

01-MAY-14 – 30-APR-15
University of Utah
HHS-N-276-2011-00011-C
NTC Annual Report
Date Submitted: 03-JUN-2015

Table of Contents

Executive Summary.....	3
Analysis.....	12
Attachment 1 – Quarterly AR summary data: RML staff activities..	15

Executive Summary

Executive Summary

STAFF CHANGES

Sharon Dennis, Assistant Director, retired on April 30, 2015. Jessi Van Der Volgen was appointed Interim Assistant Director as of May 1, 2015 and a search for the position has been initiated.

MAJOR ACCOMPLISHMENTS

In Option Year 3, NTC and NLM staff delivered 38 classes with 1,015 participants from 50 states and U.S. territories. Class topics included PubMed®, TOXNET®, NCBI databases, adult learning principles and teaching technologies. 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) were collected for the classes and used to improve the training.

NTC's major accomplishments in Option Year 3 are as follows:

- In collaboration with NLM, updated the PubMed for Trainers hybrid class and delivered it 12 times across the United States.
- In response to regular feedback from PubMed for Trainers class participants, the NTC and NLM trainers enhanced the instructional design component of the class and made it entirely optional. The content of the instructional design component was reformatted to address the needs of participants. This change was implemented in October 2014.
- Delivered twenty segments of the online class, "PubMed for Librarians."
- In collaboration with NLM, developed and delivered two sessions of the online synchronous class, "Advanced PubMed Tips, Tricks, and Tools: MeSH."
- Substantially revised and reformatted the online "Discovering TOXNET" class. The class content was updated to reflect the major TOXNET redesign from May 2014. The class was also changed to a modular format in which participants choose the databases or resources that interest them and receive MLA CE credit based on the modules they complete. Each module earns 0.5 – 2.0 MLA CE credits, for a total of up to 12 credits. This asynchronous course was offered twice (October 2014 and March 2015). Over 100 participants earned credits in this course.
- In collaboration with NLM, NCBI, and Diane Rein, Ph.D. (consultant to NTC), delivered one session of the online asynchronous class, "Fundamentals of Bioinformatics and Searching." Twenty participants completed the class for credit, and an additional nine participants audited the class. This was followed by the five day in-person class "A Librarian's Guide to NCBI" in Bethesda, Maryland which 29 participants completed.
- Collaborated with Regional Medical Libraries to present webinars to keep their members updated on NLM resources and support their training efforts, such as "Adding to Your Teaching Toolkit," a PubMed update, and "Searching for Chemicals and Drugs."
- Continued the successful PubMed Users' Group with past PubMed for Trainers participants. The group met nine times with an average of 30 attendees. The group maintains relationships with students and provides ongoing support to health sciences information professionals across the country.

- Utilized training techniques and best practices learned from professional development activities to improve NTC’s teaching and shared this information through our social media outlets.

- Integrated the National Training Registration Page (NTRP) system and Moodle for a better user experience and implemented additional bug fixes and changes.

CHALLENGES

TECHNICAL CHALLENGES

The NLM trainers experienced problems with Adobe Connect during the October session of PubMed for Trainers in Bethesda, including dropped audio and content disappearing from the Adobe Connect room the morning of the class. NTC experienced loss of telephone connections during several classes throughout the year, but the trainers were able to quickly call back in and resume the session. Participants continue to express the desire for the option to use Voice over IP in addition to the telephone. The NTC used it for some PubMed for Librarians sessions, however, the option is no longer available through the NIH Adobe Connect.

CLASS ATTENDANCE CHALLENGES

Online class attendance rates continue to pose a challenge. Attendance rates for our classes are as follows:

- *PubMed for Librarians online synchronous class: 66% of those who confirmed their attendance actually attended the session.

- *Discovering TOXNET asynchronous online class: 68% of those who confirmed their attendance completed at least one module in the class.

- *Advanced PubMed Tips, Tricks, and Tools: MeSH synchronous online class: 82% of those who confirmed their attendance actually attended the session.

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

Good attendance rates are especially important for classes with enrollment caps or waiting lists. The hybrid (online and face-to-face) class has the overall best completion rate. With the advent of massively open online courses (MOOCs), students may view enrollment in a class differently than they previously had.

Completion rate for Discovering TOXNET is a bit complicated in that credit is earned based on the modules completed and we do not know whether the participants intend to complete all or part of the course. While the course is open, instructors send reminders and the Program Manager sends progress reports to let students know how many modules they have completed.

During OY4, we plan to examine confirmations and reminders to students to continue to encourage attendance and completion.

NTC ACTIVITIES

CLASS DELIVERY AND DEVELOPMENT

PUBMED TRAINING

PubMed for Trainers

NTC and NLM trainers taught the hybrid "PubMed® for Trainers" class 12 times from May 2014 – April 2015. The class consists of four sessions: three 1.5-hour online sessions using Adobe Connect and one 7-hour in-person session. Locations for the in-person classes were: Bethesda, MD; Philadelphia, PA; Lincoln, RI; Minneapolis, MN; Portland, OR; Aurora, CO; Memphis, TN; Phoenix, AZ; and Houston, TX.

Based on participant feedback, the class has been reformatted. While some previous participants appreciated the instructional design component of the class, others did not feel it was a good use of their time. To address these different audience needs, the instructional design component was separated into an optional 3 credit hour module, all online. To keep the schedule the same as advertised, the synchronous, online sessions were adjusted to 90 minutes of required PubMed instruction, followed by a 30-minute optional instructional design session. Those participating in the instructional design session were also required to complete and submit three homework assignments via Moodle. The instructional design content includes training specific audiences, prioritizing learning goals, writing course objectives, using a class design template, and methods for engaging students. This resulted in a change to the MLA continuing education credits; now, students receive 13 CE hours for the PubMed content, and an additional 3 CE hours if they complete the instructional design module.

Student satisfaction evaluation data were collected using a SurveyMonkey questionnaire. Student knowledge gains were measured through a 20-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.

PubMed for Librarians

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 3 or 4 question pre- and post-test.

The five 90-minute segments were offered as a series four times, in May, August and December of 2014; and February of 2015. 933 participants attended at least one segment of "PubMed for Librarians." The classes had an average attendance rate of 66%, based on the number of participants who registered versus the number who attended the class sessions for at least 45 minutes. Recordings of the latest "PubMed for Librarians" segments are posted on NTC's web site.

Advanced PubMed Tips, Tricks & Tools: MeSH

In collaboration with the NLM trainers, the NTC developed an advanced class. The new offering "Advanced PubMed Tips, Tricks, and Tools: MeSH" was taught twice in April 2015. The class covered the topics: MeSH updates, commonly confused headings and subheadings, filters, free floating subheadings and more. It was taught as a 90-minute live webinar with demonstrations and practice quizzes, as well as pre- and post-tests. Between the two sessions, 114 confirmed their intention to attend, and 94 of those actually attended, contributing to a very high attendance rate of 82%. Class registration filled quickly, confirming a demand for this class.

TOXNET TRAINING

NTC trainers built on the successes of online offerings of Discovering TOXNET from OY2. This year, the NTC reformatted the online class to be completely modular and credit is earned based on the modules completed. The content was updated to reflect changes to

TOXNET released in May 2014. The class consists of 13 independent modules, worth 0.5 – 2.0 MLA CE credits. The Introduction to TOXNET module is required, but the remaining 12 modules are optional. Each module consists of pre- and post-tests, a guided tutorial and/or video, and discovery exercises, as well as a forum for questions. Discovery exercises require students to use the databases or resources, apply what they've learned, and explore additional features. Instructors provide individual feedback to the students.

The NTC trainers taught two sessions of the online, modular Discovering TOXNET class, in October – November 2014 and March 2015. Each offering was open for four weeks. A total of 102 participants completed at least one module in the class, and some participants in each offering completed all modules. Minor changes, including a course completion checklist and a welcome video were added to the second offering based on feedback from the first offering.

NCBI DATABASE CLASSES

"The Librarian's Guide to NCBI" is a collaborative project between NTC, NLM, NCBI trainers, and Diane Rein, Ph.D.

"Fundamentals in Bioinformatics and Searching," a five-week, online, (asynchronous) self-paced course, is required for participants who wish to attend the in-person "Librarian's Guide." The class was offered once, in January of 2015. Twenty participants attended the session.

"The Librarian's Guide to NCBI," a 5-day in-person course was offered on-site at the National Library of Medicine in Bethesda, Maryland, March 9 - 13, 2015. Twenty-nine participants attended, including nine participants of previous "Fundamentals" classes who were not able to attend the previous on-site session.

The class provides basic knowledge and skills for librarians interested in helping patrons use online molecular databases and tools available from NCBI. It is expected that, following the class, participants 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.

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. NTC Trainers updated TOXNET videos and tutorials to reflect changes to the interface. NTC trainers also produced short videos for publication on the NTC blog. Topics included: "Turn Text into a Mind Map"; "Sharing a PubMed Search Strategy"; "There's a Permalink for That! (TOXNET)"; "Search for Citations Linked to Patient Summaries"; "Drawing a Chemical Structure"; "What Do the Dates in MeSH Mean?"; "PubMed Commons"; and "Displaying Author Information in PubMed". There were 1,921 views of these videos on the YouTube Channel during OY3.

OTHER ACTIVITIES

PUBMED USERS' GROUP

The NTC continued the 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.

On July 9, 2014 we moved the Users' Group announcement list from Moodle to a listserv hosted by the University of Utah List Service. As of May 1, 2015, there are 586 members in the group. With each new offering of PubMed for Trainers, participants are added to the group mailing list, with the choice to opt out of the list if they wish.

The Users' Group met nine times in OY3 beginning in June 2014; a total of 276 people attended the sessions. Rebecca Brown led the sessions, with support from the NTC staff and NLM trainers. Each session is recorded. Beginning in January 2015 we started sending the chat transcript of each session to group members, along with the link to the recording. We continue to receive positive feedback from group members. Here are two examples from emails sent to Rebecca:

* "Thank you, Rebecca. I love the format of this "forum". I always learn something new."

* "Hi Rebecca, I felt bad about missing yesterday's session so I really appreciate the transcription notes."

PUBMED UPDATE

At the invitation of the Southeastern/Atlantic Region (SE/A), Rebecca Brown delivered a 30-minute PubMed update during the regularly scheduled "Beyond the SEA" webinar on August 20, 2014. Janet Zipser from NLM attended the webinar to help with participant questions. Rebecca covered the following topics: Social media icons in PubMed, searching for Supplementary Concepts, the new "Searching Drugs or Chemicals in PubMed" tutorial, PubMed Commons, subject guides created by the User Services Unit of the NLM Reference and Web Services Section, links in PubMed to PubMed Health, and MeSH on Demand. Thirty-three participants attended the session.

TOXNET UPDATE

At the invitation of the MidContinental Region (MCR), Rebecca Brown delivered a 50-minute presentation on the newly updated TOXNET interface during their regularly scheduled "Discover National Library of Medicine Resources and More" webinar on February 25, 2015. Rebecca covered the new TOXNET interface, as well as several of the TOXNET databases (TOXLINE, HSDB, IRIS, LactMed, TRI and TOXMAP, and HAZ-MAP). Approximately fifteen people attended the session.

SEARCHING FOR DRUGS AND CHEMICALS WEBINAR

At the invitation of the Middle Atlantic Region (MAR), Sharon Dennis and Rebecca Brown delivered a one-hour webinar about searching for chemicals and drugs in PubMed on November 4, 2014. The webinar was part of MAR's bi-monthly "Focus on NLM Resources" series. Kate Majewski from NLM attended the webinar to help with participant questions. The trainers covered the following topics: how chemicals, drugs and other substances are described in MeSH; how to search for drugs or chemicals in PubMed; differences between subheadings that apply to drugs, and how to search using pharmacological action terms. Twenty-one participants attended the session.

TEACHING TECHNIQUES WEBINAR

The NN/LM MAR invited the NTC trainers to present a webinar on teaching techniques to

their members. The webinar, "Adding to Your Teaching Toolkit," was presented as part of MAR's "Boost Box" series on September 9, 2014 to over 100 attendees. Sharon Dennis discussed possibilities for applying gamification principles to motivate class participants. Jessi Van Der Volgen shared four strategies for adding meaningful interaction on online or in-person classes, and examples of each. Rebecca Brown presented free tools for developing classes and a social media alternative to a course discussion board, as well as brain-based teaching and learning strategies.

The NTC trainers were invited by the NN/LM Pacific Southwest Region (PSR) to present the same webinar to their members. Rebecca Brown and Jessi Van Der Volgen presented on February 18, 2015 during the monthly "Midday" at the Oasis series to approximately 54 participants.

EVALUATION ACTIVITIES

NTC and NLM trainers designed two follow-up questionnaires to assess the success of PubMed for Trainers and PubMed for Librarians. The questionnaires were intended to elicit information about behavioral changes, such as teaching improvement or more efficient searching, as a result of completing the class. The questionnaire invitation was sent to 261 PubMed for Trainers participants and 625 PubMed for Librarians participants and administered using SurveyMonkey.

The response rate for PubMed for Trainers was 53% (139 out of 261). Key findings from the questionnaire:

- *Participants largely agreed that the course improved their PubMed search skills.
- * A large percentage (78%) of respondents indicated that they had created or improved training (or planned to do so) as a result of the class.
- *Many participants cited specific tools that they had incorporated into their regular practice to help patrons, such as MeSH, Advanced Search, searching for drugs and chemicals, and the comparative effectiveness query.
- *Respondents indicated that they had greater confidence in using or demonstrating PubMed as well as planning for instruction.
- *Some respondents indicated a desire for more interaction with classmates.

The response rate for PubMed for Librarians was 41% (258/625). Key findings from the questionnaire:

- *Participants largely agreed that the course improved their PubMed search skills.
- * A large percentage (85%) of respondents indicated that they had used information in the class to respond to reference questions.
- *Specific suggestions included more hands-on activities and offering the courses more often.

The NLM and NTC trainers also worked with consultant Caroline Hubble from the ROI Institute to conduct a Return on Investment study for the PubMed for Trainers class. The study had participants from winter and spring PubMed for Trainers participants. Results of the study will be used to gauge the long-term success of the class and inform future training offerings. The methods and tools used in the study will be provided by the ROI Institute for additional studies.

A major project this year was the development, testing, implementation, launch and launch time debugging by Matt Steadman of a Moodle/NTRP integration system. The integration of the registration system and Moodle enables automatic enrollment of participants into courses, creation of accounts for Moodle, and automatic form completion for NTRP registration forms using the latest data for a user with an existing Moodle account. The NTRP/Moodle integration system has been utilized for classes taught by NTC, NLM, and several of the RMLs. Though many bugs were discovered during the initial launch of this software, the system is believed to be stable.

The majority of Matt's time during the last quarter was spent integrating the public facing portion of the NTRP registration system into the NN/LM Drupal content management system.

Additional activities related to the National Training Registration Page (NTRP) system in this year included:

- * DIMRC classes have continued to close in a seemingly random fashion. Although the cause of this issue has yet to be discovered, Matt Steadman and Sarah Dickey (Program Manager) have implemented methods to monitor the classes and open them whenever the error occurs.
- * Fixed a bug that was causing classes with a registration deadline after the first day of a class, but before the last day of the class, to close prematurely.
- * An additional sorting option was added to class schedule page, so that classes can be sorted with the Open classes at the top of the page and the "Registration Closed" classes at the bottom. This feature was added at the request of the RMLs.
- * The Greater Midwest Region (GMR) was receiving spam registrations; this issue was resolved.
- * Worked on creating a multi-step registration process, so that additional questions could be asked of the registrants during the registration process. This was an essential component to the Moodle integration tool, but has additional applications.
- * Fixed a bug in the detailed list report that caused columns to line up incorrectly with the data.
- * Updated "search registered users" tools to improve the number of relevant results.
- * Corrected an issue with the waitlist in which users were incorrectly admitted to classes that were marked "full."
- * Fixed a bug in which registered users' information was not being saved in the database.
- * Added Subject line override to the Confirmation Prompt tool.

NTC SOCIAL MEDIA

From May 1, 2014 – April 30, 2015, the NTC blog received 33,015 page visits, up slightly over the previous year. The majority of views are to the home page, followed by the tutorials and recordings page. NTC staff wrote 98 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 408 likes in Option Year 3, the majority in the fourth quarter. This is tremendous growth over the previous year, but the cause of the increase is unclear. 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 218 followers in Option Year 2 to 334 followers as of April 30, 2015. Tweets regarding NCBI content remain the most popular (measured by favorites and retweets).

NTC WEB SITE

Matt Steadman assisted Web-STOC in testing the new server (Oscar) to verify compatibility with the ModSEC security system on both Registration System pages and the NTC Wordpress installation.

A vulnerability in the "Guide on the Side" software was discovered which allowed spam to be sent through the tool. Matt corrected this vulnerability.

RSS feed links were updated by Matt Steadman to reflect anew standard put into place by Google. Matt also added a link to the NTC YouTube Channel on the NTC home page and implemented a new website analysis tool.

MLA EDUCATIONAL CLEARINGHOUSE

There were no changes to the MLA Educational Clearinghouse during OY3.

STAFF ACTIVITIES

May 15, 2014: Matthew Steadman attended the Web-STOC Development Meeting in Chicago, IL. He gave a presentation about the Moodle / NTRP integration project and asked for NTRP feedback at the meeting.

May 16, 2014: Sharon Dennis, Jessi Van Der Volgen, Rebecca Brown, and Matthew Steadman attended the NN/LM Director's Meeting in Chicago, IL. Matthew Steadman gave a presentation about the Moodle / NTRP integration project and asked for NTRP feedback at Joint Coordinator's breakout session.

May 17 – 21, 2014: Jessi Van Der Volgen attended the Annual Meeting of the Medical Library Association in Chicago, IL.

May 21, 2014: Jessi Van Der Volgen is a member of the Medical Library Association Continuing Education committee. She attended the committee meeting in Chicago, IL.

June 2014: Rebecca Brown is a standing member of the Continuing Professional Development and Workplace Learning section (CPDWL) for the International Federation of Library Associations (IFLA). Committee membership is a 4-year term. Ms. Brown wrote a short piece for the committee's June 2014 newsletter titled: "Building a High-Quality Professional Development Opportunity." The article can be found on page 12 at: http://www.ifla.org/files/assets/cpdwl/newsletters/cpdwl_newsletter_june14.pdf

August 12-14, 2014: Sharon Dennis, Jessi Van Der Volgen, and Rebecca Brown attended the Annual Conference on Distance Teaching and Learning, sponsored by the University of Wisconsin-Madison in Madison, WI.

October 12, 2014: Jessi Van Der Volgen developed the class "Innovation and LEAN Process Improvement Demystified" for the Quint Chapter Meeting of the Medical Library

Association in Denver, CO. The class was worth 6.0 MLA CE credits. Jessi was unable to attend the class in-person; the class was taught by her co-developers.

October 22, 2014: Jessi Van Der Volgen attended the MLA webinar entitled, "Beyond the Search I: Protocol Development and Methodology for Systematic Reviews," broadcast at the University of Utah Spencer S. Eccles Health Sciences Library in Salt Lake City, UT. The webinar was worth 1.5 MLA CE credits.

October 23, 2014: Rebecca Brown attended a half-day workshop about the principles of plain language and how to make health information clear, understandable and targeted to readers. The hands-on workshop was part of a larger health literacy conference put on by Health Literacy Missouri in Kansas City, MO.

December 15, 2014: Rebecca Brown participated in a remote presentation that was setup by the NLM National Network Office (NNO) to explain the NN/LM program to the NLM Associate Fellows. She described NTC activities to date and plans for the future. Margaret McGhee from NNO followed up after the presentation via email and said that "the reviews are in and they are very positive."

February 12, 2015: Jessi Van Der Volgen attended the online meeting of the Medical Library Association Continuing Education Committee for preliminary selection of course offerings at the 2016 annual meeting.

March 20, 2015: Rebecca Brown attended "Sharing and Exploring Ways to Use Technology in Support of Students," by the TLT Group:
<http://tltgroup.roundtablelive.org/event-1775830>

March 31, 2015: Rebecca Brown attended "Using Neuroscience to Create Presentations with Lasting Impact," presented by Poll Everywhere. This workshop focused on advances in neuroscience and demonstrated how to apply principles from cognitive science to presentations.

April 2, 2015: Rebecca Brown attended "Virtual Workshop: Brain Science Basics for Memorable Content," presented by RexiMedia. This 3-hour online, hands-on workshop provided a basic overview of how to use brain science techniques to ensure that presentations are memorable.

April 7 – 28, 2015: Jessi Van Der Volgen completed the Association for Talent Development E-Learning Instructional Design Certificate. This 12-hour class provided techniques and examples for creating effective e-learning.

Analysis

TRENDS IN ATTENDANCE

The NTC and NLM class attendance rates for Option Year 3 were as follows: Discovering TOXNET online asynchronous: 68% (2 classes, 149 registered, 102 completed at least one module); PubMed for Trainers hybrid course: 86% (12 classes, 196 registered, 168 attended all four sessions); PubMed for Librarians synchronous online course: 66% (20 classes, 933 registered, 614 attended); Advanced PubMed Tips, Tricks, and Tools: MeSH synchronous online course: 82% (2 classes, 114 registered, 94 attended) Fundamentals of Bioinformatics and Searching: 95% (1 class, 21 registered, 20 completed all class requirements).

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 141 Completed Evaluations):

*Instructor's knowledge, preparation, presentation skills and responsiveness to questions: High (89%); Good (10%); Fair (1%)

*Instructional materials used effectively, relevant/useful; and hands-on exercises were useful: Agree (91%); Somewhat Agree (8%); Somewhat Disagree (1%)

*Course objectives met expectations: Agree (91%); Somewhat Agree (7%); Somewhat Disagree (2%);

*Course content well organized and length was appropriate: Agree (86%); Somewhat Agree (12%); Somewhat Disagree (1%); Disagree (1%)

*Participants rating of whether they acquired knowledge and skills they can use: Agree (95%); Somewhat Agree (4%); Somewhat Disagree (1%)

*Overall course grades: "A" (89%); "B" (10%); "C" (1%)

PubMed for Librarians (Based on 512 Completed Evaluations):

*Instructor's knowledge, preparation, presentation skills and responsiveness to questions: High (92%); Good (7%); Fair (1%)

*Course content well organized and length was appropriate: Agree (91%); Somewhat Agree (7%); Somewhat Disagree (2%)

*Participants rating of whether they acquired knowledge and skills they can use: Agree (94%); Somewhat Agree (6%)

*Overall course grades: "A" (88%); "B" (12%)

Advanced PubMed Tips, Techniques, and Tools MeSH (Based on 87 Completed Evaluations):

*Instructor's knowledge, preparation, presentation skills and responsiveness to

questions: High (96%); Good (4%)

*Course content well organized and length was appropriate: Agree (94%); Somewhat Agree (5%); Somewhat Disagree (1%)

*Participants rating of whether they acquired knowledge and skills they can use: Agree (94%); Somewhat Agree (6%)

*Overall course grades: "A" (92%); "B" (8%)

Discovering TOXNET (Based on 66 Completed Evaluations):

*Instructor's knowledge, preparation, presentation skills and responsiveness to questions: High (93%); Good (7%)

*Instructional materials used effectively, relevant/useful; and hands-on exercises were useful: Agree (95%); Somewhat Agree (3%), Somewhat Disagree (2%)

*Course objectives met expectations: Agree (95%); Somewhat Agree (3%); Somewhat Disagree (2%)

*Course content well organized and length was appropriate: Agree (88%); Somewhat Agree (10%); Somewhat Disagree (1%); Disagree (1%)

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

*Overall course grades: "A" (91%); "B" (8%); "C" (1%)

FUNDAMENTALS OF BIOINFORMATICS AND SEARCHING (Based on 28 Completed Evaluations)

Instructor knowledge, preparation, and responsiveness to questions: High (86%); Good (13%); Fair (1%)

Overall Rating: "A" (64%); "B" (32%); "C" (4%)

STUDENT SKILLS ASSESSMENT

A 20-question pre- and post-test was administered for the "PubMed for Trainers" class. The average scores for all NTC and NLM classes were 64% on the pre-test and 82% on the post-test, for an average gain of 18%.

Short three or four-question pre and post-tests were administered for the "PubMed for Librarians" class. The average scores for all segments were 62% on the pre-test and 88% on the post-test, for an average gain of 26%.

Short 4-question pre and post-tests were administered for the "Advanced PubMed Tips, Tricks, and Tools MeSH" class. The average scores for both offerings were 76% on the pre-test and 84% on the post-test, for an average gain of 8%.

Each module of the Discovering TOXNET class had a two to four question pre- and post-test. The average pre-test score of all modules was 66%, and the average post-test score was 91% for an average gain of 25%.

LOGIC MODEL INDICATORS

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: 88% out of 512 evaluations; PubMed for Trainers: 89% out of 141 evaluations; Advanced PubMed Tips, Tricks, and Tools MeSH: 92% out of 87 evaluations; Fundamentals of Bioinformatics and Searching: 64% out of 28 evaluations; Discovering Toxnet: 91% out of 66 evaluations.

Indicator 2: A significant increase in skills and knowledge based on pre- and post-test scores.

Results: The average score for PubMed for Trainers increased by 18 percentage points, the average score for PubMed for Librarians increased by 26 percentage points, the average score for Advanced PubMed, Tips, Tricks, and Tools: MeSH increased by 8 percentage points, and the average score for Discovering Toxnet increased by 25 percentage points. The knowledge gain for the Advanced class was less than expected, and question construction and instruction will be assessed.

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