

An evaluation of HRB investment in health research leaders



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Acknowledgements

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List of Abbreviations

ALS	Amyotrophic Lateral Sclerosis
AMRC	Association of Medical Research Charities
ARPP	Applying Research into Policy and Practice
Aus	Australia
CPD	Continuous professional development
CSA	Collaborative Doctoral Awards
CSA	Clinician Scientist Awards
CPFP	Cancer Prevention Fellowship Programme
CSF	Clinician Scientist Postdoctoral Fellowships
ECSA	Emerging Clinician Scientist Awards
EI	Enterprise Ireland
EIA	Emerging Investigator Awards
EU	European Union
HCP	Health and care practitioner
HI	Host institution
HRB	Health Research Board
HSCP	Health and social care professional
HSE	Health Service Executive
HSR	Health Services Research
ICAT	Irish Clinical Academic Training
IRC	Irish Research Council
ICT	Information and Communications Technology
IT	Information technology
MPH	Master of Public Health
NCI	National Cancer Institute
NZ	New Zealand
PHHSR	Population Health and Health Services Research
PI	Principal Investigator
RLA	Research Leader Awards
SFI	Science Foundation Ireland
SPHeRE	Structured Population and Health-Services Research Education
STEM	Science, technology, engineering and mathematics
TB	Tuberculosis
UK	United Kingdom
US	United States

Executive summary

The Health Research Board (HRB) seeks to improve people's health and to enhance healthcare delivery by leading and supporting excellent research, generating knowledge, and promoting its application in policy and practice. To help achieve its aims, the HRB funds a wide range of initiatives from individual projects to large infrastructures and, importantly, has a specific focus on funding the highly skilled people who undertake the research and deliver the evidence.

Since 2004, the HRB has invested €37.9 million to support the development of leaders in research in both the academic (Research Leader Awards in Population Health and Health Services Research – RLA in PHHSR) and clinical (Clinician Scientist Awards – CSA) environments. The main objectives of these two schemes were to enable excellent researchers to establish themselves as leading international investigators in their discipline, mentor the next generation of researchers, and promote the implementation of evidence into policy and practice.

Having invested significant funds in these schemes, the question for the HRB is whether these initiatives are achieving their aims and delivering the intended benefits. In addition, it is important to determine whether this is an appropriate and effective approach to distributing limited funds for this area and consider how the HRB will support researcher careers into the next HRB funding strategy. Finally, it is vital at every opportunity to demonstrate to the public and the Government the value and importance of investing in health research to ensure continued funding into the future.

Purpose and format of this evaluation

The primary objectives of the evaluation of health research leaders were to assess the impact and effectiveness of HRB funding to support health research leaders in terms of outputs, outcomes, and impacts of the funding to date; to guide design of the next HRB funding programme for health research leaders; and to inform the HRB's strategic approach to capacity building more generally. In addition, it is anticipated that the evaluation will be a valuable input to the next HRB Strategy (2021–2025).

The report presents the outputs and outcomes of the Leader awards to date, gathered as part of award monitoring and additional surveying of the leaders. In addition, it presents the views of the leaders themselves and representatives from their institutions on the value and meaning of these awards, gathered via qualitative interviews.

Summary findings

Together, our quantitative and qualitative findings provide a picture of the success of these awards to date, what has worked, and what might need adjustment. The key findings of this evaluation are summarised in Figures A and B.

In terms of measurable outputs, both schemes have done what they set out to do in terms of building capacity, producing diverse research outputs, and, most importantly, impacting on healthcare policy and practice (see Figure A).

In terms of the experiences of award recipients and their host institutions, interviewees speak very positively about the part that the awards have played in their career development and the broader influence on their teams and institutions (see Figure B). They also highlight some of the challenges they face and provide valuable feedback to the HRB on how to improve our approach to funding individuals.

Figure A: Key outputs and outcomes from CSA and RLA awards**Figure B: Key themes that emerged from the qualitative assessment of CSA and RLA awardees**

Theme 1: Enhancing the professional development of health researchers

Key findings: Theme 1

- Many interviewees noted that their award accelerated their **career progression** and **enhanced recognition** of their work both nationally and internationally.
- The provision of **dedicated time** for research was identified as a core value of these awards.
- Research leaders pointed out that these awards encouraged them to use their research outputs to **influence policy and practice**.

Theme 2: Supporting the wider research and healthcare environment

Key findings: Theme 2

- Interviewees recognise the important contribution their research makes to their wider institutional environment and the necessity of **embedding research in education and health service delivery**.
- Interviewees acknowledged their role in **supporting the next generation of researchers** but also noted the significant challenges faced by this group.
- Interviewees spoke positively about their dealings with the HRB and highlighted some of the **challenges** linked to research funding.

Output of the evaluation

The evaluation findings have informed, and will continue to inform, the HRB's approach to funding existing and emerging health research leaders on a number of levels:

- Design of the RLA 2020 scheme proceeded in parallel to this evaluation, and several findings of this evaluation influenced the scheme design. These included decisions on targeting the career stage and facilitating the proportion of protected time, as well as emphasising the importance of the awardees' continued participation in teaching activities in their capacity as leaders.
- The evaluation influenced the decision to provide a focused career track for the health and care practitioner¹ (HCP), which runs parallel to the existing career track for academic-based researchers. This separation recognises the different challenges faced by the two groups and ensures that potential research leaders among the HCP community have an opportunity to compete for funding.
- The evaluation has contributed to new award schemes designed due to revisions to the career path that specifically target HCPs at more junior research career levels. These include the Emerging Clinician Scientist Awards (ECSA) 2020 and the Clinician Scientist Postdoctoral Fellowships (CSF) schemes, which take on board key findings, including the importance of protected time and partnerships with service providers and emphasising relevance to policy and practice.
- The findings of this evaluation will inform the approach to funding established leaders to be considered as part of the next HRB strategy and will continue to inform any further revisions to the HRB Health Research Careers Framework.

¹ The HRB term 'health and care [practitioner](#)' covers individuals from a wide variety of professions and occupations (such as medics, nurses and midwives, pharmacists, dentists, and health and social care professionals), typically governed by a range of regulatory bodies, who are [engaged in clinical practice/care provision](#).

1 Background, aims and objectives

1.1 Background

The Health Research Board (HRB) seeks to improve people's health and to enhance healthcare delivery by leading and supporting excellent research, generating knowledge, and promoting its application in policy and practice. To help achieve its aims, the HRB funds a wide range of initiatives from individual projects to large infrastructures and, importantly, has a specific focus on funding the highly skilled people who undertake the research and deliver the evidence.

Supporting individuals via the fellowship model has long been an element of the HRB approach to funding, with Research Training Fellowships for Clinicians and Health Services Research Fellowships as far back as 1998. In its most recent strategy², the HRB has re-emphasised the importance of human capacity through support for exceptional researchers and leaders, which is being actioned through a Health Research Careers Framework and Action Plan.³

Predating this consolidated approach to supporting individuals through the Careers Framework, both the Clinician Scientist Awards (CSA) and the Research Leader Awards (RLA) in Population Health and Health Services Research (PHHSR) were a response to critical gaps in the Irish health research system. In the case of the CSA, launched originally in 2004, the HRB recognised that there were few if any opportunities for senior clinicians to avail of protected research time to advance research in their discipline and in parallel to advance the integration of research into the healthcare system. Similarly, in 2011, a HRB review of population health and health services research in Ireland identified significant gaps in capacity at senior level in these research areas.

An important focus of schemes targeted at leadership level is the development of the individual researcher, but the HRB also expects that the research funded through these and other programmes will generate evidence that can be integrated into policy and practice and translated into real benefits for the population. These benefits may manifest in changes to the healthcare system and can also lead to economic returns arising from healthcare innovation and economic development.

Having invested significant funds in these schemes to date, the question for the HRB is whether these initiatives are achieving their aims and delivering the intended benefits. In addition, it is important to determine whether this is an appropriate and effective approach to distributing limited funds for this area. In the *HRB evaluation strategy for funded research for 2017–2020*,⁴ there is a commitment to undertake an evaluation of its funding investment in health research leaders. With over 10 years of investment in leaders and plans to support further senior leaders as part of the current strategy, this evaluation is taking place at an important point and will contribute to planning for the next HRB funding strategy 2021–2025, which is currently in development. Finally, it is vital to take every opportunity to demonstrate to the public and the Government the value and importance of investing in health research.

² Health Research Board (2016) *Strategy 2016–2020*. Dublin: Health Research Board. Available online at: https://www.hrb.ie/fileadmin/publications_files/HRB_Strategy_2016-2020.pdf

³ Health Research Board (2019) *Developing health research careers*. Dublin: Health Research Board. Available online at: <https://www.hrb.ie/funding/funding-schemes/health-research-career-paths/>

⁴ Health Research Board (2017) *HRB evaluation strategy for funded research*. Dublin: Health Research Board. Available online at: https://www.hrb.ie/fileadmin/1.Non-plugin_related_files/RSF_files/Evaluation/HRB_Evaluation_Strategy_2017-20.pdf

1.2 Aims and objectives

The primary objectives of the evaluation of health research leaders were to:

- Assess the impact and effectiveness of HRB funding to support health research leaders in terms of outputs, outcomes, and impacts of the funding to date
- Guide design of the next HRB funding programme for health research leaders
- Inform the HRB's strategic approach to capacity building more generally.

In addition, it is anticipated that this evaluation will be a valuable input to the next HRB Strategy (2021–2025).

2 Approach and methodology

2.1 Quantitative evaluation of outputs and outcomes of Leader awards

For this report, the HRB did an analysis of Leader award outputs and outcomes to end of 2018, in order to collect evidence on the success of the RLA and CSA schemes in achieving their objectives. HRB evaluation data collection is guided by the Buxton-Hanney Payback Framework for Health Research, originally developed to examine the 'payback' of health services research.^{5,6} This framework groups metrics into five payback categories that span short- to medium-term outputs and outcomes, that is, (i) knowledge production; (ii) research capacity building; (iii) informing policy and the public, and longer-term outcomes and impacts effected through policy and clinical practices changes; (iv) health sector benefits and innovations; and (v) economic and commercial activity (see Appendix 1 for further details).

Data on a subset of quantitative metrics set out in the framework were collected using HRB data sources, including interim reports, end-of-grant reports, and additional top-up information provided by the leaders via survey. It should be noted that of the pool of 25 potential survey participants, only 13 submitted a top-up survey. Thus, information for just under 50% of leaders was gleaned from HRB data up to and including their most recent report at the time of the evaluation (June 2018), while the remainder provided additional top-up information through the survey (conducted June–August 2018). Results are presented in Chapters 4–6, aligned with key objectives of the CSA and RLA schemes.

Additional analysis on citation rates of leaders' publications in systematic reviews and clinical guidelines was carried out using Web of Science. Frequency of publication in the highest-ranking medical journals was determined with reference to Scimago Journal Ranking.⁷

In considering the data collected for this evaluation, it is important to note the heterogeneity of the awards analysed and to consider the lag time for research outputs to manifest in outcomes and ultimate impacts on society and the economy. The lengths of time since the two award types (CSA/RLA) were made are different, with differences also in their research areas. Therefore, awards are at different stages of output/outcome production and the evaluation data presented in this report can only provide a snapshot in time. Further outputs, outcomes, and impacts would be expected to emerge from these awards over time. Because of the different grant stages, these metrics are neither directly comparable between individual awards nor against more general award statistics for a given year. They do, however, provide a very strong indicator of the success of these schemes in each of the evaluation categories analysed.

⁵ Buxton M and Hanney S (1994) Assessing payback from Department of Health Research and Development: preliminary report. Vol. 1. *The Main Report. HERG Research Report, No. 19*. Uxbridge: Health Economic Research Group (HERG), Brunel University.

⁶ Buxton M and Hanney S (1996) How can payback from health services research be assessed? *Journal of Health Services Research & Policy*, 1(1): 35–43.

⁷ <https://www.scimagojr.com/journalrank.php?area=2700>

2.2 Qualitative evaluation of leaders and institutional perspectives on Leader awards

Amárach Research was commissioned by the HRB to carry out the qualitative element of the evaluation of the investment in leaders. A series of semi-structured interviews was conducted with leaders (Appendix 3) and institutional representatives (Appendix 4) by senior qualitative researchers in Amárach Research between July and October 2018. The HRB provided lists of those who were willing to share their contact details with Amárach Research. Twenty-five interviews in total were subsequently conducted, including:

- Seven research leaders in PHHSR (RLA)
- Eight clinician scientist awardees (CSA)
- Nine institutional representatives from host institutions (HI)/Health Service Executive (HSE).

Written consent was obtained from all interviewees and interviews were recorded. Interviews were then transcribed, and the transcriptions analysed using NVivo 12.

A qualitative descriptive analysis of the data collected was undertaken. The objective of the analysis was to learn about the meaning and value that award recipients attached to the HRB-funded schemes. From a first reading of the data collected, items of interest were identified that were listed as candidate subthemes. The data were then coded using these subthemes to organise the data into coherent categories under two overarching constructs: (i) where interviewees talked about how the awards enhanced their professional development as researchers and (ii) how the awards support the wider research and healthcare environment. Under each of these overarching themes, a summary of the views of interviewees is presented to illustrate their experience of the schemes and what the schemes mean to them. The analysis thus summarises the main points highlighted by interviewees, without presenting an interpretation of these points or seeking to explain relationships between them.

3 HRB investment in health research leaders

3.1 Introduction

Since 2004, the HRB has invested €37.2 million to support the development of leaders in research in both the academic (RLA in PHHSR) and clinical (CSA) environments. The main objectives of these two schemes were to enable excellent researchers to establish themselves as leading international investigators in their discipline, mentor the next generation of researchers, and promote the implementation of evidence into policy and practice. A brief overview of each scheme is presented below.

3.1.1 Clinician Scientist Awards

The CSA scheme was targeted at senior health practitioners (e.g. medical consultants) with excellent research track records. The HRB has invested almost €22.6 million in this scheme since 2004. The original aim of the CSA was to provide outstanding senior health practitioners with dedicated time to conduct world-class research and to establish themselves as leading investigators in clinical medicine within the Irish health services. During the first iteration of the scheme, three CSA calls were issued – in 2004, 2006 and 2007 – and seven awards were made with a combined value of approximately €11.2 million.

In 2010, the HRB conducted a qualitative review of existing awards to assess the impact that the scheme was having on the research careers of recipients and to inform the development of a further CSA call in 2012. In the revised call, 11 researchers were funded at a cost of €11.4 million, with an increased focus on a team-based collaborative approach. As such, the purpose of the revised scheme was to support research leaders in the health services to develop team-based internationally competitive research programmes that could impact on population health, patient care, or service delivery.

3.1.2 Research Leader Awards

A 2011 HRB review of population health sciences and health services research in Irish universities⁸ identified significant gaps in capacity at senior level in these research areas. The RLA in PHHSR scheme was designed to address these gaps by enabling research leaders to spend dedicated time performing PHHSR in areas of strategic importance for Ireland and to drive forward the national agenda for these particular research areas. The scheme aimed to facilitate strong research leaders to mentor more junior researchers, guide the development of academic curricula, and accelerate the translation of research ideas into improved health and well-being by influencing and impacting on healthcare practice and/or policy.

The first of two calls for the RLA was launched in 2012. Following the successful funding of six awards, the HRB launched a second RLA call in 2015, making four further awards. The combined cost of both calls was approximately €14.6 million. Both calls were aimed at candidates with strong existing track records in PHHSR who could make a valuable contribution to research leadership, capacity building within the university sector, and the translation of research into policy and/or practice.

⁸ Hiney M, Curran B and Clarke P (2011) *Review of population health research and health services research in Ireland*. Vol. 1. Dublin: Health Research Board. Available online at: <https://www.hrb.ie/publications/publication/review-of-population-health-research-and-health-services-research-in-ireland-volume-1/returnPage/1/>

3.2 Description of awards made

Since 2004, some 15 clinician scientists⁹ and 10 research leaders have received funding from the HRB. A breakdown of the numbers and average value of awards made through each round of funding is presented in Table 3.1. Although the breakdown of funding for each award varied, it typically covered the salary of the principal investigator (PI) (in full or in part¹⁰), salaries for research team members, and research costs, such as running costs, small equipment and knowledge exchange, and dissemination costs.

Table 3.1: Awards made through HRB CSA and RLA schemes

	CSA 2004–2007	CSA 2012	RLA 2013	RLA 2015
Number of awards	7	11	6	4
Total investment (€M)	11.2	11.4	8.8	5.8
Average award value (€M)	1.6	1.0	1.46	1.44

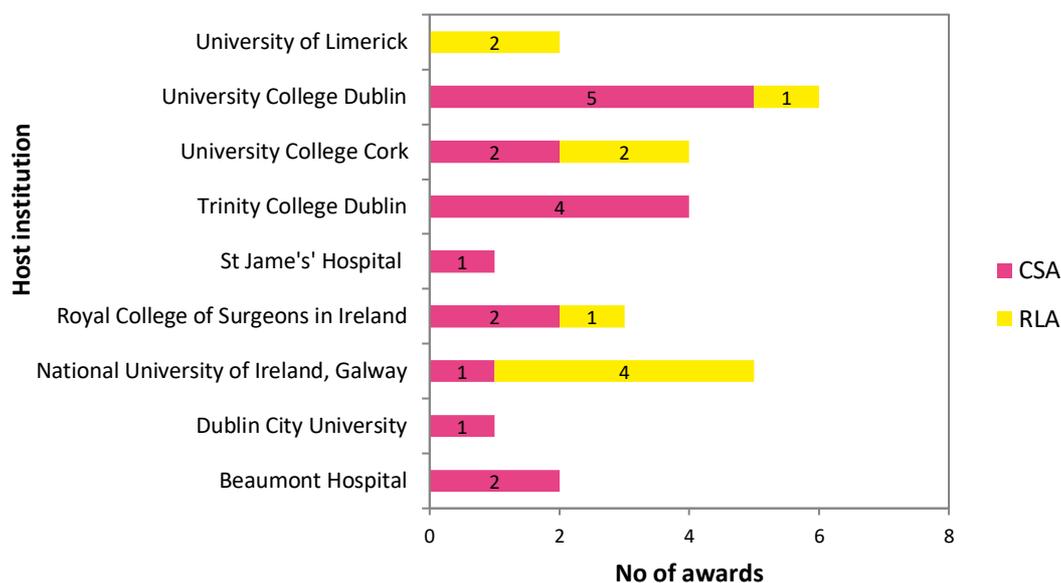
In terms of geographical spread, Figure 3.1 shows the host institutions for the Leader awards and demonstrates that there was a good spread of awards across institutions nationally. Eleven of the 28 awards went to institutions outside of Dublin, with the remaining 17 awards being spread across four Dublin universities and two hospital sites.¹¹ It should be noted that key health service partners involved in these awards are not represented in these figures, and include, for example, hospital sites, various HSE divisions, and other statutory healthcare agencies.

⁹ Three CSA were funded on two occasions in successive rounds, that is, 15 clinician scientists and 18 CSA grants.

¹⁰ RLA covered full buyout of time, while CSA ranged from partial to full buyout, for example, through funding of a locum. In some cases, CSA were awarded as programme grants where PI salary was not covered.

¹¹ In the original rounds of the CSA scheme (2004–2007), it was possible for hospitals to act as host institutions; however, this was not possible from 2012 onwards.

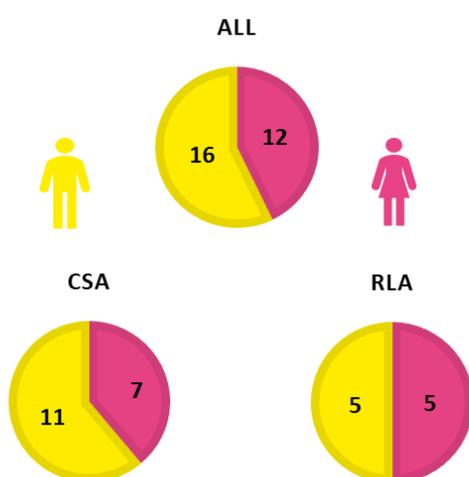
Figure 3.1: CSA and RLA award distribution by host institution



Since 2016, the HRB has had a gender policy in place and is committed to gender equality in funding. Initiatives include working to address unconscious bias in peer review processes and ensuring gender balance on our international expert panels. The HRB monitors gender balance in funding awarded and is implementing incremental changes to address any imbalance found.

A breakdown of awards by gender of the principal investigator (leader) is shown in Figure 3.2. In the case of the RLA scheme, the breakdown is 50:50 men to women, while the figure for the CSA scheme is 61:39 men to women. A more detailed breakdown by gender across all team members is provided in Chapter 4.

Figure 3.2: Gender balance of CSA and RLA awardees



On delving a little further into applicant success rates by gender, it was found that the success rates largely reflect the gender balance of the applicants to the scheme (see Table 3.2). While the success rates for RLA very much favoured men in 2013 and women in 2015, when both cohorts are taken

together, the result is more balanced, whereby 33% of men and 31% of women were successful. Overall, a slightly larger number of women have applied to RLA compared with men.

In the case of CSA, there have been almost three times more applications from men than women across the four rounds of the scheme. The overall success rate favours women (34% women vs 25% men). However, in the most recent round of the scheme in 2012, there was a more even success rate, with 27% for men and 33% for women, although there were still three times more applications from men than women. While it is reassuring to see a reasonably gender-balanced success rate in recent years, it would be of interest to better understand the gender difference in application numbers. Is it related to the gender balance of the potential applicant pool, a factor over which the HRB has little control, or are there other causes that the HRB could play a part in addressing, such as the language of call documents? Furthermore, as discussed in Chapter 4, there is a significant disparity between the gender breakdown of those funded by the awards at more junior levels (see Figure 4.1) and those applying for funding at leadership level, particularly in the case of the CSA.

Table 3.2: Success rates of applicants to the CSA and RLA schemes by gender

Scheme-Year	No. of applicants			No. successful			Success rate (%)		
	M	W	Total	M	W	Total	M	W	Total
CSA-2004	10	3	13	1	1	2	10	33	15
CSA-2006	4	0	4	1	0	1	25	0	25
CSA-2007	6	5	11	1	3	4	17	60	36
CSA-2012	30	9	39	8	3	11	27	33	28
RLA-2013	8	11	19	4	2	6	50	18	32
RLA-2015	6	7	13	1	3	4	17	43	31

A broad range of research fields and topics were funded under these schemes. CSA supported research in cancer, cardiovascular disease, neurology, mental health, respiratory disease, obstetrics and gynaecology, and paediatrics (see Table 3.3). For the most part, these awards could be described as clinical/applied biomedical research by HRB broad research category definitions, although four of the CSA also had elements of PHHSR.

Table 3.3: CSA awardees and the subject areas of their research

Year	Leader	Title of research project
2004	Joe Keane	Dissecting out the pathways of successful macrophage responses to infection with <i>M. tuberculosis</i>
2004	Mary Cannon	Adolescent brain development and risk for psychosis
2006	Peter Kelly	Prediction of recurrent stroke following transient ischaemic attack and first stroke. A population-based prospective study
2007	John Crown	Molecular therapeutics in breast cancer
2007	Lorraine Kyne	Prospective study of the effect of antibiotics on gut flora and growth of <i>Clostridium difficile</i> , and investigation into host immune responses and outcomes of patients colonised with <i>C. difficile</i> -PCR ribotype 027
2007	Louise Kenny	Screening for Pregnancy Endpoints (SCOPE) Ireland
2007	Orla Hardiman	A genome-wide association study of neurodegeneration in a characterized and genetically defined population
2012	David Cotter	Biomarker discovery in psychosis; a longitudinal proteomic and lipidomic study of plasma involving high risk subjects and subjects recently converted to psychosis
2012	Deirdre Murray	Validation of predictive biomarkers in neonatal hypoxic-ischaemic encephalopathy: early life validation and neurological outcome
2012	John O'Leary	What is the circulating tumour cell and the role of immune editing in the metastatic cascade?
2012	Joseph Keane	Defining the human host response for better TB treatment
2012	Kenneth McDonald	Natural history of diabetic cardiomyopathy
2012	Maureen O'Sullivan	The role of transcription factors in sarcomagenesis with an emphasis on clear cell sarcoma of kidney and undifferentiated sarcoma
2012	Michael Hutchinson	Temporal discrimination threshold as a mediational endophenotype in adult onset primary torsion dystonia
2012	Michael O'Dwyer	A translational research programme in multiple myeloma
2012	Orla Hardiman	Deep phenotyping and complex genetics of ALS: a multidisciplinary population-based approach
2012	Peter J Kelly	The BIOVASC Study (Biomarkers and Imaging of Vulnerable Atherosclerosis in Symptomatic Carotid Artery Disease)
2012	Richard Costello	Chronic respiratory management

The RLA supported research programmes in health economics, systems and behaviours, biostatistics and epidemiology, as well as specific health topics, such as dementia, diabetes, and suicide and self-harm (see Table 3.4). As intended by the scheme, all of these awards focused on PHHSR, with only one that could be classified as having elements of clinical research by HRB broad research category definitions.

Table 3.4: RLA awardees and subject areas of their research

Year	Leader	Title of project
2013	John F Forbes	Economics of personalised health
2013	Ciaran O'Neill	Health economics: the development and analysis of the health technology assessment infrastructure in Ireland and an analysis of the quality of care among primary providers and designated care centers
2013	Brian McGuire	Psychological therapies for chronic pain and adjustment difficulties in multimorbid health conditions: development and delivery of e-Health solutions
2013	Cathal Walsh	Development of a Bayesian unit for health decision sciences
2013	Patricia Kearney	Improving care for people with diabetes: a population approach to prevention and control
2013	Molly Byrne	Designing and implementing effective behaviour change interventions to improve population health and health services in Ireland
2015	Kathleen Bennett	Statistical epidemiology in population health and health services research: quality and patient safety in medicines
2015	Ella Arensman	Individual and area level determinants of self-harm and suicide in Ireland: enhancing prediction, risk assessment and management of self-harm by health services
2015	Eamon O'Shea	National Centre for Social Research on Dementia (NCSRD)
2015	Eilish McAuliffe	Collective Leadership and Safety Cultures (Co-Lead)

Findings Part A: Outputs, outcomes and impacts

This section of the report summarises the key outputs, outcomes, and impacts of the Leader awards, collected using HRB data sources and additional top-up information provided by the leaders via survey. The purpose of this data-gathering exercise was to demonstrate the scale and scope of what this investment is producing in terms of measurable output and to indicate whether the awards were successful in this regard.

These outputs are presented under three main headings aligned with key objectives of the CSA and RLA schemes: (i) capacity building – people, skills, and resources; (ii) policy, practice, and healthcare impacts; and (iii) knowledge production, exchange, and dissemination.

4 Capacity building – people, skills and resources

4.1 Introduction

Capacity building is a broad concept that encompasses all aspects of funded research, including knowledge production and sharing, and training and mentoring. This chapter focuses on capacity building in terms of people, skills development, development of collaborations and partnerships, and production of research resources that would benefit future research.

4.2 Key findings

- More than 180 individuals have been supported through these awards across a range of career stages and disciplines, including key gap areas previously identified.
- In addition to the direct support of researcher salaries, leaders report almost 200 other instances of skills development and training opportunities either availed of or delivered.
- There have been 149 reports of recognition and awards for leaders or members of their research teams from academic and/or professional organisations.
- There have been 133 collaborations, 41 techniques/datasets produced, and upwards of €28 million in additional funding awarded for research projects in which the leader is the principal investigator.

4.3 People and skills

Human capacity building is at the heart of the RLA and CSA schemes, both in terms of establishing a cadre of leaders in their respective fields and building research capacity in associated personnel at all levels in terms of disciplines, methodologies, and skill sets. Both schemes explicitly support individuals who will act as role models and mentors to the next generation of researchers.

This section presents the analysis of researchers and support staff directly funded by the awards as well as those indirectly supported, for example, via training initiatives.

4.3.1 Individuals supported

The CSA and RLA schemes included funding to support research personnel such as healthcare professionals, clinical research fellows, postdoctoral researchers, research assistants, postgraduate students, and project management support, based on the needs of each research programme. These needs varied but typically included early (PhD), and mid-career (postdoctoral) researchers, and frequently more senior research fellows or clinical research fellows, with many of the teams supported by one or more research assistants. Table 4.1 sets out the numbers and types of positions supported to end of 2018 through the 28 Leader awards funded.

Table 4.1: Types of staff funded by HRB through the CSA and RLA schemes*

Types of position	Less than 1 year	1 year or more	Total
Admin support	2	3	5
PhD student	4	22	26
Programme manager	1	7	8
Research nurse and midwife	1	7	8
Research fellow	2	24	26
Postdoctoral researcher	10	33	43
Research assistant	37	15	52
Technician	7	6	13
MSc/MPH student	2	2	4
Other	2	0	2
Grand total	68	119	187

*Excludes leaders and locum/replacements.

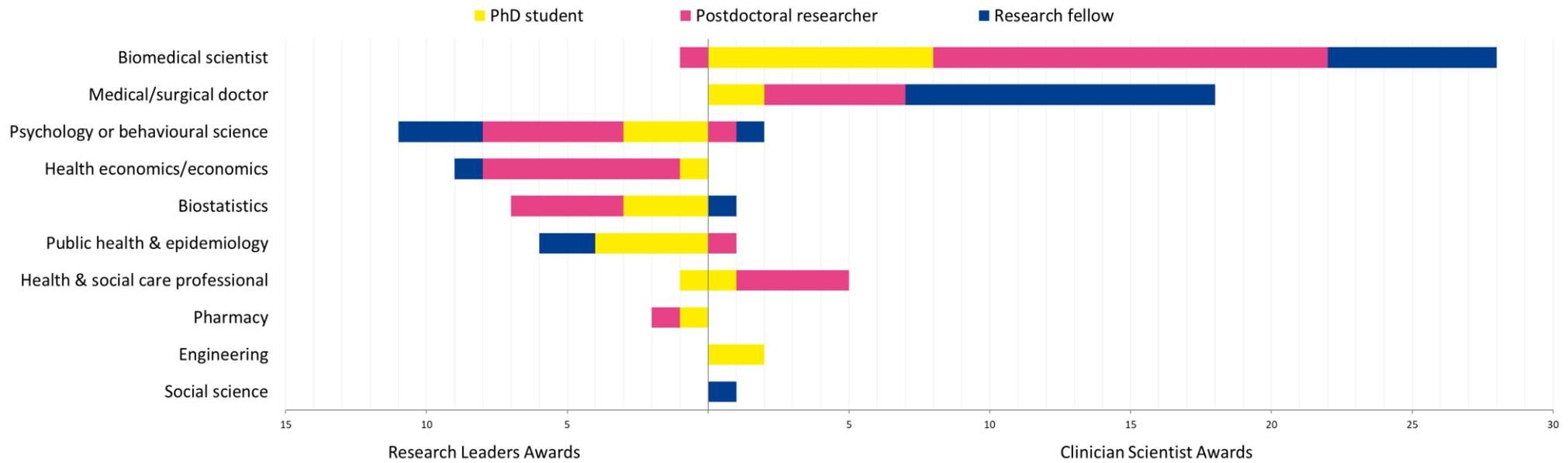
While the CSA and RLA awards have funded many short-term positions, 119 positions of greater than 1 year's duration have been supported. Over one-half of these have been PhD, postdoctoral or research fellow positions, ensuring the pipeline of health researchers and potential future leaders. These researchers span both healthcare and academic domains. Although a greater proportion of those on the typical PhD-postdoctoral-fellow trajectory are academically based (see Table 4.2), practice-based capacity building is also demonstrated through the funding of healthcare professionals such as midwives, research nurses, and medical doctors (see Table 4.1).

Table 4.2: Breakdown of HCP/clinical versus non-clinical/academic positions in CSA and RLA teams

Type of position	HCP/clinical	Non-clinical/ academic	Total
PhD student	5	21	26
Postdoctoral researcher	10	33	43
Research fellow	11	15	26
Grand total	26	69	95

Analysis of the discipline of the individuals supported on Leader awards demonstrates capacity building in gap areas identified in the 2011 HRB review of PHHSR (health economics, biostatistics, epidemiology, qualitative skills, randomised control trials and intervention research, and health technology assessment). Figure 4.1 focuses on PhDs, postdoctoral researchers, and research fellows, showing the number of individuals in areas such as health economics, biostatistics, and epidemiology. The majority of those working on the CSA scheme are biomedical scientists and medical doctors, with some health and social care professionals (HSCPs) also.

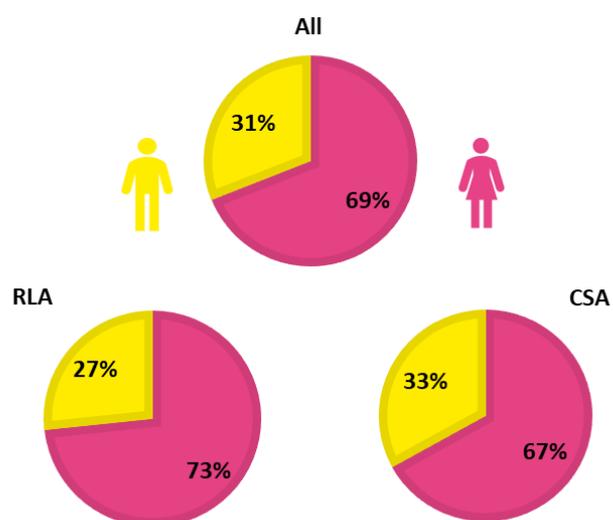
Figure 4.1: Breakdown by discipline of PhD/postdoctoral/research fellow positions supported by the RLA and CSA schemes (overall and by scheme type)



Chapter 3 noted a perfect gender balance at leader level in the RLA in PHHSR, while the gender balance at the same level in the CSA scheme favoured men (61:39). Monitoring of gender balance in HRB funding goes beyond the award recipients and looks at applicant teams supported. As shown in Figure 4.2, the gender breakdown of those employed on the RLA and CSA schemes is very different to that at PI level. Overall, 69% of those employed on both schemes were women. At an individual scheme level, 67% of those employed on CSA and 73% of those employed on RLA were women. This is in line with trends in these disciplines. In 2017, female PhD graduates in life science subjects such as biology and biochemistry in Irish higher education institutes outnumbered males (61% female versus 39% male) with an almost identical ratio in the 'Health and Welfare' category which includes medicine and other health and care disciplines¹². Our own finding in relation to our structured PhD training programme in PHHSR is that 75% of the students are women (2013–2017 figures).

Our results highlight a concern in keeping with the general pattern in Irish higher education institutions.¹³ Despite the large numbers of women at more junior levels, this does not translate to women in leadership positions. The importance of teasing out the underlying reasons and potential solutions for this imbalance has been a high priority for the HRB in recent years, as it has been at national level. Some of the HRB initiatives in this space take into consideration active research experience for eligibility and assessment purposes, asking applicants more explicitly to state their career breaks, if any, in the application and also inviting individuals currently on or returning from career breaks to apply for funding, and to provide part-time arrangements during the award. The findings in this report further highlight the importance of these activities.

Figure 4.2: Percentage breakdown of individuals supported on RLA and CSA awards by gender



¹² HEA, 2017/18 Statistics; data provided on request.

¹³ Higher Education Authority (2018) *Higher education institutional staff profiles by gender*. Dublin: Higher Education Authority. Available online at: <https://hea.ie/assets/uploads/2018/01/Higher-Education-Institutional-Staff-Profiles-by-Gender-2018.pdf>

4.3.2 Education, training and skills development

In addition to skills and capacity building of individuals employed on the award schemes, leaders reported other instances of skills and capacity building of those outside it. These skills and increased capacity are classified as:

- Development of research skills, personnel, and research capacity – supervision and mentorship, supporting career development
- Staff development and education benefits – leader and team member participation in additional training and skills development
- Research used in teaching and professional training – leader and team members teaching and providing training.

Figure 4.3 shows the percentage breakdown of the 197 reported outputs in these categories. The main activity reported is the training opportunities availed of by the leader and their team members. However, there are also many instances of training provided, not only to peers but also to broader audiences in the health services and wider community. In addition, mentorship and supervisory roles extend beyond the core funded personnel, with leaders and senior team members acting in this capacity for students, postdoctoral researchers, and clinicians on related grants, as well as visiting students. Leaders also note the success of team members in securing research grants and promotions with the support of the leader. Table 4.3 gives examples in each category.

Figure 4.3: Percentage breakdown of outputs in education, training, and skills development from CSA and RLA awards

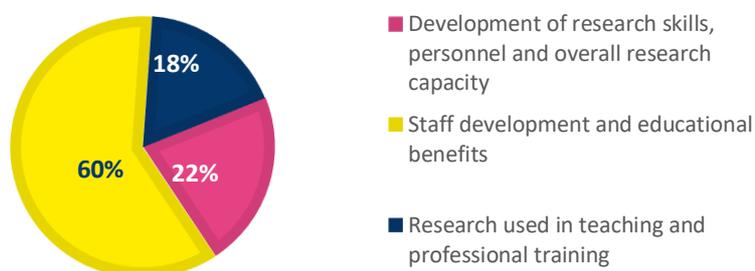


Table 4.3: Examples of types of training and skills development reported by CSA and RLA awardees

Example	Training and skills developed
Development of research skills, personnel and research capacity	“I have supervised three academic clinicians (with a background of medical gerontology, preventive cardiology, and primary care) who have completed PhDs. Two of these academic fellowships were funded by the HSE and Health Research Board and are specifically focused on training academic clinicians to work within the health system.”
	“Mentorship of gifted young researchers: During my CSA to date I have the privilege of directly supervising two HRB clinical fellows and a number of other separately funded clinical fellows. This has enabled me to directly contribute to the development of a pool of new generation clinician scientists. I am working closely with [the university] to generate external support for a sustainable research programme in [my discipline]. In time, this will include the provision of

Example	Training and skills developed
	a number of clinical research lectureships for medical graduates who have completed both clinical training and a PhD [and] who wish to pursue their career as clinician scientists.”
Staff development and education benefits	<p>“I have participated in a Research Team Leadership course run by the Leadership Foundation for Higher Education.”</p> <p>[Mentee] completed a postgraduate certificate in implementation science and graduated at the top of her class from Trinity College Dublin, supported by [leader] as her mentor.</p>
Research used in teaching and professional training	<p>[Mentor] conducted a train-the-trainer programme for [discipline] nurses for the National Clinical Care Programme for [discipline].</p> <p>The International Summer School is hosted annually with more than 90 students from US universities attending lecturers and workshops provided by the team and hospital partners.</p>

4.3.3 Recognition and awards

The expertise and skills developed by the leaders and members of their research team is reflected in the recognition and awards received by them from academic and/or professional organisations. Table 4.4 highlights this success, particularly in relation to research prizes. These include travel bursaries and prizes for poster and oral presentations. Other examples are provided in Table 4.5.

Table 4.4: Type and number of recognition and awards received by CSA and RLA awardees and team members

Recognition type	Leader	Team member	Total
Awarded research prize, medal or other acclaim	16	40	56
Invited to sit on scientific advisory or peer review committee	13	6	19
Invited speaker or keynote at major international conference	18	1	19
Prestigious/honorary/advisory position to an external body	9	6	15
Visiting professor/Attracted international visiting staff	12	0	12
Invited onto scientific conference organising committee	5	3	8
Appointed to editorial board of journal or book series	8	0	8
Other*	6	2	8
Invited to co-supervise a PhD student	3	1	4
Grand total	90	59	149

*Other includes membership of learned societies and invited authorship on international clinical practice guidelines.

Table 4.5: Examples of recognition and awards received by CSA and RLA awardees and team members

Recognition type	Example
Awarded research prize, medal or other acclaim	Leamer-Rosenthal Emerging Researchers Prize for Open Social Science (Berkeley Initiative for Transparency in the Social Sciences, University of California, Berkeley) (US\$10,000) 2016
Awarded research prize, medal or other acclaim	Association of British Neurologists Medal Lecturer 2014 (based on research output)
Invited to sit on scientific advisory or peer review committee	Member of peer review panel for Academy of Finland
Visiting professor/Attracted international visiting staff	Flaherty Visiting Professorship 2016/2017 Award to visit the Montreal Behavioural Medicine Centre
Appointed to editorial board of journal or book series	PI is editor-in-chief of journal <i>Amyotrophic Lateral Sclerosis and Frontotemporal Degeneration (ALS and FTD)</i> from 2008
Other	Elected Fellow of European Respiratory Society (FERS)

4.4 Other research capacity building

This section explores capacity building beyond the people directly funded by the awards and the educational and training benefits, looking more broadly towards capacity ‘to do more’ through building collaborations, developing tools and resources to benefit future research, and leveraging additional research funding.

4.4.1 Collaborations

High-quality health research relies on multidisciplinary teams, often working across different institutions and countries. Therefore, the development of collaborations is viewed as important in ensuring that research is conducted to the highest standards, is nationally or internationally relevant, as appropriate, and is more likely to be translated to patient benefit through engagement of the right partners. At a very basic level, it ensures the wider dissemination of research ideas and outputs.

Both CSA and RLA were expected to identify a number of collaborators at application stage, although it is anticipated that they will continue to develop existing collaborations and engage in new ones throughout the lifetime of the award.

All leaders reported at least one new collaboration, with a median of four collaborations reported. Of the 133 collaborations reported, 73 of these related to CSA and 60 to RLA. Table 4.6 and Figure 4.4 provide a breakdown of collaborations by sector and by location. Approximately 85% of all collaborations reported were in the academic sector. Of these, 60% were international and 40% were national collaborators.

Table 4.6: Number of CSA and RLA awardee collaborations reported overall by sector and location

Sector	International	National	Total
Academic	68	45	113
Public	1	9	10
Private	0	4	4
Non-profit	0	2	2
Multiple sectors	2	0	2
Hospital	0	1	1
Learned society	0	1	1
Grand total	71	62	133

Figure 4.4 provides a further breakdown of the location of international collaborations. Collaborations within Europe predominated, accounting for 60% of all reported collaborations, including 12% of collaborations with United Kingdom (UK) partners and 3% with Northern Ireland. North America (15%) was also an important source of collaborating partners.

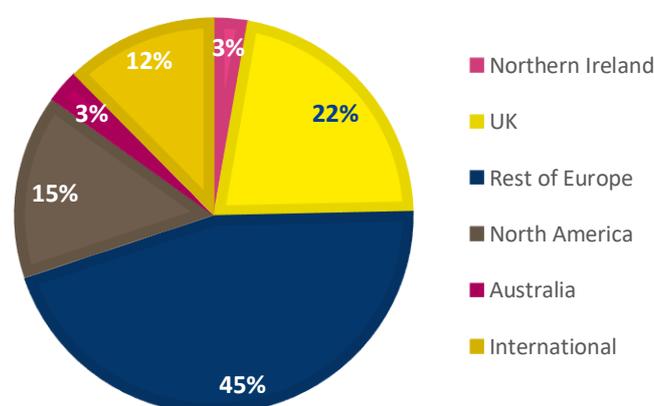
Figure 4.4: Geographical spread of CSA and RLA awardee international collaborations

Table 4.7 presents the primary aims of the collaborations as reported by the leaders. Unsurprisingly, given the dominance of academic collaborations, the primary reason for collaboration is joint research, followed by access to support, advice, and facilities. The fact that networking and dissemination activities (sharing findings), while important, are not typically the primary reasons cited suggests that most collaborations reported refer to those involving active engagement between partners.

Table 4.7: Reported primary aims of CSA and RLA awardee collaborations by scheme

Primary aims of collaboration	CSA	RLA	Total reported
Joint research	45	25	70
Access to methodological support/advice	6	17	23
Access to clinical research facilities/support services	9	2	11
Networking	3	6	9
Shared data and research findings	6	2	8
Access to datasets	1	6	7
Other*	3	2	5
Grand total	73	60	133

*Other includes access to research materials/tools/instruments, cohorts, and biobanking.

4.4.2 Research techniques or datasets for use in further research

As well as knowledge production outputs, which will be discussed in Chapter 6, many awards also produced valuable research resources that can be used for future research by the producer or other groups. Forty-one new research resources were reported from 16 awards (eight CSA and eight RLA). The majority of these (n=30) were reported by leaders to have international relevance; the types or resources are listed in Table 4.8.

Examples include a database of more than 300 patients containing detailed clinical and psychological measures linked to pharmacy claims data; a high throughput system to assess cell responses to infection; and the outputs of a research prioritisation exercise to guide other researchers.

Table 4.8: Types of research resources reported by CSA and RLA awardees

Research tool, material or method type	CSA	RLA	Total
Database/dataset	5	9	14
Experimental assay, reagent or method	4	1	5
New or improved research infrastructure	0	4	4
Biological samples/biobank	3	0	3
New or expanded cohort	2	1	3
Physiological assessment or clinical outcome measure	0	3	3
Educational/training materials	1	2	3
Computer model/algorithm	3	0	3
Data analysis technique	1	1	2
Research software	1	0	1
Grand total	20	21	41

4.4.3 Funding leveraged

Attributing causality can be a challenge when looking at leveraged funding. However, any funding acquired is an indicator of growing capacity in the leader's team, institution, and research area. Therefore, leveraged funding is defined in this instance as additional grants awarded after the start date of the HRB Leader award.

Table 4.9 presents self-reported data combined with existing HRB database information (e.g. grants awarded data) around funding leveraged as principal investigator. It is unlikely to capture all grants awarded in all cases, but it gives a strong indication of the success of leaders in this area. Furthermore, the data presented in Table 4.9 count total award value; however, it should be acknowledged that there are some instances where leaders may have reported only their own share. Thus, the figures may underestimate the funding leveraged in terms of total value of awards.

Together, leaders have been principal investigator on grants totalling €28 million since receiving their Leader award (an average of €3 million per award). All leaders reported at least one new award, with a median of three new awards and a maximum of 12 new awards. Fifty-seven of these new awards could be attributed to CSA and 33 to RLA, which is unsurprising given the length of time that has elapsed since the original award start dates.

It is notable that the HRB accounted for just over one-half of the awards made (51%) and 47% of the total value of leveraged funding. This is understandable given the focus of HRB funding in areas that align with the research interests of the leaders, and that data may be skewed in favour of HRB awards given the source of the data. However, it does suggest that it would be worthwhile exploring whether there is a dependency on HRB funding sources over other funding sources.

of funding for health research leaders. Of the 19 awards secured from charitable sources, 12 of these were from national sources and seven from international sources.

Table 4.9: Award funding leveraged as CSA and RLA principal investigator since original Leader award

Source	Amount leveraged as PI (€)	Number of grants
Exchequer		
Enterprise Ireland (EI)	€14,980	1
Health Service Executive (HSE)	€569,356	5
Health Research Board (HRB)	€13,413,080	46
Irish Research Council (IRC)	€24,824	2
Science Foundation Ireland (SFI)	€4,376,000	5
Non-Exchequer		
Charity	€5,883,190	19
EU Framework Programme	€50,000	1
EU other programmes	€1,747,000	1
Industry	€2,377,329	6
Other not-for-profit	€123,470	4
Grand total	€28,579,228	90

Leaders also provided details of awards on which they were a co-applicant/investigator or partner. As shown in Table 4.10, the HRB is the main source of Exchequer funding; however, at a partner level, European Union (EU) projects are also a significant funding source.

It is important to note that Table 4.10 reports on the total grant amount, as opposed to the share of funding allocated directly to the leader, and, like Table 4.9, is unlikely to capture all funding leveraged due to the source of the data. However, these data still demonstrate that leaders were involved in applicant teams that secured in excess of €100 million in additional funding.

Table 4.10: Funding leveraged as part of CSA and RLA applicant team

Source	Approximate value of awards reported* (€ million)	Number of awards
Exchequer		
Health Research Board	€40	34
Science Foundation Ireland	€20	4
Other – EI, IRC and joint SFI/IRC	€8	7
Non-Exchequer		
National charity/not-for-profit	€1.5	4
EU Framework Programme	€71	9
International funding agency/charity	€4	5
Other EU	€0.5	1
Grand total	€145	64

*Rounded to nearest million.

5 Policy, practice and healthcare impacts

5.1 Introduction

Accelerating the transfer of research ideas into improved patient care, health, and well-being by influencing and impacting on policy and practice is fundamental to both the CSA and RLA. A key objective of these schemes is to ensure that the research questions are driven by policy and practice needs and that the evidence produced informs policy and practice. Emphasis is placed on the development of partnerships and collaborations with policy-makers, health and care practitioners, health decision-makers, academic researchers, and industry to improve services or to develop new services, strategies, or products.

This objective is appreciated by the leaders who, as demonstrated in this chapter, are making substantial efforts to apply their research findings in real-world settings. As well as influences at the policy level, there are also examples of innovation and other healthcare benefits, while indicators of economic benefits are beginning to emerge.

5.2 Key findings

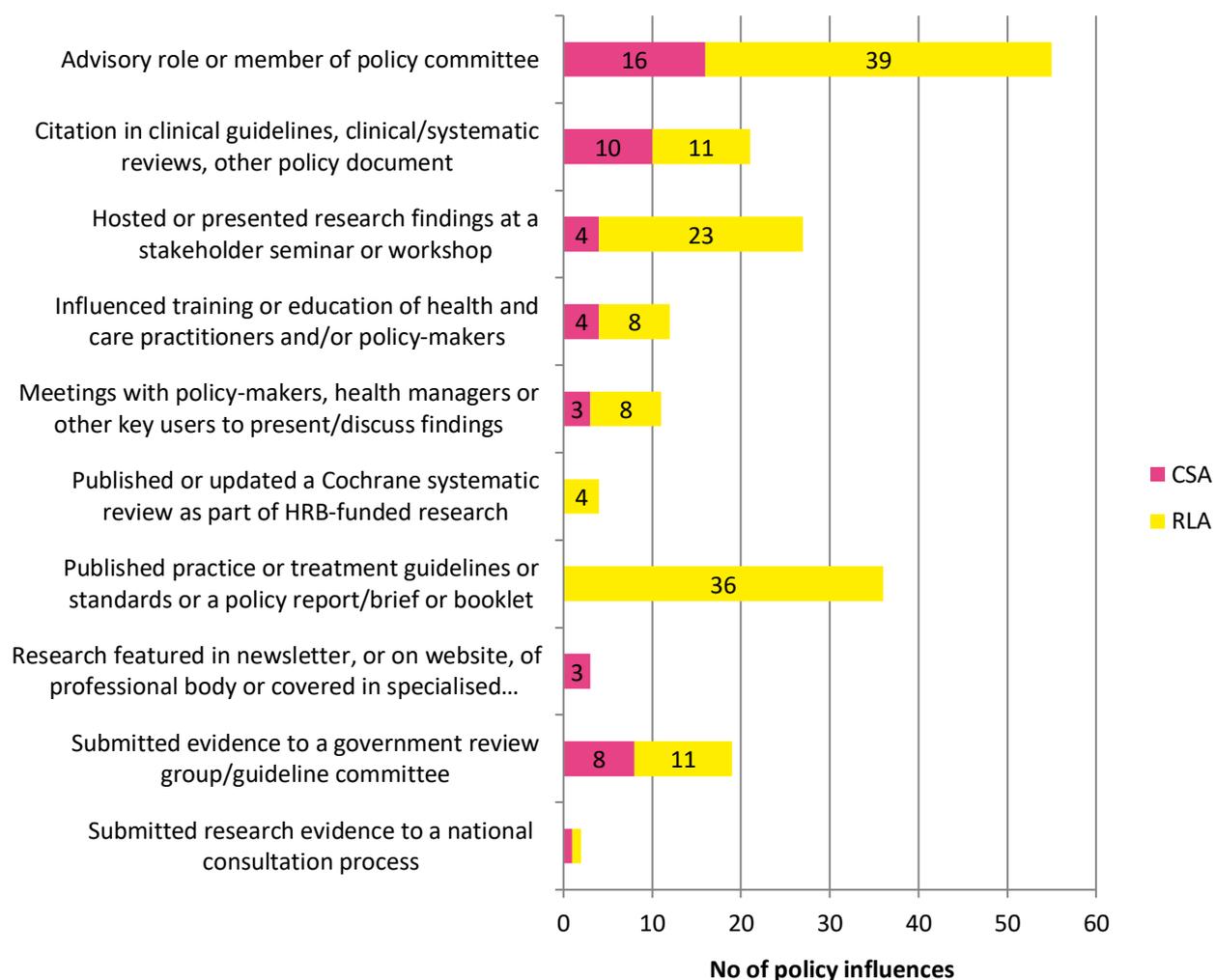
- Leaders, in particular RLA, are very active at the policy interface, reporting 189 policy influences. These include advisory roles, publication of policy documents, and presentation of evidence to stakeholders.
- Approximately one-half of the leaders report healthcare innovations, while others highlight other benefits to healthcare.
- A number of examples of commercial exploitation are reported, predominantly by CSA, with a focus on collaborations with industry partners.

5.3 Policy and practice influences

HRB-funded researchers are increasingly aware of the importance of disseminating the evidence they produce to the right audience, as described in Chapter 7. This is borne out by the level of activity reported. Figure 5.1 shows the breakdown of the policy/practice outputs and influences by subtype reported by the leaders.

All leaders reported at least one policy/practice influence and 190 examples overall were reported. Unsurprisingly, given the focus of the scheme, RLA were more active in this area, accounting for 141 of the reported influences. The approach to placing research results in the policy and clinical practice spheres most often reported by RLA was in their capacity as an adviser or member of a policy committee (n=39). Other important approaches included publishing evidence in the form of practice or treatment guidelines or standards, or a policy report, brief or booklet (n=36), or presenting their findings to relevant stakeholders (policy-makers, health managers, etc.) through seminars, workshops and face-to-face meetings (n=31).

The influence most often reported by CSA was an advisory role or member of a policy committee (n=16). Various forms of dissemination via specialist publications, Cochrane reviews, newsletters, professional body websites, or as submissions to consultation processes were also reported (n=33). It is notable that, although CSA do not report as frequently in this category, three of the CSA award-holders are either former or current national clinical leads in their respective areas.

Figure 5.1: Policy and practice outputs from CSA and RLA awardees broken down by influence type

In addition to the influences accounted for above, leaders reported 10 separate collaborations with national public entities, including various divisions of the HSE, the Health Products Regulatory Authority, and the Health Protection Surveillance Centre. The purpose of these collaborations was access to datasets (n=4), joint research (n=2), access to methodological support/advice (n=2), as well as sharing data and research findings (n=2).

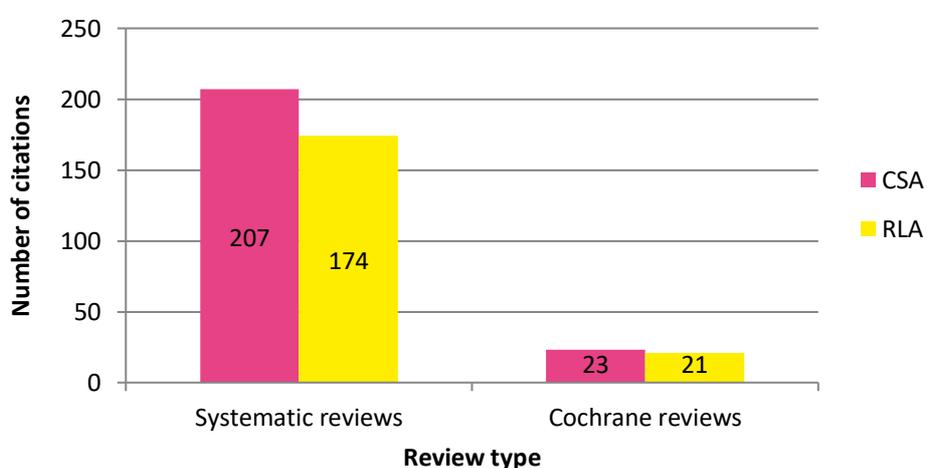
Table 5.1 provides some examples of policy and practice influences cited by the CSA and RLA awardees in the most frequently reported categories.

Table 5.1: Examples of policy and practice influences reported by CSA and RLA awardees

Influence type	Example
Advisory role or member of policy committee	Member of the working group of the National Clinical Programme for Diabetes, and a member of the research subgroup (RLA)
	Health Protection Surveillance Centre; National TB Advisory Committee (CSA)
Published a policy report/brief or booklet	Policy brief on findings from a realist review of the literature on interventions to improve team performance in hospital teams (RLA)
	A report on post-diagnostic supports published by the National Dementia Office in December 2017 (RLA)
Hosted or presented research findings at a stakeholder seminar or workshop	Seminar delivered to Department of Health Research Seminar Series. The seminar was well attended by senior management in the Department of Health, including the Secretary General (RLA)
	Multiple (monthly) meetings with HSE senior management in role as national clinical lead (CSA)

An unexpected finding with regard to policy and practice influences was that although the leaders self-reported low numbers of citations in systematic reviews, further examination of this metric using Web of Science revealed that a large number of RLA were, in fact, being cited in systematic reviews (see Figure 5.2) and clinical guidelines (see Figure 5.3). This disparity may be explained by leaders not reporting citations that emerged from research conducted prior to their HRB award or it may simply reflect a lack of awareness of some of these citations.

Regardless of the research being cited (related to this specific award or not), the large number of citations in systematic reviews (see Figure 5.2) is a reflection of the influence the leaders are having in their respective areas. While ‘systematic reviews’ cover a broad range of review types and accounted for the majority of citations, there have also been 23 citations of CSA and 21 citations of RLA in the gold standard Cochrane reviews at the date of analysis.

Figure 5.2: Citations of publications by CSA and RLA awardees in systematic reviews

Publications by leaders had been cited 49 times in clinical guidelines by the date of analysis, including 41 publications from CSA awardees and eight publications from RLA awardees. Examples of areas covered by these guidelines include heart failure, breast cancer, lung diseases, and suicide and self-harm. The international relevance of the leaders' research is demonstrated by the geographical source of these guidelines, as shown in Figure 5.3.

Figure 5.3: Source of clinical guidelines citing CSA and RLA awardee's publications worldwide



5.4 Healthcare and economic benefits

While the primary focus of the Leader schemes is the development of the leaders themselves and the teams and resources around them, potential longer-term health impacts of these awards are starting to emerge, as evidenced by the reported outputs in evaluation categories describing healthcare and economic benefits.

5.4.1 Healthcare innovations and other benefits

The ultimate goal of developing research leaders is to positively impact on health outcomes for the Irish population. One indicator of this potential impact is whether the research supported by the HRB is leading to, or significantly contributing to, the development or application of any health-related innovations. Such innovations are defined broadly by the HRB to include products (e.g. diagnostics, drugs, devices), non-drug interventions, health IT systems, clinical decision support tools, disease management strategies, clinical care models, and so on.

Table 5.2 shows that leaders reported 21 outputs in this category, with almost equal distribution among CSA and RLA (10 vs 11). Not surprisingly, given the focus of the awards, innovations reported by RLA are typically in the categories of preventative intervention/behavioural risk modification and ICT-based technology, while CSA reported development of diagnostic, prognostic, and clinical decision support tools.

It is worth noting that the 'preventative interventions' reported typically refer to interventions linked to the award that are being funded through other HRB grants. Examples include a feasibility study to

investigate whether a clinician-led cognitive rehabilitation-informed intervention would enhance adherence to therapy in respiratory disease; and piloting of an intervention to promote self-management of type 1 diabetes among young adults.

Table 5.2: Number of healthcare innovations reported by CSA and RLA awardees by category

Innovation type	Number reported
Preventative intervention – behavioural risk modification	7
Prognostic tool (imaging, algorithm or other)	2
Clinical decision support tool	3
New ICT-based technology (ICT system, software, webtool/application or eBusiness platform)	3
Care model or service	2
Diagnostic tool – non-imaging	3
Therapeutic intervention – new drug or indication	1
Grand total	21

Examples of innovative tools include an algorithm that uses clinical data and metabolite data to predict neonatal hypoxic-ischaemic encephalopathy (HIE); and a clinical prediction rule for the identification of transient ischaemic attack (TIA) patients at high risk for early stroke.

Leaders also report more general healthcare benefits outside of innovations. Some examples are listed in Table 5.3.

Table 5.3: Examples of healthcare benefits reported by CSA and RLA awardees

Leader	Description of benefit
CSA	Through the provision of innovative clinical trials, there has been improved access to novel drugs for patients with multiple myeloma in Ireland.
CSA	There is an improved model of care for diabetic patients through direct interactions with primary care physicians, clinical support networks, and personalised biomarker risk profiling.
RLA	Direct involvement with the health-related partner has informed the assessments of drugs in the Irish setting. Some 168 new drugs have been evaluated by the National Centre for Pharmacoeconomics from the start of the award to 2019 in the Irish healthcare setting. The research leader has been involved in all of these assessments, whether a ‘rapid review’ or detailed evaluation.
RLA	Data analysis on antibiotics, use of benzodiazepines, Z-drugs, codeine, and high-risk medicines in Ireland provides more awareness of the current level of quality and safe medicines use in Ireland.

5.4.2 Commercialisation activities

The successful commercial exploitation of health research, while not the primary focus of HRB investment in leaders, is seen as a valuable output and an indicator of potential future impact on

health and wellbeing. The extent of commercial exploitation depends on many factors, including the grant stage and the research area and focus.

Given the policy focus of their research, it is not surprising that RLA are less likely to report commercialisation outputs. However, some do anticipate economic benefits from their research in the long term, noting that the research is still at an early stage and therefore they are yet unable to demonstrate these kinds of impacts. They emphasise that their work is building the foundation for later health and potential economic impacts.

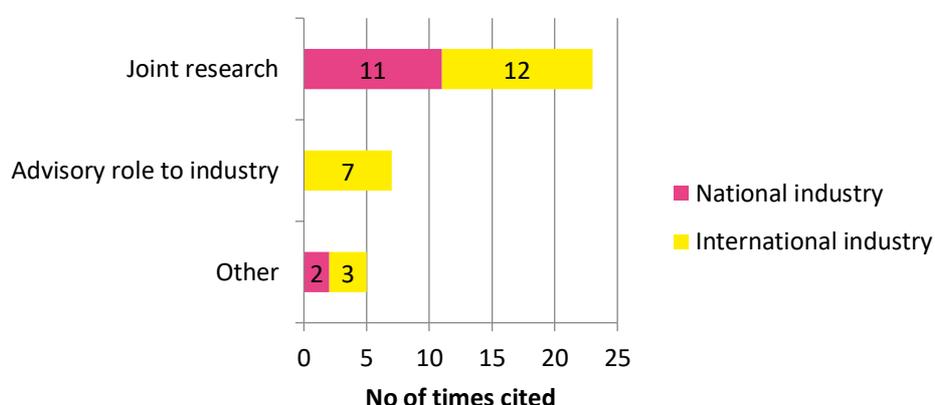
CSA, on the other hand, report outputs on the pathway to economic benefit. Given that most of these projects were in the applied biomedical/clinical research space, this is to be expected. As shown in Table 5.4, some 42 commercialisation activities were reported, with only five of these outputs reported by RLA, all in the category of industry collaboration.

Table 5.4: Commercialisation activities reported by CSA and RLA awardees

Output type	Number reported
Industry collaboration	35
Intellectual property protected	4
Invention disclosure form submitted to Technology Transfer Office	2
Spin-out company	1
Grand total	42

The main type of commercialisation output reported was collaborations with industry. Figure 5.4 shows the main focus of these collaborations, and whether the industry partner was national or international. Collaboration for the purpose of conducting joint research projects, with both Irish and international industry partners, is the most commonly cited reason for collaboration. In addition, seven leaders reported acting in an advisory capacity to industry. Other reasons for collaboration included sharing data and expertise, obtaining access to either materials or infrastructure, and networking.

Figure 5.4: Reasons cited by CSA and RLA awardees for establishing collaborations with industry



6 Knowledge production, exchange and dissemination

6.1 Introduction

At its simplest level, success of research investment is measured by the production of knowledge or evidence and making that information accessible to peers and other interested stakeholders. The first step is to publish findings and nowadays there is an increasing emphasis on publishing in a way that is accessible and open to all. However, it is not enough to publish and expect people to read those publications. Researchers must try to disseminate the information widely, targeting both peers and other interested stakeholders, such as the general public, decision-makers, and knowledge users in the health system. This chapter examines the success of the Leader awards in terms of knowledge production and dissemination activities.

6.2 Key findings

- Leaders reported 809 peer-reviewed publications and 43 non-peer-reviewed publications in addition to those reported aligned to policy outputs (see Chapter 5).
- Approximately 68% of publications are Open Access.
- Leaders are either author/co-author on more than one-half of all publications on the HRB Open Research platform.
- Leaders reported 140 public engagement activities and more than 600 peer-to-peer dissemination activities.

6.3 Publishing and Open Access

6.3.1 Peer-reviewed publications

As one might expect of researchers at this level of seniority, there are many knowledge production outputs from the CSA and RLA. As shown in Table 6.1, leaders reported more than 800 publications in peer-reviewed journals. While this represents an average of 29 publications per award, it is important to note that the number of publications reported varied widely per award from as few as four to as many as 98. To understand this diversity, it is important to emphasise that Table 6.1 represents self-reported publications that were either directly or indirectly supported by the Leader award. The table reflects the fact that the definition of direct/indirect was interpreted differently by respondents. Also of note is that some of the data, particularly the 2006/2007 round of CSA, were captured from final reports only, and therefore (i) is likely to represent publications directly supported by the award only and (ii) does not capture later publications arising from the funding.

While this is not a like-for-like comparison, with the RLA-2015 round, for example, only two years into their award at time of analysis, the take-home message from Table 6.1 is that all of the leaders are publishing, and the majority are publishing prolifically, linked to this funding.

Table 6.1. Number of CSA and RLA awardee's self-reported publications by scheme round

Round	No. of publications	No. of awards	Average number of publications per award
CSA-2004	121	2	61
CSA-2006/2007	102	5	20
CSA-2012	227	11	21
RLA-2013	275	6	46
RLA-2015	84	4	21
Grand total	809	28	29

In terms of potential reach and impact, 98% of all reported publications were in international journals, with only 20 papers out of 809 reported being published in national journals. While a detailed bibliometric analysis was not conducted, leaders' publications featured in the highest-ranking medical journals (as measured by Scimago Journal Ranking¹⁴), with 35 publications in the top 50 journals. These include the *Lancet* and associated journals (n=7) and the *New England Journal of Medicine* (n=5).

6.3.2 Other scientific publications

In addition to publishing in peer-reviewed journals, there are other means of disseminating research and adding to the knowledge base. In the case of the funded leaders, contributions to books were the most commonly reported means of publishing, with 25 contributions to book chapters and two edited books reported (see Table 6.2). Leaders also reported publishing technical reports and editorials. Most book contributions were for an international audience, while technical reports were typically for a national audience. Importantly, the national audience was also served by the policy-related publications described in Chapter 5, which might also be considered as 'scientific' publications.

Table 6.2: Other CSA and RLA awardee's scientific publications published nationally/internationally

Publication type	International	National	Grand total
Book chapter	23	2	25
Edited book	2	0	2
Editorial	5	0	5
Technical report	2	9	11
Grand total	32	11	43

¹⁴ SCImago Journal & Country Rank (2018) Top 50 journals in medicine. Madrid: SCImago Lab. Available online at: <https://www.scimagojr.com/journalrank.php?area=2700>

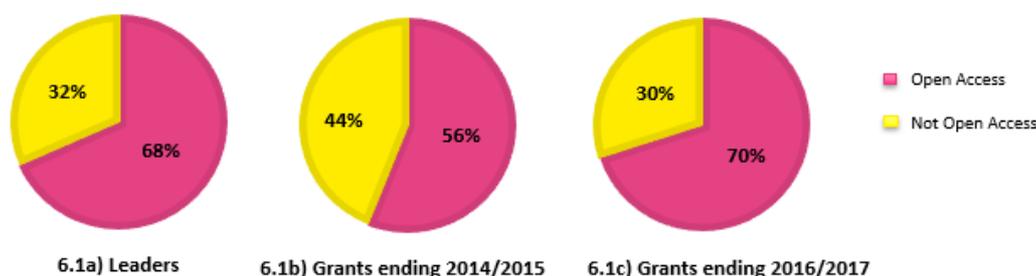
6.3.3 Open Access publication

There is a strong international drive to ensure that evidence arising from public funding should be openly accessible to all interested parties. The HRB defines Open Access, in accordance with the Budapest Open Access Initiative¹⁵, as:

...free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.

Since 2014, the HRB's policy on Open Access has required that all researchers deposit publications resulting in whole or in part from their HRB-funded research in an Open Access repository and that these publications should be made publicly discoverable, accessible, and reusable as soon as possible. As shown in Figure 6.1, analysis of the 809 peer-reviewed publications described in section 6.3.1 of this report found that 553 were Open Access (68%) at the time of analysis. While not directly comparable due to different means of data collection, it is noteworthy that the figure for all HRB awards completing in 2014/2015 was 56%, rising to 70% in 2016/2017, as detailed in the outputs and outcomes reports for those years.^{16,17}

Figure 6.1: Percentage of Open Access publications reported by CSA and RLA awardees



6.3.4 Use of Open Access publishing platforms

Five leaders reported using an Open Access publishing platform for 15 publications. These included HRB Open Research; F1000Research; Wellcome Open Research; and AMRC Open Research. Although

¹⁵ Open Society Institute (2002). Budapest Open Access Initiative and reaffirmed in 2012 BOAI-10: Budapest Open Access Initiative after 10 years 'Recommendations': <http://www.soros.org/>

¹⁶ Hiney M and O'Keeffe K (2017) Outputs and outcomes of HRB awards completed in 2014 and 2015. Dublin: Health Research Board. Available online at: <https://www.hrb.ie/publications/publication/outputs-and-outcomes-of-hrb-awards-completed-in-2014-and-2015/returnPage/1/>

¹⁷ Hiney M (forthcoming) Outputs and outcomes of HRB awards completed in 2016 and 2017. Dublin: Health Research Board.

this is a relatively small number of publications, it prompted further investigation of the use of the HRB Open Research platform by CSA and RLA.

HRB Open Research was launched in January 2018 and as of 1 March 2019 had published 34 articles, 17 of which have a leader as either lead author or co-author. This is significant, as it demonstrates that the HRB-funded leaders are taking this important agenda seriously.

6.4 Dissemination and knowledge exchange

Publishing on its own does not meet the requirements for dissemination, ensuring that information gets to the right people and in the appropriate form. While Chapter 5 deals with the process of informing policy and practice, here the focus is on knowledge sharing with the general public (to include patients) as well as with peers outside their specific discipline.

6.4.1 Dissemination to the public

The most popular means of communicating results to a wider audience was by means of a talk or presentation (45 activities reported) (see Table 6.3). Examples include a presentation on dementia at the Galway International Arts Festival; presentations at Irish Heart Foundation meetings to the public and patients; and presentations at Ask the Experts fora at international symposia in Toronto and Sydney. There has also been good coverage of research outputs in national media, including print media (n=25) and broadcast media (n=23). Such coverage included 11 *Irish Times* articles and appearances on influential radio and TV programmes such as *Morning Ireland* and *Prime Time*. Researchers have also contributed to RTÉ's Brainstorm, an online media resource where the academic and research community has an opportunity to contribute to public debate and communicate on a broad range of issues. Increasingly, researchers are using social media, such as their own websites and blogs, to disseminate their research to a wider audience.

Table 6.3: Number of public engagement activities reported by CSA and RLA awardees

Activity type	Number
Talk or presentation	45
Coverage in local, regional or national general press	25
Radio or TV interview in Ireland	23
Online publication or blog (non-academic)	19
Participation in activity, workshop or similar	7
International media coverage (radio, TV, general press)	5
Press release, press conference or response to a media query	6
School talk on subject of HRB-funded research	3
Plain English material (e.g. information booklet)	3
Other	4
Grand total	140

Researchers also spread the word about their research through engagement in activities with target audiences, such as school students, and disseminating information via booklets, press releases, and social media (Twitter, etc.).

6.4.2 Dissemination to peers

The importance placed by leaders on disseminating their research to peers is clearly demonstrated by the extent of presentations of their work both nationally and internationally.

Leaders reported 319 oral presentations, with just under one-half at international scientific conferences, while there were 214 poster presentations, with 58% at international conferences (see Table 6.4). The esteem in which leaders are held by peers both nationally and internationally is reflected in 92 speaker invitations, 20 keynote invitations, and 16 session chairs.

Table 6.4: Dissemination of research findings to peers reported by CSA and RLA awardees

Presentation type	National	International	Total
Oral presentation	164	155	319
Poster presentation	88	126	214
Invited speaker	44	48	92
Keynote presentation	6	14	20
Session chairperson	7	9	16
Conference organiser or committee member	2	2	4
Grand total	311	354	665

Findings Part B: Views of the grant-holders

This section of the report summarises the key issues that award recipients talked about when they were interviewed as part of the evaluation of the awards. The purpose of these interviews was to provide a space for award recipients to reflect on and report the issues that characterised their experience as award recipients, issues that may not have been included in the survey.

These views are presented under two very high-level themes: (i) how the awards enhanced the professional development of interviewees as researchers and (ii) how the awards support the wider research and healthcare environment.

Under the second theme, the interviewees also raise issues that the HRB needs to consider when investing in future calls for RLA. Overall, issues raised by the interviewees provide a valuable insight into the experiences of award recipients and enhance our learning from the evaluation.

7 Theme 1: Enhancing the professional development of health researchers

7.1 Introduction

A key objective of both the RLA in PHSR and CSA was to support individual researchers to establish themselves as leading international investigators in their discipline. From the data collected, the interviewees highlighted many ways in which they believe the awards enhanced their professional development. They also point to some of the challenges they face in establishing and maintaining a career in health research.

7.2 Key findings

- Many interviewees noted that their award accelerated their career progression and enhanced recognition of their work both nationally and internationally.
- The provision of dedicated time for research was identified as a core value of these awards.
- Research leaders pointed out that these awards encouraged them to use their research outputs to influence policy and practice.

7.3 Career development

Interviewees gave many examples of how being recipients of these awards enhanced their professional development by accelerating their career progression, enhancing their professional status, and enabling achievement beyond what may have been expected.

For example, in terms of accelerating career progression, one interviewee emphasised:

It [the award] has had a massive impact on my career; at a very basic level it has completely fast-tracked my promotion to professor, to go ahead in terms of focusing all my activities on research, so I now have multiple international, national research links.
(RLA)

Another interviewee echoed these sentiments: “I think it’s been like an injection of adrenalin into what I would be doing anyway but it’s certainly fast-tracked it” (RLA).

Interviewees spoke glowingly about how the awards transformed their professional profile, at both a national and international level. According to this recipient:

My career has changed beyond all recognition from the way it was 11 or 12 years ago, to being an academic leader in my own field, in the university, in the country and internationally ... so truly transformative from my point of view. (CSA)

Two interviewees, who already had an established career when they received awards, highlighted how the awards helped to boost their profile at both national and international level. For example, this interviewee talks about how the award helped to embed their career profile:

The grant came a bit later in my career, so I was pretty well established ... it certainly allowed me to become much more embedded nationally and internationally.... And particularly to enhance my commentary on policy impact and policy implementation. ... However, I do think on reflection that these awards should be for people at the earlier stages of their career than I was at. (RLA)

Another interviewee with an established career pointed out how the award helped them to establish national and international recognition in a new area of expertise:

My career was fairly well established, so the impact [of the award] has been to allow me to, I suppose, maintain and develop a new area of expertise and to be seen as an international expert in a slightly new area. (CSA)

Another interviewee elaborated with more detail on how being a recipient of the award helped to improve their profile on several different levels:

The award had a huge impact really because it was my own personal research and it was a big project award. It raised the profile of [location] as a centre, raised my personal profile and allowed me to move from where I was, with big teaching commitments, to being really seen as an independent researcher. ... It also raises your profile, so it allowed me to produce high-impact publications, become an invited speaker, have a good research profile internationally. And then because of that my own university promoted me. So, it was definitely a big stepping stone for me in my career. (CSA)

The host institutions also confirmed that they believe these awards may help accelerate the career progression of these leaders, but to varying effects. According to one host institution:

One model is that the grants help you grow people faster, to where they would've reached anyway but more slowly without the grant. And the other model is that you grow people beyond where they would've reached. I really do think this [award] enables people to go beyond where they could've expected in their careers. (HI)

While these awards may not help to advance a more established researcher in terms of promotions and launching their career path, it allowed them to progress in other aspects of their career, with their work gaining recognition from peers at both a national and international level.

At a national level, one awardee described how the HSE now recognises the value of their work and in turn provides additional support in furthering their research efforts. They stated:

I have got two tranches of funding now from the HSE to support the activity of the programme because the benefit is so immediate and we're working with multidisciplinary teams in the hospital systems. The HSE sees the value of what we're doing; they have given us additional support. (CSA)

While many potential positive effects of these awards have been identified, such as enhanced career progression and peer recognition, it is important to note that benefits of the award may be different at different career stages. In order to enhance the efficacy of these schemes, it will be important to carefully consider the career stage being targeted in the development of future calls.

7.4 Dedicated time

Interviewees highlighted a crucial element in the development of their research career: having the dedicated time to do the research that came with being an award recipient. This was noted across a range of research backgrounds, from early to late stage career researchers and academic researchers to clinical scientists.

From the data collected, it appears that many of the interviewees believe that the provision of protected time is the main value of these awards to their careers. According to one interviewee, "its real value was in freeing up the time to allow me to do that project and other projects which were linked to it" (CSA).

In particular, it was found that clinician scientists may have great difficulty in finding the time to complete their research objectives. An interviewee commented:

If you're a full-time clinician, it's really difficult to run a big project grant when you're working full-time with patients. I was 50% clinical and 50% university, but my university time was very much taken up with looking after the students and going to curriculum committee meetings. (CSA)

Another CSA awardee described why the different priorities of the clinician need to be considered in the provision of protected research time, as their primary focus will always be their patients. Upon reflecting on their experience as a clinical researcher, they commented:

Everything that I was doing was essentially on my own time. If I was highly organised during the day I could try and find a little pocket of time here or there. But the real issue for research is not so much grabbing an hour here or there, it's that you need blocks of time to actually shut your office door and not have to deal with clinical duties. Because, obviously, as a consultant, your prime duty is always going to be to the patient first and foremost. (CSA)

Many of the clinician scientists who were interviewed pointed out that the buyout of their time is a crucial element in the success of these awards, in providing the clinicians with the dedicated time required to carry out their research. This may be of particular importance for senior clinical researchers who will have quite a heavy patient workload. One CSA awardee stated:

Clinical work is getting much more rigid so there's less flexibility. ... So, if you get a big research grant and you have to manage it on top of everything else, you really sort of think 'what am I doing?'... I think the only way to get buy-in from senior clinicians is to have this kind of buyout of time. (CSA)

The provision of this dedicated time to carry out their research may have far-reaching effects on the researcher, the research team, and, most importantly, their patients. One research leader commented:

Because of the HRB awards, I've created a scientific group which is generating research of global impact. That results in better science and better clinical care. Better science because of the grants and publications we generate. But better clinical care because only through research and the protection of research can you get the time to be an absolute expert in the clinical field you're engaged in. (RLA)

From the data collected, it appears that the provision of protected research time is a significant factor in the success of these awards. In particular, the buyout of time is essential for clinician scientists, whose foremost priority will always be their clinical work and their patients.

7.5 Navigating the policy–practice interface

Many interviewees emphasised how these awards helped enhance their communication of research outputs to impact at the interface between research and policy and practice. For example, interviewees noted that in recent years there is a greater focus on using research to inform and improve healthcare. One interviewee described how their own motivation has changed over time:

[The need] to try to focus your research work on making an impact; I really wouldn't have been concerned about impact 20 years ago. Back then, you wrote a paper and published a paper and then the next paper. Whereas now I think about how I can disseminate it [the research findings] properly. Make sure it gets to the right people. Make sure the policymakers know about this and make sure the stakeholders are engaged in the prioritisation of the research. (RLA)

Some interviewees felt that these awards may have increased their awareness of the potential for their work to influence policy and practice. One interviewee commented:

The award has really focused my mind on the importance of the work we're doing for the policy process, for practitioners, for stakeholders. In other words, it's quite clear in connection with the Research Leader Award that something had to happen; you're not simply getting a grant and going off to do a piece of research. ... Whereas before, you maybe not necessarily thought about your work in that bigger, broader context. (RLA)

Another interviewee described the journey to generating this impact, and how it can affect patients and patient care in a meaningful way. They noted:

I would be aware of the impact on patients. I've actually sat in on a meeting where patients were talking about the impact that [the research outputs] had on their health. For example, one man, effectively because of an intervention which came about as a result of the research collaboration, ended up being fully rehabilitated within a very short space of time. ... So, I certainly can see massive benefits from translating research directly into what's going on in a clinic in real time. (RLA)

Interviewees emphasised how important it is that their research answers relevant questions in real-world settings in order to generate a worthwhile impact on healthcare practice. One interviewee commented on their experience:

Our research has relevance as it's trying to map what we're doing and understand how we get integrated care to happen, how we work in a more integrated fashion. It's about positioning the research and asking the questions that are relevant to where people are at. So, the type of research we're doing in the health system isn't just 'let's do an analysis of this or that and feedback a report'. Most of our research results in some kind of intervention or some kind of design for a solution that we then test. So, it's more than just understanding the situation. As researchers we want to create some kind of solution to the situation and test to [see] if it works in a real-world setting. (RLA)

From the data collected, it appears that some awardees feel that these schemes allowed them the opportunity to enhance their contribution to policy impact and implementation, in terms of time and effort. One interviewee mentioned:

[The award] allowed me to become much more embedded nationally and internationally.... And particularly to enhance my commentary on policy impact and policy implementation. ... It certainly allowed me stay engaged in the sense that my career was probably going to go into ... 'head of school', i.e. those kinds of areas which take you away from research. This has allowed me to devote really high-energy time into research and practice and policy. (RLA)

Research leaders noted that the funding helped them to develop a system that provides access to real-time data: an important service that is often lacking in the healthcare practice sector. One interviewee commented:

We have delivered real-time access to data, whereas before it usually took two years before we had access to data. We achieved this with funding from the HRB, and we have a system that is ethically approved ... that's a major achievement. And already [other locations] have the same system. So, you see there is impact already in terms of wider implementation. (RLA)

From the data collected in these interviews, it appears that the awards may have increased the leaders' awareness of the need to consider how their work could contribute to policy and practice, and have also facilitated more action in this important area.

8 Theme 2: Supporting the wider research and healthcare environment

8.1 Introduction

The Leader awards are made to individual researchers; however, the ambition behind the awards goes far beyond supporting that individual. These awards are also intended to have a wider impact on the award recipient's research environment by supporting the development of research teams, including junior researchers, as well as influencing academic curricula and health service delivery. From the data collected, the interviewees highlighted a number of ways in which they believe the awards have helped them to promote and use research in their academic and clinical environment and support the development of the next generation of health researchers. Overall, it was found that the leaders have a positive view of the HRB, but also acknowledge certain challenges regarding HRB funding.

8.2 Key findings

- Interviewees recognised the important contribution their research makes to their wider institutional environment and the necessity of embedding research in education and health service delivery.
- Interviewees acknowledged their role in supporting the next generation of researchers but also noted the significant challenges faced by this group.
- Interviewees spoke positively about their dealings with the HRB and highlighted some of the challenges linked to research funding.

8.3 Promoting and using research

These awards have been praised for providing protected research time, enhancing the leaders' career progression and allowing them to more fully impact at the interface between research and policy and practice. These benefits to the leaders appear to transfer to their work environment, where their efforts to promote and use their research may benefit their students and their institution and ultimately the practice of healthcare.

Research leaders understand that their work as part of the awards may contribute to the research culture within their university. One leader described how research is integral to the development of future curricula and keeping students up to date on the current research climate. They commented:

You really need to have strong expertise in research to attract in students. The university would have a very strong emphasis on research-led teaching and ensuring that our students are up-to-date. That research is informing curricula and is moving with the times as well. So, research matters in terms of contributing to society and trying to address challenges that are important for us. (RLA)

From the data collected in interviews, it appears that leaders, who have been awarded protected research time, still wish to contribute to the research culture within their institution while pursuing their research as part of the award. One research leader described how although they may not need to teach full-time any longer, they see the importance of translating their research to students and encouraging research within their institution. They stated:

You have to stay embedded in your school as well in order to sustain the relationship between research and teaching. And I still like to be able to contribute, although not full-time, to be able to contribute to seminars here and the master's and PhD programmes, sort of bringing back the work we're doing, and bringing research back into the classroom. (RLA)

It was found that some host institutions can be very supportive of these awards and may encourage their researchers to apply to these schemes. One host institution commented that “research innovation is one of our key pillars”, while another stated that “if we have someone, you know, who can attract in a grant like this, then absolutely we are going to be 100% supportive of that individual” (HI).

From the data collected, it seems that this impact on culture can also be seen to make a real difference in the clinical practice environment. One leader described how the support and encouragement of the team by their health service employer or partner can lead to real differences in healthcare. According to the leader:

You have leading edge care when you have a clinician involved with a research interest and a research team in support. ... They're looking at the health service factors that will influence whether more people get access to a treatment in terms of time to treatment and delayed treatment. So, there's a kind of a virtuous cycle there. You have a hospital that is really proud to have this innovative treatment in their system. Really proud of their clinicians who are able to deliver it and so on. So, I think when you see and will see research making a real difference to the care you can provide over the next few years, it's empowering all round. (RLA)

On a broader scale, leaders have pointed out that the HSE has also recognised the value of their research. They noted that “the HSE sees the value of what we're doing, they have given us additional support” (CSA). This clearly exemplifies the support of research in clinical practice in Ireland.

It was found that the outcomes of research undertaken by award recipients can also contribute to the training of medical professionals, which further illustrates the embedding of research into practice. According to one research leader, “a lot of the outcomes of this research programme feed directly into the national training of clinical nurse specialists in the emergency department. And there are other curricula where this programme is feeding in, such as primary care, trainee GPs, etc.” (RLA).

Despite these positive contributions to enhancing research culture in their academic and clinical environments, there are still challenges to be addressed. Leaders described how there is a need for greater communication with other important stakeholders, such as the Department of Health and the HSE. One leader commented:

I think we need to have more communication and more discussions with the Department. You know we don't talk to them enough. We work away in our academic institutions. And the barrier needs to be broken down a bit ... with the HSE and the Department of Health. (RLA)

Another interviewee noted:

[The HRB] needs to connect in with the HSE much more and I think that's one thing the HRB have done really well with the knowledge users, and the requirement to have the potential beneficiary involved is a very good idea. The funders, the potential medium- to long-term funders, have got to get in the game. (HI)

While discussing the importance of embedding research in teaching and clinical practice, interviewees have again emphasised that health research requires the collaboration of all key partners, including the researchers themselves, the funders, the policy-makers, and the service providers.

8.4 Developing the next generation of researchers

These awards may have helped develop the next generation of health researchers through increasing the research leaders' awareness of the need to provide support and opportunities to early career researchers.

Research leaders described how these awards may have helped broaden their outlook on their research career and helped them consider the potential development of their staff and students. According to one interviewee:

It's quite clear with the Research Leader Award that you're not just simply getting a grant and going off to do a piece of research. You are trying to plan and plot career opportunities for people and where they might make a difference. And it makes you think more to identify people who will take on this work; the younger people who might sustain this work. (RLA)

It appears that these research leaders now see it as part of the package, that they must consider the development of their team in their work: "I have to choreograph the movement of the scientists in my group, according to the funds available and to the project's success and their abilities to generate independent funding" (RLA).

Host institutions also acknowledge the need to develop students beyond their research duties in these awards, in order to prepare them for other opportunities. According to one host institution:

We recognise that they [postdoctoral/PhD researchers] need to have some experiences that don't interfere with or damage their research portfolio but that actually allows them to say in an interview 'I have taught classes', 'I have been involved in exam boards', 'I have done some of these things'. So that's another way in which we try to build our research capacity with early career researchers. So that they are prepared for an academic environment if that's what they want eventually. (HI)

While the leaders have suggested that these awards may help in the development of the next generation of health researchers, they have also highlighted many challenges that face early career researchers in general.

One awardee described how the lack of protected time in research can make it difficult to progress one's chosen field and this may pose a particular challenge for postdoctoral and other early career researchers. They commented:

The first constraint is time when you're starting your research career, and the second one is getting your research career funded at the beginning because it's a chicken and egg situation: the funding gets much easier the more experience you have and the more funding you get; but starting out is hard, and that's why it's a difficulty for postdocs and younger researchers at the moment. (CSA)

It may also be difficult for early career researchers to find a stable position in their field. According to one host institution:

We can't promise people positions because everything has to be through open competition. ... Permanent positions or jobs have to be advertised and the wording in some of the schemes in the past has meant you're trying to work submissions that aren't going to promise people anything but yet be seen by a reviewer that the institute is supportive. (HI)

From the data collected, it appears that leaders recognise that the lack of a stable career path can be a significant issue. According to one leader:

It's a constant struggle to get ahead, to get the next grant, to keep people engaged when you can't say to them 'if you're successful in this job, we'll find some way that the university will employ you, that there will be a career for you here'. And to be honest I spend a lot of my time working on that, because once you get a good person, then you try to make sure that they're in the best position to apply for jobs that come up. But some of those jobs may not even exist, so when a job comes up you know there's a lot of competition for it. (RLA)

Another potential issue highlighted was research not being acknowledged as a core part of a clinician's work. One RLA awardee commented:

Research is still not seen as a vital component of clinicians' work. I think that is a huge mistake. Anything we can do to address that is extremely important. I think it's really interesting when you see the problems we are having with recruitment and retention at the moment. We need proper career pathways for clinicians – not just doctors – I mean clinicians right across the board, health assistants, care professionals, nursing, etc. (RLA)

It is clear from these interviews that there are many challenges facing researchers who are trying to establish a career in health research. While these awards may help support health research leaders to enhance their staff and students' career paths, there are many other challenges which remain and which the HRB could go some way towards addressing by maintaining its focus on a structured careers framework and continuing to reassess how they might best support researchers at all levels.

8.5 Identifying challenges to HRB investment in research leaders

Over the years, the leaders have built strong working relationships with the HRB. From the data, they expressed positive views overall about the HRB as a funding organisation, noting the ease of access when support is required, open-mindedness and helpful attitude of HRB staff, and a consistent focus by the HRB on improving health and healthcare. One leader commented that the "HRB can be really helpful, they are quite open to us talking to them. They are engaged with trying to improve the whole process of funding research in health and healthcare" (RLA).

Another leader praised the progressive and innovative nature of the organisation, and the HRB's emphasis on best practice:

I think they're a very professional organisation, they're very progressive, they're very outward looking. I think they're linked in with best international practice and I think they're ahead of their time in terms of being innovative, and I know that within a relatively small budget they're still managing to bring in progressive types of awards. (RLA)

Of note, the interviewees also described challenges in relation to their HRB funding, from administrative overload to concerns regarding overheads. One leader commented that "the high levels of administration and need to ensure capacity building can often take time away from the actual research itself" (RLA).

According to another:

One thing that has been on my mind is the evaluation of the leader's award and the way the HRB has done that. There's the usual annual report and then there's the interim review. And then there's the report that goes in after the interim review and then there was another document, an evaluation document on this review. And while I understand it's a big investment and it's a new scheme and it needs to be rigorously evaluated, I think that it does detract from the activity to some extent. (RLA)

This administrative overload may be a source of frustration and confusion and is something the HRB must bear in mind when developing grant monitoring and evaluation processes.

There may also be confusion regarding the use of overheads with these award schemes. According to one host institution:

I think sometimes there are unrealistic expectations from researchers across the board, in that they say 'I bring in all this contribution to overheads', which they do but they're part of a university, not a standalone person doing research in their back garden or their home. They're part of a university that provides infrastructure, provides support, provides the reputation that contributes to getting the funding because of the host

institution they're in. I think a lot of people understand that but it's surprising the amount that don't. (HI)

The host institution further explained how these overheads are put to best use within the university, in order to enable these researchers to carry out their work. They state:

We provide the infrastructure, and we provide the human resources in the broad sense of human resources. Plus, skill sets that you need to do your job. We provide a small amount of set funding for scholarly activity, like going abroad to conferences and so on. So that's where our overheads go, in terms of enabling researchers to do their job. (HI)

Another challenge that was highlighted during these interviews was the lack of follow-on funding after completing a HRB award, and the potential loss of investment. One leader stated:

Coming up to the end of the five-year award, I do think if there was any way that the HRB could ring-fence some of their future money dedicated to research leadership to support successful initiatives within the previous Research Leaders Awards, I would really recommend they do that. I just think there is potentially a real waste in investing in something for five years [and then stopping]. (RLA)

From the data collected, it was clear that this was a prominent issue among the leaders. They noted:

There's no mechanism of tracking that an existing HRB-funded researcher who is building on research that's already being funded by the HRB. Now there are two sides to that – one is of course that it gives an unfair advantage, but the argument in favour of doing that is that if that doesn't happen, there's a very high risk that the HRB will have lost the benefit of the funding that they previously provided. (CSA)

The awardees expressed their concern that without this form of tracking, there is a risk that talented scientists will be lost and the HRB will lose out on its investment. According to one leader, “the HRB needs to really think carefully about whether it's going to have a sort of preferred track of researchers that it's supporting from a career development point of view ... and recognise that there's a big risk that we'll lose people” (CSA).

The HRB acknowledges the issues raised in these interviews and will take them into account when considering its strategic approach to supporting health research careers and developing funding schemes.

9 Conclusions

9.1 HRB investment in health research leaders: a success story?

This evaluation set out to demonstrate the value of the HRB investment in health research leaders to date and to inform the future direction of HRB funding at this level and in capacity building more generally.

The CSA and RLA funding schemes were designed to enable excellent senior investigators to establish themselves as leading international experts in their discipline, mentor the next generation of researchers, and promote the implementation of evidence into policy and practice. After 14 years, and almost €40 million investment, this evaluation points strongly to the success of these initiatives to date.

The timing of this review has been critical, as the HRB has committed to continued investing at leadership level as part of its Strategy 2016–2020. Findings from this evaluation have informed the development of RLA 2020, the design of a dedicated research career path targeting health and care practitioners¹⁸, and the design of associated award schemes to support that career path. Findings will also continue to influence our approach to building research capacity as described below.

9.2 Findings of the evaluation

It is clear that investment in talented individuals and their teams has been a successful approach, but that there are also areas where the HRB can improve. In terms of the primary objectives of the evaluation, these areas are:

- Outputs, outcomes, and impacts of the funding to date
- Design of next HRB funding programme for health research leaders
- HRB’s strategic approach to capacity building more generally.

9.2.1 Outputs, outcomes and impacts of the funding to date

Both schemes have done what they set out to do in terms of building capacity, producing diverse research outputs, and, most importantly, impacting on healthcare policy and practice (see Table 9.1).

As well as supporting 25 individuals to become established health research leaders, these awards have supported a further 187 individuals, several of whom are already well on a trajectory to becoming leaders themselves.

The awards have contributed to the further development of important research fields in Ireland, and in some cases significantly contributed to establishing research areas where there were previously gaps. They have supported Irish experts who are internationally recognised, as evidenced by the high numbers of publications, presentations, collaborations, and successes in leveraging additional funding.

¹⁸ The term ‘health and care [practitioner](#)’ covers individuals from a wide variety of professions and occupations (such as medics, nurses and midwives, pharmacists, dentists, and health and social care professionals), typically governed by a range of regulatory bodies, who [are engaged in](#) clinical practice/care provision.

Most importantly, the potential benefits to health are starting to emerge, firstly through the active engagement of the leaders with policy-makers and practitioners, but also through the development of interventions and tools.

Table 9.1: Key outputs of CSA and RLA awards in numbers

Output type	Numbers
Research leaders	25
Positions funded	119 > 1 year; 68 < 1 year
Education, training and skills development	197 outputs reported
Recognition and awards	149
Collaborations	133
Funding leveraged as PI	€28.5M
Policy and practice influences	190
Peer-reviewed publications	809
Public engagement activities	140
Presentations to peers	665

The positive impacts of the schemes were also borne out in the interviews with the leaders themselves and institutional representatives. Leaders commented on the very positive impact of the awards on their careers, particularly in terms of fast-tracking their progression. They also emphasised the value of the protected time facilitated by these awards. Perhaps most importantly in terms of the goals of these awards and of the HRB in general, they highlighted their recognition of the importance of their research being relevant to policy and practice.

From a HRB perspective, it was reassuring that no major concerns were reported on the delivery of these schemes, and as such a significant redesign of the approach to funding at leadership level is not required. There were, however, several useful observations regarding some of the challenges for research leaders and constructive insights regarding how things might be improved.

Many of the concerns expressed centred on a reliable research funding mechanism aligned with career stage. Some interviewees urged careful consideration of the career stage at which initiatives were targeted, indicating that schemes such as the RLA may benefit some more than others depending on their career stage. Others expressed concern about the lack of follow-on funding after their awards have finished, and there were varying suggestions as to how the HRB might support researchers that they have already invested in to ensure best value from that investment. More generally, the challenges with succession planning and supporting the next generation of researchers was highlighted, with acknowledgement of the support needed from supervisors, institutions, and in the form of structured research career support.

Other challenges highlighted by researchers included the need for greater integration with health partners, such as the HSE, and more practical day-to-day issues, such as managing the administrative burden and the lack of clarity regarding use of research overheads.

9.2.2 Design of next HRB funding programme for health research leaders

An important output of this evaluation was to inform the design of the next HRB funding programme for health research leaders. While initially it was thought that a single scheme might target leaders whether academic or healthcare based, it quickly became apparent from this evaluation and parallel HRB consultations that there was no one-size-fits-all model, and that a separate scheme for those

engaged in clinical practice/care provision would be required. This is discussed in more detail in the next section (9.2.3).

As intended, this evaluation was an important input into the design of RLA 2020. While not unexpected, the evaluation confirmed the need for different funding streams targeting different levels of leadership – for those ‘on an upward trajectory to becoming’ leaders, and for established leaders, such as our existing CSA and RLA awardees. The RLA 2020 focuses on those researchers ‘on an upward trajectory to becoming’ leaders; however, the findings of this evaluation as well as of the HRB *Review of clinical research infrastructure in Ireland*¹⁹ contributed to the development of a new funding model to support established health research leaders.

Other assumptions were also confirmed by this evaluation and incorporated into the RLA 2020 scheme design; for example, the importance of at least some buyout of time and a minimum award duration of five years. In addition, the evaluation highlighted the importance of leaders continuing to be involved in teaching activities as part of research dissemination and also in their capacity as role models and mentors in the higher education institutions, and this is now an expectation of all awardees.

On a practical level, in an effort to eliminate any confusion over the purpose of the ‘overhead’ budget line, and to distinguish the overhead payment from the research costs, the total funding amount available at application stage is for the programme costs. The HRB will add the appropriate overheads at contract stage.

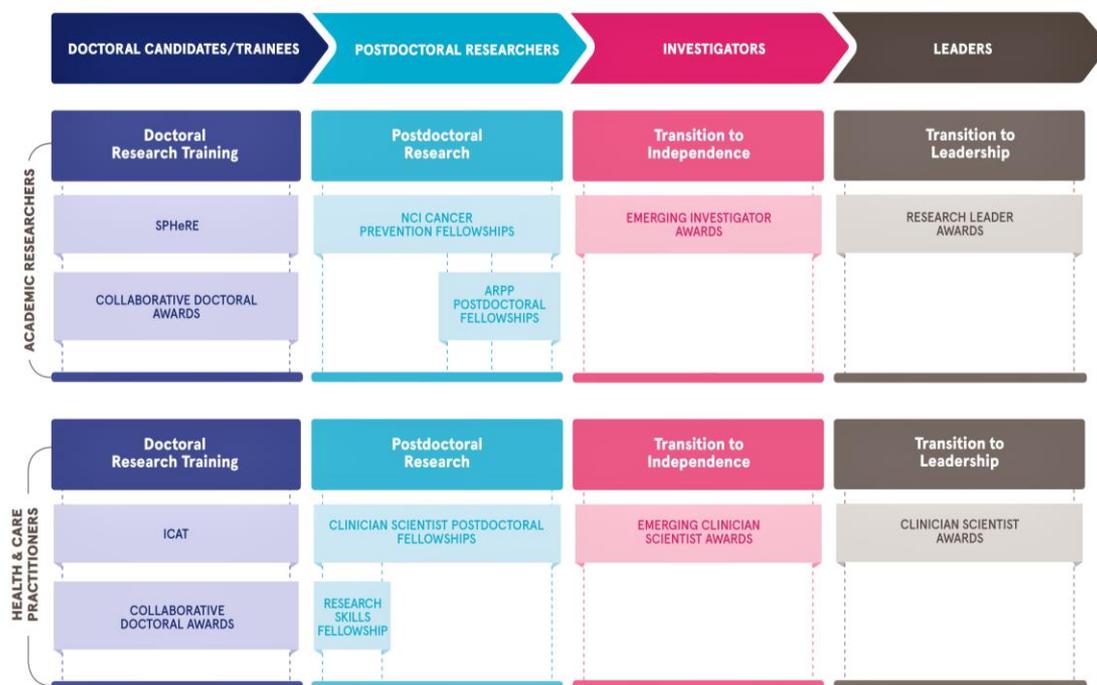
9.2.3 HRB strategic approach to capacity building more generally

Since 2016, the HRB has had a health research career pathway in place with the ambition to train, further develop, and support both academic researchers and health and care practitioners who are pursuing a career in health research in Ireland. The value of this structured approach has been emphasised by this evaluation, whereby researchers strongly advocate for reliable funding streams targeted at each career stage, supporting those at leadership level as well as early career researchers in getting on the funding ladder. While the HRB has yet to develop a scheme that prioritises those already funded, there are currently follow-on funding schemes available up to the level of research leader. Plans on how best to support established leaders beyond that stage will be considered as part of the next strategy.

Most HRB career support schemes launched since 2016 have targeted both academic researchers and health and care practitioners. Emerging findings indicate that health and care practitioners have a poor success rate in these schemes. An additional consultation with the clinician scientist community alongside this evaluation has identified challenges that reduce their competitiveness in these schemes (see Appendix 2). To address the challenges and barriers identified, the current career path in health research has been revised to include two parallel tracks, with one of those specifically targeting health and care practitioners. A dedicated career path should prove a more effective approach to train, support, and retain talented individuals who want to pursue a dual career in clinical practice and health research and develop themselves as clinician scientists in Ireland. This complements the existing pathway favouring academic researchers (see Figure 9.1).

¹⁹ Ward O and Kennelly H (2019) *Review of clinical research infrastructure in Ireland*. Dublin: Health Research Board. <https://www.hrb.ie/publications/publication/review-of-clinical-research-infrastructure-in-ireland/returnPage/1/>

Figure 9.1: HRB health research career pathways for academic researchers and health and care practitioners



A key component of this revised approach has been the development of funding calls targeting health and care practitioners that mirror those on the academic track. Importantly, a consultation with clinician scientists revealed that there may not currently be a pipeline, at least of medical doctors, at the same (research) level as the academic-based researchers targeted in RLA 2020. As a result, the emphasis for health and care practitioner support in 2019 shifted to the preceding stage – transitioning towards research independence. Thus, an award scheme focused on future research leaders in clinical practice/care provision – Emerging Clinician Scientist Awards (ECSA) – has been developed, which targets health and care practitioners ready to transition to research independence. A further initiative, the Clinician Scientist Postdoctoral Fellowships (CSF), targeting health and care practitioners at postdoctoral level was also launched in August 2019.

In developing these new schemes supporting a pipeline of clinician scientists and future research leaders in the healthcare setting, many of the findings from the leaders' evaluation were applicable, such as the importance of protected research time, partnerships with health service providers, and emphasising relevance to policy and practice. Other findings will be applicable across all HRB schemes, such as considering ways to reduce or manage the administrative burden placed on researchers in relation to their funding.

It is important to acknowledge that despite these initiatives, the HRB has a limited budget and will only ever be able to fund a limited cohort at each career stage, and that researchers will have to continue to look beyond the HRB for funding opportunities.

9.3 Concluding remarks

The support of talented individuals has always been, and will continue to be, a key component of the HRB's approach to supporting excellent health research that delivers real benefits for the general public. This evaluation has confirmed that this approach is working and has offered valuable insights

into how the HRB might continue to improve. The evaluation has also assured us that our structured approach to funding health research careers is in line with the needs of the research community. The perceptions of the leaders and their institutional representatives have been very informative and, while predominantly positive, remind us of the many challenges that remain. While not the sole responsibility of the HRB, we will continue to play our part in addressing these challenges, such as the integration of research into the health system and the need for protected research time in order to conduct research in this context. The evaluation has already informed key changes to the HRB's approach to investment in health research careers in 2019 and will continue to inform the development of the HRB's overall investment in careers and health research in general as we plan the next HRB strategy.

Appendix 1: Impact Assessment ('Payback') Framework

Based on the Payback Framework of Buxton and Hanney.

Impact category	Indicators
Knowledge production	<ul style="list-style-type: none"> ○ Peer-reviewed publications and citations ○ Other publications such as books, book chapters, editorials or bulletins ○ Presentations to national and international conferences ○ Research reports and 'grey literature' produced ○ Cochrane systematic reviews produced, or findings included in a review
Research capacity building and leadership	<ul style="list-style-type: none"> ○ Education and training of personnel such as clinicians, health professionals, and scientists ○ Higher degrees, such as PhD, obtained by research personnel ○ Retention rates of research personnel in national research system ○ Research personnel attracted from overseas ○ Spin-off projects developed and further research funding leveraged ○ Development and use of novel research techniques ○ Establishment of new datasets, databases or research data lodged in national database ○ New national/international collaborations or strategic partnerships formed with other research teams, industrial partners or health agencies ○ Level of all-Ireland collaboration and benefits accruing from this ○ Internationalisation of research: involvement of HRB-funded researchers with EU and global health research initiatives
Informing policy, practice and product development	<ul style="list-style-type: none"> ○ Influencing national and international research policies and strategies ○ Dissemination and knowledge-transfer events or networks established with research 'users', such as policy-makers and health professionals ○ Advisory roles of HRB-funded researchers to Government or policy-makers ○ Commissioned reports or projects from Government Departments or agencies ○ Policy briefing papers, practical handbooks and other grey material produced and disseminated to research users such as policy-makers and health professionals ○ Contribution of research to clinical treatment or best practice guidelines ○ Evidence of public outreach and dissemination through media and other fora

Impact category	Indicators
Health sector benefits and innovations	<ul style="list-style-type: none"> ○ Contribution of HRB-funded research to health promotion initiatives ○ Randomised control trials completed and new interventions established as a result ○ Numbers of patients enrolled on clinical trials or engaged with studies undertaken in clinical research facilities supported by the HRB ○ Contribution of HRB-funded research to actual health benefits within Irish population ○ Savings to the health system through gains in health service efficiency, improved primary care or introduction of preventative health measures, where research and evidence generated by HRB-funded researchers contributed to this ○ Increased availability of local pool of evidence and evidence ‘generators’ to Irish health policy-makers and health practitioner
Economic, commercial and enterprise benefits	<ul style="list-style-type: none"> ○ Improved international reputation of Ireland for health and medical research (e.g. by attracting pharma industry R&D and collaborative partnerships with HRB-funded researchers; invited keynote addresses to international conferences; involvement of HRB-funded researchers in international research programmes) ○ Patents and other intellectual property applications and award of commercialisation support awards to develop marketable products or devices ○ Licence agreements and revenues generated as a result ○ Spin-out companies or formal collaborative partnerships between researchers and industry ○ Success of HRB-funded personnel in attaining additional research funding, for example through the EU’s Framework Programmes ○ Success of HRB-funded researchers in commercialising the outcomes of their research (through invention disclosures, patents, licences, formation of start-up and spin-out companies) ○ Success of HRB-funded researcher in obtaining EI funding for further development of potentially viable enterprise outputs of the research.

Appendix 2: The case for a twin-track HRB health researcher career pathway

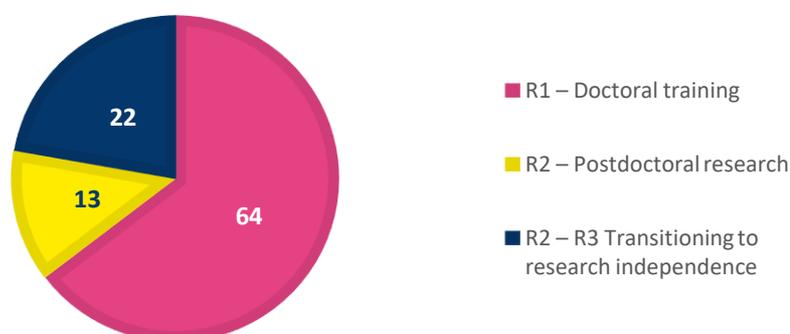
The case for a twin-track HRB health researcher career pathway is based on unpublished data.²⁰

A2.1 Evidence from HRB success rates

In the first three years of the current HRB Strategy 2016–2020, the number of researchers with awards in schemes supporting health research careers is shown in Figure A2.1, classified by career stage.

- R1 – during doctoral training (SPHeRE; Research Training Fellowships for Healthcare Professionals (HPF) 2016; Collaborative Doctoral Awards (CDA) 2018; Irish Clinical Academic Training (ICAT) Programme)
- R2 – during consolidation and progression at postdoctoral stage (NCI-HRB Cancer Prevention Fellowship Programme (CPFP) and Applying Research into Policy and Practice (ARPP) Postdoctoral Fellowships)
- R2–R3 – postdoctoral researchers transitioning to research independence (Emerging Investigator Awards (EIA) 2017 and 2019).

Figure A2.1: Number of awards (academic researchers and health and care practitioners) made since 2016 through schemes supporting health research careers.



Yet, as shown in Table A2.1, the success rate among health and care practitioners in funding schemes targeting career stages post-PhD (ARPP postdoctoral fellowships and EIA) has been lower than expected.

²⁰ Unpublished data courtesy of Dr Annalisa Montesanti, Programme Manager, Health Research Careers, HRB.

Table A2.1: Numbers of successful applications by health and care practitioners versus academic researchers

Researcher profile	Health and care practitioners	Academic researchers	Total
R1 – doctoral training	34	30	64
R2 – postdoctoral research	2	11	13
R2–R3 – transitioning to research independence	2	20	22
Grand total	38	61	99

A2.2 Key findings of consultation

Key challenges emerged from a consultation between the HRB and its clinician scientists in the context of developing a new scheme targeting research leadership (October 2018). These include:

- Despite aiming to tailor eligibility criteria for health and care practitioners, often these are still more suited to academic researchers with their more defined and linear research career path. The balance between scientific rigour and the realities of healthcare delivery can be difficult to strike.
- There is a lack of visibility of the funding schemes targeting health and care practitioners.
- There is a lack of tailored opportunities to retain or attract health and care practitioners from abroad who are trained in health research.
- Clinically senior health and care practitioners can be less experienced researchers than academic-based researchers despite graduating at the same time. When competing directly for research funding, this often favours academic researchers.

There are other aspects such as the pressures of service delivery and the opportunities for private practice instead of research, etc. which are beyond the control and influence of the HRB.

Appendix 3: Health research leaders discussion guide

1. Introduction

Interviewer

Amárach

Purpose of research (note: including giving us the benefit of their experience)

Confidentiality

Recording

2. Overview

- Tell me a little bit about your role, responsibilities.
- Tell me about your organisation/network:
 - Is research at the heart of what you do/your hospital does/university does or is it side-lined?
 - What are the key things that drive research?
 - Probe: personnel, funding, etc.
 - What are the key things that hinder your research?
 - Probe (CSA): clinician's time/buy-out
 - Probe (RLA): lecturing

3. Research funding

- How often do you apply for research funding? Tell me about that as a process.
- Where do you usually apply for funding?

4. Relationship with the HRB

- Tell me about the HRB:
 - Probe: perceptions
- When did you first apply for funding from the HRB?
 - Probe: were you funded first time, for what, etc.?

Less relevant

- Peer review, length of review
- Panel comments
- Extra funding for existing awards
- Mis-costing

5. About the specific HRB grant(s)

- Tell me about the CSA/RLA grant you were awarded by the HRB.
- What sort of things does the grant fund?
 - Probe: access to infrastructure, networks, expertise
 - Probe: personnel, staff support, types of roles, skillsets
- What was your experience of the grant?
 - What sort of **supports** were/are available to you?
 - Probe (CSA): employer and HI
 - Probe (RLA): HI, e.g. Is there support for reserved time?
 - Were/are there any **barriers**?
 - What approaches did you use to deal with barriers (where possible)?
 - Are there any barriers that the HRB could help to address?
- For CSA: How do you balance clinical work and research?
 - Probe: How much of your time do you think has been freed up for research?
 - Do you think that there is an optimal level of buy-out versus funding support staff?

6. Impact of the grant

- What sort of impact do you think the grant had on your career?
 - Was there anything it allowed you to do that you couldn't have done otherwise?
 - Was there anything it prevented you from doing?
- Do you think that you would be at this stage of your career without being awarded the grant?
- Do you think the programme is targeted at the right career level?

7. Going forward

- To what extent do you think that the awards have impacted the system?
- Do you think the research going on in your research area is sustainable?
 - Probe: other research leaders, next generation
 - Probe: availability of funding
- Can you think of any ways to ensure sustainability into the future?

CSA: To sum up, how do you think a culture of research would best be promoted in the Irish health system?

RLA: To sum up, how do you think that we can ensure that not only is excellent research being conducted, but that it is answering the relevant national policy and practice questions?

Appendix 4: Institutional representatives discussion guide

1. Introduction

Interviewer

Amárach

Purpose of research (note: including giving us the benefit of their experience)

Confidentiality

Recording

2. Overview

- Tell me a little bit about your role, responsibilities.
- Tell me about your organisation and the role of research within it:
 - What are the key drivers of research?
 - Probe: personnel, funding, etc.
 - What are the key things that hinder research?
- What sort of supports are available for career development within your institution, in particular leadership?
 - Probe: What is, if any, career/tenure track structure?
 - Probe: What are the CPD opportunities for staff – permanent and contract?
 - Probe: Are there Mentorship programmes?

Thinking about Population Health and Health Services Research (PH/HSR) and Clinical research more specifically:

- How strategically important do you think that these areas are for your institution?
 - How important do you think it is to have/support leaders in their respective research areas?

3. Research funding

- Thinking about the different types of funding streams used for your institution, which are the most important funders?
 - Probe: what role does the HRB have in funding your organisation?
- Tell me about the HRB:
 - Probe: perceptions

4. About the specific HRB grant(s)

So, as you know this interview is particularly in relation to the research leader awards given by the HRB to researching member(s) of your organisation.

- To what extent are you aware of these awards? Can you tell me about the CSA/RLA grants your Institution was awarded by the HRB?
 - Probe: familiarity with both schemes to ascertain whether their answers might primarily be based on one scheme versus the other
 - Probe: to what extent would you be aware of the administration of the awards within your institution?
- Based on your knowledge of the awards (either via their administration or through the cheat sheets) what do you think of the **models of funding** RLA and CSA?
- What do you think the biggest **challenges** are?
 - Probe: protected time
 - Challenges in terms of head counts, contracts
 - Recruitment of backfill
 - For CSA: Proportion of protected time appropriate? Other potential approaches?
 - Probe: Are there prohibitive structures within the institution in supporting the funding model?
 - Prohibitive/supportive institutional policies
 - Probe: managing workload
 - Are there mechanisms to ensure researchers are not overstretched?
 - E.g. supervising too many PhD candidates or early stage researchers; lecturing commitment vs number of active grants held by individual
 - Probe: Any other challenges in supporting research leaders?
 - Career/Leader awards
 - Research generally
- What sort of **supports** are available/are you able to provide research leaders with within your organisation?
 - Probe: mentoring
 - Probe: leveraging of other institutional funding (e.g. philanthropic) to support/top up HRB awards
 - Probe: ability to provide admin support for successful leaders?

For each award a proportion of funding is supplied to your organisation as **overheads** to support the RLA in terms of admin and affiliated costs.

- Researchers are not always aware of what overheads fund and therefore can have unrealistic expectations with regard to that funding. Are you aware of how overheads are managed within your organisation?
 - Are you aware for what these overheads **are used** in your organisation?
 - Is there any link back to specific PIs and their department over the course of awards?
 - If the RLA feels that they need access to some of the funding for specific admin support is there any flexibility in allowing some of these funds to be returned to the RLA or is it already committed to other overhead expenses that the Leader might not be as aware of?

5. Impact of the grant

Looking at the Research Leader/CSA awards, to what extent would you be aware of the impact of the grant to:

- a) To the Leader
- b) More broadly to institution
- c) E.g. New institutional links or other unexpected consequences – good or bad

(for those not familiar with these grants specifically, probe the impact/potential impact of these types of grants)

- If another set of Leader awards was announced, would you be in a position to support another Research Leader with a commitment to a long-term post?

6. Going forward

- Looking forward, what are the supports available in your institution for the next generation of researchers (if any)?
- To what extent do you think your institution is committed to supporting research leaders?
 - Probe: Do they see this as an integral part of their institution?
- Thinking about the sustainability of research and particularly the research areas supported by these awards, what do you think is your organisations role in sustainability?
 - What do you think is the funders role (all funders, including HRB)?

7. In conclusion

On reflection, do you think that the schemes, as intended:

- (RLA) are supporting universities in developing and strengthening research and education programmes in applied health and policy research?
- (CSA) Promoting a culture of research and innovation in the Irish health service?
 - Where do you see the continuing capacity gaps?