Piloting the RAISS tool in the Canadian Context

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This report, prepared for and funded by the Institute of Musculoskeletal Health and Arthritis (IMHA), describes the localisation and trialling of the RAND/ARC Impact Scoring System (RAISS) tool in the Canadian context. The RAISS tool was originally developed with the UK Arthritis Research Campaign. In the current pilot for IMHA, the localised survey, where the language had been adjusted for the Canadian respondents, was trialled with a pilot population of 13 team grant recipients, demonstrating that the tool could be localised to the Canadian context and that it could be used to collect data easily and effectively from researchers.

The RAISS tool is designed to be used across a portfolio of work. This means that the tool is designed to provide a strategic overview of a funder’s grants, rather than a detailed assessment of each and every grant surveyed. This means that trade-offs have to be made in terms of: timeliness, accuracy and completeness; the quantification of the extent of the impact; and the attribution and the links between research and impact.

This report will be of interest to senior management of the IMHA, staff, scientists, fundraisers, donors and people with arthritis. It will also be of interest to other research funding agencies and evaluators who are keen to measure the impacts of research both inside and outside the UK and Canadian contexts in which the tool has already been used.

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Summary

This project aimed to demonstrate that the RAND/ARC Impact Scoring System (RAISS) tool could be localised to the Canadian context and that it could be used to generate illustrative results from a pilot deployment.

Overall, the pilot has shown that the RAISS tool works in the Canadian context. From the initial pilot for the Institute of Musculoskeletal Health and Arthritis (IMHA), the following key messages can be drawn:

• The piloting took place across a population of 4 grants with a total of 21 researchers invited to complete the tool. Only 13 researchers responded to the survey. This means the results should be interpreted with care.

• The evaluation of IMHA/Canadian Institutes of Health Research (CIHR) team grants using the RAISS tool is possible, despite the complications of collaborative working. We were able to detect the overlapping responses, where the same impact was recorded more than once for the same grant, in the research tools and Interventions and products section of the RAISS tool. However, in this pilot the extent of the overlap was small, constituting less than 10% of responses.

1 Complications of collaborative working and overlapping responses are discussed in further sections of the report.
• Requesting short comments on research tools and interventions/products did not detectably increase the time taken to complete the survey.

• The pilot identified three new types of impact: “conceptual model of disease”; “tools for clinical decision support” and “identification of possible drug targets”.

• Based on our subject-expert judgements, the researchers correctly classified grant impacts over 90% of the time in the research tool and interventions/products sections of the RAISS tool.

• We successfully collected data for all grants but the disappointing researcher response rate of 62% (13/21) needs further investigation. This could be funder specific or dependent on the nature of the team grants.

• The additional bibliometric module added to the RAISS tool was only partly successful. This may partially be because the survey software was unable to present a long enough list of papers to cover all the papers possibly attributable to each grant.

• Asking questions to garner feedback on the grant scheme produced useful comments giving a practitioner impression of the advantages and disadvantages of team grants over individual grants. However, this was only provided from the perspective of the grant recipients.
CHAPTER 2 Introduction

This report details an IMHA funded project, which aimed to demonstrate that the RAISS tool could be successful trialled in the Canadian context, and that this trial could generate meaningful illustrative results from a pilot deployment.

This chapter outlines the background to the project, the client, the RAISS tool and provides an overview of the limitations of using such a tool in the assessment of academic grants.
Background

- IMHA (Institute of Musculoskeletal Health and Arthritis) commissioned localisation and trailing of RAISS tool in the Canadian context

- Research objectives:
  - Trial a localised version of the RAISS tool in a Canadian context
  - Conduct initial analysis of the pilot survey
  - Explore implications for wider application of the tool

Background

The IMHA of Canada commissioned RAND Europe to develop and trial a pilot version of the tool, initially developed for Arthritis Research Campaign (arc) in the UK, to improve its research evaluation methods.

The project’s research objectives were to:

- Trial a version of the RAISS tool which has being adjusted to fit within the Canadian context.
- Conduct initial analysis of the pilot survey.
- Draw any implications for wider application of the tool.
**The Institute of Musculoskeletal Health and Arthritis**

- One of thirteen “virtual” research institutes operated by the Canadian Institutes of Health Research
- Focuses on the enhancement of mobility, movement and oral health by addressing prevention, screening and treatment
- Primary source of funding for Canadian research into arthritis

**Client**

The IMHA is one of thirteen “virtual” research institutes operated by the CIHR (Canadian Institutes of Health Research), a Canadian federal agency that is responsible for the funding of health research.

The IMHA focuses on the enhancement of mobility, movement and oral health by addressing prevention, screening and treatment. The IMHA vision is to “sustain health and enhance quality of life by eradicating the pain, suffering and disability caused by arthritis, musculoskeletal, oral and skin conditions”.

The IMHA is a primary source of funding for Canadian research into arthritis, musculoskeletal rehabilitation, bone, skeletal muscle, skin and oral health, whose related diseases and conditions are estimated to cost the Canadian tax payers approximately $16 billion per annum.

To inform the IMHA’s future funding strategy and to provide a foundation for more detailed evaluation work in the area of funding for arthritis research, RAND Europe was contracted to pilot a localised version of the RAISS tool with an IMHA selected sub-set of grant recipients.
**RAISS tool**

- Designed to be an easy to complete information gathering tool
- Six sections:
  - Future Research
  - Dissemination
  - Health Policy
  - Training
  - Interventions/Products
  - Comments

The RAISS tool was originally developed by RAND Europe and arc as an easy to complete information gathering tool allowing for a strategic overview of the research portfolio of arc.

The tool was developed as a web-based survey instrument asking researchers about the research undertaken on grants and what resulting impacts have developed. A web-based solution was selected for the tool, as it allows for ease of completion and subsequent analysis.

The survey has six sections:

- Future Research:
  - Covering aspects such as further funding, new collaborations, and how the research contributed to researchers’ careers. Additional questions on any new research tools developed were included in this section.

- Dissemination:
  - Covering aspects such as academic publications, seminars for academic audiences and those aimed at health professionals, and other forms of dissemination.

- Health Policy:
• Detailing work supported by the grant which was cited in clinical guidelines, contributions to guideline committees and other contributions to health policy.

• Training:
  o A short section covering the researchers’ impacts on training of various groups.

• Interventions/Products:
  o Covering current and potential future long-term impacts of the research in areas such as new treatments, public health advice, drug development, diagnostics, medical devices, physiotherapy interventions and public health advice.

• Comments:
  o Covering questions related to the grant type investigated and other comments on the questionnaire so that RAND Europe can improve subsequent versions.
**Caveats and limitations**

- **RAISS tool was developed to provide a strategic overview of a portfolio of work**
- **Series of trade-offs had to be made leading to inherent limitations of the tool**
- **Limitations in terms of:**
  - Accuracy, completeness and timeliness
  - Quantification
  - Attribution

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**Caveats and limitations**

The RAISS tool was developed to provide a strategic overview of a portfolio of work rather than to provide a focused detailed assessment of each and every individual grant, response or type of impact. This meant that a series of trade-offs had to be made leading to inherent limitations of the tool. These trade-offs and limitations are discussed below.

- **Accuracy, completeness and timeliness:**
  - The respondent is the only source of information, meaning that the results are subject to potential inaccuracies due to questions being misunderstood, impacts being overstated/understated, and excluded due to lack of knowledge. These inaccuracies were countered in the development of the RAISS tool by extensive testing of the language used and the questions posed. There was some evidence from other sources that researchers do not overstate their impacts. However, this may change if a tool such as RAISS is used routinely for performance measurement. Another limitation is that the survey can only capture existing impacts, whereas new impacts might accrue over time. This could be counteracted by repeating the survey over time.

- **Quantification:**
  - To allow for ease of completion, the RAISS tool was originally designed to maximise the number of simple Yes/No questions. This meant that
the original version of the RAISS tool could only collect limited amounts of information on individual impacts. However, this limitation was thought to be a worthwhile trade-off in terms of breadth versus depth. Namely, we were interested in mapping the spread of impacts rather than estimating net impacts. In addition, the chance of overlapping impacts (i.e. different grants claiming the same impact) between grants of different researchers is relatively small. In the current implementation of the RAISS tool, the team nature of the grants increases the chance of overlap. This is discussed in the Team grant section.

- Attribution:
  - The issues around attribution can occur in the extent of the link from the grant to the impact, and whether that link flows from a particular grant or the overall portfolio of work done by the individual researcher. During the development of the RAISS tool, the researchers with which we worked steered us towards a very pragmatic decision to use a binary threshold approach to attribution. This limits the opportunities for misinterpretation regarding whether an impact should be attributed to the grant or not. Additionally, it reduces the burden on respondents. However, there is a small loss of subtlety in terms of attribution and linkages of research impacts and the grant. Peripheral impacts of any particular grant (i.e. where the grant contribution to the impact was minor) are likely to be missed by this approach.
This chapter details the implementation of the RAIISS tool, the localisation of the tool to the specific language of the Canadian context, and the alterations made to the tool for the specific application to IMHA/CIHR grants.
RAISS was implemented on the RAND Europe survey instrument, ClassApps.com SelectSurvey.NET v4.019.001

Used previously by RAND Europe in many contexts

Provides automatic invitation, data collection, collation and export

Survey

The RAISS tool was implemented on the RAND Europe survey instrument, ClassApps.com SelectSurvey.NET v4.019.001. This is a commercially available instrument written in C# using the Microsoft .NET v2.0 web application framework. SelectSurvey allows for complex surveys to be developed, email invitations to be sent, responses to be collected and collated and data to be exported.
Localisation

- RAISS developed in UK biomedical context
- Language had to be localised to Canadian context
- Answers available had to be localised to Canadian context

Localisation

Due to the fact that the RAISS tool had been developed for the UK biomedical environment, the language used and answer options had to be localised to the Canadian context prior to the launch of the survey. This localisation was performed by discussion with relevant academics.²

The changes made in the localisation process were:

- Further research funding questions were expanded to include public Canadian and non-Canadian funders.
- Research training questions were expanded to include further professional training, not leading to an academic qualification.
- Dissemination impacts were adjusted to class North American in the same category as international.
- Dissemination questions on academic seminars and meetings were expanded to include the presentation of oral papers and peer-reviewed abstracts.
- Dissemination questions relating to Health Policymakers were added.
- Publications given as locations of clinical reviews were localised.

² Thanks to Dr Elizabeth Badley and Dr Diane Lacaille for their assistance in localising the survey into the Canadian context.
• Intellectual property questions were adjusted to include filing for copyright.
• Additional modules on the grant structure, potential improvements to the CIHR funding mechanism and bibliometric outcomes were added.

The localised survey is presented in its entirety in Appendix A.
Team grant

The grant type the IMHA wished to survey were New Emerging Teams Grant – Osteoarthritis. These grants are expected to “consist of at least three independent investigators who will form an integrated and effective research team.” The expectation is that the grants will “enable such teams to build or strengthen capacity and add expertise, develop strategies for knowledge translation, provide superior training and mentoring environments and achieve research excellence.”

These grants included Nominated Principal Investigators (PIs), PIs and Co-applicants. The CIHR defines these roles as follows:

- **Nominated Principal Investigator** - an individual who will be responsible for the direction of the proposed activities; assume the administrative and financial responsibility for the grant or award; and receive all related correspondence from CIHR.
- **Principal Investigator** - an individual who shares responsibility for the direction of the proposed activities.
- **Co-Applicant** - an individual who contributes to the proposed activities.

These team grants are differently structured to the single PI grants that were investigated in the original work with arc. It was possible that many of the impacts of the grant would be known to several of the grant recipients, meaning that there was the potential for double counting as the same impact may be recorded by more than one respondent. This risk was ameliorated by adding description sections to the impact questions, allowing for a post hoc
adjustment to remove any double counting. These descriptions also allowed some investigation of the types of impacts classified into each question on the survey. An example of the short descriptions is given below:

- “Helped in development of statistical model for Osteoarthritis in Canada”.

The team nature of the grants surveyed allowed us to explore some of the issues involved in allowing multiple independent respondents for each grant. However, because of the small scale of the pilot population, the project only gave initial impressions of these issues.
**Bibliometric developments**

- Bibliometric question added asking for attributability of specific academic papers the grant
- Up to 17 papers detailed for each of the respondents
- Able to attribute as:
  - Significantly attributable
  - Slightly attributable
  - Not linked
- Papers selected from PubMed

**Bibliometric developments**

The standard RAISS tool does not attempt to capture information about peer reviewed articles. As IMHA wished to collect this information during this evaluation exercise, we added a module to the survey to capture peer reviewed articles. This module asks the respondents to classify the attributability of specific academic papers to the grant about which they were responding. The respondent specific papers were supplied by a PubMed search conducted by the IMHA. The respondent was given three levels of attribution from which to select: “Significantly attributable”; “Slightly attributable”; or “Not linked”.

This additional module relied on the ability of the SelectSurvey instruments to add respondent specific content to the displayed survey. It was only possible to include up to 17 academic papers, which were selected prior to survey deployment by searching PubMed.

Additionally, the respondents were asked to detail any further publications related to the team grant which had not been listed, and numbers of submitted and accepted pre-publication papers were also requested.

This was the least successful aspect of the survey. Although it went beyond the level of data normally collected, allowing for the number of publications published, accepted and submitted to be simply collected, there were a number of issues relating to the limitations of SelectSurvey.

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5 We assume that the attribution of paper to author was validated by the IMHA
This chapter discusses the grants surveyed, the response rates, the time to complete the survey and the types of impacts that were produced. The results of the survey are illustrative only, as the sample size is too small to draw any meaningful conclusions.
Grants surveyed and response rates

- Four separate grants were surveyed
- Overall response rate = 62%
- When broken down by grant recipient:

<table>
<thead>
<tr>
<th>Position</th>
<th>Number invited</th>
<th>Number of responses</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominated PIs</td>
<td>4</td>
<td>4</td>
<td>100%</td>
</tr>
<tr>
<td>PIs</td>
<td>7</td>
<td>3</td>
<td>43%</td>
</tr>
<tr>
<td>Co-applicants</td>
<td>10</td>
<td>6</td>
<td>60%</td>
</tr>
</tbody>
</table>

Grants surveyed and response rates

Four separated osteoarthritis grants were surveyed within the pilot. The grants are detailed in Table 4-1.

Table 4-1: Grants used in pilot survey

<table>
<thead>
<tr>
<th>Grant Title</th>
<th>Value ($ Canadian)</th>
<th>Date</th>
<th>Number of researchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tooling Up For Early OA: Measuring What Matters</td>
<td>750,000</td>
<td>2003 to 2009</td>
<td>3</td>
</tr>
<tr>
<td>Determinants and Consequences of Pain and Fatigue in Osteoarthritis (OA) using a Biopsychosocial Approach</td>
<td>468,913</td>
<td>2003 to 2007</td>
<td>6</td>
</tr>
<tr>
<td>Molecular mechanisms of pain and fatigue in osteoarthritis: interplay of nerve and joint</td>
<td>737,508</td>
<td>2003 to 2009</td>
<td>4</td>
</tr>
<tr>
<td>Risk factors and indicators that predict the progression of osteoarthritis after knee injury</td>
<td>1,469,852</td>
<td>2004 to 2009</td>
<td>8</td>
</tr>
</tbody>
</table>
Of the 21 grant recipients surveyed, 13 responded giving an overall response rate of 62%. This is lower than the response rate observed in the arc deployment of the RAISS tool, where 118 responses were recorded from 136 invitations (87% response rate). However, in the arc deployment, the grants were individual and all the respondents were PIs, meaning that the comparison between the two deployments of the RAISS tool is not exact.

One possible reason for the low responses rate is that no clause in the CIHR contract requiring following feedback as a condition of the grant. In further use of the RAISS tool, it could be useful to encourage a higher response rate by providing incentives for survey completion and preventers for non-complete.

The response rate varied across the types of grant recipients. However, there was at least one response from the Nominated PI for each of the four grants surveyed. From a brief analysis of co-authors in the papers published by the grant recipients, there were varying levels of engagement with the grant. This varying level may explain the low response rate. However, this analysis needs to be extended to allow more robust conclusions to be drawn.
The survey in general took less than an hour to complete. This matches the previous deployments of the RAISS tool, with the time to complete the survey with additional description boxes not exceeding the time to complete when just Yes/No questions are posed. The one outlier, who took over four hours to complete the survey, entered a very large number of publications which is likely to account for the greater duration to complete the survey.

Despite the short time to complete the survey, it was commented by several of the respondents that the survey was too long.
How to read an Impact Array

To present simultaneously the results of several grants, RAND Europe developed “impact arrays”. These were initially developed during the work for arc. Impact arrays show the impacts of each grant within specific categories of impact, providing an overarching view of the range and number of impacts.

In the impact array each row represents a single response for a grant, with responses to the same grants grouped for ease of reading. Each column represents a different question. Thus, each coloured block shows one impact, while a white space shows the absence or lack of knowledge of that type of impact. The blocks’ colours ranging from pink to blue represent a progression from early stage to late stage or local to international impacts.

The results of the survey are discussed in the following impacts arrays.
### Impact Array – Future Research

All of the grants led to further funding for some of the recipients and they all featured in research training.

The Tools for Research questions routed to the subsequent questions expanding upon these impacts. All the grants produced more than one research tool. In total, the four grants reported 27 different research tools across 9 of the 10 research tool type categories. The only category which was not represented was cell lines.

One researcher reported the production of new model of disease, but they answered ‘No’ to all subsequent questions on the stages of development for the model of disease. This was because they were reporting a conceptual model of disease in humans (the relationship between how pain, depression, fatigue and disability interact in osteoarthritis) and the subsequent stages of development question were designed for animal or in vitro models of disease. Thus, the survey would benefit from refinement to draw distinctions between human, animal and in vitro models of disease.

In the Other research tool category four tools were reported. Two of these were also reported as a categorised impact in the categories “Outcome measures” and “Assays: a new outcome measure and a new composition for gene delivery. The other two were “tools to support clinical decision making” and “identification of possible drug targets” both of which are important impacts but neither of which we would normally consider research tools, but both of which should be added to the interventions and products category.

The overlap of the tools developed for research is discussed the Team Working chapter below.

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<table>
<thead>
<tr>
<th>1 - Future Research</th>
<th>Further funding</th>
<th>Further funding</th>
<th>Research funding</th>
<th>Research funding</th>
<th>Research careers</th>
<th>Tools for research</th>
<th>Tools for research</th>
<th>Animal model</th>
<th>Drug delivery</th>
<th>Gene delivery</th>
<th>Cell line</th>
<th>Other research tool</th>
<th>Animal Model of disease</th>
<th>Outcome measure</th>
<th>Outcome impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>No</td>
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</tr>
</tbody>
</table>

Note: These numbers represent the number of grants that reported each tool type.
Impact Array - Dissemination

The impact array for Dissemination indicates that all of the grants supported dissemination. This is seen at the local, the national and the international/North American level. Most of the dissemination occurs within academia, but there is additional dissemination across Non-academic meetings, Other Dissemination and News Media Coverage.4

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4 See Appendix A for questions related Other Dissemination.
### Impact Array - Health Policy and Training

This impact array looks at the two short sections of questions on Health Policy and Training.

The direct impact of the funded research on health policy has been limited. However, the responses indicate that two of the grants impacted on health policy, including chairmanship of a guideline committee.

At least one researcher on each grant has contributed to training at various levels, via teaching, seminars and the production of study materials.

<table>
<thead>
<tr>
<th>Policy</th>
<th>Citations</th>
<th>Involve ment in Health Policy</th>
<th>Uptake of research</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
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<td>4</td>
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</table>
Impact Array – Interventions/Products

The impact array for Interventions/Products indicates that all of the grants have led to at least one intervention or product. Some of these interventions/products are in early stages of development, while others are more mature and closer to market or adoption in practice.

In a similar manner to Tools for Research questions, the Interventions/Products in this section of the impact array route to the subsequent questions expanding upon these impacts. Eight different impacts were reported in this section. Two grants reported patent applications and gene therapy agents that were in animal trials (i.e. early stages of development). Further towards patient impact where a survey instrument that had been licensed for wider use; pharmacy tools assessment and intervention in early osteoarthritis; public health advice on nutrition; patient and physician decision support tools and a diagnostic imaging test of articular cartilage. Seventeen interventions/products were also reported as likely to arise in the future - however - such suggestions are difficult to interpret as it is not clear how well researchers can predict the future impact of their work.

The overlap of the interventions and products is discussed in the Team Working chapter below.
CHAPTER 5  Team Working

This chapter details the overlap of results from the survey, as informed by short descriptions added to the RAISS tool for the IMHA application.
Influence of team working on survey results

- **Tools for research**
  - 34 specific tools were reported of which we judged there were 27 distinct tools

- **Dissemination**
  - Overlapping attendance and presentations at conferences
  - Overlap limited to two of the four surveyed grants

- **Interventions and Products**
  - Eight impacts reported, none overlapping

Influence of team working on survey

As noted in the Caveats and Limitation section, one limitation of the RAISS tool is that impacts are captured as Yes/No responses. This means there is the potential for the same impact to be recorded more than once between different responses to the survey. In this case the duplication is impossible to identify. However, with unrelated grants we considered this a reasonable compromise to allow the survey to be completed more quickly.

However, where a number of researchers on the same grant are being asked to complete the instrument, we were worried that overlap would be a more significant issue. To allow us to gain some insight into overlap, in the sections on **Tools for Research**, **Dissemination**, and **Interventions/Products** we asked for a brief description (average length of 66 characters) of each impact so we could judge whether the same impact was being reported by different investigators. Tony Starkey carried out the initial judgement of overlap which was then checked by Steven Wooding. Given the brevity of the descriptions and the assessment technique, these observations should only be taken as indicative.

Given the geographically distributed nature of the team grants, and the diversity of researchers involved in each grant, it is also possible that different investigators know about, and hence report, different impacts.

**Tools for research**

34 specific tools were reported of which we judged there were 27 distinct tools, leaving aside the **Other** category which we always ask for a description of. If we had simply assumed that responses to the same type of tool were the same tool we would have reported
24 tools, i.e. there were three instances where two different tools were reported for one grant in the same category of tool.

In terms of accuracy, of the 34 tools reported we judged based on our subject knowledge that 30 to be correctly allocated, three were misallocated and one was not possible to judge as only a two word description was provided which could not be interpreted.

**Dissemination**

In the dissemination section, the short descriptions did not turn out to be a feasible way of judging overlap, as although the names of conferences were often supplied this was not a sensitive enough test of overlap (17% of dissemination outputs were presented at the American College of Rheumatology). Unfortunately, the names of posters or presentations were not generally supplied - possibly indicating the additional time that collecting this information would entail.

Table 5-1 below details the overlapping of responses, by grant, for dissemination.

Table 5-1: Overlap of responses by grant for dissemination

<table>
<thead>
<tr>
<th>Grant Title</th>
<th>Co-working</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tooling Up For Early OA: Measuring What Matters</td>
<td>Overlapping attendance of conference and the presentation of peer-reviewed abstracts and seminars for health professionals at the American College of Rheumatology (ACR)</td>
</tr>
<tr>
<td>Determinants and Consequences of Pain and Fatigue in Osteoarthritis (OA) using a Biopsychosocial Approach</td>
<td>Overlapping presentation of peer-reviewed abstracts and posters at the American College of Rheumatology (ACR)</td>
</tr>
<tr>
<td>Molecular mechanisms of pain and fatigue in osteoarthritis: interplay of nerve and joint</td>
<td>Specific indication of co-working in terms of dissemination of results of grant results</td>
</tr>
<tr>
<td>Risk factors and indicators that predict the progression of osteoarthritis after knee injury</td>
<td>Specific indication of co-working in terms of dissemination of results of grant results</td>
</tr>
</tbody>
</table>

**Interventions and Products**

Of the eight impacts reported none were in overlapping categories and hence were all clearly distinct. All the impacts were judged to be correctly classified.
CHAPTER 6  Additional modules

This chapter details the additional modules added to the RAISS tool for the IMHA application.
The grant structure

- Team grants are generally seen as a positive means of funding research, providing opportunities and advantages over individual grants.
- However, some indication that this grant type is suited to limited areas of research.
- The role of the individual PI is still important.
- Grants support a large number of individuals, which may not be recorded by CIHR.

The grant structure

The surveyed population contained only successful applicants for team grants, and not failed applicants or non-applicants. This means the evaluation of the grant structures and funding mechanism lacks a wider context, and that the findings can be taken as useful pointers only.

The team grants were generally seen as a positive means of funding research by those surveyed, with a vast majority of respondents indicating that this grant type provided opportunities and advantages over individual grants. This question was posed with a Likert Scale. Below, we provide some quotes from survey respondents which illustrate perceptions on the grant scheme:

- “[The CIHR team grant] brought together researchers who in collaboration could conduct research together that would have not been so possible in a regular operating grant”.
- “[The CIHR team grant allows one to] look at things in a more comprehensive way than with a single operating grant”.
- “The team grant provides more advantages for inter-laboratory and group learning, particularly among PIs and their graduate students”.

However, some believed that this grant was suited to only limited areas of research, or that any benefits of the grant should be actually attributed to the PI involved.
• “There were pros and cons to the team grant approach. The advantage was that it allowed us to synthesize research findings across diverse groups of researchers with different expertise. However, not all research is at this stage. It is also difficult to allocate resources and to move research forward along the same timelines. There is a place for both team and regular operating grants”.

• “[The CIHR team grant specifically provided no opportunities or advantages. It brought] greater breadth of disciplines to topic but - that was the PI not because of a team grant for this one. I’m a collaborator on another one as well and it did nothing to bring people together. It’s the chemistry and how the PI handles the grant”.

In addition to these comments, it was noted that these team grants can support the research of a large number of individuals than may not be recorded at the CIHR:

• “[We] have had 7 Masters level and 12 PhD, postdoctoral level students [. . .] 3 of the 19 have moved into industry and all have remained in Canada. [. . . The team now] consists of 20 investigators, 5 consumers and numerous trainees. If the survey is only going to the original 2 co-PIs and 4 co-applicants it is possible some of the impact may not be captured”.
Improvements to CIHR funding mechanism

The respondents provided a range of suggestions for improvements to the CIHR funding mechanism. Some of these were positive:

- “[There is a need for] a mix of team and other types of grants”.
- “[The] CIHR has done a great job and should keep it up!”

Others comments related to the management and administration of grants and applications:

- “These grants did not demand accountability for management of the team (it was largely about productivity) and they needed to”.
- “Streamline the application process. e.g. reduce paperwork related to CVs so that more time can be spent on the grant writing. Provide formatted pages for abbreviated CVs. Standardize information requested and number of pages required. Use more follow-up like this one”.

Further comments detailed the importance of multidisciplinary teams and balanced perspectives on committees:

- “[The CIHR should continue] to fund multidisciplinary teams”.
- “Any improvements are all in the details with choice of committee members, directing evaluations appropriately, and maintaining a broad and balanced perspective”.

Improvements to CIHR funding mechanism

- Overall positive impression of the CIHR funding mechanism
- Comments related to the management and administration of grants
- Importance of multidisciplinary teams and balanced perspectives detailed
- Comments on renewal process of grants
The final type of comment covered renewal process of the team grants:

- “[It is] extremely important to facilitate continuation of successful team grants rather than going through traditional peer review which leads to researchers being treated like novices and fails to appreciate how much time and effort goes into assembling and supporting such a research team. These renewals of team grants should be reviewed from the perspective of an established and successful research program rather than just another team grant proposal”.
Bibliometric responses

<table>
<thead>
<tr>
<th>Grant title</th>
<th>Papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tooling Up For Early OA: Measuring What Matters</td>
<td></td>
</tr>
<tr>
<td>Determinants and Consequences of Pain and Fatigue in Osteoarthritis (OA) using a Biopsychosocial Approach</td>
<td></td>
</tr>
<tr>
<td>Molecular mechanisms of pain and fatigue in osteoarthritis: interplay of nerve and joint</td>
<td></td>
</tr>
<tr>
<td>Risk factors and indicators that predict the progression of osteoarthritis after knee injury</td>
<td></td>
</tr>
</tbody>
</table>

Bibliometric responses – Pre-selected papers

The bibliometric question relied on a pre-selected list of papers. These papers were selected from recent publications logged with PubMed. The selection was conducted by the IMHA.

The responses to the attribution question indicate that of the 190 papers that could have been “Significantly attributable” to the team grant, only 39 were thus attributed. 51 were classed as “Slightly attributable”, while the remaining 100 were classes as “Not linked”. There was little variation between grants in these responses.

As several of the papers were co-authored by multiple respondents, both on the same grant and between grants, the responses were analysed to determine if there was a coherent opinion from the respondents regarding the papers’ attributability. When the papers were cross-referenced between individual responses, there was no uniform response from the respondents. For example, one paper was classed once as “Significantly attributable”, once as “Slightly attributable” and twice as “Not linked”, however these responses come from two separate grants. Unfortunately there was no scope within the project to investigate these differences further.

Overall, this indicated that the used bibliometric question is too limited in scope, and in the number of papers presented for attribution. In addition, the papers that are presented need to be selected with care to try and pre-determine if they are linked to the grant in question.
**Bibliometric responses**

<table>
<thead>
<tr>
<th>Grant Title</th>
<th>Published</th>
<th>Accepted</th>
<th>Submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tooling Up For Early OA: Measuring What Matters</td>
<td>57</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Determinants and Consequences of Pain and Fatigue in Osteoarthritis (OA) using a Biopsychosocial Approach</td>
<td>24</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Molecular mechanisms of pain and fatigue in osteoarthritis: interplay of nerve and joint</td>
<td>16</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Risk factors and indicators that predict the progression of osteoarthritis after knee injury</td>
<td>52</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

**Bibliometric responses – Additional papers**

The responses to the questions which related to further and pre-publication papers varied widely. One respondent had 38 other papers that they believed were related to the team grant, and a further four and five submitted and accepted for publication. Others had up to eight other papers they perceived as linked to the grant.
APPENDICES
Appendix A: RAISS Pilot Survey

The survey used in this study is reproduced in its entity below.

Introduction

Welcome to the CIHR/IMHA RAISS Pilot impacts questionnaire. As we outlined in the invitation email, the questionnaire aims to help IMHA better understand the diverse range of impacts that have arisen from the research it has funded.

Our testing suggests that the questionnaire should take around 15-40 minutes to fill in, and you may complete it in more than one go if necessary. There is a second introductory page which explains the structure of the questionnaire. Please remember that this is a pilot and we are very interested your feedback on the questions.

The questionnaire asks you about the wider impacts that have arisen from the work, and a final section gives an opportunity to provide feedback on the questionnaire itself.

Previously the RAISS instrument has been filled in by PIs of unrelated grants so the chance of two PIs being involved in the same impact was small. In the case of team grants more than one member of the team is likely to have been involved in any particular impact. Because of this we are asking for a brief identifying description for impacts, or a name in the case of career advancement. This is to enable us to tell when one impact is being mentioned by multiple respondents, such multiple mentions are entirely legitimate but we also need to avoid double counting when producing summary statistics. The description is purely to allow us to examine the issue of overlap and hence the descriptions do not need to be long or elegant, but a quick one or two sentence note would be very helpful. If it would take more than a minute or so to locate this information, please note ‘Information Not Accessible’ or ‘INA’ in the description box.

Due to the team grant structure and differences in terminology between areas of science we refer to the group of people you worked closely with on the grant, who may be known as your research group or research laboratory, as ‘your research laboratory’.

The main part of the questionnaire lists possible impacts of research and asks you which of these have arisen from your grant, primarily as a series of yes/no questions, with the
A brief identifying description where you answer yes. The first section asks what further research arose (e.g. new collaborations) and what tools for future research were developed (e.g. new assays). The next section explores how your research has been disseminated. The third and fourth sections ask about any effects on health policy and education. The final section asks about any new treatments, or health advice, that grew out of the research.

Most of the impact questions ask whether a particular type of impact has arisen and have the following options:

Yes: this impact has arisen, and the CIHR/IMHA grant made a substantial contribution to the impact

No: this impact has not arisen, although it might arise in the future; or it has arisen but the CIHR/IMHA grant did not make a significant contribution to the impact

Not Known: you are unaware whether this impact occurred

The focus of this questionnaire is on impacts where this CIHR/IMHA grant made a substantial contribution, i.e. immediate outcomes of the grant and impacts of subsequent work that developed from the grant. Hence some impacts will have been contributed to by more than one grant – for example a new model of disease that was developed through a series of grants. We appreciate that longer-term impacts may be harder to link to individual grants. If in doubt, please include such impacts.

Since CIHR/IMHA have a wide-ranging funding portfolio (from basic biomedical research through to health services research), there is a huge range of potential outputs and impacts. This means that many will not be applicable to your research, or any particular individual’s research. However, as it is difficult to know which impacts may arise from which research, we need to allow you to review all the possible impacts, although you are likely to tick only a few.

For more information on the original development of the RAISS tool please see: “Mapping the impact - Exploring the payback of arthritis research” summarised here

Outline structure of questionnaire
By their very nature some grant related impacts are difficult to describe exactly, so we would encourage you to skim through the questionnaire to allow you to identify the most appropriate places to indicate the impacts of your grant.

Your answers will be automatically saved each time you move to the next page, so you can complete the questionnaire in more than one sitting.

When you return to the questionnaire, you will need to skip through your previously completed pages.

To give you an idea of where impacts are likely to fall we have provided a brief summary of what is in each section:

1: Future Research

This section asks whether the research grant led to further funding, new collaborations, and how it contributed to researchers’ careers. It also asks whether any new tools that could be useful in further research were developed – such as a new data analysis technique or a new reagent. There is also the opportunity to mention any tools that we haven’t included in our list.

2: Dissemination

This section asks about dissemination of your research results that occurred in addition to academic publications, which are captured in section 2.1. It asks about seminars for academic audiences and those aimed at health professionals, as well as other forms of dissemination such as websites, leaflets and media coverage. Again, there is the opportunity to add other dissemination activities that we haven’t included.

3: Health Policy

This section asks about impacts healthcare for example if your work was cited in clinical guidelines or if you contributed to guideline committees or other discussions around health policy.

4: Training
This brief section asks about impacts on the training of undergraduates and health professionals.

5: Interventions/Products

This section asks about long-term impacts such as the development of new treatments or public health advice. It covers such areas as drug development, diagnostics, medical devices, physiotherapy interventions and public health advice.

6: Comments

In this section we would like to gather your comments on the questionnaire so we can improve subsequent versions.

1.1: Future Research - Further Funding

Has research on this grant led to further research funding for your research laboratory? If so, from which organizations did the funding come?

1. From CIHR/IMHA
   Yes  No  Not Known

2. From other public sector Canadian funders
   Yes  No  Not Known

3. From other public sector non-Canadian funders
   Yes  No  Not Known

4. From industry
1.2: Future Research - Further Research

Has your research on this grant led to discussions about possible collaborations, consultancy or similar with your research laboratory? If so, which of the following have taken place?

[Note that we ask about Material Transfer Agreements (MTAs) in this section, as a marker of collaboration; patents and intellectual property impacts are dealt with later in the questionnaire.]

5.
Interactions with researchers in academia/non-profit organizations:

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
</table>

Have you had initial discussions about collaboration or informal knowledge exchange?
Did these discussion lead to co-applications for funding?
If so, were these successful?
And/or, did these discussions lead to co-publications?
And/or, did these discussions lead to Material Transfer Agreements (MTAs)?
And/or, did these discussions lead to sharing of reagents without MTAs?

6.
Interactions with researchers in industry:
Have you had initial discussions about collaboration or informal knowledge exchange?
If so, did these lead to consultancy?
And/or Material Transfer Agreements (MTAs)?
And/or collaborations leading to co-publication?
And/or an industry initiated research programme?

7.
Other interactions not captured above

1.3: Future Research - Research Training

Did any researchers within your research laboratory gain qualifications based on this research grant?

8.
Undergraduate research projects
Yes  No  Not Known

9.
Masters
Yes  No  Not Known

10.
PhDs
Yes  No  Not Known
11. Research project as part of MD
   Yes  No  Not Known

12. Research project as part of other further professional training
   Yes  No  Not Known

1.4: Future Research - Research Careers

Has the research made a significant contribution to the career advancement of members of the your research laboratory? If so, which of the following were gained?

13. Promotions either from gaining the grant or from work conducted on the grant

   Yes  No  Not Known

Did you receive a promotion substantially based on winning this grant?
Did you receive a promotion substantially based on your work on this grant?
Did any other member of the your research laboratory receive a promotion substantially based on winning this grant?
Did any other member of the your research laboratory receive a promotion substantially based on their work on the grant?
14.
If members of your research laboratory benefited, please provide their name(s)

15.
Your research laboratory development

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
</table>

Did this research grant help you
establish a new research laboratory, ie stepping stone to independence?

Did it help sustain your research laboratory?

Did it increase the size of your research laboratory?

1.5: Future Research - Tools for Research

This and the following pages explore what tools and resources your research produced, or further characterized, that could be used for future research.

16.

Did the grant help your research laboratory produce a database or collection of data such as digital images, epidemiological or sequence data?

Yes  No

17.

If yes, please provide a brief identifying description

18.

Did the grant help your research laboratory produce a new quantitative or qualitative data analysis technique, such as an informatics technique, trial methodology, economic model, or statistical model?
19. If yes, please provide a brief identifying description

20. Did the grant help your research laboratory produce a new or significantly improved animal model?
   *Yes  No*

21. If yes, please provide a brief identifying description

22. Did the grant help your research laboratory produce a new or significantly improved cell line?
   *Yes  No*

23. If yes, please provide a brief identifying description

24. Did the grant help your research laboratory produce a new or improved technology or technique, for example, a new method of isolating cells or producing antibodies?
   *Yes  No*

25. If yes, please provide a brief identifying description

26. Did the grant help your research laboratory produce a new or significantly improved physiological or biochemical marker (bio-marker) that was identified and characterized?
   *Yes  No*
27.
If yes, please provide a brief identifying description

28.
Did the grant help your research laboratory produce a new or significantly improved assay, such as a new antibody or reagent?
Yes  No

29.
If yes, please provide a brief identifying description

30.
Did the grant help your research laboratory produce a new or significantly improved model of disease?
Yes  No

31.
If yes, please provide a brief identifying description

32.
Did the grant help your research laboratory produce a new or significantly improved physiological assessment or outcome measure, such as gait analysis or a questionnaire?
Yes  No

33.
If yes, please provide a brief identifying description

34.
Were improvements made to the research laboratory infrastructure that will contribute to future research, such as new equipment or the establishment of a survey group?
Yes  No

35.
If yes, please provide a brief identifying description
36. Did the grant help your research laboratory lead to any other contributions not mentioned above? 
Yes  
No

37. If yes, please provide a brief identifying description

1.5: Future Research - Tools for Research

This page explores what tools and resources your research produced, or further characterized, that could be used for future research.

38. Has the database or collection of data been:

Yes  No  Not Known

Made available to other researchers? 
And/or deposited in a public database or archive?

1.5: Future Research - Tools for Research

This page explores what tools and resources your research produced, or further characterized, that could be used for future research.

39. For the new or improved animal model, which stages of development were carried out during the grant or have happened since?
1.5: Future Research - Tools for Research

This page explores what tools and resources your research produced, or further characterized, that could be used for future research.

40.
For the new or improved cell line, which stages of development were carried out during the grant or have happened since?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
</table>

Initial development?

Further characterization or validation?

In use by researchers beyond the research group?

1.5: Future Research - Tools for Research

This page explores what tools and resources your research produced, or further characterized, that could be used for future research.

41.
For the new or improved technology or technique, which stages of development were carried out during the grant or have happened since?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
</table>

Initial development?

Further characterization or validation?

In use by researchers beyond the research group?
1.5: Future Research - Tools for Research

This page explores what tools and resources your research produced, or further characterized, that could be used for future research.

For the new or significantly improved physiological or biochemical marker (bio-marker), in what system was it developed and which stages of development were carried out during the grant or have happened since?

<table>
<thead>
<tr>
<th>No.</th>
<th>In vitro</th>
<th>Initial development?</th>
<th>Further characterization or validation?</th>
<th>In use by researchers beyond the research group?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
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<td>Not Known</td>
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</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>In an animal model</th>
<th>Initial development?</th>
<th>Further characterization or validation?</th>
<th>In use by researchers beyond the research group?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Not Known</td>
<td>Not Known</td>
<td>Not Known</td>
<td>Not Known</td>
</tr>
</tbody>
</table>

42. In vitro

43. In an animal model
In humans

<table>
<thead>
<tr>
<th>Initial development?</th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further characterization or validation?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In use by researchers beyond the research group?</td>
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</tbody>
</table>

1.5: Future Research - Tools for Research

This page explores what tools and resources your research produced, or further characterized, that could be used for future research.

45.

For the new or significantly improved assay, such as a new antibody or reagent, which stages of development were carried out during the grant or have happened since?

<table>
<thead>
<tr>
<th>Initial development?</th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further characterization or validation?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In use by researchers beyond the research group?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.5: Future Research - Tools for Research

This page explores what tools and resources your research produced, or further characterized, that could be used for future research.

For the new or significantly improved model of disease, in what system was it developed and which stages of development were carried out during the grant or have happened since?
46.
In vitro

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial developement?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further characterization or validation?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In use by researchers beyond the research group?</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

47.
In an animal model

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial developement?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further characterization or validation?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In use by researchers beyond the research group?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.5: Future Research - Tools for Research

This page explores what tools and resources your research produced, or further characterized, that could be used for future research.

48.
For the new or significantly improved physiological assessment or outcome measure, which stages of development were carried out during the grant or have happened since?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial developement?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further characterization or validation?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In use by researchers beyond the research group?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1.5: Future Research - Tools for Research

This page explores what tools and resources your research produced, or further characterized, that could be used for future research.

49.
If your research led to other contributions not mentioned in the list on the preceding page, please outline these in the box below.

2.1: Dissemination - Publications

50.
Using the list of publications detailed below, please indicate how attributable they are to the CIHR/IMHA grant

Not linked  Slightly attributable  Significantly attributable

51.
If you have further publications related to the CIHR/IMHA grant please detail them here.

52.
In addition if you have any other papers describing the work on the grant awaiting publication, please indicate the numbers of papers below:

Submitted
Accepted

2.2: Dissemination - Academic Seminars & Meetings

Were you, or a member of your research laboratory working on this grant, involved in any of the following presentations to other academics:
53. Keynote/invited speaker at a conference, where a contribution to your expenses was made? Please tick all that apply. If no, go to question 3.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local/Regional</td>
<td>National</td>
<td>North American/International</td>
</tr>
</tbody>
</table>

54. If yes, please provide a brief identifying description, e.g. a presentation title

55. Presented an oral paper at a conference? Please tick all that apply. If no, go to question 5.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local/Regional</td>
<td>National</td>
<td>North American/International</td>
</tr>
</tbody>
</table>

56. If yes, please provide a brief identifying description, e.g. a paper title

57. Presented a peer-reviewed abstract at a conference? Please tick all that apply. If no, go to question 7.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local/Regional</td>
<td>National</td>
<td>North American/International</td>
</tr>
</tbody>
</table>
58.
If yes, please provide a brief identifying description, e.g. name of meeting

59.
Poster presentation at a conference? Please tick all that apply.

Yes No Not Known

Local/Regional

National

North American/International

60.
If yes, please provide a brief identifying description, e.g. name of meeting

2.3: Dissemination - Non-academic

61.
Did you, or a member of your research laboratory working in this grant, present the findings of the research to health professionals, policymakers or the public? Was it included in seminars, presentations, open-days or laboratory tours chiefly for/aimed at the public?

Yes No

62.
Has this research been disseminated to non-researcher audiences, such as health professionals and allied health professionals, policymakers or the public? Including feedback to human subjects involved in the research?

Yes No

63.
Has this research been published or covered in the news media?

Yes No
64. Has your research been the subject of other dissemination activities?  
Yes   No

2.4: Dissemination - Other Seminars

65. Seminars chiefly for/aimed at health professionals? Please tick all that apply. If no, go to question 3.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
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</thead>
<tbody>
<tr>
<td>Local/Regional</td>
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<tr>
<td>National</td>
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</tr>
<tr>
<td>North American/International</td>
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</tr>
</tbody>
</table>

66. If yes, please provide a brief identifying description

67. Seminars chiefly for/aimed at health policymakers (health policymakers could be in government, local administration or trust administration etc.) or commissioners? Please tick all that apply. If no, go to question 5.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
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<tbody>
<tr>
<td>Local/Regional</td>
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</tr>
<tr>
<td>North American/International</td>
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<td></td>
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</tr>
</tbody>
</table>

68. If yes, please provide a brief identifying description

69. 
Seminars, presentations, open-days or laboratory tours chiefly for/aimed at the public?

Yes  No  Not Known

70.
If yes, please provide a brief identifying description

2.5: Dissemination - Other Dissemination

71.
Dissemination to health professionals and/or allied health professionals?

Yes  No  Not Known

If yes, has this included (If no, go to question 7):

72.
Websites for health professionals and/or allied health professionals?

Yes  No  Not Known

73.
If yes, please provide a brief identifying description

74.
Printed material (such as booklets) for health professionals and/or allied health professionals?

Yes  No  Not Known

75.
If yes, please provide a brief identifying description

76.
If yes, what was the distribution of this printed material? If no, go to question 7.
77.
Dissemination to health policymakers?
Yes  No  Not Known

If yes, has this included (If no, go to question 13):

78.
Websites for health policymakers?
Yes  No  Not Known

79.
If yes, please provide a brief identifying description

80.
Printed material (such as booklets) for health policymakers?
Yes  No  Not Known

81.
If yes, please provide a brief identifying description

82.
If yes, what was the distribution of this printed material? If no, go to question 13.

Yes  No  Not Known

Local
National

83.
Dissemination to patients/public?

Yes  No  Not Known

If yes, has this included (If no, question 19):

84.
Websites?
Yes  No  Not Known

85.
If yes, please provide a brief identifying description

86.
Printed material (such as booklets) for patients/public?
Yes  No  Not Known

87.
If yes, please provide a brief identifying description

88.
If yes, what was the distribution of this printed material? If no, go to question 19.

Yes  No  Not Known

Local
National

89.
If your research included human research subjects, was feedback provided to participants?
Yes  No  Not Known

90.
If yes, was the feedback.
2.6: Dissemination - News Media Coverage

91.
Has this research been the subject of a press release?
Yes  No  Not Known

92.
If yes, who issued this press release?

93.
Has this research been covered in the media?
Yes  No  Not Known

94.
If yes, please provide a brief identifying description

95.
Have you been interviewed by the media about this research?
Yes  No  Not Known

96.
If yes, what type of media interviewed you? If no, go to question 5.
Yes  No  Not Known

National
Regional/local
Professional/trade/specialist press

97.
Has your research been the subject of a press conference?
Yes  No  Not Known

98.
If yes, who initiated this press conference?

2.7: Dissemination - Other Activities

99.
For the other dissemination activities, please describe them below.

3: Health Policy

100.
Was your laboratory’s research cited by a clinical guideline or other health policy document or in a systematic review?
Yes  No  Do not know

101.
Did your laboratory’s work on this grant lead to other impacts on health policy?
Yes  No  Do not know

3.1: Health Policy - Citations

Did your work on this grant lead to any of the following impacts:
102.
Citation in clinical guidelines?
Yes  No  Not Known

103.
If yes, at what level? If no, go to question 4.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
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</thead>
<tbody>
<tr>
<td>Local/Regional</td>
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<tr>
<td>National</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North American/International</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

104.
If yes, please provide a brief identifying description

105.
Citations in clinical reviews such as those published in the Canadian Medical Association Journal (CMAJ), Canadian Association on Gerontology (CAG) or Arthritis Care and Research (ACR)?
Yes  No  Not Known

106.
If yes, please provide a brief identifying description

107.
Citations in other policy documents at any level?
Yes  No  Not Known

108.
If yes, please provide a brief identifying description

109.
Citations in systematic reviews, such as Cochrane reviews?
Yes  No  Not Known

110.
If yes, please provide a brief identifying description

3.2: Health Policy - Involvement in Health Policy

Did your work on this grant lead to any of the following impacts:

111.
Your membership of a guideline committee?
Yes  No  Not Known

112.
If yes, at what level? If no, go to question 3.

Yes  No  Not Known
Local/Regional
National
North American/International

113.
Your chairmanship of a guideline committee?
Yes  No  Not Known

114.
If yes, at what level? If no, go to question 5.

Yes  No  Not Known
Local/Regional
National
North American/International

115.
You were summoned to give evidence to a government review?
Yes  No  Not Known

116.
You were summoned to give evidence to a parliamentary committee?
Yes  No  Not Known

117.
Other, please specify

4.1: Training - Uptake of research

In your judgment has your laboratory’s research influenced the training of health practitioners or researchers? Alternatively, has it improved the ability of non-researchers to make use of research findings?

118.
Has your research fed into training for scientists in any of the following ways?

Yes  No  Not Known

Textbooks
Undergraduate teaching
Ongoing professional development

119.
If yes, please provide a brief identifying description

120.
Has your research fed into training for healthcare practitioners in any of the following ways?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
</table>
| Textbooks
| Undergraduate teaching
| Ongoing professional development |

121.
If yes, please provide a brief identifying description

122.
The public, practitioners and policymakers may find it difficult to understand or use research findings. Has participation in your research, or exposure to your research enabled any of the following groups to understand or use research findings in the future?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
</table>
| Health practitioners
| Health policymakers
| The public |

123.
If yes, please provide a brief identifying description

5: Interventions/Products

Not all CIHR/IMHA-funded research will be developed to the stage of providing interventions or products, but we are interested in cases where this has happened. In this section we are interested in whether your laboratory’s research has led to development of health interventions, pharmaceutical or otherwise. Please include impacts that can be followed back to your research, not just ones that you were personally responsible for. For example, if a company has developed a drug based on your research which has reached phase 2 clinical trials this would count as an impact.
124. Has the intellectual property arising from your research been protected, or has it been cited by patent?  
   Yes  Likely to be in future  No

125. If yes, please provide a brief identifying description

126. Did your research involve, or lead to, the development or trialling of a therapeutic pharmaceutical product?  
   Yes  Likely to be in future  No

127. If yes, please provide a brief identifying description

128. Did your research involve, or lead to, the development or trialling of a stem cell/cell based therapy?  
   Yes  Likely to be in future  No

129. If yes, please provide a brief identifying description

130. Did your research involve, or lead to, the development or trialling of a gene therapy?  
   Yes  Likely to be in future  No

131. If yes, please provide a brief identifying description

132. Did your research involve, or lead to, the development or trialling of a diagnostic test?
133. If yes, please provide a brief identifying description

134. Did your research involve, or lead to, the development or trialling of a medical device, such as a prosthetic hip?
   Yes  Likely to be in future  No

135. If yes, please provide a brief identifying description

136. Did your research involve, or lead to, the development or trialling of an intervention delivered by nurses or allied health professionals?
   Yes  Likely to be in future  No

137. If yes, please provide a brief identifying description

138. Did your research involve, or lead to, the development or trialling of a surgical intervention?
   Yes  Likely to be in future  No

139. If yes, please provide a brief identifying description

140. Did your research involve, or lead to, the development or trialling of an improvement in health service delivery, such as improved allocation of operating theatres?
   Yes  Likely to be in future  No
141.
If yes, please provide a brief identifying description

142.
Has your research led to the development of new, or revised, public health advice?
Yes Likely to be in future No

143.
If yes, please provide a brief identifying description

144.
Did your research involve, or lead to, the development of a health intervention not described above?
Yes Likely to be in future No

145.
If yes, please provide a brief identifying description

5.1: Interventions/Products - IP

146.
For the research where the intellectual property has been protected, or where it has been cited by patent, which stages were carried out during the grant, or have happened since?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cited in a patent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copyright applied for/filed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patent applied for/filed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copyright granted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patent granted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copyright licensed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patent licensed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.2: Interventions/Products - Pharmaceutical

147.

For the therapeutic pharmaceutical product, which stages were carried out during the grant, or have happened since?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal tests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 1 clinical trial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 2 clinical trial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 3 clinical trial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On the market</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trialling a current pharaceutical for a new indication or with a new regime</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

5.3: Interventions/Products - Stem Cell/Cell

148.

For the stem cell/cell based product, which stages were carried out during the grant, or have happened since?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal tests</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Phase 1 clinical trial</td>
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<td></td>
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<tr>
<td>Phase 2 clinical trial</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Phase 3 clinical trial</td>
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</tr>
<tr>
<td>On the market</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trialling a current stem cell/cell based product for a new indication or with a new regime</td>
<td></td>
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</tbody>
</table>
5.4: Interventions/Products - Gene therapy

149.

For the gene therapy product, which stages were carried out during the grant, or have happened since?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal tests</td>
<td></td>
<td></td>
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<tr>
<td>Phase 1 clinical trial</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Phase 2 clinical trial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 3 clinical trial</td>
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<td></td>
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<tr>
<td>On the market</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trialling a current gene therapy product for a new indication or with a new regime</td>
<td></td>
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</tbody>
</table>

5.5: Interventions/Products - Diagnostics

150.

For the diagnostic test, which stages were carried out during the grant, or have happened since?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proof of concept</td>
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<td></td>
<td></td>
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<tr>
<td>Proof of efficacy</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Regulatory approval</td>
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<td></td>
<td></td>
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<tr>
<td>On the market</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trialling a current diagnostic in a new environment or context</td>
<td></td>
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</tbody>
</table>
5.6: Interventions/Products - Medical Devices

151.
For the medical device, such as a prosthetic hip, which stages were carried out during the grant, or have happened since?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prototype development</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Initial testing</td>
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<td></td>
<td></td>
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<tr>
<td>Regulatory approval</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On the market</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trialling a current medical device in a new environment or context</td>
<td></td>
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</tbody>
</table>

5.7: Interventions/Products - AHP

152.
For the intervention delivered by nurses or allied health professionals, what type of intervention is it? (tick all that apply)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
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</thead>
<tbody>
<tr>
<td>Nursing</td>
<td></td>
<td></td>
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<tr>
<td>Podiatry</td>
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<td></td>
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<tr>
<td>Physiotherapy</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Psychosocial</td>
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<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
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</tbody>
</table>

153.
If other, please specify
154. and which stages of development have been carried out with, or since, your IMHA grant?

<table>
<thead>
<tr>
<th>Proof of concept</th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small scale trial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large scale trial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widespread use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trialling an existing intervention for use in a new environment or context</td>
<td></td>
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</tbody>
</table>

5.8: Interventions/Products - Surgery

155. For the surgical intervention, which stages were carried out during the grant, or have happened since?

<table>
<thead>
<tr>
<th>Proof of concept</th>
<th>Yes</th>
<th>No</th>
<th>Not Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small scale trial</td>
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<td></td>
</tr>
<tr>
<td>Large scale trial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widespread use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trialling an existing intervention for a new indication or for delivery in an alternative context (eg day surgery)</td>
<td></td>
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</tbody>
</table>

5.9: Interventions/Products - Service Delivery

156. For the improvements in health service delivery, which stages were carried out during the grant, or have happened since?
5.10: Interventions/Products - Health Advice

For the new, or revised, public health advice, to what extent has this advice been disseminated?

By your research laboratory
By IMHA
By the Public Health Agency of
Canada/Health Canada
Internationally

5.11: Interventions/Products - Other

For other developments of a health intervention, please provide a brief description below.

6: Comments
159.
Do you believe that the team grant provide more opportunities or advantages compared to a regular CIHR operating grant? Please provide a brief description here (assuming you have received a regular CIHR operating grant in the past for comparison):

160.
Have you found the team grants have lead to additional collaboration above and beyond that which would have occurred with individual grants?

   *Strongly disagree  Disagree  Neither disagree nor agree  Agree  Strongly agree*

161.
What improvements would you recommend for the CIHR funding mechanism?

162.
If your research has had impacts not captured in this questionnaire, please provide a brief description here:

163.
If you have any comments on how we could improve this questionnaire, please provide a brief description here:

164.
How long did it take you to completed this questionnaire?

   *Fewer than 30 minutes  
   30 to 60 minutes  
   1 to 2 hours  
   2 to 4 hours  
   Greater than 4 hours*
Appendix B: References


iii Ibid.


ix Ibid.