National Midwifery Assessment Strategy:
Midwifery Assessment Tools Project

Final Project Report to HRSDC Foreign Credential Recognition Program

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For the Canadian Midwifery Regulators Consortium
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TABLE OF CONTENTS

Introduction

The Midwifery Assessment Tools Project (MAT) is a project of the Canadian Midwifery Regulators Consortium (CMRC), an umbrella group of regulatory organizations in the six provinces and territories where midwifery is currently regulated[1]. The project is funded through a financial contribution from Human Resources and Skills Development Canada's Foreign Credential Recognition Program and by members of the CMRC.

The Midwifery Assessment Tools project continues the development of certain assessment tools that were initially created within the HRSDC-funded National Midwifery Assessment Strategy (NAS) project that took place from 2003 to 2005. Accordingly, the overall goal of the MAT project was to enhance processes designed to assess internationally-educated midwives seeking registration in Canada.

The specific objectives of the MAT project were to:

- develop additional exam questions for the Canadian Midwifery Registration Examination, and
- populate the International Midwifery Credentials Database.

This Final Report summarizes project activities, and details the successes and challenges that were met on the way to achieving the project objectives.

[1] Midwifery is currently regulated in the provinces of BC, Alberta, Manitoba, Ontario, Quebec, and the Northwest Territories.

Background

Research by the CMRC's National Midwifery Assessment Strategy (NAS) project indicated strong support amongst all stakeholders for a national examination. In addition, all regulators and a number of other stakeholders, including internationally-educated midwives, specified that there is a need for improved access to and provincial sharing of information regarding international midwifery credentials and practice. See www.cmrc-ccosf.ca/node/6 for English language versions of NAS reports.

Following the gathering of this information, the CMRC approved the "National Midwifery Assessment Strategy" (see http://cmrc-ccosf.ca/files/pdf/NationalMidwiferyAssessmentStrategy.pdf) and a plan for implementing it. As per this plan, from 2005-2006, the Canadian Midwifery Registration Examination (CMRE) and the International Midwifery Credentials Database ("database") were developed.

The CMRE was developed and offered as of 2006 to internationally-educated applicants in three Canadian provinces and is slated for full implementation across Canada as of 2008. However, at the end of the NAS project the CMRE databank still needed additional questions in order to be robust enough to continue to meet generally accepted exam standards regarding the amount of overlap acceptable between various sittings. The MAT project was designed to address this by funding "item writing", namely the development of additional exam questions.

The structure of the database was developed and a small amount of initial data was entered in order to test the database structure. However, by the end of the NAS project it did not contain enough information to enable it to actually be used by regulators as a resource. The MAT project was designed to include the research and data entry needed to populate the databank with information on the priority countries (i.e. those countries from which most internationally-educated midwives who apply for registration in Canada have worked and/or been educated).

These two components of the MAT project were carried out and the specific activities and learnings are described in this report.

Item Writing

Item Writing Workshops

Two in-person workshops were held in February 2007 for the purpose of creating new exam questions ("items") for the Canadian Midwifery Registration Examination. One workshop was held in English and one in French; both were two full-days in length.

Participants

Participants with previous item writing experience with the CMRE were offered the chance to participate again to solidify their training. When space became available, additional participants were invited. Due to financial constraints, it was decided that the invitation for new participants should be extended to midwives living near the sites (Vancouver and Montreal). The CMBC and the OSFQ identified potential participants with an eye to increasing capacity and ensuring as diverse a group as possible.

Six practicing midwives participated in each workshop. The participants represented a diverse group:

- From across Canada (3 BC, 1 AB, 2MB, 1 ON, and 5 from QC);
- Educated via direct entry, apprenticeship, and post-nursing programs;
- Educated in Canada, France, Switzerland, Tunisia, Belgium, UK, and USA;
- Registered via PLEA, graduation from approved Canadian program, or via initial registration processes;
- Very experienced practitioners and relatively new practitioners.

The (Anglophone) NAS Project Coordinator facilitated the English session. In order to ensure there were no language issues at the French session, the Quebec member of the Exam Committee was brought on as a co-facilitator.

Preparations

The logistical arrangements for the item writing sessions were time-intensive, and involved liaising with participants and providing them with travel and accommodation information, booking hotels and catering, and related tasks.

Preparation for the item writing sessions included selecting the competencies about which questions needed to be written. This process involved reviewing the exam databank and identifying those competencies that have the least number of questions associated with them and that therefore should be focused on in item writing sessions.

Other elements of preparation included designing the process to be paper-based and feasible within the resources available to it. Accordingly, item writing and

case writing forms were created as well as checklists to keep track of work in progress during the sessions. Finally, a system for ensuring a balance of abnormal/normal and out of hospital/hospital and knowledge/application/critical thinking was created. Pre-reading material was also developed and provided to participants about five days before the session, and a PowerPoint presentation was created for training new item writers.

Preparations for the item writing sessions were much more time-consuming than anticipated due to the need to develop all new processes and materials, the fact that some item writers were new, and the complexity of analyzing a very large databank of questions that was still in its final stages of development.

Sessions

The item writing sessions each began with an overview of the Canadian Midwifery Registration Examination, including a more detailed review of the Exam Blueprint. The participants were then introduced to the process of item writing and provided with pointers on how to create good exam questions. Resource materials, such as midwifery and other textbooks, were also introduced.

The item writing process then began with participants writing questions independently, and then providing their written draft question(s) to the facilitator to be entered into the computer databank. After each participant had written at least one question, the questions were projected onto a screen, one at a time, for review by the whole group. Participants discussed and edited each question until consensus was reached. This process was repeated several times during the course of the two days.

In general the process worked well. In all, more than 60 multiple choice questions were written and reviewed. This exceeded our goal of 40-50 new questions. As well,more than a dozen additional questions were written, although time did not allow them to be reviewed within the sessions. They will need to be reviewed at a future item writing session.

Feedback from participants at both sessions was very positive. All participants were willing to be involved in future item writing sessions.

The main challenge to the process was the inability of the facilitator to both support the item writers and to enter draft questions into the computer databank in time to review them while the group was still present. An assistant was brought in on the second day of the English session to assist with data entry, and the French co-facilitator supported item writers in the French session. But even with the additional help, there were over a dozen questions that did not get reviewed.

Validation

A 10-hour session was held in March 2007 for the purpose of validating each new exam question for the CMRE.

Participants

Five exam committee members took part, representing British Columbia, Alberta, Manitoba, Ontario and Quebec. Three were practicing midwives and all were involved in the regulation of midwifery. The process was planned and facilitated by project coordinator Wendy Martin.

Logistics

The validation took place via web-conferencing. Although this was the first time using it for a long meeting, most participants had previously participated in a training session and/or short meeting using the web-conferencing software. Fifteen minutes at the start of the session was also devoted to ensuring that all participants were on-line and on the teleconference call. The few minor technical difficulties were resolved with success.

Each participant worked in a secure office space where they could uphold confidentiality standards. They were provided with headsets for comfort with teleconferencing. Participants were able to view the facilitator's screen on their own computer by using secure GoToMeeting web-conferencing software.

All work was conducted in English with reference to the English language version of examination materials. Questions that had been initially written in French were translated into English for this validation.

Validation Process

The validation process involved committee members ensuring that each of the new questions was appropriate for all Canadian jurisdictions, that it was relevant to the competency selected, and that it read clearly. This was accomplished by reviewing and discussing each one together (via web-conferencing). Revisions were made to the question itself and to references when necessary. In a few cases, questions were flagged for more extensive revisions at a later date.

The main challenge for the process was the fact that it took longer than anticipated. The meeting was planned as a one-day meeting but not all of the questions were completed in the first day. Given the on-line nature of the meeting and the fact it was getting late for participants in the East, the committee agreed to complete the validation the following morning. This was completed successfully within a few hours.

Overall, participants agreed that the session went well, and that the on-line technology worked very well for this type of meeting.

Setting the Cutscore

A 6-hour session was held in March 2007 for the purpose of identifying the Angoff score for each new question. This ensured the ability to set an appropriate cutscore for new exam forms.

Participants

Five exam committee members took part. Panelists were all educated as midwives and had experience working as a midwife in Canada. They came from five different jurisdictions in Canada, including both English and French language areas. Four were actively practicing; the remaining two were actively involved in Canadian midwifery although not currently practicing. The process was planned and facilitated by project coordinator Wendy Martin.

Logistics

Panelists completed pre-reading prior to the in-person sessions, including:

- CMRE Blueprint (2007)
- Canadian Competencies for Midwives (2005)
- A Primer on Setting Cutscores on Tests of Educational Achievement, by Marianne Perrie and Michael Zieky, Educational Testing Service, © 2006.

This English language session took place using web conferencing technology and secure office space as described above under “Validation”. Most participants had participated in the Validation session immediately preceding this one and were familiar with the Angoff process. There was one technical difficulty which resulted in some delay but which was resolved with success.

The most challenging aspect was preparing the questions for this process when they were not finalized via validation until just prior to the start of the Angoff session. It is recommended that at least one or two weeks be allowed between these two sessions in future years to allow for the validation to be completed and the Angoff session prepared thoroughly.

Angoff Process

The meeting commenced with a reminder of the purpose of the CMRE and a short review of the Angoff method of setting cutscores.

The process involved participants reviewing each exam question to estimate the probability that an entry-level candidate would get it correct. Several “rounds” ensured that the group considered all aspects (e.g. how often the competency is used, type of language used in the questions, quality of distractors, etc.).

All new questions were successfully reviewed and assigned an Angoff score.

Translation

As noted above, all exam questions originally written in French were translated professionally into English for the validation and angoff processes. Following these sessions, all final questions were translated into French.

A one-day session was held in April 2007 for the purpose of reviewing the final translation. Two bilingual midwives previewed the translations in detail and then participated in this "translation verification" meeting with the translator and a facilitator. This team of four reviewed each question in turn to ensure that the meaning of each question is the same in both languages.

Additionally translations were obtained of the various documents and materials needed for each stage of the item writing process.

All translators were professionally certified and experienced.

Preparing the Databank

In order to function appropriately and within exam standards, it was necessary to complete the set-up of the LXR-test computer databank and related technology. Specifically, this project enabled research into and purchase of an Optical Mark Reader Scanner, and the staff time to set it up appropriately. Related work to prepare the databank to work with the scanner also took place.

International Midwifery Credentials Database

Training & Training Materials

Training Materials
The development of related materials was initially conceived as a small part of this project that would take place within the first two months. It was expected to include the creation of written user instructions regarding how to input data into the database consistently, and standards to use in evaluating credentials. This was anticipated to be one document of approximately 3 to 5 pages.

However, this aspect of the project became much more significant and took up more time throughout the project than was expected. When the Project Coordinator began to create the training materials, it became immediately evident that, in addition to a more general description of data entry standards, there was a need to create detailed "Help Instructions" for each of the approximately 95 fields in the databank. These help instructions needed to define what was expected in the field, to give pointers regarding where the information could be located, and to set standards for how data should be entered in each specific field (eg drop-down menu, narrative format, etc). Without this level of detail, the database could not ensure consistency and would not be able to provide the support to assessors that it was designed to give. In addition, a Technical Guide was also needed so that the researcher/data entry consultant would be able to format the information in HTML and post documents to the databank appropriately. Additional materials were therefore drafted for use in training the initial researcher.

As the project proceeded, feedback was received from researchers and these materials were refined a number of times so that they are as clear as possible. By the end of the project, the following documents had been created to assist those doing research and data entry to follow consistent standards:

1. Security Standards
2. Data Entry Instructions
3. FAQs about Data Entry
4. Technical Guide
5. Reference Links
6. Help Directions

In addition to the above, it also became evident early on during training sessions with research consultants that the database was not as intuitive as we had hoped it was. This meant that there would be a need for training materials for users as well. A User Guide was drafted and used to support the training of consultants. Over the course of the project, it too was refined based on feedback from researchers. By the end of the project the following documents existed to assist

both users and researchers in understanding how the database is intended to be used:

1. User Guide
2. Frequently Asked Questions
3. Glossary of Field Names (* same as Help Directions above but without the data entry instructions)
4. Regulator Guide (to introduce the database and explain how to access it)

Training Sessions and Support to Consultants
As planned, the project contracted with a Research/Data Entry Consultant early on and provided her with 1.5 days of in-person training. Again, as planned, this training included instructions in a) the use and structure of the database and b) midwifery credential evaluation research. Additional training and support was provided via email and telephone on an infrequent, as-requested basis.

As noted below under "Research and Data Entry", this researcher did not complete her contract. Due to budget and geographical constraints the other consultants that were brought on to complete this work received a much shorter on-line and telephone-based training program which consisted mainly of reviewing the (revised) training materials and the database together. That appeared to be enough to get them started. However, it became evident that more support and training provided on an ongoing basis contributed to a higher volume and quality of work. By the end of the project, the project coordinator was reviewing work on a daily basis and providing comments and direction as needed. This worked well but was of course much more labour intensive than the initial training plan.

Research & Data Entry

A Researcher/Data Entry Consultant was contracted as anticipated in the second month of the project. It became evident quite quickly that the work was going to take significantly longer than had been anticipated. This seemed to be due to several factors:

- the learning curve was high – the consultant need to learn about credential evaluation, midwifery, and the database itself;
- the information was sometimes difficult to find and often, for someone new to midwifery and credential evaluation, difficult to interpret;
- the job required an ability to judge the balance between the importance of a field and the challenge of finding information for it and to therefore know when to stop researching on each topic – something that was very difficult for a newcomer to midwifery assessment to do.

Due to personal issues, this initial consultant had to stop work on this contract without completing the work. Several other consultants were then brought on to

work on specific aspects of the database. For example, one consultant focused on Francophone countries and on entering information in French. Another focused on ensuring the basic statistics were entered for every priority country. Since the non-midwife consultants found it too difficult to research, interpret, and enter information in the fields about midwifery practice, midwives with experience in priority countries were contacted and asked to provide information on these specific fields. This strategy of providing more focus to the researchers, combined with providing more ongoing support and check-ins, improved the pace of the work but populating the database still proceeded quite slowly.

An issue that came up with most consultants was the fact that they tended to focus more on doing the research to the detriment of data entry. In addition, although asked to, they were reticent to track how long they were taking to do each task. Eventually, very direct guidance was provided to the final consultants, and they were required to:

- track their work in 15 minute increments (this was important so that we could develop a better understanding of how long it was really taking to do each type of task);
- enter data as they found it, rather than stock-piling data with the intention of entering it at a later date;
- provide daily written timesheets and updates to the Project Coordinator who would then provide specific feedback regarding the data that had been entered.

This latter strategy worked well and it is recommended that all future agreements with researchers include these stipulations. Unfortunately, this means that entering new data is not the simple process that we anticipated it being, and it does require some oversight.

Based on the detailed information received from consultants, it appears that researching and entering data generally takes between 30 and 90 minutes per field on average, depending on both the field itself and the country being worked on. This time average also appears to depend on the previous knowledge and fit of the consultant to this type of work. Additional time is required to scan and link documents to the database fields, to review one's work, to deal with technical troubleshooting, and to fix errors identified by the Project Coordinator.

Despite the challenges, the database now includes varying amounts of information on the following priority countries:

1. Algeria
2. Australia
3. Belgium
4. Canada
5. France
6. Germany

7. Iran
8. New Zealand
9. Nigeria
10. Peru
11. Philippines
12. Switzerland
13. Tunisia
14. United Kingdom
15. United States of America

Some of these countries, such as New Zealand, have data in almost every field and are as complete as can be expected for any given point in time. Others, such as Tunisia, only contain basic country data. More research is needed in order to complete the research and data entry for some of these priority countries and for the few priority countries, such as Lebanon, that have not yet been researched at all. In addition, the database would benefit from additional research on countries, such as China from which regulators get fewer applicants but have an extremely difficult time obtaining accurate information about midwifery.

Technical Support

Since the database was fully functioning and had been tested prior to this project, it was assumed that there would be a need for minimal technical support. However, this too evolved into a larger task and required more resources than originally anticipated. There were three main reasons for this:

A) technical problems where the site was not working as expected;
B) difficulties entering data consistently;
C) the site was not as user-friendly as it should be.

Feedback from researchers and the project coordinator throughout the project resulted in the need for many changes to the database to make it function correctly for data entry and in a user-friendly way. A few examples of the types of changes made by our technical experts at Inner Core Design are:

- statistical entries needed to be modified to allow enough digits;
- statistical entries needed the units added to the titles;
- the country list needed to be reorganized for ease of use;
- a prompt was added to remind those entering data to enter their code at the end of each entry;
- some fields were deleted as the information was either covered elsewhere or not available;
- some fields were added as we discovered that key information had no obvious field;
- field names were made more precise;

- some drop-down fields needed to be changed to narrative fields when we discovered too many answers that would not easily fit into the drop-down menus;
- error messages led to a need to do some technical fixes to the overall database;
- etc.

In addition, there were some outstanding technical tasks that were completed during this project, such as completing the French interface[2], ensuring all drop-down lists were bilingual, and reconfiguring the database navigation. Based on discussions with the project coordinator, several planned tasks were deferred to a future data (eg creating a print style sheet) in order to ensure that the basic database functions were working well for users by the end of the project.

Finally, technical support needed to be provided to researchers including instruction in using basic HTML and in scanning and linking PDF documents to the database, as well as basic troubleshooting (e.g. when the database was suddenly inaccessible).

Overall the project provided a more in-depth opportunity to test and improve the database in a number of ways. At the end of the project, the database was fully functioning.

Translation

As the database is for national use, it was critical that there be both French and English interfaces and training/user materials. This project allowed for these items to be translated and the database is now bilingual.

The database is designed so that both Francophone and Anglophone users will see the same data. Thus if data is entered in English, both will see it in English, and if data is entered in French, both will see it in French. This allows regulators to enter data whenever they obtain it, in their own first language, without having to then update the data in the other language. This is the best situation for the CMRC as funds are not expected to be available for ongoing translation of all data. However, it is important that data regarding the priority countries be available in both languages whenever possible, and this project did allow for some of the data on certain priority countries to be translated and available in both languages.

[2]The cost of the technical support for creating the French interface was shared between the MAT project and other funding sources.

Conclusions & Recommendations

A) Item Writing

The Midwifery Assessment Tools project exceeded its goal to create a set number of new exam questions for the Canadian Midwifery Registration Examination. The CMRE now has a more robust exam databank from which to draw questions for different exam forms.

Based on the experiences in this project, it is recommended that:

1. The validation and cutscore setting continue to be done via web-conferencing;

2. More time be allowed between the validation and cutscore setting sessions;

3. Staff time be budgeted for the preparation of the databank before and after each item writing step;

4. A minimum of 25 hours per month be budgeted for staff time to arrange logistics related to these sessions.

B) International Midwifery Credentials Database

The Midwifery Assessment Tool project also achieved its goal to populate the International Midwifery Credentials Database with information about key countries from which regulators receive applicants for registration. The database is now fully functional and prepared for regulators to start using it to support their assessment of internationally-educated applicants.

It is recommended that:

1. The CMRC re-design the plan for upkeep and data entry, including appointing a volunteer coordinator who can provide support and guidance to researchers and users, and liaise with technical experts as necessary;

2. The CMRC seek additional funding in order to increase the amount of information available in the database over a relatively short period of time (much quicker than volunteer labour would allow);

3. All researchers and persons entering data be provided with ongoing support and monitoring;

4. The CMRC consider providing access to this unique database on a fee-for-service basis to external users in order to obtain funds that can be used for technical support and ongoing coordination.