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# PubMed Central Canada: Beyond an Open Access Repository?

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**PubMed Central Canada (PMC Canada) represents a partnership between the Canadian Institutes of Health Research (CIHR), the National Research Council's Canada Institute for Scientific and Technical Information (NRC-CISTI), and the National Library of Medicine of the US. The present study was done to gauge faculty awareness about the CIHR Policy on Access to Research and about their familiarity with PubMed Central Canada, the federal open access repository. Researchers were asked to rank search and browse features that would be helpful while using PMC Canada. The study recommends academic librarians to play an active role in promoting open access repositories and informing faculty members about policies on access to research as stipulated by grant funding agencies.**

**Keywords:** PubMed Central Canada; CIHR policy; PMC; UKPMC; Open access

## INTRODUCTION

PubMed Central Canada (PMC Canada) is an open access (OA) database which indexes biomedical medical and health-related research articles and provides full text access.<sup>1</sup> It is a part of the PubMed Central International (PMCI) consortium begun by PubMed Central (PMC) of the United States and the National Library of Medicine (NLM).<sup>2</sup> UK PubMed Central (UKPMC) joined PMCI early in 2007, and since then has been the leading information repository for UK researchers.<sup>3</sup> In addition to indexing and archiving, PMC Canada continues the initiative of NLM and the US Government, which passed a law requiring all articles published as result of research supported by the National Institutes of Health to be made available on an OA site (PubMed Central) within twelve months of publication.<sup>4</sup> The PMC Canada OAI service (CAPM-C-OAI), provides access to metadata of all items in the PMCI Canada archive, as well as to the full text of a large subset of these items.<sup>5</sup> PMC Canada also provides the option to view the entire database (including all tutorials) in French.

In February 2006, the Canadian Institutes of Health Research (CIHR) initiated a project to develop and implement a policy on OA to research outputs. This work was guided by an advisory committee whose members represented Canadian researchers across CIHR's four research theme areas *viz.* biomedical, clinical, health services, and population health. In 2007, CIHR came out with the announcement that beginning on January 1, 2008, researchers who were awarded new or renewed funding from CIHR were to ensure that all research papers generated from CIHR funded projects were freely accessible through the publisher's website or an online repository within six months of publication.<sup>6</sup>

PMC Canada was launched in 2009 and was made publicly available on the 28th April 2010. This Canadian archival repository supports the CIHR Policy on Access to Research. Research papers generated from CIHR funded projects must be made accessible through the publisher's website or an online repository like PMC Canada within six months of publication. To facilitate the archiving of these manuscripts, PMC Canada has included a manuscript submission system, enabling researchers to deposit and manage their CIHR-funded research.<sup>7</sup>

UK PubMed Central (UKPMC), another addition to PMCI, is a free digital archive of biomedical and life sciences journal literature set up by the Wellcome Trust in 2007, as part of a group of leading UK research funders.<sup>8</sup> The service is delivered by the European Bioinformatics Institute (EBI), the University of Manchester (Mimas and NacTeM), and the British Library. Finally there is US PubMed Central (PMC) which is the free archive of biomedical and life sciences journal literature at the U.S. National Institutes of Health's National Library of Medicine (NIH/NLM). PMC was launched in 2000 and developed and is managed

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by NLM's National Center for Biotechnology Information (NCBI). In keeping with NLM's legislative mandate to collect and preserve the biomedical literature, PMC serves as a digital counterpart to NLM's extensive print journal collection.<sup>9</sup>

All three portals serve as a repository for articles originating from funded research from their countries; what makes them different is from the time they have been in existence, the additional content within them and the search and browse features offered by them. Figure 1 outlines the history of these repositories with the initial lead by PubMed Central in 2000 with the inclusion of content from *Proceedings of the National Academy of Sciences* and *Molecular Biology of the Cell* in this database. The PMC database has grown and includes content from 1149 journals that are participating fully by depositing complete content, 237 journals with a NIH portfolio in which the journal commits to depositing all NIH-funded articles and 1825 journals that selectively deposit content, i.e., hybrid journals which deposit only OA content in PMC. UKPMC and PMC Canada are mirrors of the US PMC model, hosting almost the same content and search and browse features. However, in January 2010, UKPMC launched a new interface that included novel features for navigating and searching the content. Some of them included the ability to search biomedical abstracts and full-text articles from the same search box, the provision of different subsets of records such as patents and theses and the incorporation of citation data and text-mining-based applications.<sup>10</sup>

### REVIEW OF LITERATURE

PMC Canada is a recent establishment and the literature published thus far has been limited to general information about this portal. None of the published papers have discussed the usability features and academia perceptions of PMC Canada. US PMC and UKPMC are the more established portals and can be regarded as pioneers in developing innovative search tools and including additional content in the life sciences and biomedical repositories. Starting November 2012, UKPMC has been renamed to Europe PubMed Central (Europe PMC). Europe PMC plus (a subset of Europe PMC) provides manuscript submission and grant reporting services for authors who are funded by Europe PMC funding organizations. Europe PMC was developed in collaboration with the founders of PubMed and PMC and the NCBI, in the US. Unlike PubMed Central, Europe PMC provides a single point of access

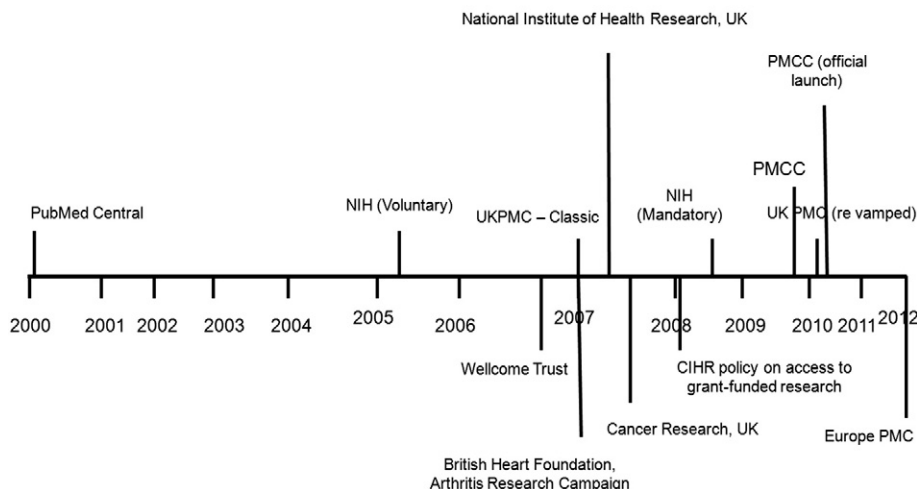
to not only full-text articles but additionally the abstracts available through PubMed. The Europe PMC interface also offers novel features and functionality, including links to other relevant content, integrated text and data mining tools and grant reporting services through Europe PMC plus.<sup>11</sup>

Prior to 2008, UKPMC was being used by the UK research community as a database of biomedical literature. In February 2008, a consortium led by the British Library, in collaboration with the European Bioinformatics Institute (EBI) and the University of Manchester, was given the responsibility of transforming UKPMC into a premier resource and research portal for the biomedical and health research community. This consortium had the full support of major UK funding bodies and the NCBI. More than 900 representatives from the UK biomedical and health research community were surveyed and the results concluded that there was a real interest amongst the research community for a service that was more than a bibliographic database of published research articles. Based on the consortium recommendations, the content in UKPMC was made more visible and searchable by including innovative tools and services. Increased functionality was attributed to text and data mining technologies which integrated the research article with a range of other online sources, such as gene, protein and chemical compound databases. The content also included clinical guidelines, theses and research reports. UKPMC encompasses a range of bibliographic databases including Medline, Patents and Agricola into a single, seamless discovery tool.<sup>12</sup>

Closer to home, US PMC has grown rapidly in response to the U.S. National Institutes of Health's "Policy on Enhancing Public Access to Archived Publications Resulting from NIH-Funded Research" which is designed to make all research funded by the National Institutes of Health (NIH) freely accessible to anyone. In late 2007, the *Consolidated Appropriations Act of 2008* (H.R. 2764) was signed into law and included a provision requiring the NIH to modify its policies and required that papers stemming from NIH-funded research be included into PubMed Central within 12 months of publication.<sup>13</sup>

UKPMC and US PMC can serve as templates and may help in developing PMC Canada into a research collaboration and dissemination portal for Canadian OA publications. The present study was done to gather faculty perceptions and their awareness of PMC Canada and CIHR Policy on OA. York University researchers were surveyed about additional

**Figure 1**  
**Timeline of PMC USA, UKPMC and PMC Canada.**  
 Adapted from McEntyre et al.<sup>8</sup>  
**Timelines: PMC, UKPMC, PMC Canada**



searching and browsing features that could enhance usability. The study compares some of the functionality tools and content available in PMC & UKPMC and makes recommendations for a more intuitive Canadian PubMed Central.

## METHODOLOGY

York University authors who had their papers in PMC, PMC Canada or UKPMC, including faculty members interested in providing input, were invited to complete an online survey (Appendix A). In all, ninety faculty members from Faculty of Science & Engineering (FSE) & Faculty of Health (FH) were contacted.

The study was conducted in May 2012 and was approved by the Human Participants Review Council (HPRC) at York University.

## RESULTS

Forty-three respondents completed some part of the survey while thirty-one researchers answered all questions.

### Profile of participants

The majority of the faculty members who participated in the survey were from Kinesiology & Health Sciences ( $n = 13$ ), followed by nine members from Psychology and six researchers from Biology and the remaining respondents from Nursing, Health Policy and Management and Physics & Astronomy (Figure 2).

Faculty members participating in the survey had research experience ranging from less than five years ( $n = 5$ ) to faculty members who had more than twenty years of research experience ( $n = 15$ ). Most of the faculty members had research experience between six to twenty years ( $n = 23$ ).

### Type of funding

Respondents were asked if they had received CIHR funding. Of the thirty seven who answered this question, eight had received CIHR funding post-2008 and one faculty member had received CIHR funding

prior to 2008. Two respondents indicated that they were collaborators and the CIHR funding was received by Principal Investigators (PIs) who were not affiliated with York University. None of the survey participants had received NIH funding.

## Articles in PMCI

Faculty members were asked if they had made their CIHR grant-funded research articles OA through any of the listed options. Options included OA repositories, personal website, OA journal and institutional repository. Only two respondents had deposited their articles in PMC Canada while five of them had made it available through US PMC. Four had published in an OA journal while one researcher had made it available through the York University repository (YorkSpace). Nine respondents were not sure if their articles were available through any of the alternatives provided in the survey.

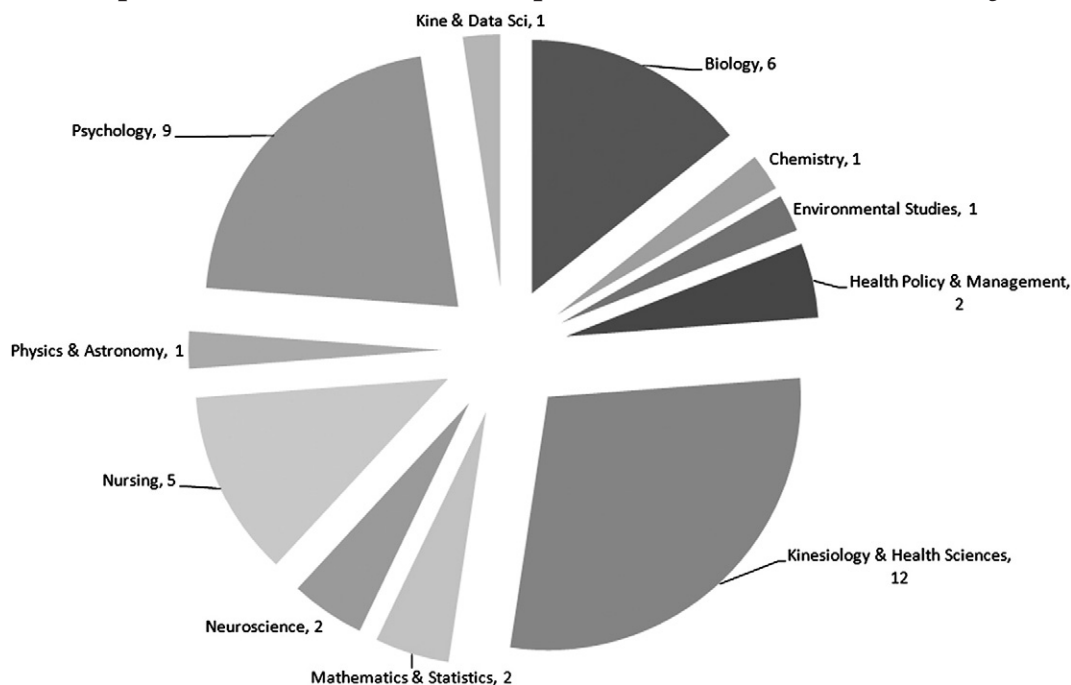
### Important features required for PubMed Central Canada

Faculty members were asked to rank the importance of select features that could help in searching and browsing content deposited in PMC Canada. Features were to be ranked as *Very Important*, *Important* or *Not Important*.

A majority of the faculty members ( $n = 28$ ) wanted ease of depositing papers in PMC Canada and deemed this to be either *Very Important* or *Important* feature. Researchers also wanted clarity about journal deposit policies ( $n = 26$ ) in PMC Canada, the ability to locate similar articles ( $n = 25$ ) and the ability to export bulk citations to a reference management program ( $n = 27$ ). A significant number of respondents ( $n = 25$ ) wanted to see a list of OA journals while twenty-six researchers wanted to see a list of OA journals for a specific field.

While twenty-seven respondents regarded the ability to search author manuscripts on PMC Canada to be very important, twenty-eight of them also wanted to initiate new searches or refine existing searches on a selected facet. A majority of the faculty members ( $n = 27$ ) listed the

**Figure 2**  
Respondents from different disciplines for the PMC Canada survey.



ability to see the number of times an article had been cited as *Important* or *Very Important* and twenty-one researchers wanted to see the number of times an article had been downloaded. Twenty-two respondents wanted the ability to restrict results to Systematic Reviews and Guidelines (Table 1).

Features that were *Not Important* were the ability to create RSS Feeds for searches (n = 18), create e-mail alerts (n = 12) and the ability to post articles to social networking sites (n = 26). Twenty respondents did not consider the feature to limit papers to NSERC or SSHRC funding as an important feature. About 50% of the faculty members did not foresee using PMC Canada site to search genetic information and twenty-three researchers rated the feature to search patents using PMC Canada to be *Not Important*. Table 1 provides details of some features that are currently available from PMC Canada PMC and UKPMC.

### Role of academic librarians

Respondents were asked if librarians could play a role in assisting faculty with issues related to PMC Canada and OA. They were provided some options on how librarians' could help them with their information needs or assist with OA literacy. An overwhelming number of faculty members (n = 29) needed clarification on journal and publisher policies on OA. Respondents (n = 24) wanted more explanation on PMC Canada deposit policies. Other issues identified were clarifying CIHR policies on OA (n = 17) and clarification on CIHR policies on OA to research data (n = 12). They also wanted librarians' assistance with regards to authenticity and credibility of some OA journals and publishers (Figure 3). A few faculty members commented that they needed help in loading their peer-reviewed publications in PMC Canada.

### Knowledge of OA journals & publisher policies

Faculty members were asked if they were aware of PMC journal list that outlined participating journals and free access timelines. The link to the PMC Journals list was made available in the online survey. Only four of the thirty-one members who responded knew about this service. The link to RoMEO database was provided in the survey and respondents were asked about their awareness of this database. Only two respondents were aware of RoMEO which outlines publishers' policies regarding the self-archiving of journal articles on the web and in OA repositories.

### Repositories usage

Faculty members were asked if they had downloaded articles from PMC, PMC Canada or UKPMC in the last year. Sixteen respondents had downloaded articles from PubMed Central in the last year while two who had downloaded articles from PMC Canada and two others had used UK PMC (Figure 4). Two respondents were not sure if the articles had been downloaded from PubMed or PMC Canada while two others commented that they often used PubMed for searching and downloading articles.

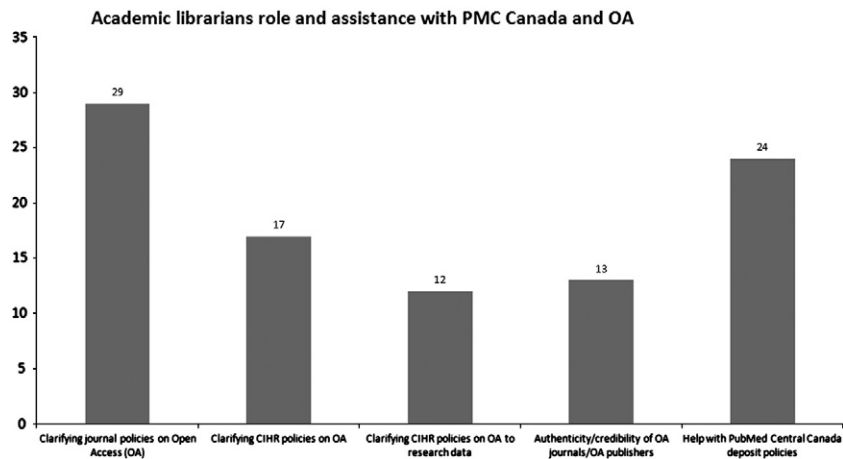
### Compliance with CIHR policy

One of the questions pertained to compliance with funding agency OA policy. Researchers were provided with a brief synopsis of the CIHR policy in the survey. Eight faculty members had received CIHR funding beginning 2008. One respondent had received funding prior to 2008. In two cases the PIs who received CIHR funding were not affiliated with York however the collaborators were from York University. Researchers who had received CIHR funding (PIs or collaborators)

**Table 1**  
**Ranking & comparison of features in PMC Canada and UKPMC**

Feature	PMC Canada	UKPMC & PMC	York faculty responses important/not important
Export to citation management program (RIS format)	From publishers' platform	Citations in RIS format available in UKPMC	Very Imp./Imp. 89%
Ease of depositing articles	Guides/tutorials should be more visible	User guide on depositing articles: Was easy to find	Very Imp./Imp. 93%
Links to Patent databases	Not available	Yes	Not important 81.5%
Faceted searching & Ability to locate similar articles	No	Yes	Very Imp./Imp. 93%
Clarity about journal deposit policies & policy on OA	Make it more visible	Upfront	Very Imp. 90%
Database User Guide	Webinar on PMC Canada: Make it more visible	PDF Guide—detailed with screenshots	V. Imp./Imp. 69%
Times cited	Not available for all articles	Available for all articles	V. Imp./Imp. 89.5%
No. of times downloaded	Not available	Not available	V. Imp./Imp. 68%
Limit to systematic reviews	Not available	Ability to limit to meta-analysis, RCTs, clinical trials	V. Imp./Imp. 72%
Searching for author manuscript	Not available	Available	Very Imp./Imp. 90%
Ability to limit to NSERC, SSHRC papers	No	Ability to limit to other funders using Grant Lookup Tool in UKPMC	Not important 70.4%
Search genetic information related to the article	No	Available in UKPMC	Not important 50%

**Figure 3**  
**PMC Canada and librarian assistance.**



were asked whether they had made their articles OA within six months of publication as per CIHR policy. Five respondents had their articles freely available from US PubMed Central whereas two researchers had their papers on the PMC Canada website. Four respondents said that they had published in an OA journal. One respondent replied that he would have preferred to publish in an OA journal but had not received CIHR funding. This author found the article processing charges for a particular OA journal to be a deterrent.

### Need for PMC Canada

Respondents were asked if there was a need for PMC Canada or if US PMC was sufficient for their needs. Of the fourteen who responded, two stated that PMC Canada was required and nine thought that US PMC was sufficient while another three said that both were required.

### DISCUSSIONS

The main points to emerge from this study were:

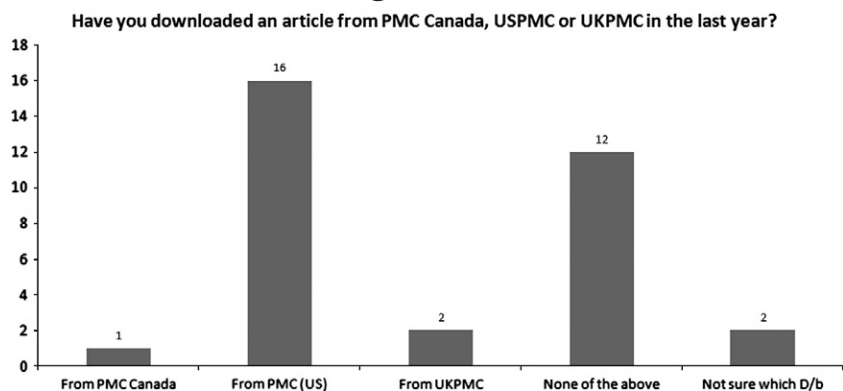
- Faculty members need more information about CIHR Policy on Access to Research. They had questions about OA journals and needed clarification on how content could be deposited in PMC Canada. Not surprisingly, this lack of awareness about the CIHR policy and PMC Canada was more evident in researchers who had not received CIHR funding.

- Researchers wanted librarian assistance on different topics including new OA publishers', publishers' policies on OA, subject specific OA journals and institutional support for hybrid OA journals.
- Faculty members are not aware of various resources available for checking publishers' policies on depositing grant-funded research publications.
- PubMed Central Canada needs to provide a list of journals that comply with CIHR Policy on Access to Research.
- PMC Canada should include value-added features that make searching and browsing more intuitive. The PMC Canada logo on every page should be linked to the home page. A basic search conducted on the website should bring up research articles instead of unrelated journals.

A very small subset of York University researchers who have received CIHR funding, post-2008, participated in this study. The number of participants may be a limiting factor and the results of this study cannot be generalized to a broader audience. Many of the faculty members who participated in the survey had not received CIHR funding however a few mentioned that they had applied for CIHR grants during 2011–2012. They found the information provided in the survey to be very pertinent and timely.

Not all faculty members, receiving CIHR funding, were aware of PMC Canada and its importance. Respondents wanted more information about this portal and its benefits to Canadian researchers.

**Figure 4**  
**Downloading articles from PMC.**



“Provide us with quick information on how to get our article, after it is published, put on PubMed Central and PMC Canada.”

#### Faculty Comment

Other respondents who had not received CIHR funding also wanted librarians to make them aware of PMC Canada and the advantages of this repository. Researchers commented that they usually used PubMed and accessed articles from journals which were either OA or were available through the library subscriptions.

“I have downloaded many articles, but I can't recall if they were specifically from PubMed Central.”

#### Researcher Comment

York University Libraries (YUL) supports three OA publishers viz. Public Library of Science (PLOS), BioMed Central (BMC) and Hindawi. The Libraries have initiated an OA fund to support York authors, who have not received CIHR funding, by paying the article processing charges for select OA publishers. Faculty members have been approached by other OA publishers to submit their scholarly work. Researchers have often asked about the scholarly rigor of new OA journals and journal publishers. Some others have asked about York Libraries support for hybrid OA publishers. York University Librarians have organized workshops for faculty members and graduate students for topics including CIHR Policy on OA to Research, subject specific OA journals, publisher policies on depositing content in university repositories and York Libraries Support for OA publishers. However the results of this study indicate that a more concerted effort amongst librarians and research officers is required to convey information on scholarly communication issues.

Faculty members, who were collaborators on the CIHR funded project, were unaware that their documents could be made available through PMC Canada or through the university repository. One of the respondents commented that though the publication was in PubMed Central, the researcher was not sure how it got included in the database.

“It is in PMC but I don't know who put it there.”

#### Respondent Comment

### Compliance rate with CIHR policy

From January 2008 through the end of September 2012, there were 22,786 articles in PubMed that acknowledged CIHR funding. Searches conducted on US PMC yielded 4707 full-text papers, acknowledging CIHR funding, for the same period. This translates to a 20% compliance with CIHR Policy. PMC Canada officials conducted a webinar on 17th September 2010 and found that of the 6915 citations in PubMed, 1208 CIHR funded publications were available as free full text articles (18% compliance). Heather Morrison calculated the availability of free full-text PubMed articles from March 2008 to March 2012 which were receiving US, Canadian and European funding support. She found that 14% of the CIHR funded research papers available on PubMed were OA. She thought this to be rather low more so with the CIHR Policy on Access to Research Outputs that required articles to be OA within six months of publication. The Wellcome Trust (UK) had a noticeably higher track record, with 39% of works connecting with free full-text. Since CIHR and Wellcome Trust have policies with the same permitted embargo (six months), she concluded that the threefold difference in results would likely not be just policy dependent but may be due to assertive implementation of the policy by Wellcome Trust.<sup>14</sup>

PMC Canada has very recently changed the interface in September 2012 and introduced advanced searching. CIHR funded documents

can be limited on PMC Canada website by selecting the “*Limit to CIHR funded content*” which highlights documents that have CIHR grant IDs associated with them. Searches conducted on the PMC Canada site for the time period January 2008 to May 2012 found a total of only 432 articles. This is much lower than the number of papers found on the PMC database. The difference could be due to the fact that some publishers have allowed their content to be loaded on US PMC only. US PMC indexes articles that acknowledge CIHR funding but not necessarily papers that have CIHR grant IDs associated with them. Another reason for the discrepancy could be that other contributing authors may have received funding besides CIHR, for example NIH funding, and this may account for a higher number of papers on PMC. The low compliance rate on PMC Canada could also be because the CIHR Policy on Access to Research is not mandatory whereas the NIH public policy is mandatory.<sup>15</sup>

In 2007, NIH requested researchers using their funds to deposit papers in PMC and the compliance was around 19%. In 2008, the US NIH upgraded its request to researchers, receiving NIH funding, to deposit their published papers into PMC into a requirement and this accelerated compliance to 49% by the end of that year.<sup>16</sup> In a recent report to the US Congress about the coordination of policies related to dissemination and long-term stewardship of the results of federally funded scientific research, it was documented that since 2008 the NIH has been able to collect 260,000 papers under the Public Access Policy. Overall the compliance rate stood at 75% and continued to edge upward. According to the report, this success has been due to the combined efforts of NIH, its investigators and the voluntary support of publishers.<sup>17</sup>

It is anticipated that more Canadian grant-funding agencies will mandate that articles generated as a result of their research funding be made available OA either through a central repository or be published in an OA journal. PMC Canada can take a lead in being the Canadian repository of choice. This would mean promoting PMC Canada among other grant recipients and incorporating features that would help segregate articles by funding agencies, topics and researchers. UKPMC has developed a user friendly “Grant Lookup Tool” which allows for easy demarcation of published literature based on funding agency, research topic and Principal Investigator ( <http://ukpmc.ac.uk/GrantLookup/>).<sup>18</sup>

The PMC Canada website is a work-in-progress and changes are being made continuously on the website. The first step would be to change the webpage name to read *PMC Canada* rather than *Home*. This would help page indexing and provide a higher relevance ranking. The PMC Canada icon needs to be hyperlinked to redirect to the PMC Canada homepage. A history of previously conducted searches along with the ability to save search results would also be beneficial. Though the default searching from the PMC Canada homepage is set to search for articles, in actuality users were presented a list of journals after conducting a keyword search. It would be helpful to have Medical Subject Headings (MeSH) searching enabled from the Canadian portal. Searches conducted on the UKPMC list MeSH terms besides the article abstracts and it is possible to initiate new searches using the MeSH terms. PMC Canada has recently introduced tabs to highlight recently deposited articles and the most downloaded articles, a feature similar to one available on UKPMC.

Faculty members indicated the importance of searching and fundability features based on the ones they were familiar with and were being currently offered by databases including Scopus, Web of Science and PubMed. Respondents also commented that the user guides need to be upfront and easily discoverable. Very recently, a Kinesiology and Health Sciences researcher wanted to know about PMC Canada manuscript submission process. The professor was not able to find the PMC Canada submission tutorial on the PMC Canada page and required librarian assistance in locating the guide. He commented that the PMC Canada user guide was buried under unrelated tabs. Clear identification and including these guides beneath a separate tab would draw user

attention. Having a detailed user guide was ranked as *Very Important* by many of the survey respondents.

Faculty members are accustomed to sorting results by *Times Cited* and this feature was lacking in PMC Canada but was present in UKPMC. Later upgrades to the Canadian portal could include the *Times Cited* feature along with information about the data sources used for gathering the citation information. One of the other desired features was the ability to select a group of references and the ability to export to a reference management program. The ability to export to a reference management program is not possible at present. It would be helpful for the academic community to know about the recent wave of changes on the PMC Canada website. UKPMC highlights the most recent additions on UKPMC to the UK through the official UKPMC News Blog.<sup>19</sup> The blog has information on new content including the novel features that are available for data and text-mining. It periodically features information on new OA journals and novel initiatives by UKPMC. A similar blog or a wiki could be maintained by PMC Canada outlining the changes to its interface and content.

The 2012 Finch Report on "Accessibility, Sustainability, Excellence: How to expand access to research publications", chaired by Dame Janet Finch, makes the case for publishers to adopt the so-called 'gold' OA model, where the publication costs are met by the research funder, rather than the reader, and where articles are licensed in ways which allow others to reuse these works, subject to attribution. The Report by the *Working Group on Expanding Access to Published Research Findings* included members from academia, researcher funding bodies and publishers. Members of this Working Group recommended that the support for OA publication should be accompanied by policies to minimize restrictions on the rights of use and re-use, especially for non-commercial purposes, and on the ability to use the latest tools and services to organize and manipulate text and other content. It recommended that *the infrastructure of subject and institutional repositories should be developed so that they play a valuable role complementary to formal publishing*, (italicized by the author) particularly by providing access to research data and to gray literature, and emphasized their role in digital preservation.<sup>20</sup>

PMC and UKPMC have included tools and features that can promote knowledge discovery and dissemination. PMC Canada has an opportunity to build on the work done by the researchers at PMC and UKPMC. Including some of the tools in PMC Canada will enhance the visibility of the content within the database.

## CONCLUSION

The present survey, in addition to understanding faculty perceptions of PMC Canada and CIHR policies on access to research, was also a means to inform the York University academic community about the newly launched Canadian portal, CIHR and NIH Policy on Access to Research. In addition, participants were provided with links and information on the RoMEO database, PubMed Central and UKPMC.

PMC Canada officials had outlined the goals for the portal in their 2010 webinar presentation which was targeted to information professionals, researchers and academic librarians. The aim is to create a site which can help researchers easily comply with CIHR's OA policy, establish a customized site for Canadian needs, and build a tool for knowledge dissemination and synthesis. It is hoped that this platform will permit exchange, capture and help evaluate the publication output of CIHR research.

UKPMC started initially by adding content to their repository. In the meanwhile they gathered input from the research community and redesigned the original website. UKPMC has now taken a lead in offering value-added services like ease of transferring citations to a reference management program, access to the Grant Lookup Tool, links to specific databases from within the abstract of the articles, and the Times Cited feature. It includes additional content from European Patent Office, Agricola (US National Agricultural Library), international doctoral theses from ETHOS (UK Electronic Theses Online Service) and

NDLTD (Networked Digital Library of Theses & Dissertations) and clinical guidelines from NHS (UK National Health Services). Regular statistics are maintained so that new services and content can be introduced in a timely manner. UKPMC also maintains a blog which informs users about the latest developments including new content loaded on their site. Some other features include the ability to search journals using the vernacular title instead of typing the full periodical title and linking to gene ontology and disease specific information. Incidentally, the European Research Council (ERC) had announced on the 13 July 2012 that it would participate in the UKPMC service, joining the 18 existing UK and European funders. As a result of this participation, the funders had agreed that the service would be rebranded as 'Europe PubMed Central' (Europe PMC). Europe PMC was made available on 1st November 2012.<sup>21</sup>

If PMC Canada needs to achieve their goals then it will definitely need to move beyond being a repository of archival biomedical literature. This is possible only if there is adequate promotion of this database and a synergy between PMC Canada officials, academic librarians, researchers and publishers. There needs to be clarity on content loading policies, website updates including the new features introduced on the portal. Clarifying publishers' policies and creating a list of journals that comply with CIHR policy on Access to Research would be a good start. PMC Canada will have to incorporate more value-added features that would draw researchers to this portal. Some faculty members at York University have questioned the need for another portal in addition to US PMC. Librarians and research officers have an added social responsibility and should communicate the necessity for this initiative to our academic community since it is the taxpayers' contributions that have made this portal possible.

## APPENDIX A. SUPPLEMENTARY DATA

Supplementary data to this article can be found online at <http://dx.doi.org/10.1016/j.acalib.2012.11.005>.

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