

**01-MAY-13 – 30-APR-14**  
**University of Utah**  
**HHS-N-276-2011-00011-C**  
**NTC Annual Report**  
**Date Submitted: 29-MAY-2014**

# Table of Contents

Executive Summary.....	3
Analysis.....	14
Attachment 1 – Quarterly AR summary data: RML staff activities..	17

# Executive Summary

## INTRODUCTION: MAJOR ACCOMPLISHMENTS

In Option Year 2, NTC and NLM staff delivered 51 classes with 1,262 participants from 49 states and U.S. territories. Class topics included PubMed®, TOXNET®, NCBI databases, teaching and learning technology, and adult learning. Classes were delivered using a variety of formats, including in-person, synchronous online using the Adobe Connect web conferencing system, and asynchronous online using the Moodle course management system. Evaluation data (student satisfaction and skills assessment from each class, as well as the results of a follow-up evaluation questionnaire measuring behavioral changes conducted in February 2013) were used to improve the training.

NTC's major accomplishments in Option Year 2 are as follows:

- \*Continued to improve the "PubMed for Trainers" hybrid class based on participant comments, particularly refining the "rapid design" component to help participants learn how to customize PubMed training for their particular audience and setting.

- \*Delivered thirty segments of the online class, "PubMed for Librarians."

- \*Delivered two sessions of "Teaching with Technology," one online asynchronous session and one in-person session.

- \*In collaboration with NLM, NCBI, and Diane Rein, Ph.D. (consultant to NTC), delivered two sessions of the online asynchronous class, "Fundamentals of Bioinformatics and Searching." Forty-four participants attended both classes. Participants who completed the online coursework successfully, as evidenced by earning full Continuing Education credits, were eligible to apply for the 5 day in-person workshop called "A Librarian's Guide to NCBI," which was held in Bethesda, MD from April 7-11, 2014. Nineteen participants elected to attend the "Librarian's Guide" class.

- \*Developed and delivered the new online TOXNET class called "Discovering TOXNET: From Paracelsus to Nanotechnology." The class was taught in two modules as a hybrid asynchronous / synchronous class. During the first three weeks of each module, participants worked independently at a time of their choosing; in the fourth week the class met together for a 1-hour synchronous session.

- \*Delivered one hour PubMed Update webinars to each of the eight NN/LM regions.

- \*Started a monthly online "PubMed for Trainers Users' Group," to allow participants from previous "PubMed for Trainers" classes to share PubMed search strategies and training tips.

- \*Utilized training techniques and best practices learned from professional development activities to improve NTC's teaching as well as communicated this information through our social media outlets.

- \*Revisited the NTC communications plan originally developed in Base Year 1 and expanded the plan to include more regularly scheduled content and responsibilities, particularly for the blog and Twitter account.

- \*Implemented a number of user enhancements and features to the National Training Registration Page (NTRP) system, as well as streamlined the back-end programming.

- \*Improved the "Tutorials and Recordings" web page with graphics to distinguish tutorials and recordings related to PubMed, TOXNET, teaching techniques, and the MLA Continuing

Educational Clearinghouse. The page includes tutorials from the "Discovering TOXNET" class as well as recordings of the "PubMed for Librarians" series.

\*Presented NTC's accomplishments at the Center Review on September 10, 2013, and implemented several of the recommendations from the Center Review Committee's subsequent report.

## CHALLENGES

### TECHNICAL CHALLENGES

The NTC trainers continued to experience technical difficulties with Adobe Connect from May – December 2013. Fortunately, in January 2014 the NIH Center for Information Technology discovered that the Adobe Connect server load balancing settings were incorrectly configured. They adjusted the settings appropriately. As a result, we experienced very minimal technical difficulties during online classes from January – April 2014.

E-mail communication with some class registrants continues to be a challenge. E-mails containing confirmation requests and class information sent through the registration system are sometimes blocked by the registrants' institutions or placed in the registrants' spam folders. This can also happen when e-mails are sent directly from a staff member's account. The Web Services Technology Operations Center (Web-STOC) is investigating fixes for this problem but it continues to be an issue.

### CLASS ATTENDANCE AND CLASS COMPLETION CHALLENGES

Online class attendance rates continue to be a challenge. Most of the online classes have waiting lists, so it is unfortunate when those who signed up do not attend or complete the class. Average class attendance rates are:

\*PubMed for Trainers hybrid (online synchronous and in-person) class: 86% completed the class requirements

\*PubMed for Librarians online synchronous class: 60% of those who confirmed their attendance actually attended the session

\*Discovering TOXNET hybrid (online asynchronous followed by a synchronous session): 53% of those who confirmed attendance completed all course requirements

\*Teaching with Technology (online asynchronous): 49% of those who confirmed attendance completed all course requirements

It is clear that the class with an in-person component has a higher completion rate than purely online classes. Classes with asynchronous work, such as Discovering TOXNET, have a lower completion rate than synchronous only sessions.

While we expect that completion rates will continue to be a challenge, we have implemented the following procedures to help improve completion rates:

\*"Last Chance" reminders to those who do not confirm their place in the class; if we do not hear from them, we move others from the waiting list into the class

\*For the synchronous sessions, we send an e-mail reminder the morning of the class

\*For the asynchronous classes, we send weekly reminders and suggestions for completing the work

\*For "Discovering TOXNET," we will be providing individual feedback for the discovery exercises turned in by the participants

The "PubMed for Trainers" has an additional challenge due to the in-person component of the class. Since the class is taught in each of the eight regions, registration can be uneven, with wait lists in some of the larger regions and 8-12 participants in the smaller regions. In addition, since the class is designed as a "train the trainer" class, it is important to ensure that participants are librarians who are training others. NTC and NLM trainers work with class participants before the class starts to guide them into the correct class for their needs.

## NTC ACTIVITIES

### CLASS DELIVERY AND DEVELOPMENT

#### PUBMED TRAINING

NTC and NLM trainers taught the hybrid "PubMed for Trainers" class 11 times from May 2013 – April 2014. The class consists of four sessions: three 2-hour online sessions using Adobe Connect and one 7-hour in-person session. Locations for the in-person classes were: Bethesda, MD; Farmingdale, NY; Burlington, VT; Salt Lake City, UT; Savannah, GA; Tulsa, OK; Honolulu, HI; Seattle, WA; Detroit, MI; and San Francisco, CA.

Student satisfaction evaluation data were collected using a SurveyMonkey questionnaire. Student knowledge gains were measured through a 21 question pre- and post-test. The Moodle course management system is used to organize class information, participant biographies and discussions, homework assignments, quizzes, and pre- and post-tests in one place. Class participants are eligible for 15 MLA Continuing Education credits.

Participant evaluations were used to implement improvements to the class. NTC and NLM trainers fully developed the "rapid design" section of the class, so that participants come away with a design template for a particular audience that they can customize for their own classes. In addition, the trainers developed a detailed "checklist" for participants to use during the class to ensure understanding of all of the important concepts in the class. The checklist will be implemented beginning in OY3.

Although the content and format of the "PubMed for Trainers" class is largely stable, in OY3 NTC and NLM trainers will continue to update content as PubMed changes occur as well as adjust the format as appropriate based on the feedback we receive from the participants.

NTC trainers delivered the online PubMed class entitled "PubMed for Librarians." PubMed for Librarians consists of five segments taught via Adobe Connect; participants can choose to attend any of the segments that interest them. The five segments are: "Introduction to PubMed"; "Medical Subject Headings (MeSH)"; "Automatic Term Mapping (ATM)"; "Building and Refining Your Search"; and "Customization - My NCBI." Student satisfaction evaluation data were collected using a SurveyMonkey questionnaire. Student knowledge gains were measured through a 4 question pre- and post-test.

The five 90-minute segments were offered as a series six times, in June, July, September and December of 2013 as well as in January and March of 2014. Recordings of the latest "PubMed for Librarians" segments are posted on NTC's web site.

937 participants attended at least one segment of "PubMed for Librarians." The classes had an average attendance rate of 60%, based on the number of participants who confirmed their registration versus the number who attended the class sessions for at

least 45 minutes.

Beginning with the March session, we changed the "Customization – My NCBI" class format to follow a "Watch One, Do One" class technique. Participants first watched the presenter demonstrate live, and then performed the hands-on exercises on their own during a specified period of time (as opposed to the previous format of having the participants "follow along" with the presenter). We notified participants several days before the class to let them know they should download and print the handout in advance. The class included an exercise after each major topic; exercises were 3-5 minutes in duration. Based on the feedback in the evaluations, it appears that the format change was a success.

We will continue to update the "PubMed for Librarians" class content as changes to PubMed occur, and to make adjustments to the format as we continue to receive feedback from participants.

#### TOXNET TRAINING

NTC and NLM trainers taught 3 sessions of the 6-hour in-person "TOXNET and Beyond" class with 34 participants in Option Year 2. Student satisfaction data was collected via a SurveyMonkey questionnaire. The in-person locations were: Bethesda, MD; Savannah, GA; and San Francisco, CA.

NTC trainers developed and delivered the new online TOXNET class called "Discovering TOXNET: From Paracelsus to Nanotechnology." The class content was divided into two modules covering different NLM databases related to environmental health. Module 1 was taught from October 21 – November 8, 2013 and Module 2 was taught from March 3 – 25, 2014. Forty-eight participants completed the required coursework for at least one of the modules.

Each module of the class was taught as a hybrid asynchronous / synchronous class. During the first three weeks of the class, participants worked independently at a time of their choosing; in the fourth week the class met together for a 1-hour synchronous session.

The asynchronous class included short video tutorials as well as tutorials using "Guide on the Side," which allows participants to view the tutorial instructions side-by-side with the live site. Participants were required to hand in a "discovery exercise" related to each database. The discovery exercises required students to find answers without being told the exact steps to take in the database. We were pleased with the quality of the answers given to the discovery exercises; in many cases participants provided screen shots and added thoughtful and creative information to their answers.

In the synchronous sessions, we reviewed the discovery exercises and divided the group into small breakout groups to work on a research question. Due to the large number of participants, we offered participants a choice of two times for the synchronous session.

Based on the feedback received, four action items for future classes are planned:

1. Synchronous Session: The synchronous session optional, since we noted from the evaluation comments that some participants found this useful and some did not.
2. Individual feedback: Since the synchronous session will be optional, we will provide individual feedback for the discovery exercise assignments handed in by participants.
3. Office hours: We will schedule "office hours" using the Moodle chat feature, so that participants can chat with us directly to ask questions as they work through the

coursework.

4. Breaking into Additional Modules: To give the class participants even more flexibility, we are adjusting the content into smaller modules. Participants will be able to "pick and choose" which databases they wish to explore, and CE credit will be granted for the sections they complete.

We have now completed both modules of the online "Discovering TOXNET" class. Based on our experience with the class, the evaluation results, and the number of participants, we believe the online format is a successful delivery method for teaching TOXNET and reaching more participants across the country than is possible with the in-person classes. The use of the "Guide on the Side" tutorials will allow us to quickly update the class to reflect the new TOXNET interface when it comes live in the Summer of 2014.

## TEACHING TECHNIQUES AND ADULT LEARNING PRINCIPLES

Sharon Dennis, in collaboration with Kay Deeney, Educational Services Coordinator from the NN/LM Pacific Southwest Region (PSR), taught the asynchronous online class called "Teaching with Technology: Tips, Techniques and Tools" once online and once in-person in Option Year 2.

The online class was taught asynchronously using the Moodle course management system. Participants who completed the class received 8 MLA Continuing Education credits. The class covered adult learning principles, options and best practices for asynchronous and synchronous distance classes, and online learning tools. Eighteen participants completed the class.

The in-person class was taught in Honolulu, HI with 17 attendees.

For future iterations of the class, we plan to divide the class into distinct modules, so that participants can pick and choose only the modules (adult learning principles, online learning tools, or distance education tools and best practices) that interest them. We believe this will offer the participants more flexibility and may also improve class completion rates.

## NCBI DATABASE CLASSES

Offering NCBI database training to librarians is a collaborative project between NTC, NLM, NCBI trainers, and Diane Rein, Ph.D. (consultant to NTC). It consists of two classes:

1. "Fundamentals in Bioinformatics and Searching," a five-week, online asynchronous course taught by Diane Rein, Ph.D. Successful completion of the class is required for participants who wish to attend the in-person "Librarian's Guide." The class was offered twice, in the Fall of 2013 and the Winter of 2014. Potential participants were required to submit an application explaining their intention to offer biomedical informatics services at their institutions. One hundred and eighty four applications were received; 47 applicants were accepted into the course; 44 participants completed the required coursework.

2. "The Librarian's Guide to NCBI," a 5-day in-person course offered on-site at the National Library of Medicine in Bethesda, Maryland, April 7-11, 2014. Nineteen participants who completed the "Fundamentals" coursework applied to attend the workshop; all 19 were accepted and attended the workshop.

The classes provide basic knowledge and skills for librarians interested in helping patrons use online molecular databases and tools available from NCBI. It is expected that participants who complete both classes will be able to improve their ability to initiate or extend bioinformatics services at their institution.

Diane Rein, Ph.D., M.L.S., Bioinformatics and Molecular Biology Liaison from the Health Science Library, University at Buffalo, developed and taught the "Fundamentals" portion of the class. Dr. Rein and NCBI staff taught the 5-day in-person workshop. The "Fundamentals" class was worth 18 hours of MLA CE and the 5-day workshop was worth 36 hours of CE.

The "Fundamentals" course was delivered using Moodle. Course materials were updated to reflect new developments in the field and changes to the NCBI databases. The seven lectures and accompanying assignments were released one at a time throughout the course. Releasing the information in a defined sequence of interrelated lectures, readings, and exercises was an important part of the course's structure to build bioinformatics expertise.

The assignments were a particularly important part of the course; they were designed to ultimately connect the biology to the data and their organization at NCBI. Since some of the librarians in the Fundamentals class had less experience with bioinformatics but nonetheless successfully completed the course, we believe that the content and organization of the "Fundamentals" course represents a core set of skills that is appropriate for training the general population of health sciences librarians.

#### ONLINE SELF-PACED TUTORIALS

The "Tutorials and Recordings" web page on the NTC web site provides links to NTC's online recordings, including: tutorials and recordings related to PubMed, TOXNET, teaching techniques, and the MLA Continuing Educational Clearinghouse. The page includes tutorials from the "Discovering TOXNET" class as well as recordings of the "PubMed for Librarians" series. The page was re-designed with a graphical interface to make it easier to find tutorials and recordings related to particular topics.

NTC trainers also produced short videos for publication on the NTC blog. Topics included: "My NCBI and Links Display"; "Sort by Relevance"; and "Author Affiliation."

NTC tutorials and recordings were re-purposed by NN/LM trainers in several instances. The NN/LM class "Chemicals, Drugs and Genetics Oh My!: Searching PubMed and Beyond," developed by Holly Burt from the Greater Midwest Region (GMR), included a link to the "Structure Searching in ChemIDPlus" tutorial video as well as to the NTC YouTube channel containing other TOXNET videos. The NN/LM class, "Making PubMed Work For You," as adapted by Kate Flewelling from the Middle Atlantic Region, used recordings of the PubMed for Librarians Introduction to PubMed and MeSH segments.

#### OTHER ACTIVITIES

##### PUBMED UPDATES

Based on feedback from the 2013 follow-up questionnaire, NTC and NLM trainers developed one hour PubMed Updates. In order to have a manageable number of participants, the Updates were offered as separate webinars to each NN/LM region from November 2013 – February 2014.

In most cases the updates were offered during the monthly webinar meetings offered by the regions. During the webinars, we reviewed new features of PubMed (most notably the PubMed Commons feature), demonstrated a few features that are not new but that might have been missed by participants, and answered questions. The webinars were well attended and well received. We plan to repeat the updates in OY3.

Dates and attendance for the webinars were as follows:

- \*South Central Region: 11/20/2013; 52 participants
- \*Pacific Southwest Region: 12/12/2013; 58 participants
- \*Southeast Atlantic Region: 12/18/2013; 66 participants
- \*New England Region: 12/19/2013; 68 participants
- \*Middle Atlantic Region: 1/8/2014; 139 participants
- \*MidContinental Region: 1/10/2014 ;40 participants
- \*Greater Midwest Region: 1/16/2014; 45 participants
- \*Pacific Northwest Region: 2/19/2014: 36 participants

#### PUBMED USERS' GROUP

The NTC created a PubMed Users' Group (a learning community) for people who have participated in previous "PubMed for Trainers" classes. The users' group serves several purposes:

1. Provide continuing train-the-trainer support
2. Maintain relationships developed during class
3. Promote the NTC as a source of expertise
4. Provide a real-time, help-desk alternative
5. Provide a real-time discussion and demonstration platform for PubMed search questions

All previous "PubMed for Trainers" participants are added to the users' group mailing list, with the choice to opt out of the list if they wish. The Users' Group met three times in OY2 beginning in January 2014; a total of 82 people attended the sessions. Rebecca Brown led the sessions, with support from the NLM trainers. The meetings in OY2 focused on solutions to difficult search questions.

During OY3, we will broaden the discussions of the Users' Group to include training tips and "best practices" for teaching that participants can share with the group.

#### NTC WEB SITE AND SOCIAL MEDIA

From May 1, 2013 – April 30, 2014, the NTC blog received 29,414 page visits. The majority of views are to the home page, followed by the tutorials and recordings page. NTC staff wrote 89 blog posts this year. Blog post topics include teaching or training tips, new PubMed and TOXNET features, PubMed and other NCBI database tutorials, class announcements, and NLM news. The blog posts appear on NTC's home page, are auto-posted on the NTC Facebook page, and are occasionally announced on Twitter.

The NTC Facebook page received 36 likes in Option Year 2. While this is slower growth than the previous year, the number has increased to 137. In addition to auto-posting the blog content, the NTC also posts photos from in-person classes (including only people with signed photo releases).

The NTC Twitter page has grown from 111 followers in Option Year 1 to 218 followers as of April 30, 2014. This is an increase of 96% from the previous year. In addition to gaining followers, the NTC Twitter account has seen improved engagement with more retweets, favorites, and clicks on shared links. The most popular shared link was clicked 59 times, and the most popular tweet was retweeted 12 times.

In October 2013, the Rebecca Brown and Jessi Van Der Volgen revisited the communications plan and expanded the plan to include more regularly scheduled content and responsibilities, particularly for the blog and Twitter account. Ms. Brown and Ms. Van Der Volgen each post weekly to blog, and alternate scheduling content for Twitter, with at least one tweet per weekday. For the blog, the NTC has created a few short tutorial videos and embedded some existing NLM PubMed tutorials.

The NTC staff also sought out health sciences libraries to follow on Twitter in hopes of

reciprocation and adding a channel in which we can make health sciences librarians aware of class offerings and other news items. The NTC staff continue to learn the type of content that garners the most attention on Twitter and how to take advantage of, but not overuse, relevant hashtags.

## MLA EDUCATIONAL CLEARINGHOUSE

There were no changes to the MLA Educational Clearinghouse during OY2. Rebecca Brown continued to serve on the NN/LM Educational Task Force. The Task Force produced detailed guidelines for NN/LM trainers to add class information to the Clearinghouse and to link from the Clearinghouse to NN/LM class information pages. The Task Force completed its mission in OY2 and will meet annually to ensure the class guidelines are updated and reviewed.

## NATIONAL TRAINING REGISTRATION PAGE

All RML regions, as well as the Outreach and Evaluation Resource Center (OERC), use the NTRP system for class registrations. In addition, the Disaster Information Management Research Center (DIMRC) is now using the NTRP as their class registration system.

Specific enhancements to the NTRP in Option Year 2 were as follows:

- \*New reports: The system now includes several reports that can be generated by the centers and the regions: "heat map" reports that show the geographical location of class registrants and attendees; and pie chart reports that show the regional distribution of registrants and attendees. These reports can be embedded into any page on nnlm.gov.

- \*508 compliance issues were addressed, and HTML tables previously used for layout purposes only were removed.

- \*Development of a project to link the registration system to the Moodle registration, so that participants will automatically be enrolled in the correct Moodle class after signing up for a class using the NTRP. We anticipate the project to be completed in the first quarter of OY3.

- \*Large sections of code were converted to a modular and object-oriented design, ensuring that the code is easier to maintain and update in the future.

- \*NTRP tutorial videos were created and added to the NN/LM Staff Wiki documentation to assist NN/LM staff as they learn how to customize the NTRP system for their region.

- \*Working with Web-STOC, efforts were made to improve the delivery rate of e-mails sent from the NTRP. Delivery rates are improving, but spam blocking tools and other issues associated with nnlm.gov are still preventing 100% delivery rates.

In addition, Matthew Steadman worked with the RMLs on bug fixes and technical support as needed.

NN/LM staff has provided positive feedback to NTC about the timely response and helpful demeanor of Matthew Steadman as he assists them customizing the NTRP for their regions.

## MARKETING AND PROMOTIONAL ACTIVITIES

NTC utilizes a variety of methods to market and promote our classes:

- \*For each "PubMed for Trainers" class, the NTC trainers create custom promotional items that are used by the regional coordinators and the host sites to promote the class.

\*As new classes become available on the registration system, NTC trainers send the information to the Outreach / Education Coordinators listserv so that the coordinators can publish this information on regional blogs.

\*New class offerings are promoted in the NLM Technical Bulletin.

\*Classes are promoted using the NTC blog, Facebook page, and Twitter feed.

In addition to including information about the class content, the NTC provides quotes from previous participants illustrating the usefulness of the classes in their work.

## NTC WEB SITE

The NTC web site features the NTC blog on the main page of the web site. Enhancements in OY2 were related to the "Tutorials and Recordings" page; the page was re-designed with a graphical interface to divide the tutorials and recordings into those related to PubMed, TOXNET, teaching techniques, and the MLA Educational Clearinghouse.

According to Google Analytics, the entire NTC web site had 42,035 page views in OY2 (up significantly from 15,690 page views in OY1). The most popular pages on the NTC web site were the Home Page (blog page) and the Tutorials and Recordings page. The Home Page had 13,849 page views and 6,327 unique page views in OY2; it was the eighth most popular page on all of nlm.gov according to the total number of page views. The Tutorials and Recordings page had 8,687 page views and 3,590 unique page views in OY2, with usage growing dramatically starting in January 2014, when the page was re-designed and new content related to TOXNET was added. There were 341 referrals to the NTC site from the NTC Twitter page and 151 referrals from the NTC Facebook page; we expect the Twitter and Facebook referrals to grow in the next year as we grow our social media presence.

## CENTER REVIEW

The NTC Center Review was held on September 10, 2013. Attendees included NTC staff, NNO staff, and the Center Review committee with representation from NLM and the RMLs. NTC staff presented accomplishments to date, plans for the short-term future, ideas for the next contract, strategies for communicating with the RMLs, and ideas for NLM.

The report from the Center Review Committee was overwhelming positive and supportive of the NTC's previous activities as well as our plans for the short-term future. Key recommendations of the Committee included:

\*Creating help videos for the NTRP: Matthew Steadman subsequently created video tutorials to assist NN/LM staff with customizing their regional NTRP pages

\*More emphasis on TOXNET training: The online class, "Discovering TOXNET," was successfully developed and is reaching more participants than NTC's in-person TOXNET training

\*Allow users to sign up for new blog posts via e-mail: There were technical issues with accomplishing this; we will work in OY3 to find a work-around to the problems

In addition, as recommended by the Committee, the NTC continues to: work with the Network to monitor needs through the Outreach / Education Coordinators teleconferences and breakout session at the annual Director's meeting; as well as promoting our services through platforms such as the regional PubMed Updates and PubMed for Trainers Users' Group. The Committee also agreed with our future plans to

offer regular webinars related to teaching topics, and to develop an in-depth "problem solving" module for PubMed for Librarians.

#### STAFF CHANGES

Jessica Van Der Volgen served as a back-up trainer from May 1 – August 30, 2013, while she was in her second year as NLM Associate Fellow at the Spencer S. Eccles Health Sciences Library at the University of Utah. On September 1, 2013, Ms. Van Der Volgen joined the NTC team as Trainer / Curriculum and Content Specialist.

Sarah Dickey joined the NTC team as Program Manager on June 19, 2013.

#### STAFF ACTIVITIES

May 2, 2013: Sharon Dennis and Matthew Steadman attended the Web-DEV meeting in Boston, MA.

May 3, 2013: Sharon Dennis, Rebecca Brown and Matthew Steadman attended the NN/LM Director's Meeting in Boston, MA.

May 4, 2013: Sharon Dennis attended the MLA CE class, "Bioinformatics for Librarians" (6 MLA CE credits) in Boston, MA.

May 5-8, 2013: Sharon Dennis and Rebecca Brown attended the annual Medical Librarian Association (MLA) conference in Boston, MA.

May 6, 2013: Rebecca Brown and Sharon Dennis presented the poster entitled, "Blended vs. Asynchronous Classes: Comparing Completion Rates" at the Medical Library Association annual conference in Boston, MA.

August 17-21, 2013: Sharon Dennis and Rebecca Brown attended the International Federation of Library Associations and Institutions (IFLA) Annual Meeting, held in Singapore. Rebecca Brown was appointed to serve on the IFLA Continuing Professional Development and Workplace Learning (CPDWL) committee.

August 19, 2013: Sharon Dennis and Rebecca Brown presented the poster entitled, "Measuring Our Impact: Behavioral Changes as a Result of a Blended Learning Class" at the International Federation of Library Associations and Institutions (IFLA) Annual Meeting, held in Singapore.

September 14, 2013: Jessi Van Der Volgen taught a class (with Erica Lake) called "Why Health Services Research Matters Now," at the Midcontinental Chapter of the Medical Library Association (MCMLA) annual meeting held in Salt Lake City, UT. The course was approved for 4 MLA CE credits.

September 16-17, 2013: Sharon Dennis and Jessi Van Der Volgen attended the Midcontinental Medical Library Association (MCMLA) annual Chapter meeting held in Salt Lake City, UT.

September 16, 2013: Sharon Dennis gave a paper presentation at the Midcontinental Chapter of the Medical Library Association (MCMLA) annual meeting held in Salt Lake City, UT, entitled, "Bioinformatics Training for Librarians: Mapping Training Techniques to Methods Used in Bioinformatics Medical Education." The paper was co-authored with Diane Rein, Ph.D. (Dr. Rein was unable to attend the annual meeting in person).

September 16, 2013: Jessi Van Der Volgen gave a paper presentation at the Midcontinental Chapter of the Medical Library Association (MCMLA) annual Chapter meeting held in Salt Lake City, UT, entitled, "Bringing Lean to Life in the Library." The

paper was co-authored with Erica Lake, Jean Shipman, Darrin Doman, Alisha Richins and Madeline Araya.

September 16, 2013: Sharon Dennis (along with co-authors John Bramble, Marty Magee, and Betsy Kelly) presented the poster entitled, "Comparing Experiences of Participants Taking In-Person versus Online Classes" at the Midcontinental Chapter of the Medical Library Association (MCMLA) annual Chapter meeting held in Salt Lake City, UT. This poster won the "People's Choice" award for Best Research Poster.

September 16, 2013: A poster authored by Rebecca Brown and Sharon Dennis, entitled, "Blended vs. Asynchronous Classes: Comparing Completion Rates," was presented by Sharon Dennis at the Midcontinental Chapter of the Medical Library Association (MCMLA) annual Chapter meeting held in Salt Lake City, UT.

September 16, 2013: Jessi Van Der Volgen (along with co-authors Abby L. Adamczyk, Amy Honisett, Peter Jones, Jeanne Le Ber, and Jean P. Shipman), presented the poster entitled, "Unbound Communication: Partnering to Spread the Word" at the Midcontinental Chapter of the Medical Library Association (MCMLA) annual Chapter meeting held in Salt Lake City, UT.

December 3, 2013: Sharon Dennis and Jessica Van Der Volgen gave an online presentation about the NTC's activities for the NLM Associate Fellows.

January 22-24, 2014: Jessica Van Der Volgen attended the American Society for Training and Development "TechKnowledge" conference in Las Vegas, NV.

# Analysis

## ANALYSIS

### TRENDS IN ATTENDANCE

The NTC and NLM class attendance rates for Option Year 2 were as follows: TOXNET and Beyond in-person course: 87% (3 classes, 39 registered, 34 attended); PubMed for Trainers hybrid course: 86% (11 classes, 185 registered, 160 attended all four sessions); PubMed for Librarians synchronous online course: 60% (30 classes, 1,556 registered, 937 attended); Discovering TOXNET online asynchronous course with synchronous follow-up: 53% (2 classes, 90 registered, 48 completed all class requirements); Teaching with Technology online asynchronous class: 49% (37 registered, 18 completed all course requirements); Fundamentals of Bioinformatics and Searching online asynchronous course: 94% (2 classes, 47 applicants accepted to the class, 44 completed all class requirements).

With the exception of the "Fundamentals" class, online classes had a lower class attendance rate than the hybrid or in-person classes. We believe the higher completion rates were due to the fact that "Fundamentals" participants were screened before being accepted into the class and were required to finish the class to be eligible for the 5-day in-person workshop at NLM, so they had a high degree of motivation to complete the class.

### STUDENT SATISFACTION LEVELS

NTC and NLM student satisfaction results are summarized for each class below; in general, student satisfaction levels were high for all of the classes. NTC and NLM staff monitors the student comments for each class and make adjustments to improve the class as necessary.

PubMed for Trainers (Based on 128 Completed Evaluations):

\*Instructor's knowledge, preparation, presentation skills and responsiveness to questions: High (95%); Good (5%)

\*Instructional materials used effectively, relevant/useful; and hands-on exercises were useful: Agree (90%); Somewhat Agree (10%)

\*Course objectives met expectations: Agree (88%); Somewhat Agree (11%); Somewhat Disagree (1%);

\*Course content well organized and length was appropriate: Agree (92%); Somewhat Agree (4%); Somewhat Disagree (1%); Disagree (3%)

\*Participants rating of whether they acquired knowledge and skills they can use: Agree (93%); Somewhat Agree (7%)

\*Overall course grades: "A" (87%); "B" (13%)

TOXNET and Beyond (Based on 32 Completed Evaluations):

\*Instructor's knowledge, preparation, presentation skills and responsiveness to questions: High (93%); Good (6%); Fair (1%)

\*Instructional materials used effectively, relevant/useful; and hands-on exercises were useful: Agree (89%); Somewhat Agree (11%), Somewhat Disagree (1%)

\*Course objectives met expectations: Agree (88%); Somewhat Agree (12%)

\*Course content well organized and length was appropriate: Agree (80%); Somewhat Agree (19%); Somewhat Disagree (1%)

\*Participants rating of whether they acquired knowledge and skills they can use: Agree (97%); Somewhat Agree (3%)

\*Overall course grades: "A" (84%); "B" (13%); "C" (3%)

Teaching with Technology Online Class (Based on 16 Completed Evaluations):

\*Instructor knowledge, preparation, and responsiveness to questions: High (87%); Good(13%)

\*Participants rating of whether they acquired knowledge and skills they can use: Agree (81%); Somewhat Agree(19%)

\*Overall course grades: "A"(94%); "B"(6%)

Teaching with Technology In-Person Class in Honolulu,HI Hawaii (Based on 13 Completed Evaluations):

\*Instructor knowledge, preparation and responsiveness to questions: High (97%); Good (3%)

\*Participants rating of whether they acquired knowledge and skills they can use: Agree (92%); Somewhat Agree (8%)

\*Overall course grades: "A" (100%)

PubMed for Librarians (Based on 906 Completed Evaluations):

\*Instructor's knowledge, preparation, presentation skills and responsiveness to questions: High (87%); Good (12%); Fair (1%)

\*Course content well organized and length was appropriate: Agree (87%); Somewhat Agree (11%); Somewhat Disagree (2%)

\*Participants rating of whether they acquired knowledge and skills they can use: Agree (90%); Somewhat Agree (9%); Somewhat Disagree (1%)

\*Overall course grades: "A" (84%); "B" (15%); "C" (1%)

Discovering TOXNET (Based on 57 Completed Evaluations)

Instructor knowledge, preparation, and responsiveness to questions: High (96%); Good (4%)

Overall Rating: "A" (74%); "B" (25%); "C" (1%)

Fundamentals of Bioinformatics and Searching (Based on 44 Completed Evaluations)

Instructor knowledge, preparation, and responsiveness to questions: High (92%); Good (6%); Fair (2%)

Overall Rating: "A" (75%); "B" (23%); "C" (2%)

## STUDENT SKILLS ASSESSMENT

A 21-question pre- and post-test was administered for the "PubMed for Trainers" class. The averaged scores for all NTC and NLM classes were 67% on the pre-test and 82% on the post-test.

Short 4-question pre and post-tests were administered for the "PubMed for Librarians" class. The averaged scores for all segments were 73% on the pre-test and 91% on the post-test.

A 10-question pre and post-test was administered for the "Discovering TOXNET" modules. The averaged scores for both module one and two were 75% on the pre-test and 89% on the post-test.

## LOGIC MODEL INDICATORS

The results of the class related logic model indicators for NTC and NLM classes are as follows:

Indicator 1: Over 81% of the course participants indicate that they are "very satisfied" with the class (defined as an overall "A" rating). Results: PubMed for Librarians: 83% out of 906 evaluations; PubMed for Trainers: 87% out of 128 evaluations; TOXNET and Beyond: 84% out of 32 evaluations; Teaching with Technology online class: 94% out of 16 evaluations; Teaching with Technology in-person class: 100% out of 13 evaluations; Fundamentals of Bioinformatics and Searching: 75% out of 44 evaluations; Discovering Toxnet: 74% out of 57 evaluations. The indicator was met for all classes except for "Fundamentals of Bioinformatics and Searching" and "Discovering TOXNET."

Indicator 2: A significant increase in skills and knowledge based on pre- and post-test scores. The average score for PubMed for Trainers increased by 15 percentage points, the average score for PubMed for Librarians increased by 18 percentage points, and the average score for Discovering TOXNET increased by 14 percentage points. The indicator was met.

**Attachment 1: Tabular report of AR activity data for  
contract year: NTC staff activities**