Introduction

The Kolling Institute is a partnership between the Northern Sydney Local Health District’s, Division of Research and the University of Sydney’s Northern Clinical School. It is a member-based organisation that is responsible for all research activity performed across the Northern Sydney Local Health District.

This means that all staff from the Northern Sydney Local Health District (NSLHD) (incorporating Royal North Shore Hospital, Ryde Hospital, Hornsby Hospital, Manly and Mona Vale Hospitals and the new Northern Beaches Hospital) who are actively involved in and/or interested in conducting research and academics/research staff with appointments via the Northern Clinical School (NCS), are eligible to be members. While the Kolling’s primary partners are the NSLHD and the NCS researchers from other institutions such as the Hammond Care, University of Technology Sydney and Macquarie University may also be eligible to be affiliate members.

While the Kolling’s Research Office and several laboratories are located in the 14 storey Kolling Building on the RNSH campus, research is conducted over many sites in the LHD.

The Kolling Institute Leadership

The Vision of the Kolling Institute for the next five years is clear: to unite health research & education with patient care & community well-being to deliver a co-operative model for discovery that delivers constant innovation across all areas of health care, from birth until death. This ambitious goal is achievable by combining the high quality of research and researchers working within and between key themes.

Professor Jonathan Morris leads the Executive Committee with representation from both the NSLHD and University of Sydney, including senior administrative and education professionals, in addition to the Associate Directors leading the following research themes (hereafter ‘Themes’) and Ds. The Ds are the translational pathways that include discovering new mechanisms, diagnostics, devices and therapeutics; developing optimal clinical practice; delivering healthy populations and efficient health services and disseminating the information that changes practice and keeps the community informed about innovations that improve their healthcare;

<table>
<thead>
<tr>
<th>Themes</th>
<th>D’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Start to life</td>
<td>- A/Professor Deborah Marsh</td>
</tr>
<tr>
<td>Acute &amp; Critical Care</td>
<td>- Professor Gin Malhi</td>
</tr>
<tr>
<td>Combating Chronic Disease</td>
<td>- Professor David Hunter</td>
</tr>
<tr>
<td>Healthy Ageing</td>
<td>- Professor Stewart Dunn</td>
</tr>
<tr>
<td>Discovery</td>
<td></td>
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<tr>
<td>Develop</td>
<td></td>
</tr>
<tr>
<td>Deliver</td>
<td></td>
</tr>
<tr>
<td>Disseminate</td>
<td></td>
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</tbody>
</table>
Your leadership representatives help guide achievements at an operational level within the Kolling Institute via their participation on the clinical leaders, biomedical leaders and strategic research performance & development committees.

**About the Kolling Institute Strategic Direction**

It is important that over time the Kolling Institute members build research and workforce capability that is aligned with its Vision.

Over the next 12 – 24 months the Kolling Institute will focus on providing discretionary funds to support the following key priorities:

1) Smart Science via the SPARK program and other discovery research programs.

2) Clinical Trials via supporting relevant, appropriate and high quality pilot clinical trials to address priority research questions with the hope that these pilot studies can then be submitted for NHMRC funding in 2016.

3) Population Health & Health Service via research that assesses appropriateness and efficiency of services that we provide.

4) Education for Behavioural Change via projects that assess how to implement known research findings into practice.

5) Learning Organisation via projects that aim to assess educational interventions for health care workers or the patient to improve health.

Other major strategic initiatives to be conducted within the Kolling Institute during the next five years include;

- Health information and analytics, and
- Embedding research and education into clinical networks.
**About this process**

Australia has a longstanding reputation for scientific and medical research pursuits internationally. However, competition is fierce for publication of new discoveries and limited funding opportunities and scientists are increasingly requested to justify their outputs and success both from funding agencies and their local Institutions. Benchmarking achievements between International research organisations is also increasingly common. For the Kolling Institute to continue to be competitive both nationally and internationally we need to accurately collect, collate, analyse and report our outputs; identify their significance and relevance to the Australian health care system and review our research goals both short and long term, nationally and internationally.

Due to the nature of research conducted by members of the Kolling Institute a mechanism is required which will enable research outcomes to be measured. This will provide a unique opportunity to take a snapshot of the influence Kolling researchers have locally, nationally and internationally. The information collected will provide information for the Kolling Institute’s Annual Report and the performance reports will allow the Kolling Executive and associated committees to understand current strengths and celebrate success. It will create a basis from which areas of research may be identified for investment and support in line with the Kolling Institute’s strategic direction.

This guide describes the research performance evaluation process and outlines what information needs to be collected for each performance area. A timeline has also been prepared which indicates when information needs to be submitted to the Research Office.
Purpose of the Research Performance Evaluation process
The aims of the Kolling Institute Research Performance Evaluation process are:

a) to evaluate our research performance and to compare our influence to other Institutes nationally and internationally,
b) to transparently disburse discretionary funding; and
c) to collect data for strategic review, reporting and future planning exercises.

Research is defined as the creation of new knowledge and/or the use of existing knowledge in a new and creative way so as to generate new concepts, methodologies and understandings. This could include synthesis and analysis of previous research to the extent that it leads to new and creative outcomes.

This definition of research is consistent with a broad notion of research and experimental development (R&D) as comprising of creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humanity, culture and society, and the use of this stock of knowledge to devise new applications.

This definition of research encompasses pure and strategic basic research, applied research and experimental development. Applied research is original investigation undertaken to acquire new knowledge but directed towards a specific, practical aim or objective (including a client-driven purpose).

University of Sydney website 11/06/2014

The Kolling Institute’s Research Performance Evaluation is an annual review of research performance data across each Theme and D’s. The information generated by this process will be used to allocate discretionary funding and to assist with the identification of new areas for investment. Each Theme will be allocated a research performance score and feedback provided to Themes regarding their research performance. Each Theme will be able to drill down to the Research Performance Score.

The same information will also be used to complete all state and national health research performance reports in addition to the Kolling Institute’s Annual Report.

Data collection
2013 data will be collected from early to mid-2014. Whenever possible, the intent is to collect data from researchers only once and then use it for a variety of purposes. Data will be collected in the following ways:

Grants Awarded & Publications – collected from the University of Sydney Research Office with validation via the Research Performance Evaluation process. Themes will be required to supply further information not gathered through this process directly to the Research Office.

Translational Outcomes –by the mechanisms detailed in the Research Performance Evaluation Process. Researchers will work with the Associate Directors to submit their Clinical and Public Health Translational Outcomes Questionnaires directly to the Research Office.
All data will be collected concurrently and collection deadlines are indicated in the timeline.

**Performance Evaluation Framework (Metrics and Measurement)**

The Research Performance Score is evaluated on three main research performance areas;
1) knowledge creation,  
2) research inputs; and  
3) translational outcomes (commercial, clinical and public health).

The scoring framework for the Research Performance Evaluation process for 2014 is outlined in Table 1.

**Table 1: 2014 Research Performance Score: Key Performance Measures and score values.**

<table>
<thead>
<tr>
<th>Research Performance Area</th>
<th>Measure</th>
<th>Score (out of 100)</th>
<th>Breakdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Creation</td>
<td>Peer-reviewed publications</td>
<td>35</td>
<td>25 – activity (tiers and impact factor/author role)</td>
</tr>
<tr>
<td>(Section 1)</td>
<td></td>
<td></td>
<td>10 – impact (hot publications)</td>
</tr>
<tr>
<td></td>
<td>Research synthesis</td>
<td>5</td>
<td>Technical papers - Policy, guidelines, books, book chapters, media hits etc.</td>
</tr>
<tr>
<td>Inputs</td>
<td>Grants</td>
<td>30</td>
<td>NHMRC, ARC, CRE* funding EU, NIH × 1.5</td>
</tr>
<tr>
<td>(Section 2)</td>
<td></td>
<td></td>
<td>Other peer reviewed grants (external)× 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Other peer reviewed grants (internal)× 0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Indirect funding without infrastructure funding attached × 0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Contract funding (investigator led commercial agreement) ×0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Contract funding (commercially fully sponsored agreement) × 0.25</td>
</tr>
<tr>
<td></td>
<td>Training</td>
<td>5</td>
<td>Student completions</td>
</tr>
<tr>
<td>Commercial, Clinical</td>
<td>Research Outcomes</td>
<td>25</td>
<td>5 – Commercialisation: patents</td>
</tr>
<tr>
<td>&amp; Public Health Outcomes and Translation</td>
<td></td>
<td></td>
<td>20 – Adoption: impact on policy/practice</td>
</tr>
<tr>
<td>(Section 3)</td>
<td></td>
<td></td>
<td>– Outcomes and Translation</td>
</tr>
<tr>
<td>Total Score</td>
<td></td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

*Centres of Excellence funding, including:  
  - ARC Centres of Excellence  
  - Co-funded Centres of Excellence (ARC and others)  
  - Centres of Clinical Research Excellence, Program Grants where funding is distributed by MCRI (NHMRC)*
RESEARCH PERFORMANCE AREA DESCRIPTIONS

1. Knowledge creation

1.1 Publications data collection processes
1.1.1 Peer-reviewed publications:
- Collected centrally by Research Office from the Ovid, Web of Science and PubMed online databases and via the NHMRC – Research Grant Management System (RGMS).
- Only papers published in 2013 are included in the analysis (for 2013 report), except those published online in 2012 and then in print in 2013, when the online publication was not included in the 2012 analysis.
- For the research performance evaluation process in 2014 and 2015 research and education activities will include all publications produced by Kolling Institute members. However, from 2016 only Kolling Institute attributed publications will be included.
- Once collated, publications lists will be sent out to each Theme for verification.
- Publications will be scored based upon author role (*senior authors first, last or corresponding are awarded score of 6, contributing authors receive a score of 2) and publication tier weightings.

1.1.2 Hot publications:
- Hot publications cover a five year period, from 2009 to 2013.
- Collected centrally from the Web of Science database and verified by Theme Directors.
- Collected based on citation rates, and scored using author role weightings (please see above *)

1.1.3 Technical papers:
- Collected by Themes, based on definitions given in the glossary at the end of this guide and sent to the Office of Research.

1.2 Scoring - Publications
1.2.1 Journal tier ranking system – as occurred in previous years, articles will be categorised into one of five journal tiers, depending on the journal. The tier categories are described in Table 2.

<table>
<thead>
<tr>
<th>Tier</th>
<th>Type of Journal</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Broad multi-disciplinary journals that are in the top 3 of their subject category rank on Web of Science and with an impact factor over 20, excluding review journals or discipline-specific journals</td>
<td>100 pts</td>
</tr>
<tr>
<td>1b</td>
<td>Journals ranked in the top 10% of their subject category area on Web of Science with an Impact Factor above 10</td>
<td>50 pts</td>
</tr>
<tr>
<td>2</td>
<td>Journals ranked in the top 10% of their subject category area on Web of Science with an Impact Factor below 10</td>
<td>30 pts</td>
</tr>
<tr>
<td>3</td>
<td>Journals ranked above the top 50% in their subject category area on Web of Science</td>
<td>10 pts</td>
</tr>
<tr>
<td>4</td>
<td>Journals ranked below the top 50% in their subject category area on Web of Science, or those without impact factors</td>
<td>3 pts</td>
</tr>
</tbody>
</table>
The journal tier ranking list is dynamic and will change over time. The list has been circulated to Themes, approved, and placed on the intranet in the Research Strategy section. This list will remain fixed for the 2013 performance evaluation round.

1.2.2 Hot publications: The scoring approach to be used factors the author role (KI-led/not KI-led) into the scoring for hot publications will be used. This approach multiplies the author role total for each Theme’s hot publications list by the total number of citations gained by those publications. The highest result is scored at 10, and all other results are scored relative to this.

1.2.3 Technical publications scoring: Numbers of technical papers will be totalled and the Theme with the highest number will be awarded 5 points, and all other Themes will be scored relative to this.

2. Inputs
Two measures will be used to evaluate research inputs – grant funding and student completions for each Theme.

2.1 Data collection
2.1.1 Grants: information will be collected from Research Office, and information will be sent to Themes for verification.

2.1.2 Student numbers: information on student numbers and completions will be collected from Themes, Northern Clinical School- University of Sydney and other affiliated Institutions. Information will be sent to Themes for verification. A definition of KI students can be found in the glossary at the end of this guide.

2.2 Scoring
2.2.1 Grants and Contract Funding
Grant data will be scored according to the scoring framework outlined in Figure 1.

Figure 1: Breakdown of grant funding weightings:

- NHMRC, ARC, Centres of Excellence, NIH and EU × 1.5
- Other peer reviewed grants (externally awarded) × 1
- Other peer reviewed grants (internally awarded) × 0.5
- Indirect funding without infrastructure funding attached × 0.5
- Contract funding (investigator-led, commercially supported agreement) × 0.5
- Contract funding (commercially sponsored clinical trials) × 0.25

- Data will be collected and made available regarding raw funding figures and scored funding figures.
- NIH and EU grants will be scored in the same way as NHMRC grants, that is, adjusted ×1.5. EU grants come through the NHMRC and are adjusted ×1.5 already, and this approach recognizes the prestige of the NIH grants by adjusting them in the same way as NHMRC and EU grants.
- Contract funding: the contract funding for each Theme for 2013 will be totalled.
2.2.2 Student data scoring: Scoring of student data takes into account the type of degree that is involved. The scoring of research student completions data is shown in Table 3:

<table>
<thead>
<tr>
<th>Degree type</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Public Health; Master of Genetic Counselling</td>
<td>1</td>
</tr>
<tr>
<td>Advanced medical trainees (completing a college project)</td>
<td>1.5</td>
</tr>
<tr>
<td>Honours; Scholarly Selectives</td>
<td>1.5</td>
</tr>
<tr>
<td>MD/DMedSc; DPsych (Monash); Masters by Research/MPhil</td>
<td>3</td>
</tr>
<tr>
<td>Combined Master of Psychology/PhD; PhD</td>
<td>5</td>
</tr>
</tbody>
</table>

3. Commercial, Clinical and Public Health Translation Impact and Outcomes

3.1 Data collection:
3.1.1 Patents: information for each Theme will be collected from the Office of Commercialisation-Northern Sydney LHD.

3.1.2 Clinical and Public Health Outcomes and Translation: Data gathering will be done using a structured questionnaire.

3.2 Scoring:
3.2.1 Patents: the patents for each Theme will be scored according to the patent’s stage. The Theme with the highest score will be assigned the maximum value of 2 points and all other Themes will be assigned points relative to this.

3.2.2 Clinical and Public Health Translation Impact and Outcomes: The system is based on an approach developed by researchers at London School of Hygiene and Tropical Medicine and developed by the Murdoch Children Research Institute over the last seven years, and provides an explicit framework with which to evaluate clinical and public health outcomes data. The lead researchers from projects put forward by each Theme will complete the questionnaire to the Strategic Research Performance and Development Committee. Analysis will be included in the final score.
APPENDIX 1

Glossary - definitions of data types
In this section, the following are defined:

- Journal publications that can be included in the performance evaluation
- Technical papers
- Competitive peer reviewed funding
- Contract funding
- Donations

Journal publications for inclusion in the performance evaluation process:
For the performance evaluation, journal articles must be:

- Peer-reviewed – article is peer reviewed in its entirety before publication by independent, qualified experts.
- Have an International Standard Serial Number (ISSN)

Articles that **may be included** in the performance evaluation:

- Communications of original research
- Research notes
- Letters to journals, if they satisfy the definition of research and are peer-reviewed
- Articles reviewing multiple works or an entire field of research
- Invited papers in journals
- Cochrane reviews
- Conference papers – includes only published, peer-reviewed, full written papers that have been presented at conferences, workshops or seminars of national or international significance
- Editorials and commentaries
- Opinion pieces containing original data
- Case studies / reports

Articles **not included** in the performance evaluation:

- Non peer-reviewed correspondence, commentaries and editorials
- Abstracts and meeting abstracts
- Book reviews
- In press publications – all publications are counted for the year in which they are published, even if published electronically.

The Research Office will use one of the following means of establishing if an article is published in a peer-reviewed journal in situations where this is unclear:

- Journal listed on one of the Institute for Scientific Information indexes
- Journal is classified as “refereed” in Ulrich’s International Periodicals Directory
- Journal contains a statement which shows contributions are peer reviewed
- Statement or acknowledgement from journal editor showing that contributions are peer reviewed

Technical papers include the following:

- Non peer-reviewed correspondence, commentaries and editorials
- Books – published, with an ISBN: includes bound books; packaged CD-ROMs/DVs; subscription or fee-based electronic books
• Book chapters – chapter in a book with an ISBN: includes bound books; packaged CD-ROMs/DVDs; subscription or fee-based electronic books
• Edited books – person is the editor of a book consisting of contributions from a number of authors
• Revised/New editions – books previously published or a collection of previously published articles either by the current author or editor, or by previous author(s) or editor(s), which has been brought up to date by the substantial addition or alteration of material.
• Published Policy papers, e.g. for federal or state government, etc
• Published Reports
• Published Guidelines
• Educational Material
• A CD ROM (other than a book), DVD, or a website produced in the evaluation year. Updated or revised website or single fact sheets on websites will not be accepted.
• Media Hits

Definitions of different funding types:

Competitive peer-reviewed funding – grants from organizations such as the NHMRC, NIH, ARC, and other bodies, e.g. Perpetual, which are awarded on a competitive basis which involves the grant application being reviewed and assessed by experts (peers) in the field.

Contract funding – Broadly speaking, this is funding provided to KI staff to do research that is expected to have required outcomes and which is funded by a third party. Contract funding may come from a government department, charitable institution, community organisation or private company for the KI group/staff to deliver a specific product, report, service or program. This often requires the utilization of resources, knowledge or skills gained through previous research, application of established expertise and the carrying out of other relevant applied research. This does not include diagnostic testing. Contract funding may be gained through tender (which may involve a competitive tender process); it may be obtained through an investigator initiated research proposal; or through an interested party contacting the KI.

Examples of contract funding include funding from:
• Developing an educational booklet for a community group to educate stakeholders on disabilities or health requirements for a sector of the community.

Donations – funds given to the Institute that may be for a particular purpose or broadly for funding research but not after following a peer-reviewed grant process or expecting a material result or a return in the form of a particular service/product.

Definition of Kolling Institute students:
A Kolling Institute Student is one who:
• Conducts research within the North Sydney Local Health District Campus.
• Conducts 100% of their research with and is aligned with an Kolling Institute Research Group and Theme.
• Is primarily supervised by a Kolling Institute staff member or honorary affiliate.
• Undertakes research aligned with the mission of the Kolling Institute

Acknowledgements
The Kolling Institute of Medical Research acknowledges and appreciates the assistance and support from The Murdoch Children’s Research Institute in developing this research performance framework, in particular Dr MaryAnne Aitken Schapper CC, Dwyer T, Tregear GW, MA Aitken, MA Clay. Research performance evaluation: the experience of an independent medical research institute. Australian Health Reviews 2012, 36, 218-223.
Key Contacts-

- If you would like to participate in future strategic development at The Kolling Institute please contact Professor Jonathan Morris (jonathan.morris@sydney.edu.au), Professor David Hunter (david.hunter@sydney.edu.au) or Ms Karyn Joyner (karyn.joyner@sydney.edu.au).

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