been translated through podcasts, workshops, conferences and press releases.</p>
Value for money	The R&D Program provides a source of continuous funding for blood research and is a key enabler for expanding the funding available in the blood research sector, demonstrating significant value for money when it comes to the sustainability of blood research. The R&D Program allows for the funding of small-scale research initiatives and trials that would otherwise not be financed due to the competitive nature of obtaining funds from larger funding sources.

Outcome area	Findings
	<p>Five of the R&D Program funded projects were able to generate future funding following the completion of the R&D Grants. These projects received a combined total of \$1,170,570 in R&D Program funding and were able to secure a total of \$10,564,959 in subsequent program funding.</p> <p>The prioritising of financing for personnel expenditures over consumable costs as part of the R&D Program promotes the long-term growth of the blood researcher pipeline.</p>

Source: KPMG

There was also evidence of the different funding types contributing to the objectives of the program. Some of the specific contributions aligned to each funding type is provided in Table 2 below.

Table 2: The contribution of each funding type to R&D Program objectives

Funding type	Contribution to R&D Program objectives
Scholarship Grants	<ul style="list-style-type: none"> Developed and strengthened research protocols for future studies and new research methodologies. Built capacity by supporting early-career researchers. Identified clinical practices to reduce adverse outcomes. Developed tools to support clinical decision making.
Seed Grants	<ul style="list-style-type: none"> Conducted pilot trials to establish preliminary data and evidence, and bolstered support for scaled randomised control trials in future. Used preliminary data to inform sample size calculations for future studies. Established research questions for future studies. Secured funding for expanded research.
Project Grants	<ul style="list-style-type: none"> Secured funding for expanded research. Uncovered evidence for best clinical practice and optimising economic sustainability and supply.

Source: KPMG

Options for future rounds

Based on the evaluation's findings, several recommendations have also been developed to enhance future investment in, and sustainability of, the R&D Program. Recommendations were made across several categories, including recommendations related to:

- Data, reporting and outcomes measures
- Communication of the grant and outcomes
- Partnerships and collaboration
- The duration of grants awarded through the R&D Program
- The focus of research topics funded through the R&D Program.

The proposed recommendations have been weighed against their implementation timeline to indicate whether they are possible in the short term (e.g., for Round 6) or the medium to long term (e.g., beyond Round 6).

The detailed description of each recommendation is available in Section 4 of this report.

Glossary

Terminology	Definition
ACEM-CTN	Australian College of Emergency Medicine Clinical Trials Network
ANZAN	Australian and New Zealand Association of Neurologists
ANZAST	Australian and New Zealand Association for the Surgery of Trauma
ANZIC-RC	Australian and New Zealand Intensive Care Research Centre
ANZICS-CTG	Australian and New Zealand Intensive Care Society Clinical Trials Group
ANZSBT	Australian and New Zealand Society of Blood Transfusion
ANZTS	Australian and New Zealand Trauma Society
DHAC	Department of Health and Aged Care
FC	Fibrinogen concentrate
GEP	Grant Evaluation Panel
GFA	Grant Funding Agreements
HAC	Haemovigilance Advisory Committee
HSANZ	Haematology Society of Australia and New Zealand
Ig	Immunoglobulin
IVIg	Intravenous Immunoglobulin
JBC	Jurisdictional Blood Committee
KEQ	Key Evaluation Question
KPI	Key performance indicators
Lifeblood	Australian Red Cross Lifeblood
MRDR	Myeloma and Related Diseases Registry
MRFF	Medical Research Future Fund
NBA	National Blood Authority
NHMRC	National Health and Medical Research Council
NIGAC	National Immunoglobulin Governance Advisory Committee
NTD	National Transfusion Dataset
PBM	Patient blood management
PBMAC	Patient Blood Management Advisory Committee
R&D	Research & Development
THANZ	Thrombosis & Haemostasis Society of Australia and New Zealand
The R&D Program	National Blood Sector Research and Development Program

1

Introduction

1 Introduction

This section provides the structure of this report and an overview of the background and context of the R&D Program.

1.1 Structure of this Evaluation Report

This Evaluation Report is set out in the sections outlined in Table 2 below.

Table 3. Report structure

Section	Overview
Section 1: Introduction	Provides an overview of the background and context of the R&D Program.
Section 2: Evaluation Approach	Provides the approach used for the evaluation, including the scope, objectives, key evaluation questions, considerations and limitations.
Section 3: Evaluation Findings	Provides overall findings of the value for money, research translation distribution, communication efforts, survivability, capacity building, and collaboration of the R&D Program.
Section 4: Recommendations	Provides the overall recommendations for the future of the R&D Program.
Appendices	Appendices A through C provide: the documents and data reviewed to inform the evaluation, a description of the key stakeholders and an overview of the grant for rounds 1-5 of the R&D Program.

Source: KPMG

1.2 Background

The research funding landscape in Australia is highly competitive, with stagnant or shrinking budgets for investigator-driven research programs.⁴ Within this funding environment, it has become essential that research investigators and research funding organisations sustain their research programs by continuing to encourage new and early career researchers to apply for grant support and encouraging applications for innovative, new research.

Blood and blood related products are a critical component of health care. In recognition of the critical nature and national importance of blood and blood related products, the National Blood Authority (NBA) was established under the *National Blood Authority Act 2003* as a statutory agency. The NBA has two primary policy objectives:

- To provide an adequate, safe, secure, and affordable supply of blood products, blood related products and blood related services in Australia; and
- To promote safe, high-quality management and use of blood products, blood related products and blood related services in Australia.⁵

A key function of the NBA outlined in the *National Blood Authority Act 2003* is facilitation and funding of research, policy development and other actions about matters relating to blood, blood related products and blood related services.⁶ This function is supported by the R&D Program.

⁴ D. Iverson. (2022) Australia's research funding system is broken—here's how to fix it. URL: <https://thepolicymaker.jmi.org.au/australias-research-funding-system-is-broken-heres-how-to-fix-it/> Accessed 19 October 2023.

⁵ National Blood Authority Australia. (n.d.). Overview and Role of the NBA. URL: <https://blood.gov.au/about-nba>. Accessed: 19 October 2023.

⁶ National Blood Authority Act 2003 – Section 8.

1.2.1 National Blood Sector Research and Development Program

R&D Program development and funding

In December 2011, the Jurisdictional Blood Committee (JBC) agreed to the development of a strategy to promote blood sector specific research to improve knowledge, information and evidence about blood products and their use, and to help inform good decisions about these matters for governments, patients and clinicians. The NBA released the National Blood Research and Development Strategic Priorities 2013-2016 (2013-16 Strategic Priorities) in 2013, after extensive stakeholder consultation.⁷

In September 2015, the NBA received approval from funding governments to offer two grant rounds as a pilot. The R&D Program was developed to provide niche funding to support research projects in two identified target areas relating to existing priority programs under the national blood arrangements:

- Efficient and effective utilisation of immunoglobulin (Ig) products
- Patient blood management (PBM) research gaps.

After the pilot's success, a preliminary evaluation was conducted in 2017. It confirmed that the pilot filled a significant gap in the funding landscape that other providers had failed to address. The review also found that the NBA's R&D Program had the potential to achieve its stated goals to:

- Enhance the sustainability and affordability of the national supply of blood products, including through increased efficiency and reduced blood related product usage and wastage
- Identify appropriate use and reduce inappropriate use of blood related products
- Maintain or enhance clinical outcomes for patients.

After the success of the pilot and the results of the review, the R&D Program was subsequently extended to six rounds. To date, the NBA has run five of these six approved rounds, funding 40 projects to the value of just under \$6 million (including GST).

In 2021, the NBA collaborated with key stakeholders to review the 2013-16 Strategic Priorities to ensure that the blood sector could continue to contribute to research which will deliver better patient and donor outcomes while also ensuring value for money for the Australian community. The new Blood Research and Development Strategic Priorities 2022-27 (2022-27 Strategic Priorities) consists of three priorities and three enablers as follows:

- 2022-27 priorities
 - Optimise the use of blood and blood products
 - Optimise supply including product innovation and supply chain efficiencies
 - Reduce donor and patient adverse events
- 2022-27 enablers
 - Improved data collection, accuracy and sharing
 - Optimised health service delivery to best meet patient needs
 - Strengthening workforce capability.

This adjustment since the 2013 Strategic Priorities makes the distinction between the research and development priorities and the enabling systems and infrastructures that support them⁸.

A total of \$1.275 million is available for projects under each round of the R&D Program, using interest monies as approved by the JBC. Grants are offered under three categories, as shown in Figure 1.

Figure 1. Summary of grant types

⁷ NBA, (2013). National Blood Research and Development Strategic Priorities 2013 – 16. URL: <https://blood.gov.au/blood-sector-research-and-development-strategic-priorities-2013-16>. Accessed 10 November 2023.

⁸ NBA. (2021) National Blood Research and Development Strategic Priorities 2022-27. URL: <https://blood.gov.au/sites/default/files/National%20Blood%20Research%20and%20Development%20Priorities%202022-27%20report.PDF>. Accessed 15 November 2023.



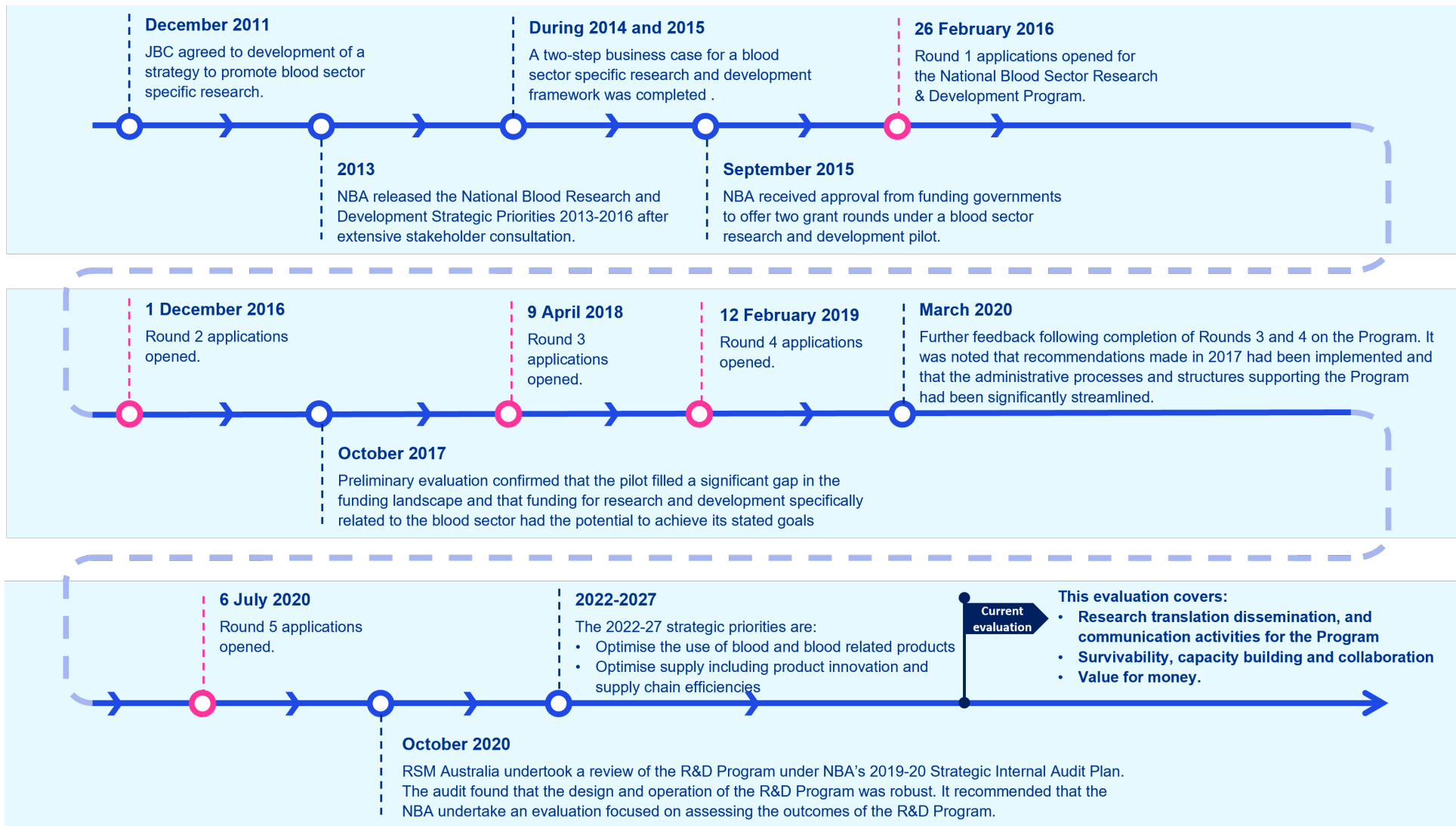
Source: KPMG

The R&D Program funds projects which are focused on research priorities relating to patient blood management (PBM) and the appropriate use of immunoglobulin (Ig), both identified as key priority areas, aligned to the 2022-27 Strategic Priorities. In addition, information gathered from the funded research is used to inform consideration by governments of the viability and potential value of further blood sector specific research and development funding.⁹

A chronology of how the R&D Program has evolved since 2011 is set out in Figure 2.

⁹ National Blood Authority, n.d. National Blood Sector Research and Development Program. URL: <https://blood.gov.au/research-and-development>. Accessed 20 March 2024.

Figure 2. R&D Program journey



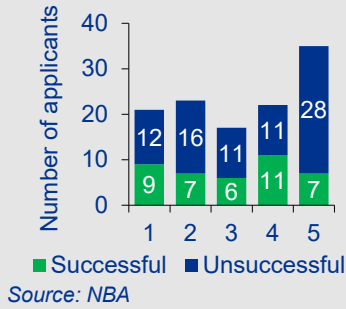
Source: NBA

R&D Program grant overview

A brief overview of the R&D Program is provided below.

Grant applications

Figure 3. Number of successful and unsuccessful applicants by grant round.



Grant status

Figure 4. Grant status from Rounds 1 to 5.

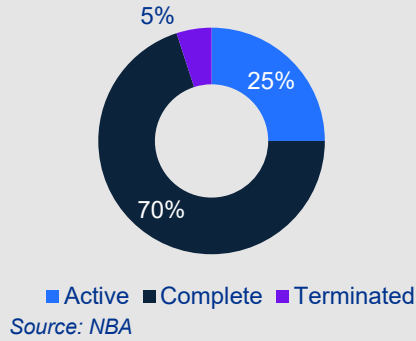
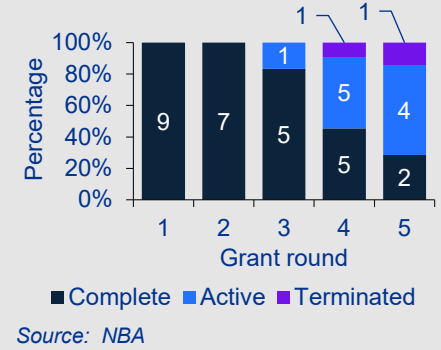


Figure 5. Grant status by grant round.



Grant types

Figure 6. Grant types from Rounds 1 to 5.

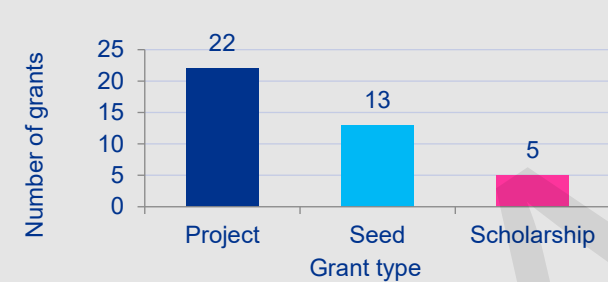
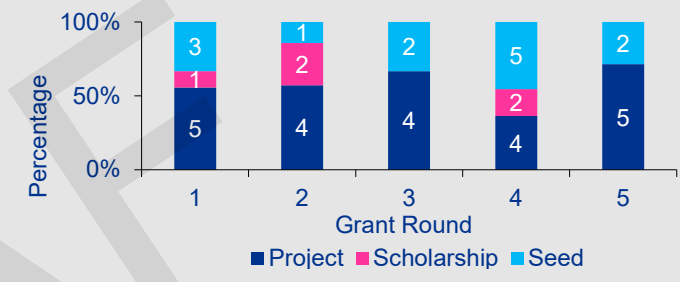


Figure 7. Grant types by grant round.



While the majority of grants support research projects lasting up to three years through project grant funding, other grant types provide seed funding for early-stage research and scholarships for early-career medical researchers.

Total grant funding

Figure 8. Total grant funding awarded by grant round.

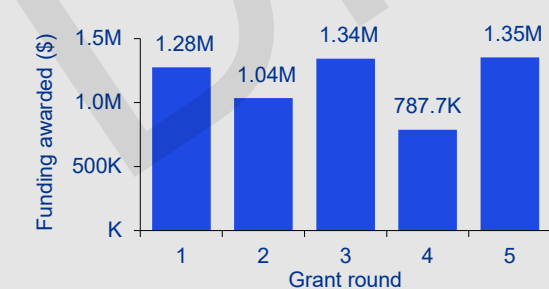
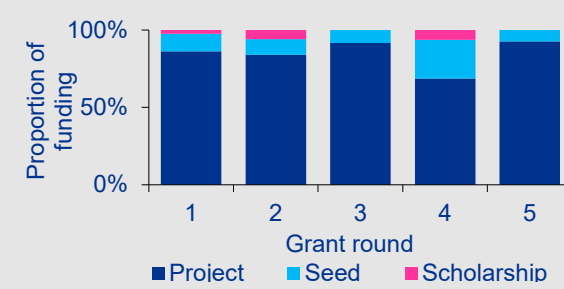


Figure 9. Proportion of funding across grant types, by grant round.



Total grant funding awarded throughout the duration of the R&D Program amounts to AUD\$5.8 million. Most of the R&D Program funding (\$5 million) has been allocated to project grants. Of the remaining funds, \$661,000 has been allocated to seed funding, and \$140,000 to scholarships.

1.2.2 The R&D Program’s position within the Australian Blood Sector and broader R&D landscape

The strong reliance on blood and blood related products within the healthcare system necessitates investment in research in this field. In comparison to some of the larger national health priority areas (e.g., cancer, cardiovascular disease and mental health), blood research is considered to be a relatively niche research area. Stakeholders describe this to be due to the common focus on rare conditions and diseases, specific blood related protocols and distinct patient cohorts.

There are various entities providing funding to blood research in Australia, including:

- Australian Government research funding bodies, including, National Health and Medical Research Council (NHMRC) , Medical Research Future Fund (MRFF) and NBA
- State health departments
- Academic institutions (e.g., universities)
- Specialist medical colleges (e.g., The Australian and New Zealand College of Anaesthetists, The Royal Australasian College of Physicians)
- Medical societies and associations (e.g., Australian and New Zealand Society of Blood Transfusion (ANZSBT), Thrombosis & Haemostasis Society of Australia and New Zealand (THANZ), Haematology Society of Australia and New Zealand (HSANZ), National Haemophilia Foundation)
- Private companies (e.g., CSL)
- Philanthropic foundations (e.g., Kawasaki Disease Foundation, Channel 7 Children’s Research Foundation)
- Individuals providing one-off donations.

In providing funding for blood research in Australia, stakeholders emphasised the importance and benefit of having dedicated funding streams for blood research. The NBA is uniquely positioned to provide funding that is both value-specific and distinct from other funding sources. As shown in Table , while the NBA R&D Program's average grant value is less than blood-specific grants provided by the NHMRC and MRFF, and research output (measured by grants awarded) is significantly higher. The R&D Program provides more opportunity to investigate novel areas of the blood sector and safe use of blood and blood related products while reducing the spend on projects that may not be feasible. The program provided more than half (57 per cent) of blood research grants in Australia between 2015 and 2023. Furthermore, many R&D Program-funded projects continue to receive support after the R&D grants expire. For example, five projects funded through the R&D Program obtained \$10,564,959 in additional program funding after receiving a total of \$1,170,570 in support from the R&D Program. Researchers reflected that without the R&D Program, the larger funding organisations would not have been able to support these current research projects. This suggests that the R&D Program funds a range of innovative and pilot research projects, thereby addressing a gap in the market.

Table 4. Sector analysis of blood research grants in Australia (2015-2023)

Funding body	Average grant value	Total number of grants awarded	Sum of all grants
MRFF	\$1.9M	11	\$20.8M
NHMRC	\$1.3M	19	\$25.0M
NBA (R&D Program)	\$145K	40	\$5.8M
Total	\$1.1M	70	\$51.7M

Source: Information obtained via a desktop review of open-source data available online for the following funding bodies: NHMRC¹⁰, MRFF¹¹, NBA¹². Therefore, this may not be an exhaustive list of grant funding awarded across the specified period.

¹⁰ National Health and Medical Research Council. (2023) Research Funding Statistics and Sata. URL: <https://www.nhmrc.gov.au/funding/data-research/research-funding-statistics-and-data>. Accessed 30 November 2023

¹¹ Commonwealth of Australia, Department of Health and Aged. (2024) Care Medical Research Future Fund (MRFF) grant recipients. URL: <https://www.health.gov.au/resources/publications/medical-research-future-fund-mrff-grant-recipients?language=en>. Accessed 20 January 2024

¹² National Blood Authority. (2023) National Blood Sector Research and Development Program, URL: <https://blood.gov.au/research-and-development> Accessed 1 November 2023

2

Evaluation Approach

2 Evaluation Approach

This section outlines the objectives, limitations and considerations, program logic, methodology, and key evaluation questions used to inform the evaluation of the NBA R&D Program.

2.1 Evaluating the R&D Program

2.1.1 Evaluation objectives

The aim of the evaluation is to inform deliberations by the NBA and governments about future investment into, and sustainability of, the R&D Program and to demonstrate accountability for the Australian public. To do this, the evaluation covers three key areas:

- Describing research translation, dissemination, and communication activities for the R&D Program. This will involve describing the markers of success of the R&D Program and its achievements in research translation and communication activities.
- Describing the impact that the R&D Program has had on survivability and capacity building in the Australian blood sector. This focuses on the impact of the R&D Program on the research base for the blood sector and the impact on the broader research community in Australia.
- Assessing whether the R&D Program represents value for money in areas that will benefit the Australian blood sector. This includes determining whether the research projects that have been funded effectively address the objectives of the R&D Program.

Importantly, this evaluation considers the R&D Program's previous reviews and audits and provides an opportunity to identify improvements to shape future grant rounds. While these previous reviews focused on process and administrative arrangements of the R&D Program, this evaluation focuses on the achievements and outcomes.

2.1.2 Evaluation considerations and limitations

There are several limitations and contextual considerations associated with the data and information used to generate this evaluation which should be considered when interpreting the findings of this report.

The data and documentation provided to KPMG for analysis was not validated or assessed for completeness or accuracy. KPMG was not responsible for the completeness, accuracy or reliability of the information provided by the NBA or other stakeholder groups that has informed this evaluation. Data and information related to other research programs was limited to qualitative information obtained from stakeholder interviews and publicly available data.

KPMG consulted with a wide range of stakeholders using both interviews and surveys. Their views have informed the discussion and findings in this report. It should be noted that there is a long-term impact associated with research and that the views obtained for this evaluation are not representative of all researchers.

Readers should also note that, at the time of the evaluation, one-quarter of the grants are still active and the remainder have been completed or terminated (see Figure 4). Furthermore, as with numerous other programs, the R&D Program has experienced challenges due to the impacts of the COVID-19 pandemic. Some of these challenges included:

- Delays in patient recruitment due to the closure of specific hospital wards, including the cancellation of surgeries
- Prohibitions on accessing certain hospital sites to minimise the risk of COVID-19 transmission
- Increased demand for clinical staff members in research teams due to COVID-19, resulting in less time dedicated to research.

Grant recipients acknowledged and appreciated the NBA's flexibility in response to COVID-19, demonstrated by facilitating contract variations to support the work to continue under the circumstances, minimising the impact on the research outputs.

This report has acknowledged that research translation can be a slow process.¹³ The Program Logic at Figure 10 identified the short-, medium- and long-term outcomes of the R&D Program. However, noting the considerations and limitations of this evaluation, the R&D Program has only been assessed against the short-term outcomes, including:

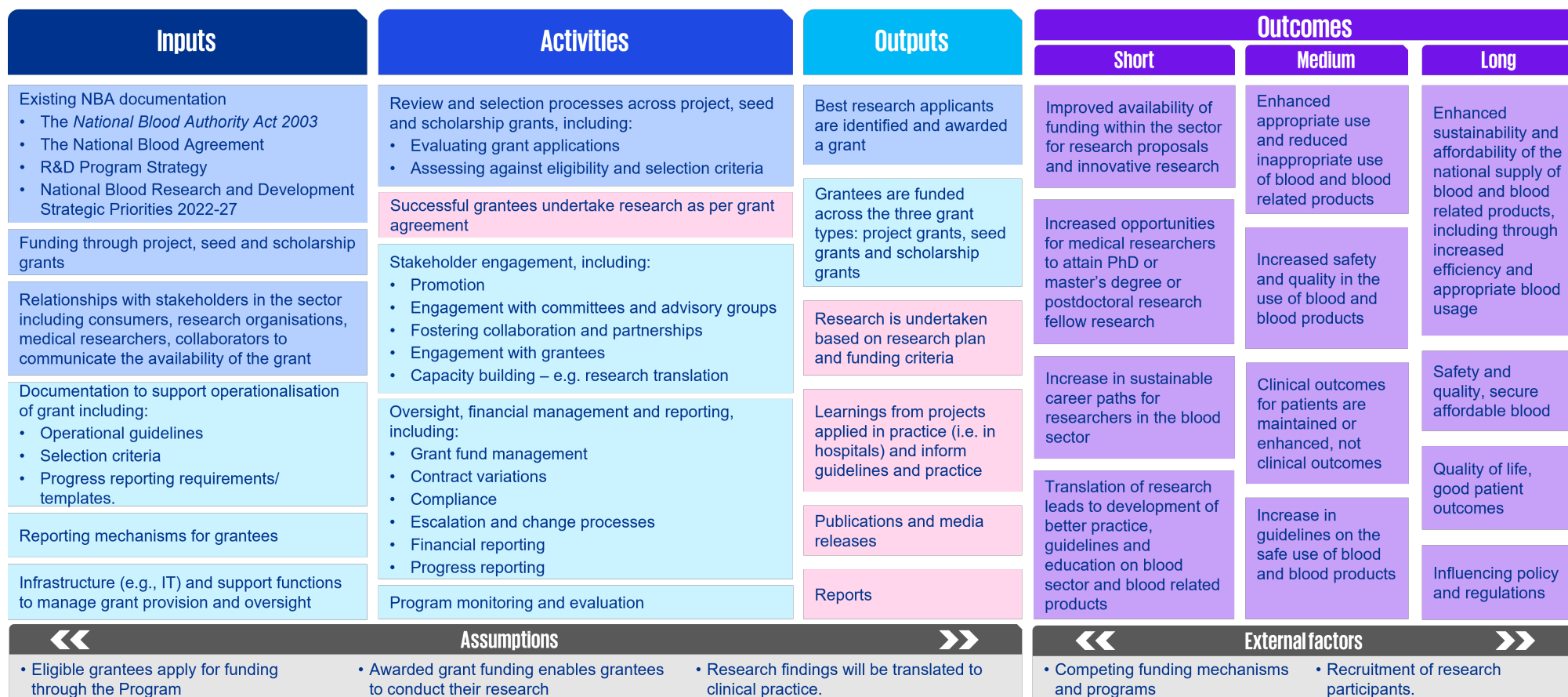
- Improved availability of funding within the sector for research proposals and innovative research
- Increased opportunities for medical researchers to attain PhD, master's degree or postdoctoral research fellow
- Increase in sustainable career paths for researchers in the blood sector
- Translation of research leads to development of better practice, guidelines and education on blood sector and blood related products.

¹³ Morris, Z. S., Wooding, S., & Grant, J. (2011). The answer is 17 years, what is the question: understanding time lags in translational research. *Journal of the Royal Society of Medicine*, 104(12), 510–520. <https://doi.org/10.1258/jrsm.2011.110180>. Accessed 15 November 2023.

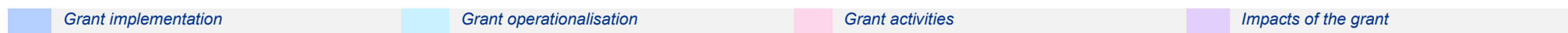
2.1.3 Program logic

A program logic was developed to understand the key components of the NBA R&D Program. A workshop was held with key NBA staff to test and validate the program logic. The program logic illustrates the link between the inputs to the activity and outputs, and the intended short, medium and long-term outcomes.

Figure 10. R&D Program - Program Logic



The program logic colour coding is used to illustrate that there are four key streams of activities and outputs:



Source: KPMG

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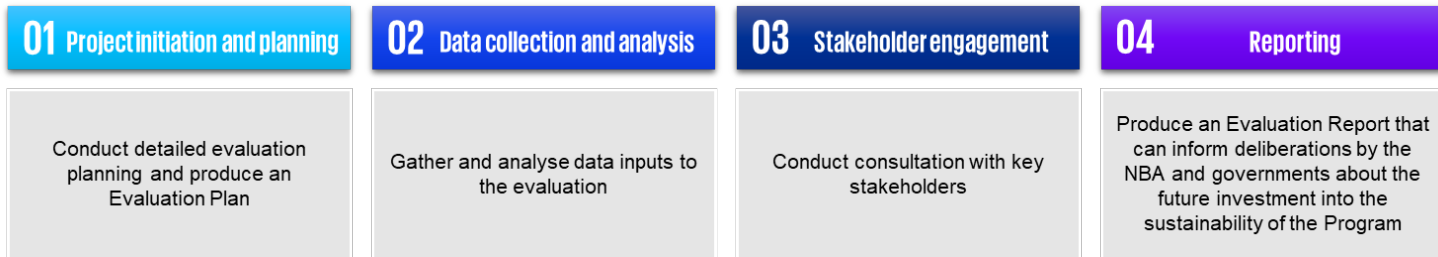
Document Classification: KPMG Confidential

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2.1.4 Evaluation overview

The evaluation has been undertaken across four key phases of work. These phases and the key activities and deliverables are outlined in Figure 11 below.

Figure 11. Project approach



Source: KPMG

2.1.5 Evaluation methodology

A mixed methods approach was used for the evaluation, incorporating a range of quantitative and qualitative data.

Desktop scan and document review

The evaluation team conducted a desktop review on Rounds 1 – 5 of the R&D Program. This considered documentation provided by the NBA, including analysis of:

- Grant management documentation from Rounds 1 – 5 of the R&D Program including templates, application forms, and Grant Opportunity Guidelines
- Research outputs including publications, progress and completion reports
- Outcomes of previous R&D Program audits, reviews and reports
- Communication activities.

This phase also involved undertaking a scan of other research and development programs in Australia to understand the R&D Program's positioning within the broader health and medical research landscape. This formed the basis for identifying the R&D Program's alignment to broader research priorities in the blood sector and identifying opportunities and key areas of improvement for the R&D Program, in the short, medium and long term.

The approach to the financial analysis focused on the efficiency and value for money delivered by the R&D Program. This included analysis of:

- Grant funding awarded and other contributions by grant type, research stream and research rounds
- Grant contributions to research costs
- Funding awarded compared to the funding cap available for each round.

Stakeholder consultation

The evaluation team facilitated semi-structured interviews and focus groups with identified stakeholders, using consultation guides developed during Phase 1. The consultation questions were developed to align with the areas of inquiry from the Key Evaluation Questions (KEQs).

See Appendix B for further detail on the 40 stakeholders consulted to inform the findings of this evaluation.

Grant recipient survey

KPMG worked with the NBA to develop an alternative method for data collection from grant recipients. This survey provided grant recipients with the opportunity to provide their written insights and feedback on the R&D Program rather than through direct consultation.

Case Studies

A sample of funded initiatives through the R&D Program have been selected to feature as case studies in this report. These case studies demonstrate the impact of research projects that have been funded, in part, through the R&D Program. Case studies are summarised at a high level with a focus on highlighting impact and translation activities. Case studies were selected to reflect a spread of projects across grant rounds, grant types and research focus. A total of eight case studies have been selected to feature in this report.

2.1.6 Key evaluation questions

To guide the data collection activities, the evaluation considered the following key evaluation questions.

Table 5. Key Evaluation Questions

Key evaluation question	Sub questions
1.0 What are the markers of success for the R&D Program?	1.1 How have markers of success been applied in the shorter, medium and longer term?
	1.2 What are some examples of research translation and/or dissemination activities? For example: <ul style="list-style-type: none"> • What impact has research had on NBA processes, guidance or policy? On patient outcomes? • How have research findings been applied to clinical practice or used to guide clinical decision making or learning? • How is the research's potential impact communicated once the project has ended?
	1.3 What other markers could be used as key performance indicators for the R&D Program? <ul style="list-style-type: none"> • How does the R&D Program build capability and capacity? • Are there better measures than scientific publication output?
2.0 What impact has the R&D Program had on survivability and capacity building in the blood sector?	2.1 What impact has the R&D Program had on the researcher base for the Australian blood sector? <ul style="list-style-type: none"> • How has the R&D Program generated any learnings or impact on research competitiveness in other processes? • How has the seed or scholarship funding impacted future funding opportunities? • To what extent is funding building capacity and capability?
	2.2 What opportunities or examples are there for the R&D Program in supporting inter-institutional (e.g., across research teams or organisations), domestic and international collaboration? <ul style="list-style-type: none"> • What kind of partnerships have already been built? • What opportunities exist to build international partnerships?
3.0 Does the Program represent value for money in areas that will benefit the Australian blood sector?	3.1 Does the existing strategy, which is investigator-driven and divided into projects, seeds and scholarships, offer the NBA and governments the best value for money? <ul style="list-style-type: none"> • How do grant types encourage researchers to apply? • How do the different grant types correlate with desired R&D Program outcomes? To what extent are they being achieved?
	3.2 What alternative funding avenues exist within the health and medical research sector for supporting this R&D Program? <ul style="list-style-type: none"> • What are the advantages and disadvantages of exploring these other options? • How could the NBA change their approach and partner with other organisations/funding bodies to meet the National Blood Sector priorities?

Source: KPMG

3

Evaluation Findings

3 Evaluation Findings

This section presents the findings of the evaluation of the R&D Program.

3.1 Evaluation Question 1 - Markers of success

Key Findings

- The R&D Program has provided niche blood focused funding designated for Ig and PBM research and is uniquely placed to be able to bring together researchers and support collaboration in the blood sector.
- In many cases, grant recipients use R&D Program funding to complement funding received from additional funding sources such as ANZSBT and NHMRC. The research findings produced by this collaborative effort are used to secure further funding.
- The R&D Program has supported early and mid-career researchers in the sector. It has also provided support to medical researchers during their PhD or master's degrees.
- Building capacity has been one of the main achievements of the R&D Program. Awarded grants allowed researchers to advance their knowledge of the research area as well as their proficiency with handling data sets, undertaking data linkage tasks, conducting systematic reviews, and using statistical analysis software.
- The R&D Program has contributed to the education and awareness raising of blood and blood sector products. As part of the research, a seed funded project educated more than 200 staff members about blood and blood related products through teaching and outreach.
- The R&D Program has translated to better clinical outcomes as a result of research conducted.

3.1.1 R&D Program outputs and outcomes

R&D Program outputs

The key outputs for the R&D Program include:

- Best research applicants are identified and awarded a grant
- Grantees are funded across the three grant types: project grants, seed grants and scholarship grants
- Research is undertaken based on a research plan and funding criteria
- Learnings from projects are applied in practice (i.e. in hospitals) and inform guidelines and practice
- Publications and media releases
- Reports.

Through Rounds 1 through 5 of the R&D Program, the NBA was able to deliver all the intended outputs, including the selection of research applications to the production of publications and reporting of the supported research. The R&D Program Grant Overview in Section 1.2.1 offers a summary of the 40 projects funded under various grant types.

R&D Program outcomes

Translation of research funded by the R&D Program leads to the development of better practice, guidelines and education

As part of the reporting obligations for the R&D Program, grant recipients provide details of their research translation and dissemination activities. The desktop review provided examples of how research translation of the R&D Program funded research led to better practice guidelines and education in the blood sector. The translation activities reported by some of the grant recipients are included in Table 4 below.

Table 4. Translation activities reported by grant recipients

Project	Description of research translation activities
<p>ID: 111</p> <p>Towards a better understanding of doctors' treatment patterns and immunoglobulin use in Australian children with Kawasaki Disease: an opportunity for improvement?</p>	<p>Researchers were involved in development of a national case description for this new disease and participated as part of a national expert panel on this new phenomenon. More information on this project is provided at Case Study 5.</p>
<p>ID: 113</p> <p>A series of studies on a new clotting test in pregnant women to optimise the management of bleeding</p>	<p>The researcher was invited to participate in the development of version 6 of the Queensland Clinical Guideline on Primary Postpartum Haemorrhage considering their research findings.</p>
<p>ID: IgP04</p> <p>Improving national immunoglobulin stewardship and clinical outcomes for patients with myeloma.</p>	<p>This study lay the foundations for future Australian-led research in Ig use. For example, the model and processes developed by this study have since formed establishment of similar biobanks for other studies.</p> <p>This project also allowed data linkage between the Myeloma and Related Diseases Registry (MRDR) and the recently established national transfusion dataset (NTD). More information is provided at Case Study 1.</p>
<p>ID: 117</p> <p>Iron need in pregnancy and after birth</p>	<p>This project allowed for the establishment of a large, longitudinal biobank, allowing for future retrospective longitudinal studies.</p>

Source: Analysis of completion reports for projects 111, 113, 117 and IgP04

The table below further highlights how the R&D Program has contributed to key outcomes for the eight projects included as case studies in this report.

Table 6: Key benefits demonstrated through R&D Program case studies

Project	Benefits				
	Development of medical researcher pipeline	Conference and/or publications	Improvements in clinical practice	Improvements in data	Future Funding opportunities
ID: IgP04 Improving national immunoglobulin stewardship and clinical outcomes for patients with myeloma.		✓		✓	
ID: PSc02 Understanding risks and clinical outcomes of anaemia in the elderly to inform the transfusion policy	✓	✓			
ID: 528 Anaemia and transfusion prevalence in Indigenous and non-Indigenous intensive care, pregnant and cardiac patients	✓	✓			
ID: 120 Improving blood sampling practice for critically ill children undergoing cardiac surgery		✓	✓		
ID: 111 Towards a better understanding of doctors' treatment patterns and immunoglobulin use in Australian children with Kawasaki Disease: an opportunity for improvement?		✓	✓	✓	
ID: 127 Fibrinogen Early in Severe Trauma Study – (FEISTY I) Pilot		✓			✓
ID 315 Fibrinogen Early in Severe Trauma Study – (FEISTY II)					✓
ID 417 Assessment of blood quality in cardiac surgery		✓	✓		

Source: Analysis of completion reports for projects IgP04, PSc02, 528, 120, 111, 127, 315 and 417

Case Study 1: Improving national immunoglobulin stewardship and clinical outcomes for patients with myeloma

Datasets and biobanks established as a result of research

GRANT ID IgP04 – Round 2- Ig

Project overview

The project objectives included:

- To describe Ig use in Australian patients with multiple myeloma (MM).
- To describe the epidemiology, risk factors for, management and outcomes of infections in patients with MM in Australia at site, jurisdictional and national levels
- To collect samples for biobanking, to serve as a resource for future testing in order to correlate results of immunological investigations with requirement for Ig therapy and/or infection risk in patients undergoing treatment for myeloma with current therapies
- To provide new data to inform national risk-stratified guidelines for Ig use in Australian MM patients, to improve clinically important outcomes.

Funding summary

Project \$447,567

Other \$ 458,000

Success factors

- This study lay the foundations for future Australian-led research in Ig use.
- The model and processes developed by this study have since informed establishment of similar biobanks for more recently funded studies.
- The availability of established research infrastructure enabled data linkage between the Myeloma and Related Diseases Registry (MRDR) and the recently established national transfusion dataset (NTD).
- Sharing the results through conference presentations, including at the International Immunocompromised Host Society (ICHS) 2021 Symposium have been valuable to generate awareness and feedback from clinicians and researchers.

Source: Grant IgP04 completion report; stakeholder consultations.

Highlighting the long-term nature of research translation activities, more grant recipients described how their research contributed to future studies and capacity building in the sector as opposed to direct impacts on better practice, guidelines, and education. More examples of the research translation are described in the next section.

Availability of funding in the sector

In addition to the NBA R&D Program, the National Health and Medical Research Council (NHMRC), Medical Research Future Fund (MRFF), Australian Research Council (ARC), and Research Block Grants provide funding for blood related research (see Section 1.2.2). For example, from 2013 to 2020, the NHMRC funded \$190.3 million in research projects relating to blood diseases.¹⁴ A summary of the funding mechanisms highlighted through this evaluation is provided in Table 5 below.

Table 5. Summary of funding mechanisms

Funding body	Focus of funding
Australian and New Zealand Society of Blood Transfusion	The ANZSBT supports research in blood transfusion and related fields, including basic, clinical, and translational research in transfusion, for a single grant or smaller grants totalling \$75,000. ¹⁵
Australian Red Cross Lifeblood (Lifeblood)	Lifeblood, through funding provided by the NBA, supports research that follows the journey of blood from donors to patients in the research areas of donor research, product development, product safety and product usage.
Australian Research Council	The ARC's focus is on driving the research contribution of universities to areas of national interest and to achieve improved economic and social outcomes. Central to this is strengthening the translation pipeline for Australian research, including encouraging greater collaboration with industry to stimulate research and development activity. ¹⁶ The ARC funds research across multiple disciplines from pure 'blue-sky' knowledge creation, as well as industry-ready commercial outcomes, to a spectrum of projects that are conducted by early career researchers to well-known research leaders ¹⁷ .
Hospitals	Hospitals also make funding available for blood related research. For example, the Royal Melbourne Hospital made \$24,914 available in 2018 for a research project into the assessment of a novel blood separator device as a sample collection approach for the diagnosis of infectious diseases. ¹⁸
Medical Research Future Fund	The MRFF provides grants of financial assistance to support health and medical research and innovation, with the objective of improving the health and wellbeing of Australians. MRFF grants are usually targeted within funding initiatives or focused on specific topics. ¹⁹
National Health and Medical Research Council	NHMRC funding is investigator-initiated, where the subject of research is determined by applicants except for a proportion of earmarked funds for specific research topics. There is strong demand for NHMRC funding, and the process is very competitive, so not all high-quality research proposals are able to be funded. ²⁰
Research Block Grants	Research block grants, such as those provided by the Department of Education, Skills and Employment, provides funding to eligible Australian higher education providers (HEPs) to support the training of domestic and international students. The program provides a flexible funding stream for HEPs to support the systemic costs of research, as well as providing funding for indirect costs such as libraries, laboratories, consumables, computing centres and the salaries of support and technical staff. ²¹

¹⁴ National Health and Medical Research Council. (2021). Outcomes of funding rounds. Australian Government. URL: <https://www.nhmrc.gov.au/funding/data-research/outcomes>. Accessed 30 November 2023.

¹⁵ The Australian & New Zealand Society of Blood Transfusion, (2024) ANZSBT 2024 Research Grant. URL: <https://anzsbt.org.au/news/anzsbt-2024-research-grant/#:~:text=The%20ANZSBT%20Research%20Fund%20supports,or%20smaller%20grants%20totalling%20%2475%2C000>. Accessed 22 January 2024

¹⁶ Australian Research Council, (2022) URL: <https://www.arc.gov.au/about/our-work/our-purpose> Accessed 30 November 2023

¹⁷ Australian Research Council Australian Research Council Strategy 2022-2025. (2022) URL: https://www.arc.gov.au/sites/default/files/2022-08/ARC%20Strategy%202022-2025_1.pdf Accessed 30 November 2023

¹⁸ The Royal Melbourne Hospital. (2019). Outcome of funding rounds. URL: <https://www.thermh.org.au/research/researchers/grants/rfp/outcome> Accessed 30 November 2023.

¹⁹ Commonwealth of Australia | Department of Health and Aged Care. (2023) About the MRFF. URL: <https://www.health.gov.au/our-work/medical-research-future-fund/about-the-mrff> Accessed 30 November 2023.

²⁰ National Health and Medical Research Council. (2023) Research Funding Statistics and Sata. URL: <https://www.nhmrc.gov.au/funding/data-research/research-funding-statistics-and-data>. Accessed 30 November 2023

²¹ Department of Education, Skills and Employment. (2021). Research Block Grants. URL: <https://www.dese.gov.au/research-block-grants> Accessed 30 November 2023.

Funding body

Focus of funding

State Governments

State governments also fund medical research, for example the Victorian Government’s \$3 million Victorian Medical Research Acceleration Fund (VMRAF). The VMRAF aims to facilitate collaboration between health services, medical research institutes, universities and industry that maximises innovation, supports talent retention, improves the likelihood that the funded projects will be successful, and increases the likelihood that the outputs of health and medical research generate health outcomes for all Victorians.²²

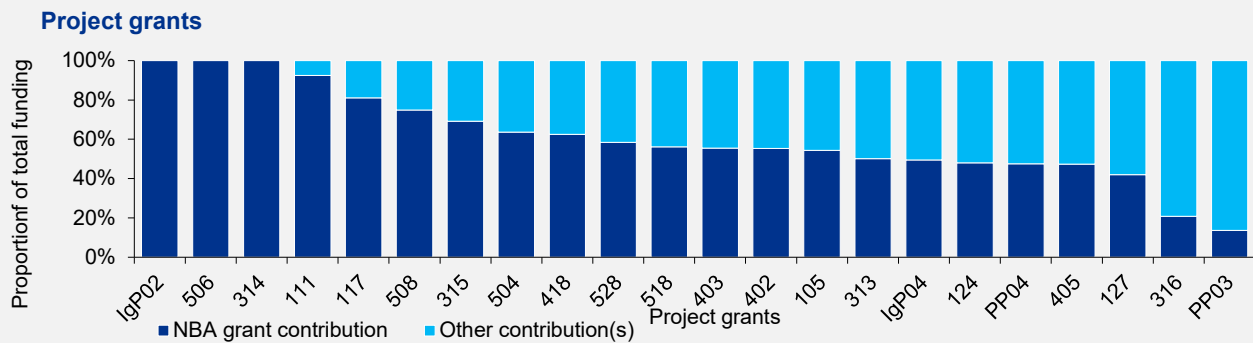
Source: KPMG analysis of funding mechanisms in the health sector

The R&D Program provides collaborative funding that enhances the ability for research projects to be able to secure future funding.

One advantage of the R&D Program is that the available NBA grant funding provided supplementary funding for projects. Recipients of NBA grants frequently commented that the funding offered was insufficient to support larger, research initiatives, but that it was ideal for pilot studies or hiring more staff. As a result, the majority of grant recipients received contributions from other financial funding sources. Figures 12 – 14 demonstrate which projects received sole contributions from the NBA, which projects received additional contributions, and the proportions of how funding contributions contributed to the overall project costs.

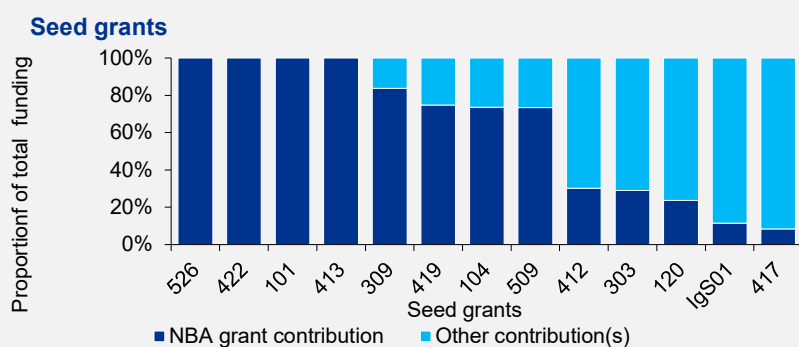
- Of the 22 project grants, 19 (86%) received additional contributions from other funding sources.
- Of the 13 seed grants, nine (69%) received additional contributions from other funding sources.
- Of the five scholarship grants, one (20%) received additional contributions from other funding sources.

Figure 12. Total proportion of funding received by project grant recipients by contribution type.



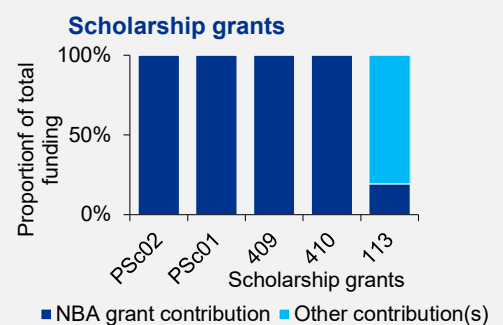
Source: NBA*

Figure 13. Total proportion of funding received by seed grant recipients by contribution type.



Source: NBA*

Figure 14. Total proportion of funding received by scholarship grant recipient by contribution type.



Source: NBA*

* The data depicted in these figures was acquired from Grant Funding Agreements; hence, any funding obtained subsequent to the signing of the Agreements has not been included in these graphs.

²² University of Melbourne. (2023) Victorian Medical Research Acceleration Fund (VMRAF) Round 7. URL: <https://sites.research.unimelb.edu.au/research-funding/domestic/djpr-victorian-medical-research-acceleration-fund-vmraf-and-mrna-vmraf>. Accessed 1 December 2023

Importantly, stakeholders highlighted that the funding from the R&D Program was not duplicative of other research funding opportunities in the sector, but rather was complementary. The NBA also funds the operations of the Australian Red Cross Lifeblood (Lifeblood). Stakeholders from Lifeblood reported that they have strong ties with the NBA, for example the NBA having a senior position on Lifeblood’s Research Advisory Committee that advises on the strategic alignment of Lifeblood with both the 2013-17 and 2022-27 Strategic Priorities. Stakeholders suggested that Lifeblood and the NBA complement each other, as any research sitting outside of Lifeblood’s remit sits well in scope of the R&D Program.

A number of stakeholders also noted that funding available through alternative funding mechanisms, such as through the MRFF and NHMRC, are not set up to be for blood research specifically. Anecdotal evidence suggests that these grant funding models often favour research proposals focusing on large-scale trials in national health priority areas.^{23,24} The only exception to this was the 2021 targeted MRFF grant round dedicated to “Optimising the Clinical Use of Immunoglobulins”, where \$14 million of funding was made available.²⁵ In contrast, the NBA is uniquely positioned to this research niche in Australia given the linkages between the R&D Program and the 2013-17 and 2022-27 Strategic Priorities²⁶.



“More funding is available from NBA compared to other organisations in the Blood Sector, the research focus is similar to smaller granting bodies, the support and oversight is more detailed.”

Grant recipient

Furthermore, investment from other funding bodies that operate in the blood sector, for example the Australian & New Zealand Society of Blood Transfusion (ANZSBT), is significantly smaller. The largest ANZSBT grant awarded per year is a maximum of \$75,000.²⁷ For this reason, grant recipients and those within the NBA, commented that a key benefit of the R&D Program was improving the availability of earmarked funding in the sector for Ig and PBM research.

²³ NHMRC (n.d.). Research Translation Strategy 2022–2025. URL: <https://www.nhmrc.gov.au/research-policy/research-translation-and-impact/research-translation-strategy-2022-2025>. Accessed 22 October 2023.

²⁴ Department of Health and Aged Care (n.d.). Early to Mid-Career Researchers initiative. URL: <https://www.health.gov.au/our-work/mrff-early-to-mid-career-researchers-initiative#why-it-is-important>. Accessed 22 October 2023.

²⁵ Department of Health and Aged Care. (Updated Oct 2023). Medical Research Future Fund (MRFF) grant recipients. URL: <https://www.health.gov.au/resources/publications/medical-research-future-fund-mrff-grant-recipients?language=en>. Accessed: 5 November 2023. Accessed 22 October 2023.

²⁶ National Blood Authority (2021) National Blood Research and Development Strategic Priorities 2022-27, URL: <https://blood.gov.au/sites/default/files/National%20Blood%20Research%20and%20Development%20Priorities%202022-27%20report.PDF>. Accessed 30 November 2023.

²⁷ Australian & New Zealand Society of Blood Transfusion Ltd. (n.d.). Awards & Grants General Information. URL: <https://anzsbt.org.au/awards-grants/awards-grants-general-information>. Accessed: 5 November 2023.

The R&D Program provides opportunities for medical researchers in completing a PhD or master's degree or postdoctoral research fellowship

There is evidence that the R&D Program has supported medical researchers to obtain postdoctoral research fellow positions, PhDs or master's degrees. The R&D Program offers one form of scholarship grants specifically targeted towards researchers who are furthering their education. The NBA's scholarship grant provides one year of scholarship funding to applicants. A total of five scholarship grants have been awarded as part of the R&D Program throughout Rounds 1, 2 and 4. These completed projects are summarised in Table 5.

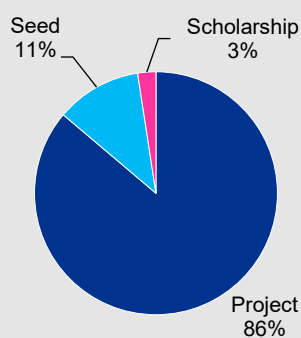
Table 7. Summary of Scholarship Grants

Round	Type	ID	Title	Publications
1	PBM	113	A series of studies on a new clotting test in pregnant women to optimise the management of bleeding	4
2	PBM	PSc02	Understanding risks and clinical outcomes of anaemia in the elderly to inform transfusion policy	1
2	PBM	PSc01	Intraoperative cell salvage, a safer and cost effective alternative to allogeneic blood transfusion	1
4	PBM	410	Computerised support for decision-making during massive transfusion to improve efficiency and outcomes	3
4	Ig	409	Neuromuscular ultrasound as a Biomarker in CIDP	1

Source: KPMG analysis of R&D Program data

Funding awarded for scholarship grants is significantly smaller than for other project grants and some seed grants and makes up the smallest proportion of the total R&D Program funding awarded to date (see Figure 15). Despite having the lowest cost impact among the three grant types, the benefits to the blood sector research workforce were recognised in the consultations.

Figure 15. Total grant funding awarded by grant type



Source: NBA

Stakeholders recognised the important role scholarship grants play in supporting and encouraging early career researchers to continue pursuing a research career in the sector. The scholarship grant acts as a stipend, helping PhD candidates and postdoctoral researchers cover their living expenses, thereby enabling them to dedicate more time to their research. Scholarship recipients were able to build their understanding of the blood sector and gain fundamental new research skills, whilst leveraging their clinical skills and expertise to contribute to the evidence-base through supporting and conducting their own research projects.

Case study 2 demonstrates the activities that a scholarship recipient participated in as part of the R&D Program and the resulting skills that they were able to acquire.

Case Study 2: Understanding risks and clinical outcomes of anaemia in the elderly to inform transfusion policy

Skills enhancement for researchers

GRANT ID PSc02 – Round 2 - PBM

Project overview

The scholarship grant recipient undertook various research activities over the course of the scholarship grant period:

- Systematic review of outcomes and consequences of anaemia treatment in elderly patients with myelodysplastic syndromes (MDS)
- Data-linkage analysis of Victorian state-wide data using multiple population datasets to investigate changes in transfusion practice over time for patients with MDS
- Institutional review retrospective cohort study of MDS patients at Monash Health for detailed description of clinical and laboratory transfusion practice and how this aligns with current PBM guidelines
- Develop a study protocol for a pilot international clinical trial (“Red cell transfusion in myelodysplastic syndromes - REDDS-2”)

Funding summary

Scholarship \$30,000

Success factors

- Funding PhD scholarships contributes to building transfusion research capacity in Australia.
- PhD scholarship funding, used to cover living expenses as a stipend, allowed for more dedication of time towards developing and conducting the research for scholarship recipient.
- Findings of increasing use of platelet transfusion in MDS cohort made further research possible, including a clinical survey of MDS platelet practices within Australasia and potential clinical trials.
- The study protocol and ethics submission for, REDDS-2 (international clinical trial investigating the optimal transfusion strategy for patients with MDS, majority of whom are elderly with comorbidities) was completed and informed the development of the pilot clinical transfusion trial.
- Peer reviewed publications, including a publication in the Journal of Association for the Advancement of Blood & Biotherapies*
- Presentations at conferences, including at the 2019 Blood Conference held in Perth.

* Mo, A., Stanworth, S. J., Shortt, J., Wood, E. M., & McQuilten, Z. K. (2021). Red cell transfusions: Is less always best? How confident are we that restrictive transfusion strategies should be the standard of care default transfusion practice?. *Transfusion*, 61(7), 2195-2203.

Source: Grant PSc02 completion report; stakeholder consultation.

Building capacity and capability is one of the R&D Program's main achievements

A main achievement of the R&D Program recognised through the evaluation was capacity building. Most funding for the R&D Program is allocated to resourcing staff to support research, frequently Ph.D. students, to assist lead investigators. Researchers involved in successful projects were able to build both skills in working with data sets, conducting data linkage activities, conducting systematic reviews, utilising statistical analysis software, and were also able to build their knowledge on the research topics themselves. These skills and knowledge often contributed to researchers' involvement in future work.

As an example, a Round 4 seed project (Grant ID 417) focused on the assessment of blood quality in cardiac surgery. The researchers reported that they had learnt an immense amount through engagement with their clinical team at Gold Coast University Hospital which, in turn, drove the research to be more impact-focused and led to follow-on research projects. The collaboration enhanced the ability of both the research and clinical teams to discuss their topics with a richer scientific and/or clinical perspective as a result of the collaborative approach which led to greater international opportunities. Additional details on this project are provided in Case Study 8, and in Section 3.2.2

Stakeholders consulted were asked to reflect on the impact the R&D Program has had on career paths for researchers in the blood sector. Several NBA stakeholders and grant recipients reflected that employees or students were still employed in the blood sector following involvement with projects funded by the R&D Program.

Grant recipients also commented that the R&D Program was particularly helpful for early and mid-career researchers in the sector, providing a pathway for them to fund their research or opportunities to participate as a researcher on successful projects. For example, through seed project funding from Round 5 of the R&D Program, research mentorship from the scientific team led to opportunities for training for junior clinicians (see Case Study 3).

Case Study 3: Fostering career paths in the blood sector – Anaemia and transfusion prevalence in Indigenous and non-Indigenous intensive care, pregnant and cardiac patients

Case Study 3: Anaemia and transfusion prevalence in Indigenous and non-Indigenous intensive care, pregnant and cardiac patients

Fostering career paths in the blood sector

Project overview

Objectives of this project were to inform better clinical decision-making and improve transfusion related clinical and patient blood management for First Nations patients. Primary outcomes were explored in three Aboriginal and Torres Strait Islander patient cohorts and non-Aboriginal and Torres Strait Islander patient cohorts. The project investigated:

- Prevalence of anaemia
- Blood groups
- Alloantibodies and specificities
- Red cell transfusion rates
- Patient outcomes including mortality and morbidity

Funding summary

Seed \$95,415

Flinders University College of
Medicine and Public Health \$67,833

Success factors

- Significant research findings indicated that patient blood management practices according to NBA guidelines may potentially not be suitable for First Nations patients.
- The research resulted in significant interest and provides a pathway where research findings can be considered and incorporated into NBA processes, guidance and policy for relevance to different clinical groups and ethnicities.
- A First Nations PhD student who was supported by the grant, plans to continue working in the blood sector after starting a medical degree.
- Peer reviewed publications, including the publication in the *Journal of Clinical Medicine* in 2023*
- Conference presentations, including at the Tri-Society Cardiac & Thoracic Symposium

*Noutsos, T., Perry, M. A., Secombe, P. J., Roxby, D. J., Sinha, R., & Campbell, L. T. (2023). A Retrospective Cohort Study of Red Cell Alloimmunisation in Rural, Remote, and Aboriginal and Torres Strait Islander Peoples Admitted to Intensive Care in the Northern Territory, Australia. *Journal of Clinical Medicine*, 12(4), 1606.

Source: Grant 528 completion report; stakeholder consultations.

The R&D Program has contributed to the education and raising awareness on the safe use of blood and blood related products

There were instances identified in which the R&D Program contributed to the education of researchers on blood and blood related products. This education occurred both through organic and inorganic means.

As a result of participating in research, research staff were able to increase their knowledge on blood and blood related products. For example, as part of the project to improve the use of intravenous immunoglobulin (IVIg) in children with neurological disorders funded in Round 1 (Grant ID 101), the project team built data collection skills relevant to treatment of neuroimmunology conditions. These skills are transferable to future prospective studies of IVIg in neurology that researchers may undertake in the sector.

Another seed funded project, (Grant ID 120) Improving Blood Sampling Practice For Critically Ill Children undergoing Cardiac Surgery, increased the education on blood and blood related products more formally through formal teaching and education roll-out to 200+ staff as part of the research.

Case Study 4: Research contribution to clinical workforce education – Improving blood sampling practice in critically ill children undergoing cardiac surgery

Case Study 4: Improving blood sampling practice for critically ill children undergoing cardiac surgery

Research contribution to clinical workforce education

Project overview

The project objectives were as follows:

- Establish a baseline of blood loss through current sampling practice
- Test the feasibility of trial protocol, recruitment and data collection processes and establish effect size to inform a follow on a large, multi-site, randomised controlled trial.

These objectives were to be met through an observational study, followed by a pre-post pilot implementation study where closed loop sampling, minimising blood volume sampling, and non-invasive point of care testing formed the bundle for introduction. Research employed an observational design using prospective audit of blood sampling and blood conservation practices in operating theatre and paediatric intensive care unit for children undergoing cardiac surgery.

Seed \$49,192

Other \$158,166

Success factors

- Teaching and education roll-out to 200+ staff, including:
 - PICU Cardiac nurses provided with face to face and online education. Ongoing daily interface also provided whilst study underway
 - Cardiac Anaesthetic team provided with face-to-face education.
- Audit of practice undertaken, identified areas where practice could be refined and improved.
- Introduction of a PICU Blood Conservation Bundle, including: guideline update, minimum volume recommendations, grouped volume recommendations, order of draw recommendations, use of ABL90 for children <5kg or complex cardiac conditions, use of closed loop sampling on both arterial and central venous catheters, soft and hard Haemoglobin limits for cell saver and blood transfusions.
- A number of publications including a publication Australian Clinical Care in 2023*.

* Long, D. A., Slaughter, E., Mihala, G., Macfarlane, F., Ullman, A. J., Keogh, S., & Stocker, C. (2023). Patient blood management in critically ill children undergoing cardiac surgery: A cohort study. *Australian Critical Care*, 36(2), 201-207.

Source: Grant 120 completion report.

3.1.2 Research translation and dissemination activities

The R&D Program offers a channel for research findings to be considered into NBA processes, guidance, and policy

From a strategic perspective, the NBA plays an important role in the management of blood and blood related products in Australia. Given that the focus of the R&D Program is directly linked to the core functions of the NBA, it is therefore uniquely placed to be able to bring together researchers and support collaboration in the blood sector, providing a direct pathway to invigorate research that can directly feed into NBA processes, guidance, and policy.



“The NBA has a really good model because it has its guidelines for practice... I generally find if guidelines are quoting your work, that’s a good sign you’re looking at the right thing because it’s driving practice.”

Grant recipient

From a strategic perspective, the NBA is uniquely placed to facilitate collaboration in the blood sector and provide a pathway where research findings can be considered and incorporated into NBA processes, guidance, and policy as and when appropriate. For example, the research findings from a Round 5 project of the R&D Program (Grant ID 528) indicated that some PBM practices may not be suitable for First Nations patients. These findings will be considered as part of the PBM Guideline update process.

R&D Program research findings have been translated into clinical practice and clinical decision-making.

The evaluation highlighted two instances where research had been translated into clinical decision-making and learning. One was where the project contributed to a national case description for Kawasaki disease (Grant ID 111) and another was where the project contributed to learning and training for junior clinicians (Grant ID 417). Case Study 5 provides an example of where research had application in clinical practice.

Case Study 5: Research leading to improved Kawasaki disease surveillance - Towards a better understanding of doctors' treatment patterns and immunoglobulin use in Australian children with Kawasaki Disease: an opportunity for improvement

Case Study 5: Towards a better understanding of doctors' treatment patterns and immunoglobulin use in Australian children with Kawasaki Disease: an opportunity for improvement

Research leading to improved Kawasaki disease surveillance

GRANT ID 111 – Round 1 - Ig

Project overview

The aims of the project were to:

- Determine the incidence, and seasonal and geographical clustering of Kawasaki disease in Australia
- Understand the variability in the patterns of intravenous immunoglobulin (IVIg) treatment of Kawasaki disease among Australian doctors
- Determine whether particular clinical features of patients with Kawasaki disease at presentation can predict response to IVIg therapy and cardiac outcomes

Funding summary

Project \$394,958

Other \$427,200

Success factors

- Collaborating with researchers studying other conditions.
- The National Kawasaki disease surveillance program from this grant has become significant part of COVID-19 surveillance program noting the increase incidence of Kawasaki disease and discovery of new disease (paediatric multisystem inflammatory syndrome).
- Researchers were involved in development of national case description for this new disease and participated as part of national expert panel on this new phenomenon.
- Conference presentations and peer reviewed publications including, one in *The Conversation* and another in the *Journal of Paediatric Child Health**.

*Burgner D, Singh-Grewal D, Phuong LK, Lucas R. Coronavirus and Kawasaki disease in children: it's an intriguing but unproven link [Internet]. Accessed 5 November 2023

Singh-Grewal D, Lucas R, McCarthy K, Cheng AC, Wood N, Ostring G, et al. Update on the COVID-19-associated inflammatory syndrome in children and adolescents; paediatric inflammatory multisystem syndrome-temporally associated with SARS-CoV-2. *J Paediatr Child Health*. 2020 Jul 31; jpc.15049.

Source: *Grant 111 completion report; stakeholder consultations*

Although grant recipients identified the clinical applicability of their research, there was often additional research and lines of inquiry that needed to be addressed before it could be implemented into clinical practice, clinical decision making and learning. This suggests that, for research translation to be realised, continued funding is needed.

Research communication and dissemination are facilitated by a number of channels within the R&D program.

Completed projects for the R&D Program have produced 39 publications to date. Among the channels for communicating and promoting the research findings and research dissemination were podcasts, workshops, conferences and press releases. The R&D Program's reach is demonstrated by the range of forums through which grant recipients reported presenting their results. Some examples included:

- The Blood Conference, 2019 – 2023
- The Australasian Leukaemia and Lymphoma Group Meeting, July 2019 and May 2020
- Blood Matters Combined Forum, October 2021.

Grant recipients also noted that they disseminated research findings via local, national, and international forums. For example, grantees reported presenting their findings to the NSW Health Steering Committee, the International Society for Clinical Hemorheology and the European Society for Clinical Hemorheology and Microcirculation.

The NBA also disseminates research findings through its annual reports²⁸, via a completed projects webpage²⁹ and through its Monitoring International Trends Report.³⁰ Stakeholders consulted called for additional support from the NBA in highlighting research outcomes.



“It would be beneficial if NBA highlighted the research findings more, either through webinars or a conference.”

Grant recipient

3.1.3 Metrics as key performance indicators (KPIs) of the R&D Program

Grant recipients are required to submit progress reports, expenditure reports and outcome reports as part of their obligations under the R&D Program. These reports provide the opportunity to report on project progress against established milestones, expenditure, variances and key risks. Grant recipients are also provided the opportunity to provide feedback on the R&D Program.

The current key measure of scientific output for the R&D Program is increased publications linked to NBA grants.³¹ Although publication as a key measure of scientific output is useful, there is opportunity for the NBA to report on additional output measures, such as the number of new data sets established or enhancements to processes or guidance as a result of the funded research projects. More detail is provided in Section 3.1.4.



“It’s very hard to say ‘the impact of this project in terms of lives saved is X and Y’ because in health research, it’s very hard to show that unless it’s a \$100m project. But research is still very useful.”

R&D Program stakeholder

3.1.4 Options for future rounds

Increase the visibility and improve the impact and reach of the R&D Program

Many stakeholders acknowledged that a key enabler for the NBA to improve the impact and reach of the R&D Program was highly dependent on improving the visibility and communication of the R&D Program outcomes and impact.

There is opportunity to increase the visibility of the R&D Program, including using a case study approach to delve into the detail of the impacts individual research are having. For example, the NHMRC uses case studies, like those used by the NBA in its annual reports, to highlight the impact of NHMRC funded research. This approach is pursued in recognition of the complexity of reporting, not only because of the time needed for research translation, but also since the outcomes and impact cannot be attributed to only one funder or research organisation.

Since 2018, the NHMRC has published 43 Impact Case Studies. Case studies highlight the contribution of key individuals and organisations, with a view of increasing the visibility of health and medical research as well as the key stakeholders involved in the research.³²

²⁸ National Blood Authority Annual Report 2022–23.

²⁹ National Blood Authority, (n.d.) Completed Grants from the National Blood Sector Research and Development Program, URL: <https://blood.gov.au/completed-grants-national-blood-sector-research-and-development-program>, Accessed 30 November 2023.

³⁰ National Blood Authority, (n.d.) Monitoring International Trends for the Blood Sector, URL: <https://blood.gov.au/monitoring-international-trends-blood-sector>, Accessed 30 November 2023.

³¹ NBA Corporate Plan 2023-24 to 2026-27.

³² NHMRC, (n.d.). Guidelines for producing NHMRC Case Studies. URL: <https://www.nhmrc.gov.au/about-us/resources/impact-case-studies/guidelines-producing-nhmrc-case-studies>, Accessed 4 December 2023.

There is also opportunity to improve communication with internal and external stakeholders. Some of the key themes highlighted by stakeholders include:

- Establishing a research network that could use the NBA website as a platform to inform or provide updates on what impacts funded research has had on the sector and what previously funded researchers may be working on
- Using existing sector communications to relate the outcomes and impact of the R&D Program, such as NBA distribution lists and newsletters as the NBA are connected into a wide variety of stakeholders in the Australian Blood sector.

Improved communication on the R&D Program would have a number of benefits in the sector, including:

- Generating momentum within the sector and keeping funders informed on the success of the R&D Program
- Raising the profile of the NBA and the R&D Program within the sector
- Providing improved visibility and oversight on the progress and impacts of the funded research.

Implement additional outcomes-focused metrics to expand the R&D Program's potential benefits

Although current KPIs can be captured by the existing systems for measuring and reporting, the measures are limited and output-oriented which hinders the R&D Program's potential to expand and endure. Additional metrics with an outcome-oriented focus would offer the chance to develop parallel funding streams, gather meaningful data, establish research pipelines, and generate higher calibre research impacts.

The nature of research is that the results might take a long time to materialise and can be difficult to measure. The NBA could monitor the R&D Program using a broader range of indicators to more accurately reflect the true impact of funded research. For example, noting that capacity and capability building were noted as a key benefit of the R&D Program, the NBA could improve reporting on this aspect of the R&D Program to demonstrate the impact it has on both researchers and in uplifting the collective knowledge within the blood sector.

3.2 Evaluation Question 2 – Impact of the R&D Program on the Australian Blood Sector’s capacity and survivability

Key Findings

- Funding from the R&D Program gives researchers the opportunity to conduct pilot studies to provide preliminary experimental data that serves as the foundation for future funding opportunities.
- Five of the projects were able to obtain more funding in the future as a result of research findings generated with funding support from the R&D Program.
- The projects and researchers funded through the R&D Program provided multiple examples of how the R&D Program has contributed to inter-institutional, domestic, and international collaboration.

3.2.1 The R&D Program has a positive impact on the Australian Blood Sector’s researcher base

A key benefit of the R&D Program is its ability to fund research to build the evidence base that may lead to larger funding opportunities.

It is important to note that R&D Program grant recipients do not rely on funding only from the NBA to support their research. On average, NBA funding accounted for 49 per cent of funding for the research undertaken by successful grant applicants with the remaining 51 per cent of funding gained from additional funding sources. These funding sources included funding from universities, donors and other funding bodies such as ANZSBT and NHMRC as highlighted in Table 3. Sector analysis of blood research grants in Australia in Section 1.2.2.³³

In fact, many stakeholders noted that a key benefit of the R&D Program over offerings through the MRFF and NHMRC was its ability to fund the research needed to build the evidence base that may lead to larger funding opportunities in the future.



“It’s an incredibly valuable program and enormous value when considering the money [NBA] spend on it. ... everyone wants to seek the bigger grants, but the issue is that the funds [NBA] provide are critical to development of researchers to apply to bigger funds.”

R&D Program stakeholder

One of the examples, highlighted by a number of stakeholders has been the Fibrinogen Replacement in Severe Trauma Study (FEISTY) project funded in both Rounds 1 and 3 of the R&D Program. Funding from the NBA for the initial pilot trial through Round 1 led to additional funding for FEISTY II in Round 5 along with a significant investment through the MRFF. This project and the impacts on future funding opportunities is outlined in Case Study 6 and Case Study 7.

³³ NBA R&D Program data and documentation submitted by grantees including expenditure reports. See Appendix A for details.
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Case Study 6: Fibrinogen Early in Severe Trauma Study (FEISTY I) Pilot Trial

NBA funding leading to future funding opportunities

GRANT ID 127 – Round 1 - PBM

Project overview

Following severe trauma, patients struggle to form adequate clots and stop bleeding. There is evidence to suggest that early replacement of fibrinogen is may reduce bleeding and improve patient outcomes.

The FEISTY Pilot, an Australian multicentre randomised controlled pilot trial, enrolled 100 bleeding trauma patients and investigated whether it was possible to replace fibrinogen through either using fibrinogen concentrate or cryoprecipitate early in trauma resuscitation, and which could be given faster. The trial also investigated the assessment of clot strength and quality following use of either product.

Funding summary

Project \$127,977

Other \$239,043

Project funding was obtained through multiple sources, including from NBA and EMF.

Success factors

- The FEISTY Pilot trial showed the Fibrinogen concentrate could be administered in a shorter timeframe than cryoprecipitate. However, although both Cryoprecipitate and Fibrinogen concentrate increased the fibrinogen levels of patients, the results suggested that the blood clot may be stronger with Cryoprecipitate. The size and population distribution of Australia makes the rapid availability of Fibrinogen concentrate an attractive option, but its efficacy compared to Cryoprecipitate needed to be tested scaled RCT.
- Investigators cited the benefits of international collaboration with CRYOSTAT Trial investigators from two trauma centres in the UK
- A significant impact of the knowledge acquired as part of this pilot was the securing of subsequent funding to undertake FEISTY II Trial.
- Peer reviewed publications, including two publications on PubMed.*

*Winearls, J., Wullschleger, M., Wake, E., Hurn, C., Furyk, J., Ryan, G., Trout, M., Walsham, J., Holley, A., Cohen, J., Shuttleworth, M., Dyer, W., Keijzers, G., Fraser, J. F., Presneill, J., & Campbell, D. (2017). Fibrinogen Early In Severe Trauma study (FEISTY): study protocol for a randomised controlled trial. *Trials*, 18(1), 241. URL: <https://doi.org/10.1186/s13063-017-1980-x>. Accessed: 5 November 2023

Winearls, J., Mitra, B., & Reade, M. C. (2017). Haemotherapy algorithm for the management of trauma-induced coagulopathy: an Australian perspective. *Current opinion in anaesthesiology*, 30(2), 265–276. URL: <https://doi.org/10.1097/ACO.0000000000000447> Accessed: 5 November 2023

Source: Grant ID 127 completion report; FEISTY website³⁴

Case Study 7: NBA Funding leading to future funding opportunities – Fibrinogen Early in Severe Trauma Study (FEISTY II)

Case Study 7: Fibrinogen Early in Severe Trauma Study (FEISTY II)

NBA funding leading to future funding opportunities

GRANT ID 315 – Round 3 - PBM

Project overview

FEISTY II is built on the findings from the FEISTY Pilot study. FEISTY II is a phase III randomised trial which will enrol 850 patients from Australian and New Zealand major trauma centres, with a primary patient outcome of days alive out of hospital at day 90 after injury. Severely injured trauma patients who require blood transfusion and have evidence of low fibrinogen levels will be randomised to receive either fibrinogen concentrate or cryoprecipitate.

FEISTY II is coordinated by the Australian and New Zealand Intensive Care Research Centre (ANZIC-RC), is endorsed by: the Blood Synergy Investigator; the Australian and New Zealand Intensive Care Society Clinical Trials Group (ANZICS-CTG); the Australian College of Emergency Medicine Clinical Trials Network (ACEM-CTN); the Australian and New Zealand Trauma Society (ANZTS); and the Australian and New Zealand Association for the Surgery of Trauma.

Funding summary

Project \$514,859

Other \$3,330,000

Success factors

At the time of producing this report, the FEISTY II Trial was active in 6 sites across Australia and 105 out of 850 patients having been recruited to the FEISTY II study so far.

³⁴ Fibrinogen Early in Severe Trauma Study (FEISTY). (n.d.). URL: <https://www.feisty.org.au>. Accessed: 5 November 2023.

The R&D Program is a unique researcher-strengthening and capacity-development model

As discussed in Section 3.1.1, capacity building in the sector was a key marker of success identified by stakeholders. The consultations and desktop review highlighted that capacity building often occurred simply through researchers’ involvement leading to the development of key skills, or the ability of the R&D Program to provide early career researchers with funding to support living expenses and therefore dedicate more time to their research through scholarship grants.

Furthermore, stakeholders emphasised that the ability of the R&D Program to allow researchers to secure additional funding such as with the FEISTY projects in Case Study 6 and Case Study 7, has increased the overall funding opportunities for the blood sector more broadly. This increased opportunity to tap into other available funding provides greater workforce pipeline sustainability.

3.2.2 The RD Program supports inter-institutional, domestic and international collaboration

Research, by nature, is often highly collaborative, with researchers having multiple funding sources and partners to support their research.



“Though collaboration we get better bang for your buck”
R&D Program stakeholder

The projects and researchers funded though the R&D Program provided multiple examples of how the R&D Program has contributed to inter-institutional, domestic and international collaboration. Examples of collaboration activities researchers engaged in are provided in Table .

Table 8. Examples of collaboration activities

Type of collaboration	Project	Description and impact
Hospital	ID: 418 A study of patient and healthcare provider experiences of blood transfusion in myelodysplastic syndromes (MDS)	Hospital patient and staff members were recruited (across Australia and the UK) to explore experiences of the new weekly transfusion strategy, using matched red blood cells. The result of this collaboration informed the opening of new hospital sites for implementation and the design of further research.
Hospital	ID: 422 Evaluation of transfusion triggers in elderly patients admitted to the intensive care unit (ICU) and the prevalence of anaemia on discharge from ICU and hospital	This project involved the recruitment of patients on admission to and stay in the intensive care setting. The results of these trials have formed the basis for Patient Blood Management (PBM) programs which recommend pre and perioperative optimisation of haemoglobin and tolerance of anaemia.
International research teams	ID: 508 International Point Prevalence Study of Intensive Care Unit Transfusion Practices – the InPUT study	A pilot-study assessed transfusion practice in a university hospital in the Netherlands and tested the feasibility of this protocol for an international multi-centre study. Intensive care units across Australia were invited to participate. The outcomes of this study will contribute to a larger observational cohort study that aims to compare transfused and non-transfused patients in different sub-populations for different blood products.
Multidisciplinary teams	ID:417	This project was a learning experience for clinical teams, which represented a vast mixture of medical disciplines (anaesthetics, perfusion, cardiac surgery), nursing, science and engineering.

³⁵ Fibrinogen Early in Severe Trauma Study (FEISTY). (n.d.). URL: <https://www.feisty.org.au>. Accessed: 5 November 2023.

Assessment of blood quality in cardiac surgery

Having scientists involved in data collection, in theatre, led to many opportunities for small research projects to develop, that were originally unforeseen. (See Case Study 8)

Source: Progress and completion reports provided by grant recipients

Case Study 8: Capability uplift through engagement with the clinical team – Assessment of blood quality in cardiac surgery

Case Study 8: Assessment of blood quality in cardiac surgery

Capability uplift through engagement with the clinical team

GRANT ID 417 – Round 4 - PBM

Project overview

This project was focused on:

- Exploring a systematic approach to identifying the functional properties of blood cells and proteins in the various sources of blood utilised in cardiopulmonary bypass, with the ambition to guide future guidelines in clinical perfusion practice
- Conducting a single centre study to explore how patient blood quality during the peri-operative period may be related to disability-free survival over the subsequent 3-month period of surgery using an evidence-based method

This project was supported by the NBA, Griffith University and the Gold Coast University Hospital.

Funding summary

Seed \$49,656

Other \$538,412

Success factors

- Key findings were reported across disciplines including blood rheology, artificial organs, cardiac surgery, and related disciplines.
- Chief investigators were able to establish links between university researchers and clinicians involving scientists in the data collections proves in cardiac theatre.
- Subsequent funding was secured via the MHIQ collaborative funds Collaborative Interdisciplinary Grants Scheme (\$45,000).
- Researchers who participated in this project emphasised the significant learnings acquired through engagement with clinical teams, and the relevance of the work conducted was significantly more impact-focused than prior to the relationship.
- A number of presentations including at the Tri-Society Cardiac & Thoracic Symposium

Source: Grant 417 completion report

3.2.3 Options for future rounds

Seek further collaboration opportunities

Collaboration opportunities were noted as having the potential to add a considerable amount of value not only to the R&D Program but to NBA activities more broadly. Some of the key partnership and collaboration opportunities highlighted by stakeholders include:

- **Opportunities to partner for matched funding** – Although the R&D Program is valuable, the funding provided through the grant is relatively small. The NBA could explore partnering with other programs to provide a larger pool of funding to the blood sector for Ig and PBM focused research.
- **Opportunities to support partnerships and networking for grant recipients** – The R&D Program could be expanded to support partnerships and networking for grant recipients. Stakeholders stressed that the NBA is a pivotal organisation in the blood sector with the ability to foster partnerships, networking and collaboration that may be able to improve the translation and dissemination of R&D Program funded research.

3.3 Evaluation Question 3 - Value for money: Assessing the benefits of the R&D Program

Key Findings

- The NBA is uniquely positioned to allow for the translation of investigator-led research to address evidence gaps and facilitate collaboration due to its centralised function for policy making, funding and supply of blood and blood related products.
- The R&D Program provides a source of continuous funding for blood research and is a key enabler for expanding the funding available in the blood research sector, demonstrating significant value for money when it comes to the sustainability of blood research.
- The R&D Program provides the opportunity to fund small-scale research projects and trials which may otherwise not be funded due to the competitive nature of securing funding via larger funding bodies.
- Having three grant types available (scholarship, seed and project) has contributed to the objectives of the R&D Program and the value proposition to the NBA and funding governments.
- The allocation of funding under the R&D Program promotes the sustainable development of the blood researcher pipeline. It does this through prioritising funding for personnel costs, rather than consumable costs thereby increasing the capacity, capability and survivability of the sector.

3.3.1 Assessing value for money delivered by the R&D Program

Value for money assesses the extent to which resources are used which maximise the outcomes at a relevant level of quality.³⁶ A key challenge in assessing value for money is that there is no formula which measures it; it cuts across many domains and is subject to judgment. However, a range of measures can be used to measure a program's 'value'. For example, health and medical research provides the foundations for understanding disease trends, risk factors, outcomes of interventions, and underpins efforts to improve clinical practice, patient and population outcomes, and maximise cost efficiency in the health system.³⁷ A report released by the Australian Association for Medical Research Institutes (AAMRI) has estimated that for every dollar invested in medical research, an average of AUD\$3.90 in economy-wide benefits is realised. Subsequent return on investment arises through knowledge creation and innovation, job creation, and linkages with upstream and downstream sectors (i.e., health care services, human pharmaceutical and medicinal product manufacturing and wholesale trade).³⁸

Findings in earlier sections of this report have outlined how investment in the R&D Program has influenced knowledge creation and innovation through its impact on NBA processes, guidance and education, clinical practice and decision making (see Section 3.1). Investment in the R&D Program has also resulted in sustainable job creation through its ability to build capacity and capability and improve the blood sector researcher base (see Section 3.2). The following sections of this report outline the resource allocation of the R&D Program, and an assessment of the benefits and value of the program.

³⁶ Oxford Policy Management. (2022), OPM's approach to assessing Value for Money: A guide (Second Edition), https://www.opml.co.uk/sites/default/files/migrated_bolt_files/opm-vfm-approach-2.pdf. Accessed 7 March 2024.

³⁷ Nass, S. J., Levit, L. A., & Gostin, L. O. (2009). The value, importance, and oversight of health research. In Beyond the HIPAA privacy rule: enhancing privacy, improving health through research. National Academies Press (US).

³⁸ KPMG. (2018). Economic Impact of Medical Research in Australia. URL: <https://www.aamri.org.au/wp-content/uploads/2018/10/Economic-Impact-of-Medical-Research-full-report.pdf>. Accessed: 3 November 2023.

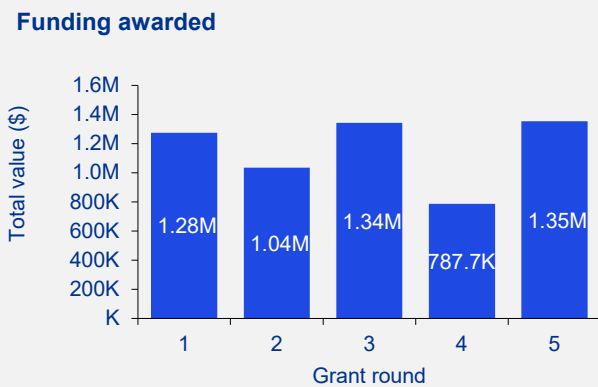
Investigator-driven approach is valued by researchers

In alignment with the 2022-27 Strategic Priorities,³⁹ the R&D Program is focused on research priorities relating to PBM and the appropriate use of Ig. While the NBA specifies that all projects funded by the R&D Program must focus on either of these research streams, it provides researchers with flexibility to pursue any research topics to address sector priorities and R&D Program objectives. It is acknowledged that this investigator-driven approach has the potential to drive innovation and address the challenges faced by physicians through exploring research questions relevant to their daily clinical practice.⁴⁰ Notwithstanding the challenges associated with the long-term outcomes of research, the case studies reflected in this report demonstrate that the R&D Program is filling a range of evidence gaps in the sector and is leading research translation activities in clinical practices and guidelines.

Funding allocation

The funding amount of \$1.275M was allocated for each round of the R&D Program with the flexibility to carry over any remaining balance to the subsequent rounds to fund as many projects as possible, dependent on application quality and suitability. In Rounds 1, 3 and 5, the funding awarded amounted to between \$1.28-1.35M. Grant Rounds 2 and 4 awarded \$1.04M and \$787.7K respectively (aww Figure 16). To maximise value for money and ensure there are no missed opportunities for funding research projects, the evaluation found that the NBA will seek clarification in instances where further information is required to support a funding recommendation.

Figure 16. Total funding awarded by grant round.



Source: NBA

The structure of the R&D Program creates value across the research pipeline

While this evaluation did not assess the individual value of the three grant types, different researchers identified value in the three different research grant types. While most grants support research projects lasting up to three years through project grant funding, other grant types provide seed funding for early-stage research and scholarships for early-career medical researchers (see Figures 6, 7 and 9). Having three grant types available (scholarship, seed and project) has expanded the ability of funded research to contribute to the objectives of the R&D Program and the value proposition to the NBA and funding governments, as shown in Table below.

³⁹ National Blood Authority (December 2021). National Blood Research and Development Strategic Priorities 2022-27. URL: <https://blood.gov.au/sites/default/files/National%20Blood%20Research%20and%20Development%20Priorities%202022-27%20report.PDF> Accessed: 5 November 2023.

⁴⁰ Konwar, M., Bose, D., Gogtay, N. J., & Thatte, U. M. (2018). Investigator-initiated studies: Challenges and solutions. Perspectives in clinical research, 9(4), 179–183. URL: https://doi.org/10.4103/picr.PICR_106_18
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Table 9. Comparison of grant types

	Scholarship	Seed	Project
Applications received	10	32	78
Number funded	5	13	22
Funding awarded	\$140K	\$661K	\$5.0M
Average value (min, max)	\$28K (\$20K, 30K)	\$50K (\$25K, 105K)	\$227K (\$71K, \$515K)
Contributions to the objectives of the R&D Program	<ul style="list-style-type: none"> Develop and strengthen research protocols for future studies and new research methodologies (e.g., PSc02) Build capacity by supporting early-career researchers (e.g., PSc02) Identify clinical practices to reduce adverse outcomes (e.g., PSc01) Develop tools to support clinical decision making (e.g., 410) 	<ul style="list-style-type: none"> Conduct pilot trials to establish preliminary data and evidence, and bolster support for scaled randomised control trials in future (e.g., 509) Use preliminary data to inform sample size calculations for future studies (e.g., 412, 124) Establish research questions for future studies (e.g., 111) Secure funding for expanded research (e.g., IgS01, 417) 	<ul style="list-style-type: none"> Secure funding for expanded research (e.g., 124, 127, IgP04) Uncover evidence for best clinical practice and optimising economic sustainability and supply (e.g., PP03)
Grant type value proposition	<ul style="list-style-type: none"> Anecdotally noted to be the only blood specific grant supporting early career researchers Provides a financial supplement to attain PhD, master or post-doctoral studies Despite low time and cost investment by the NBA, it supports retention of early career researchers in the blood sector 	<ul style="list-style-type: none"> One of the few grants dedicated to blood research in Australia Serves as a bridge between small and large-scale funding, addressing the challenge of securing future funding from other sources 	<ul style="list-style-type: none"> One of the few grants dedicated to blood research in Australia Serves as a bridge between small and large-scale funding, addressing the challenge of securing future funding from other sources

Source: Analysis of R&D Program documentation provided by NBA

Grant application quality and selection process

The quantity and quality of grant applications, as well as the evaluation process used to select successful applications, has direct influence on the types of research funded, and therefore has substantial impacts on the value of funding the R&D Program can deliver. In reviewing the Grant Evaluation Panel (GEP) reports for the R&D Program, this evaluation found that a fundamental factor considered when evaluating grant applications is the value for money. Table broadly categorises how the GEP identified value for money and offers examples where applications have either demonstrated this successfully or not. Although value for money is evaluated at the application stage, it is challenging to evaluate the data that have been obtained because research projects are not continuously monitored or reported on.

Table 10. Indicators of value for money identified by grant reviewers when assessing grant applications

Indicators of value for money	Examples where perceived value for money was viewed positively	Examples where perceived value for money was viewed negatively
Efficient resource allocation	<ul style="list-style-type: none"> Low cost and efficient study design Use of existing retrospective data to supplement evidence in a prospective study design 	<ul style="list-style-type: none"> High budget and considered excessive The NBA has previously funded grants in that research area Health economics component Study already has substantial funding
High likelihood of impactful outcomes and long-term sustainability	<ul style="list-style-type: none"> Use of a multidisciplinary team Funding the initial stages of a PhD Study appears to be highly innovative, and information could be transformative 	<ul style="list-style-type: none"> Reliance on publication of the results to stimulate change
Strong study design and rigorous methodologies	<ul style="list-style-type: none"> Multi-centre small study designed to answer a question for a large population International benchmarking allowing for better understanding of best practice 	<ul style="list-style-type: none"> Difficult study design to follow Study design incorporating single site randomised control trials and narrow patient cohorts limiting generalisability and feasibility for future application Potential for bias due to lack of true randomisation
Efficient and good use of risk mitigation strategies	<ul style="list-style-type: none"> Achievable research questions Already obtained ethics approval 	<ul style="list-style-type: none"> Risk that the project team may face challenges in securing ethics approval Unsure of ability to provide effective and efficient funding management
Suitable to the objectives of the R&D Program	<ul style="list-style-type: none"> Important topic with limited evidence currently available Project considered to have good patient impact Has potential to build Australia's research capacity 	<ul style="list-style-type: none"> Not contributing to the knowledge base Better suited to other funding opportunities Does not address the R&D Program objectives or strategic priorities Possibility of commercial interests

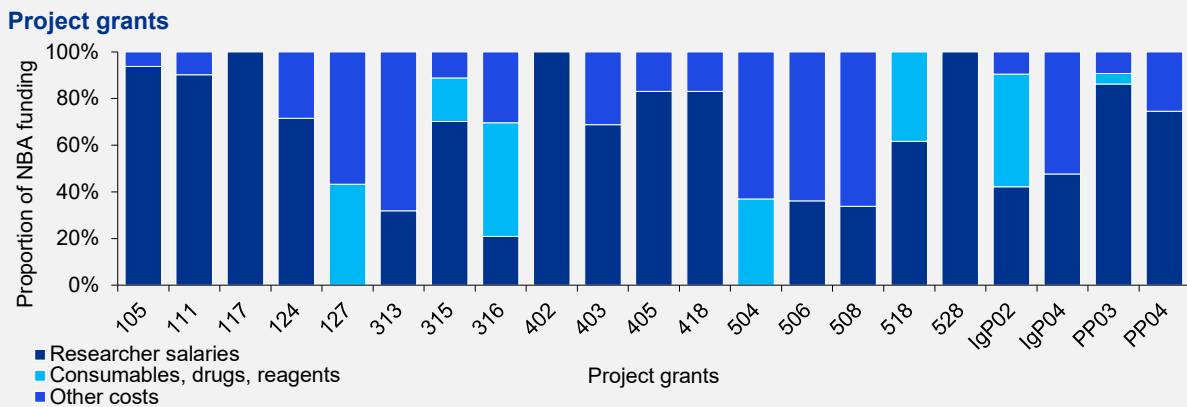
Source: NBA Grant Evaluation Panel (GEP) reports

3.3.2 Funding for R&D program grants is mostly allocated to the workforce of researchers

Analysis of Grant Funding Agreements (GFAs) through this evaluation demonstrated that NBA funding through the R&D Program is primarily directed towards researcher salaries (see Figure 17, Figure 18 and Figure 19). This includes the personnel costs for chief investigators, research assistants, expert and clinical advice, and biostatistical support.

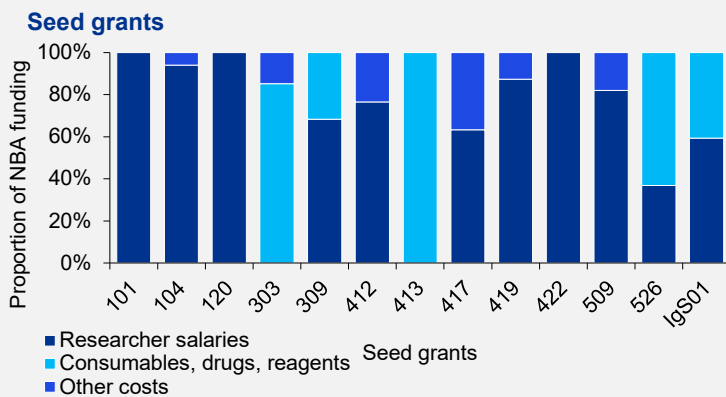
This seems to demonstrate that the allocation of funding under the R&D Program promotes the sustainable development of career paths for blood researchers (see Sections 3.1 and 3.2). It does this through prioritising funding for personnel costs rather than for consumables, increasing the capacity, capability and survivability of the sector.

Figure 17. Project grant funding by research costs.



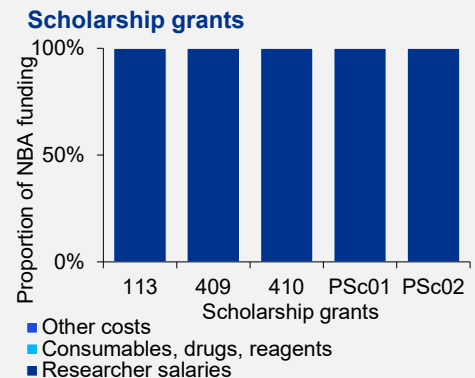
Source: NBA. Note: funding data unavailable for grant ID 314

Figure 18. Seed grant funding by research costs.



Source: NBA

Figure 19. Scholarship grant funding by research costs.

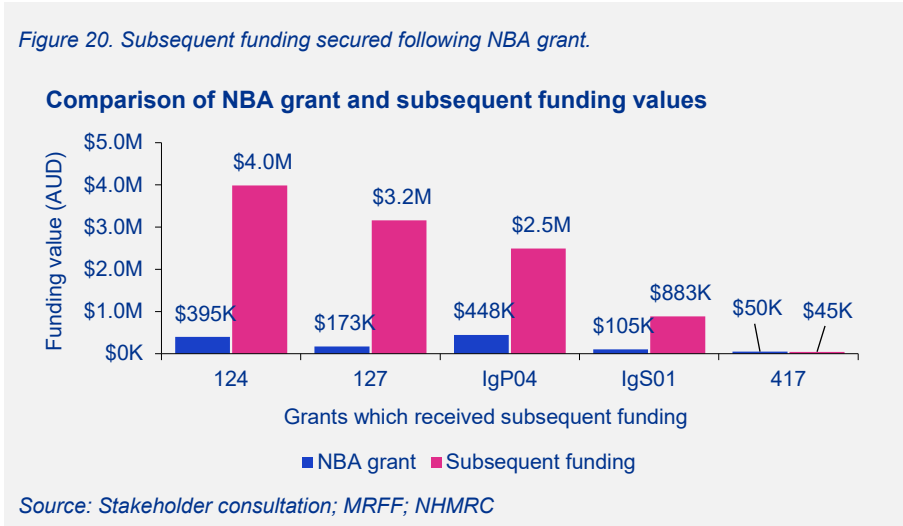


Source: NBA

3.3.3 The R&D Program is a catalyst for new partnerships and additional funding sources

During stakeholder consultation, the prevailing narrative was that the key indicator for the R&D Program’s value for money and success was to obtain more funding in the future as a result of research findings generated with funding support from the R&D Grants.

The evaluation found that five funded projects from the R&D Program attributed subsequent funding being awarded as a direct result of the successful completion of their NBA grant. (Grant IDs: 124, 127, IgP04, IgS01, 417) These are shown in Figure 20 below.



The five projects that secured subsequent funding totalled AUD\$10.6 million through schemes such as the MRFF, NHMRC and others. This was, on average, 8.6 times larger than the original NBA grant awarded and is even more significant when considering that the overall allocated funding to date of the R&D Program alone is AUD\$5.8 million. From these figures, this evaluation has found that:

For every \$1 invested, an additional \$1.82 of subsequent funding has been secured to support future blood research.

The ability of the R&D Program to allow researchers to secure subsequent funding promotes the sustainability of future blood research, establishes the groundwork for substantial future discoveries, and elevates this type of research to prominence, thereby putting it on the map.



“It’s not big, it’s not a lot of money, it’s well balanced. It can go towards getting a bigger grant. It could go towards bigger research. If you don’t do the first piece, you won’t get to the other pieces. It’s a pathway piece and it’s important for NBA to be part of that process.

To get best bang for buck is in the robustness of the projects you approve. To be able to give the best chance of that investment turning into something can be translated into practical operations to make blood products better and more affordable.

[NBA] should be a part of that. [NBA’s] objective and strategy is to improve blood supply for all Australians and in my mind, it absolutely fits that objective.”

R&D Program stakeholder

3.3.4 Summary of value

The R&D Program has delivered a range of benefits and value to the blood sector. This is summarised in Table with a key of how assessment and strength of evidence was determined provided in Tables 10 and 11.

Table 11: R&D Program benefits

Domain	Dimensions	Assessment	Strength of Evidence
Research output	<ul style="list-style-type: none"> Supported research publication 	Excellent	Some evidence
	<ul style="list-style-type: none"> Supported collaboration and networking 	Excellent	Some evidence
	<ul style="list-style-type: none"> Helped to establish areas of additional research/further lines of enquiry 	Excellent	Some evidence
Research impact	<ul style="list-style-type: none"> Supported changes to policy and guidelines 	Good	Some evidence
	<ul style="list-style-type: none"> Improved clinical practice 	Good	Weak evidence
Researcher pipeline	<ul style="list-style-type: none"> Supported career development 	Excellent	Some evidence
	<ul style="list-style-type: none"> Supported educational attainment 	Excellent	Some evidence

Source: KPMG based on stakeholder consultation and survey, and desktop review of progress reports

Table 12: Key for assessment

Assessment	Description
Excellent	The R&D Program is meeting all reasonable expectations and targets, and is expectations in some of these. There may be room for incremental improvements in some areas.
Good	The R&D Program is generally meeting reasonable expectations and targets, with some minor exceptions. Some improvements may be needed.
Adequate	The R&D Program, although not meeting all expectations and targets, is meeting the minimum expected requirements and is demonstrating acceptable progress overall. Significant improvements may be needed in some areas.
Poor	The R&D Program is not fulfilling minimum expected requirements and is not showing acceptable progress overall. Immediate and major improvements are needed.

Source: Adapted from OPM and JK&A (2022), *Assessing Value for Money: the Oxford Policy Management Approach (2nd Edition)*

Table 13: Key for strength of evidence

Strength of Evidence	Description
Sufficient evidence	The evidence is sufficient to draw a largely unqualified conclusion regarding the review question because either there is a single source of quality data or multiple sources of data have no major quality issues that consistently support the conclusion reached.
Some evidence	The evidence suggests the finding is reasonable and there is a supporting theoretical rationale but there are data limitations, such that the finding is qualified and further and/or different data (which may have been unavailable to this evaluation) would need to be sourced to be more confident in the conclusion reached.
Weak evidence	The evidence is indicative of a finding but there are major shortcomings in the data such that limited confidence can be placed on the conclusion.
No evidence	No data exists upon which to make any finding.

Source: KPMG

3.3.5 Options for future rounds

Investing in NBA specific research questions

Stakeholders expressed varied attitudes towards the scope that the R&D Program promotes and supports. Some stakeholders suggested a broadening of the scope would support addressing some of the gaps in evidence. Other stakeholders suggested narrowing the scope by taking a more targeted approach, for example to answer some of the pressing questions the NBA has related to PBM guidelines would efficiently fill the evidence gaps in areas, facilitate research translation and enhance impact of the R&D Program.



“The scope of the grant is quite narrow; in the way the applications address gaps in the evidence. There's gap in the evidence because they're niche questions. Broadening the scope to ask what's happening and why would be better.”

Grant recipient

Extending the scholarship grant

A range of stakeholders raised the issue that the existing format of the R&D Program scholarships could be improved by being extended to three years, rather than the current one year, of funding offered. While grant recipients emphasised the significance of scholarship funds in promoting capability growth and worker retention in the blood research sector, other stakeholders indicated that extending the duration of the scholarship grant would inspire more people to pursue a career in blood research. This would also provide scholarship recipients with a greater sense of assurance and security.

4

Recommendations



4 Recommendations

Based on the evaluation's findings and discussion above, several recommendations have been developed to enhance future investment in, and sustainability of, the R&D Program. These recommendations have been weighed against their implementation timeline. It is intended that short-term recommendations could be considered for Round 6, with medium- and long-term recommendations requiring consideration after Round 6, should future funding be made available.

Table 14. Recommendations

Recommendation	Considerations	Implementation
1. Develop additional metrics with an outcome-oriented focus	<ul style="list-style-type: none"> Additional metrics with an outcome-oriented focus would offer the opportunity to develop parallel funding streams, gather meaningful data, establish research pipelines, and generate higher calibre research impacts. Relationships are critical to collaborative research, therefore there should be a metric that helps support and recognise the activities that are required to build them. Investment into additional metrics would enhance the ability for NBA to report on R&D Program outcomes. 	Medium term
2. Develop a grant management solution with a robust reporting capability, as this can be a critical component to a grant funding program	<ul style="list-style-type: none"> The NBA might consider longitudinal reporting measures and implementing frequent check-ins with grant holders as additional measures. This would support enhanced capturing the contribution to medium and long term outcomes for projects funded as part of the R&D Program, as outcomes such as research translation takes time and may not be immediately evident following the completion of research. Longitudinal reporting and continuous engagement with grant recipients may require additional resourcing within the grant management team at the NBA. 	Medium term
3. Enhance data collection tools and templates to streamline reporting on key research outcomes and impacts of the R&D Program	<ul style="list-style-type: none"> Opportunities include capacity building activities and research translation activities and indicators. This would enhance reporting against the R&D Program outcomes for NBA, making it easier to report on a number of initiatives at a program level. 	Short term
4. Invest in a communication strategy to enhance awareness of the R&D Program and showcase the impacts the R&D Program is having on the Australian blood sector	<ul style="list-style-type: none"> This may cultivate new sources of funding, establish new relationships, and create focused research pipelines aligned to the outcomes of the program (linked to Recommendation 7). 	Medium term
5. Develop a separate research impact report specific to the NBA R&D Program or include a suite of new qualitative KPIs more reflective of the Program's outcomes	<ul style="list-style-type: none"> This could raise awareness of the R&D Program, which could then attract more interest in the program's research pipeline, further applications and potential for translation. A number of stakeholders engaged called for increased communication about the R&D Program. A separate research report would provide an opportunity to communicate program outcomes and impacts to the sector. 	Medium term

Recommendation	Considerations	Implementation
6. Consider partnering with other organisations and/or government for matched funding	<ul style="list-style-type: none"> Funding provided through the R&D grant is relatively small. Partnering with other organisations and/or government for matched funding would provide a larger pool of funding to the blood sector. Although there is evidence of the NBA program supporting partnerships and collaboration in the sector, matched funding would formalise these partnerships and provide additional connection to funding sources for grant recipients. 	Long term
7. Provide a dedicated focus on research projects which seek domestic and international collaboration	<ul style="list-style-type: none"> Greater domestic and international collaboration can lead to greater innovation, translation opportunities, and improved program sustainability. Motivations for greater collaborative research include research organisation and researcher reputation, higher visibility, opportunities for multidisciplinary research, access to research funds, and mentoring of younger researchers. Development of new methods and sharing knowledge, equipment, laboratories, or (big science) infrastructures, including data, encourage researchers to collaborate, in the process extending their networks. Internationally co-authored papers tend to have greater research impact. 	Long term
8. Future versions of the R&D Program may choose to designate a portion of funds to address research topics relevant to the NBA, such as research interests connected to the list of core NBA responsibilities in the NBA Corporate Plan.	<ul style="list-style-type: none"> This would efficiently fill the evidence gaps in areas, facilitate research translation and enhance the impact of the R&D Program. Additional investment or reallocation of the current investigator-driven funding pool. The NBA may take advantage of its distinct position to link the functions that enable research and policy making, making it easier to translate research findings into PBM guidelines. 	Long term
9. Extend the scholarship grant to three years of funding.	<ul style="list-style-type: none"> Further investment or reallocation of funding across the three grant types. Within a capped funding environment, this would need to be balanced with the needs of the NBA and other stakeholders based on research priority needs. A PhD student could be funded for the duration of their studies providing assurance and security. This builds the value proposition of commencing a career in blood research, and building the researcher pipeline in the blood sector. 	Short term

Source: KPMG

Appendices



Appendix A: Documents and data reviewed

This appendix details the documents received and reviewed as part of the R&D Program evaluation. This excludes open-source documentation reviewed as part of the desktop review (references provided throughout the report).

Table 15. Documents and data reviewed

Round	Document category	Number of documents reviewed
1	Progress Report	37
	Completion Report	10
	Variations in contract	0
	Expenditure	4
	Grant funding agreement	9
	Other documentation (i.e., presentations, posters, grant conditions/ guidelines, contact lists, documents that talk about impact of covid on their research, financial documents, and websites)	6
2	Progress Report	28
	Completion Report	7
	Variations in contract	1
	Expenditure	4
	Grant funding agreement	7
	Other documentation (i.e., presentations, posters, grant conditions/ guidelines, contact lists, documents that talk about impact of covid on their research, financial documents, and websites)	2
3	Progress Report	15
	Completion Report	5
	Variations in contract	3
	Expenditure	3
	Grant funding agreement	5
	Other documentation (i.e., presentations, posters, grant conditions/ guidelines, contact lists, documents that talk about impact of covid on their research, financial documents, and websites)	1
4	Progress Report	8
	Completion Report	5
	Variations in contract	0
	Expenditure	5
	Grant funding agreement	12
	Other documentation (i.e., presentations, posters, grant conditions/ guidelines, contact lists, documents that talk about impact of covid on their research, financial documents, and websites)	1
5	Progress Report	10
	Completion Report	2
	Variations in contract	0

Round	Document category	Number of documents reviewed
	Expenditure	4
	Grant funding agreement	7
	Other documentation (i.e., presentations, posters, grant conditions/ guidelines, contact lists, documents that talk about impact of covid on their research, financial documents, and websites)	12
6	Progress Report	0
	Completion Report	0
	Variations in contract	0
	Expenditure	0
	Grant funding agreement	0
	Other documentation (i.e., presentations, posters, grant conditions/ guidelines, contact lists, documents that talk about impact of covid on their research, financial documents, and websites)	6
Unassigned	Expenditure	3
	Other documentation (i.e., presentations, posters, grant conditions/ guidelines, contact lists, documents that talk about impact of covid on their research, financial documents, and websites)	0

Source: R&D Program documentation provided by NBA

Appendix B: Stakeholders consulted

Table 16. Stakeholders consulted

Stakeholder group	Number of stakeholders contacted	Number of stakeholders consulted
Grant recipients	29	16
Neurology Specialist Working Group	7	2
Transplant Specialist Working Group	2	1
Immunology Specialist Working Group	13	0
NBA Board	6	2
NBA Senior Managers Group	8	7
JBC Member/proxy	5	5
Round 5 Expert Review Panel	6	5
NHMRC	2	2
Department of Health and Aged Care	1	1
Other (Including researchers in the blood sector)	31	3
Total	65	40*

Source: KPMG

**To note: four stakeholders were members of more than one stakeholder group, such as grantees also being members of the reference groups and the expert review panel. To account for these roles, these stakeholders were only counted once within the total figure.*

Appendix C: Table of grants

Table 17. Information on grants awarded through Rounds 1-5 of the R&D Program

Grant ID	Status	Funding Recipient	Grant Type	Research Type	Title	TOTAL Grant contribution (excl GST) (as per GFA)
101	Complete	The University of Sydney	Seed	Ig	Improving the use of intravenous immunoglobulin (IVIg) in children with neurological disorders.	\$46,216.00
104	Complete	University of Sunshine Coast	Seed	PBM	Clinical characteristics of geriatric patients transfused within 24 hours of Emergency Department presentation.	\$49,820.00
105	Complete	The University of Sydney	Project	PBM	Effects of antenatal haemoglobin and obstetric transfusion on adverse maternal outcomes.	\$146,300.00
111	Complete	Murdoch Children's Research Inst	Project	Ig	Towards a better understanding of doctors' treatment patterns and immunoglobulin use in Australian children with Kawasaki Disease: an opportunity for improvement?	\$246,645.00
113	Complete	The University of Queensland	Scholarship	PBM	A series of studies on a new clotting test in pregnant women to optimise the management of bleeding.	\$30,000.00
117	Complete	The University of Adelaide	Project	PBM	Iron need in pregnancy and after birth.	\$139,123.30
120	Complete	Griffith University	Seed	PBM	Improving blood sampling practice for critically ill children undergoing cardiac surgery.	\$49,192.00
124	Complete	Monash University	Project	Ig	Oral antibiotics or intravenous immunoglobulin to reduce infections in patients with blood cancers.	\$394,958.00

Grant ID	Status	Funding Recipient	Grant Type	Research Type	Title	TOTAL Grant contribution (excl GST) (as per GFA)
127	Complete	The University of Queensland	Project	PBM	Fibrinogen Replacement in Severe Traumatic Haemorrhage.	\$172,977.00
IgP02	Complete	Monash University	Project	Ig	Does intravenous immunoglobulin improve outcomes in chronic rejection of renal transplants?	\$270,000.00
IgP04	Complete	Monash University	Project	Ig	Improving national immunoglobulin stewardship and clinical outcomes for patients with myeloma.	\$447,567.00
IgS01	Complete	Australian National University	Seed	Ig	Improved strategies in management of immune thrombocytopenia.	\$105,412.00
PP03	Complete	Western Sydney Health District	Project	PBM	The effect of intravenous iron and blood transfusion on patients' outcomes in women with low haemoglobin after birth.	\$82,058.50
PP04	Complete	University of the Sunshine Coast	Project	PBM	Implementing Evidence Based Bleeding Management in Cardiac Surgery.	\$71,090.00
PSc01	Complete	The University of Queensland	Scholarship	PBM	Intraoperative cell salvage, a safer and cost effective alternative to allogeneic blood transfusion.	\$30,000.00
PSc02	Complete	Monash University	Scholarship	PBM	Understanding risks and clinical outcomes of anaemia in the elderly to inform transfusion policy.	\$30,000.00
303	Complete	Australian National University	Seed	PBM	Transfusion Strategies for Low Platelets.	\$67,090.00
309	Complete	University of New South Wales	Seed	PBM	Concealing treatment in pregnancy anaemia randomised trials: can it be used?	\$46,125.00
313	Complete	Monash University	Project	Ig	Immunoglobulin use in Chronic lymphocytic leukaemia And Non-Hodgkin Lymphoma – the ICAN study.	\$449,291.00

Grant ID	Status	Funding Recipient	Grant Type	Research Type	Title	TOTAL Grant contribution (excl GST) (as per GFA)
314	Complete	University of Sydney	Project	PBM	Cord Clamping to Reduce Need for Neonatal Blood Transfusion.	\$146,501.00
315	Active	University of Queensland	Project	PBM	Fibrinogen Replacement in Severe Traumatic Haemorrhage (FEISTY II).	\$514,859.82
316	Complete	University of Queensland	Project	PBM	Novel fluid alternatives to blood transfusion to treat acute and chronic blood loss.	\$119,315.00
402	Complete	Monash University	Project	PBM	Evaluate the impact of the perioperative patient blood management guidelines on blood use, patient outcomes and costs for cardiac surgery.	\$124,604.00
403	Active	Monash University	Project	PBM	RotEm-guided blood product in patients with Cirrhosis undergoing Invasive Procedures (RECIPE).	\$117,351.00
405	Active	The University of Sydney	Project	PBM	Prevention and management of bleeding in maternity patients to optimize patient outcomes.	\$207,065.00
409	Complete	The University of Melbourne	Scholarship	Ig	Neuromuscular ultrasound as a Biomarker in CIDP.	\$20,162.00
410	Complete	Macquarie University	Scholarship	PBM	Computerised support for decision-making during massive transfusion to improve efficiency and outcomes.	\$30,000.00
412	Terminated	The University of Western Australia	Seed	PBM	Intravenous Iron for Treatment of Suboptimal Iron Stores in Non-Anaemic Patients Presenting for Major Surgery (ISNAPS).	\$31,637.00
413	Active	University of Adelaide	Seed	PBM	Is the use of washed red blood beneficial in transfused preterm newborns?	\$39,480.00
417	Complete	Griffith University	Seed	PBM	Assessment of blood quality in cardiac surgery.	\$49,656.00

Grant ID	Status	Funding Recipient	Grant Type	Research Type	Title	TOTAL Grant contribution (excl GST) (as per GFA)
418	Active	Monash University	Project	PBM	A study of patient and healthcare provider experiences of blood transfusion in myelodysplastic syndromes (MDS).	\$91,504.00
419	Active	The Australian National University	Seed	PBM	Self-managing red cell transfusions.	\$51,243.00
422	Complete	Flinders University	Seed	PBM	Evaluation of transfusion triggers in elderly patients admitted to the intensive care unit (ICU) and the prevalence of anaemia on discharge from ICU and hospital.	\$25,000.00
504	Active	Melbourne Health	Project	Ig	Evaluating vaccine responses in specific antibody deficient patients receiving immunoglobulin treatment.	\$148,600.00
506	Terminated	ANZAC Health & Medical Research Foundation	Project	Ig	OPTIC trial: Intravenous immunoglobulin and intravenous methylprednisolone as optimal induction treatment in CIDP (Chronic Inflammatory Demyelinating Polyneuropathy).	\$412,035.08
508	Active	Monash University	Project	PBM	International Point Prevalence Study of Intensive Care Unit Transfusion Practices – the InPUT study.	\$155,106.00
509	Complete	Monash University	Seed	PBM	Prehospital administration of freeze-dried (lyophilized) plasma for traumatic haemorrhagic shock.	\$49,971.80
518	Active	Murdoch Children's Research Institute	Project	PBM	Towards personalised blood product therapy after cardiopulmonary bypass in neonates and infants.	\$441,770.00
526	Active	The University of Adelaide	Seed	Ig	A new blood test to guide immunoglobulin replacement therapy in patients with immunodeficiency diseases.	\$50,000.00
528	Complete	Flinders University	Project	PBM	Anaemia and transfusion prevalence in Indigenous and non-Indigenous intensive care, pregnant and cardiac patients.	\$95,415.00

Source: R&D Program documentation provided by NBA including grant completion reports



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