Evidence Based Library and Information Practice

Evidence Summary

Library and Informatics Training May Improve Question Formulation among Public Health Practitioners

A Review of:

Eldredge, Jonathan D., Richard Carr, David Broudy, and Ronald E. Voorhees. "The Effect of Training on Question Formulation among Public Health Practitioners: Results from a Randomized Controlled Trial." Journal of the Medical Library Association 96.4 (2008): 299-309.

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Objective – To determine whether providing library and informatics training to public health professionals would increase the number and sophistication of work-related questions asked by these workers.

Design – Randomized controlled trial.

Setting – New Mexico Department of Health.

Subjects – Public health professionals from a variety of professions, including "administrators, disease prevention specialists, epidemiologists, health educators, nurses, nutritionists, physicians, program directors, and social workers" (301). Only staff from the New Mexico Department of Health were eligible to participate.

Methods – All subjects received a three-hour training session on finding evidence based public health information, with a focus on using PubMed. Two sessions were offered, two weeks apart. Participants were randomized to either an intervention group, which received instruction on the first date, or a control group, which received instruction on the second date.

The intervening two weeks constitute the study period, in which both groups were surveyed by e-mail about their work-related question generation. Three times per week, subjects received e-mail reminders asking them to submit survey responses regarding all questions that had arisen in their practice, along with information about their attempts to answer them. Questions were tallied, and totals were compared between the two groups.

Questions were also analysed for level of sophistication, and classified by the

investigators as either "background" questions, which are asked when one has little knowledge of the field, and can usually be answered using textbooks or other reference sources, or "foreground" questions, which are often asked when an individual is familiar with the subject, and looking for more sophisticated information that is usually found in journals and similar sources. This scheme for classifying questions was developed by Richardson and Mulrow.

Main Results – The investigators found differences in both the number and sophistication of the questions asked between the control and intervention groups. The control group averaged only 0.69 questions per participant during the two-week observation period, while the intervention group averaged 1.24 questions. Investigators also found that a higher percentage of the questions asked by the intervention group were foreground questions (50.0%, versus 42.9% for the control group). However, when two-tailed *t*-test analysis was performed on both the frequency of questions and the level of sophistication, the findings were not statistically significant within a 95% confidence interval.

Conclusion – This study suggests that library and informatics training for public health professionals may increase the number of questions that they ask on work-related topics, and also the sophistication of these questions. However, more studies need to be done to confirm these findings. The authors suggest that replication of the study would be useful, particularly as Hurricanes Katrina and Rita interfered with their ability to recruit and retain participants. They also suggest that studies be conducted on other training methods to see which are most effective at motivating users to seek information. Finally, the authors suggest that a prospective cohort study might be a useful method for predicting the effect of training on participants' motivation to pursue answers to their questions.

Commentary

This trial was unfortunately not powerful enough to draw conclusions about the impact of instruction on question formulation. The authors had a much smaller number of study subjects than they had hoped for, in part because Hurricanes Katrina and Rita caused much of New Mexico's public health workforce to be deployed to the Gulf States to provide emergency assistance. The authors' goal was to recruit 130 participants; they were only able to recruit 75, who were evenly allocated between control and intervention groups. A larger sample size would likely have generated more conclusive results.

The two-week window for data gathering was arguably too short to demonstrate behaviour change. A longer study period might have allowed the authors to observe whether the intervention had an effect over time.

The authors followed good practices in the planning and carrying out of the trial. A web service was used to randomize the subjects, and the investigator responsible for coding the data was blinded to the allocation of each subject. Efforts were also made to minimize Hawthorne effect (the possibility that the act of observation may change subjects' behaviour) by running a two-week survey period prior to the first training session, in order to get the subjects accustomed to e-mail reminders and the need to submit their questions. The instruction sessions were carried out identically to the best of the instructor's ability.

The authors include the survey instrument they used as an appendix to the article, which is very useful, and something that more authors should do as part of publication. However, they do not indicate whether this instrument was validated. The survey instrument also asked whether or not subjects attempted to find an answer; why they may not have attempted to do so; and whether any information-seeking activity successfully answered their question. However, the results of these survey questions were not reported in

the article. Although the stated objective of the study was to look at question formulation, it would have been interesting to also see whether the instruction actually enabled subjects to answer their own questions.

The content of the instruction session could have been better described. The authors state that it:

> consisted of a three-hour-long training session covering basic EBPH [evidence based public health] principles, such as definitions and types of EBPH questions, levels of evidence, evaluations of both information and statistics websites relevant to public health, PubMed training tailored to public health practitioners' needs, and free peer-reviewed web-based journals. (303)

However, the authors do not mention whether any pre-assessment of participants' skills and needs was carried out to ensure that instruction was tailored appropriately; nor do they indicate whether the instructional format was demonstration only, or whether there was an interactive element. Without such details, it is difficult to replicate this study, or to hypothesize about how the session's content and method of delivery may have influenced the results. The need for improved reporting of studies on information skills training has been noted by Brettle.

As the authors themselves note, the lack of statistical significance in their findings makes generalization of their results problematic, but they suggest interesting directions for research and practice nonetheless. Their most important suggestion is that anyone seeking to replicate the study do so with a larger sample size. I would also add that this type of clinical trial could be carried out with other groups of health-care practitioners, and it would be interesting to see if there are differences between groups both at baseline and after an instructional intervention. Those looking to conduct such a study should not only plan to sample a larger group, but carry out multiple follow-ups over a longer period of time.

This study suggests that training increases information-seeking behaviour. This appears to validate the use of library instruction for public health practitioners (and presumably for other groups, as well). Instructional librarians should be conscious of this, and market any reference services or point-of-care tools that make it easier for practitioners to obtain the answers they seek.

Works Cited

Brettle, Alison. "Information Skills Training: A Systematic Review of the Literature." Health Information & Libraries Journal 2.s1 (2003): 3-9.

Richardson W. Scott, and Cynthia D. Mulrow. "Lifelong Learning and Evidence-Based Medicine for Primary Care." Textbook of Primary Care Medicine. Ed. John Noble. St. Louis, MO: Mosby, 2001. 2–9.