A Survey of the Use of Evidence-Based Health Care in Chiropractic College Clinics

Kevin A. Rose, D.C., and **Alan Adams**, M.S., D.C., Los Angeles College of Chiropractic

The purpose of this article is to explore to what extent evidence-based health care (EBHC) methods are being utilized in chiropractic college clinics. A survey was mailed to the clinic administrator/director of every chiropractic college identified worldwide. The response rate was 78%. A majority of colleges required their interns to participate in oral case presentations (67%) and write case reports (65%), but only small minorities were required to generate research questions (11%) or conduct literature searches routinely (18%). No college required their interns to participate in formal journal clubs. Interns were more likely to rely on clinic faculty, preclinic class instruction, and textbooks for information on how to deal with clinic cases, rather than literature searches or health care journal articles. This study seems to show that EBHC methods are not being widely used in chiropractic college clinics worldwide. The literature suggests that EBHC can result in better patient care. EBHC methods should be incorporated into chiropractic college clinic practices. Effective strategies for implementation need to be developed, and faculty development will be required. (The Journal of Chiropractic Education 14(2): 71–77, 2000)

Key words: chiropractic, colleges, evidence-based medicine

INTRODUCTION

Evidence-based health care (EBHC) has been defined by Sackett et al. as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients" (1). To practice EBHC, practitioners combine their clinical expertise with the best quality evidence that is available and patient preferences to make clinical decisions (Fig. 1) (2). Clinical expertise continues to play an important role in EBHC because individual patients may not fit the standard model used in clinical trials and clinical evidence may be lacking for many conditions seen in practice.

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The steps for practicing EBHC are as follows (3):

1. Develop a clear clinical question about the diagnosis, treatment, or prognosis for a patient case.
2. Search for the best available evidence that can answer the question. The best evidence is usually gleaned from systematic reviews of the literature, meta-analyses, and randomized controlled trials (RCT), but in some cases may be obtained from other types of research, including qualitative studies. Access to this evidence is typically obtained by searches of electronic databases, such as Medline and Mantis. The Cochrane Library is a recently developed collection of ongoing systematic reviews and RCT on various clinical topics.
3. Evaluate (critically appraise) the evidence for its validity (closeness to the truth) and usefulness.
4. Implement the useful findings in clinical practice.
5. Evaluate the resulting clinical outcomes.

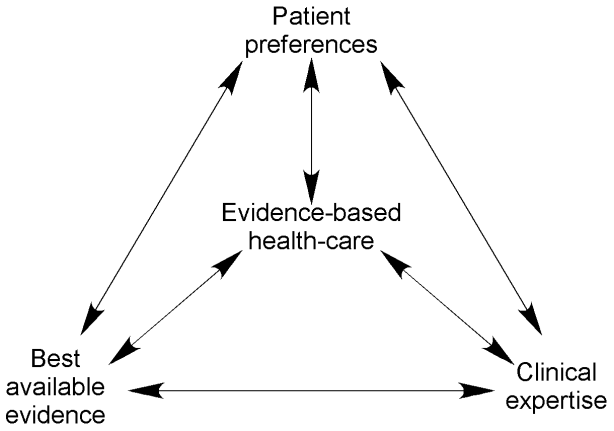

Figure 1. Components of clinical decision making.

The purpose of using EBHC methods is to ensure that doctors are using the most up-to-date, scientifically validated methods to treat their clinical cases. Ultimately, it is hoped that this will lead to better patient outcomes. Haynes and Haines pointed out that, in traditional practices, physicians most often use methods based on what they remember from their formal training (4). It sometimes takes years for the findings of research studies to be incorporated into clinical practices. Delaney and Fernandez (5) and Walker (6) described how EBHC methods can be applied to chiropractic practices.

There is limited proof of the effectiveness of EBHC. Shin et al. (7) compared a random sample of general practitioners who had done their undergraduate training in a problem-based curriculum (which stressed EBHC) to a comparable group who had attended a traditional program. They found that the graduates of the problem-based program were significantly more up-to-date in their knowledge of how to treat hypertension.

It is unlikely that RCT will ever be carried out to compare EBHC methods to more traditional practices (8). It may appear ironic that advocators of EBHC do so without much evidence of its effectiveness. In actuality, they are using EBHC methods by relying on a combination of the best available evidence and scientific rationale.

A literature search of the Medline, Cochrane, and Mantis databases using the search terms "Evidence-Based Medicine" and "Chiropractic" failed to find any studies on the use of EBHC in chiropractic colleges. The purpose of this pilot study was to explore to what extent the different components of EBHC are being taught and used in chiropractic college clinics.

METHODS

A survey was generated by reviewing literature of the components of EBHC (Appendix I). The questions were designed to determine to what degree EBHC methods are being taught and utilized in chiropractic college clinics. This survey was sent to the clinic director/administrator of all chiropractic colleges identified worldwide ($n = 23$) (9). After 1 and 3 months, a follow-up survey was mailed to nonrespondents.

RESULTS

Eighteen of the 23 colleges completed the survey, a response rate of 78%. Fourteen of these were located in North America, two in Europe, and one each in Africa and Australia.

Preclinic Education

A majority of the respondents indicated that important aspects of EBHC were being taught in preclinic classes at their college. Eighty-nine percent indicated that their students were taught how to identify essential articles in the health care literature. Seventy-eight percent stated that their students were taught how to evaluate the quality and relevance of health care articles. Sixty-one percent indicated that their students were taught how to apply research evidence to patient care.

Use of EBHC in Chiropractic College Clinics

Sixty-seven percent of the respondents indicated that their interns participated in regular oral case presentations. Of these, 50% stated that their students were required to use literature to support the diagnosis and/or procedures utilized. Sixty-five percent of the respondents required their interns to write a case report.

Only 11% of the respondents indicated that their interns routinely generated research questions requiring further investigation into existing evidence about their clinic cases. Nineteen percent of the respondents required their students to conduct literature searches to help with patient care on a routine basis, and 13% were required to write summaries of their literature searches. No college required their interns to participate in formal journal clubs.

Eighty-two percent of respondents indicated that the procedures utilized in their clinic system were based to a small or moderate degree on the collection,

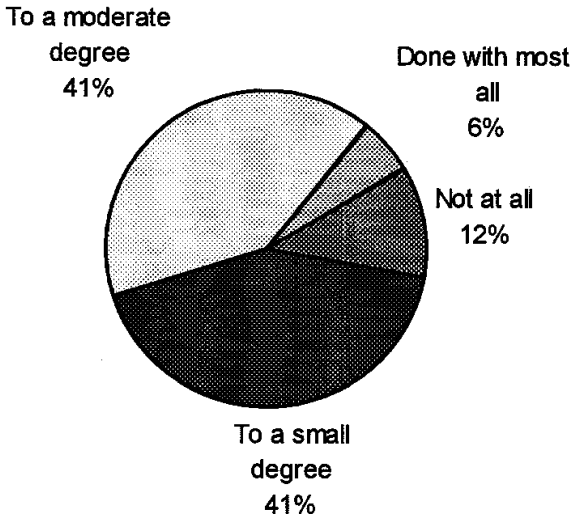

Figure 2. Degree that procedures utilized in clinic are based on the collection, analysis, and utilization of health care literature.

analysis, and utilization of health care literature (Fig. 2). Only 29% of the colleges offered clinic faculty development on EBHC methods. When asked what data sources interns typically use in their clinic practice, respondents indicated that preclinic class instruction and notes and clinical faculty were utilized to a greater degree than journal articles or literature searches (Fig. 3).

DISCUSSION

Although the components of EBHC appear to be widely taught in chiropractic colleges' preclinic classes, they do not appear to be utilized to a great degree in their clinics. Fifty-three percent of the college clinic administrators stated that the procedures utilized by their students are based to a small degree or not at all on the collection, analysis, and utilization of health care literature. Interns were more likely to use clinical faculty, preclinic class instructions, and textbooks for information, rather than literature searches or health care journal articles. This can lead to students relying on outdated and nonvalidated information (1).

Only 11% of the colleges reported that their students generated research questions about their clinical cases on a routine basis. Osheroff et al. (10) studied information requests in a university-based medical clinic. They found that on average, five clinical questions were raised for each patient case. Twenty-three percent of these questions required knowledge of patient care issues that were potentially answerable through the utilization of health care literature, and 26% of the questions required the synthesis of patient information and health care knowledge. Khunti (11) described how Educational Prescriptions can be used to teach EBHC in a training general practice. These serve to clarify the clinical problem posed by a clinical case for the student to research using evidence-based information sources.

Case reports are useful for presenting unusual cases and generating hypotheses for future research. Although 65% of the colleges required their students to write a case report, it would seem that few of these are being submitted for publication. Case reports that are published in the literature are an important

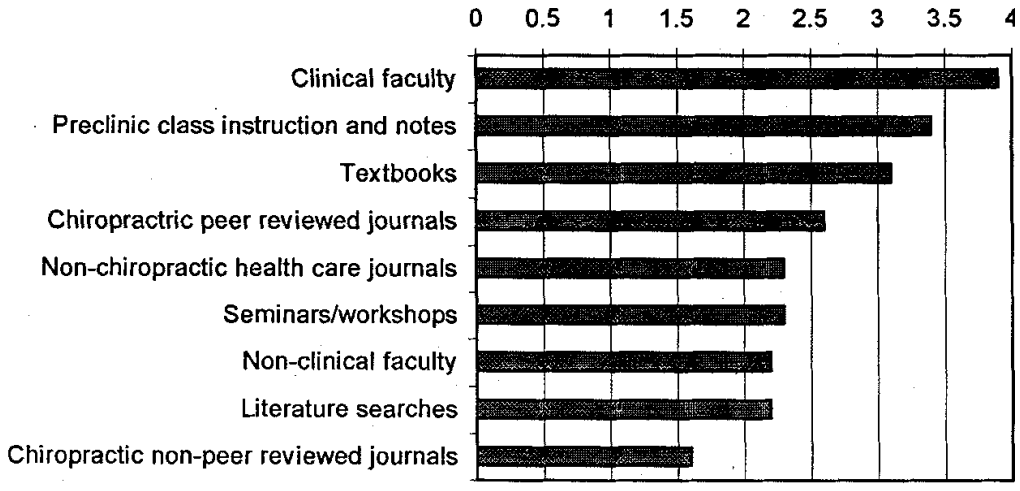

Figure 3. Importance of data sources to clinic practice. Scale: 1 = not important at all, seldom used; 2 = somewhat important, used occasionally; 3 = important, used frequently; 4 = very important, used routinely.

source of ideas, both for practicing doctors and researchers (12).

Sixty-seven percent of the colleges required their students to perform oral case presentations, but only half of these required them to support their diagnosis or treatment with a literature review. Without hearing an account of what the literature shows, students listening to the case presentations cannot know if the methods presented were appropriate for the case. Instead, they are likely to receive a recycled version of the same information they learned in class. With evidence-based rounds, students may learn not only what the latest research says about patients' conditions, but also strategies for keeping themselves up to date in their future practice. Reilly and Lemon (13) described how the traditional Morning Report at a teaching hospital was changed to an evidence-based format. Consequently, students learned how to find answers for clinical questions themselves using the health care literature, rather than relying on authoritative physicians.

No respondents indicated that their interns attend formal journal clubs. Brynin and Farrar (14) described how journal clubs are useful tools for teaching students how to critically appraise research articles and increase their clinical knowledge.

Only 12% of the respondents required their interns to write summaries of their literature searches. Having students write and present summaries of their literature searches is a useful strategy for teaching EBHC methods. Sauvé et al. (15) described a format for one-page critically appraised topic (CAT) summaries. Each CAT is titled with the answer to the original research question. It then gives a short summary of the patient case that generated the question, a list of procedures to follow for the patient's condition based on a literature search, and a summary of the available evidence. The CAT ends with any relevant comments about the therapy and a reference section. These CATs can be filed, either physically or electronically, for easy retrieval when needed.

McMaster University developed a program to implement EBHC methods in a teaching hospital (8). Residents in the Department of Medicine spend a half-day a week in formal journal clubs. Computers are available in the teaching ward for conducting literature searches. Residents are assessed for their skills in using EBHC methods, and internists and attending physicians with good EBHC skills act as role models for others. Workshops are held on a regular basis to improve the faculty's literature searching and critical analysis skills.

Sackett and Straus (16) described their experiences using an "evidence cart" in a teaching hospital. The cart was accessible to students and staff, and contained multiple evidence-based resources, such as Medline, the Cochrane Library, and a physical examination textbook. The cart contained a portable computer and a projector with a portable screen, so information could quickly be obtained from CD-ROMs and shared with a group. The cart ended up being used 98 times during a 1-month period to address clinical questions arising out of patient care. The availability of instant access to the evidence resulted in a change in the clinical approach of at least one team member in 48% of these cases.

Barriers to the teaching and utilization of EBHC have been identified (4,8,17,18), including:

1. Practicing doctors/clinicians often have limited skills in conducting computerized literature searches and critical analysis of articles, and may be skeptical about its benefits.
2. EBHC methods may be confusing and time consuming.
3. Practitioners tend to be resistant to changing their practice methods.
4. High-quality evidence may be lacking in many areas, or results of RCT may be inconclusive.
5. RCT findings are derived from homogeneous groups, and may be inappropriate to use for particular patients.
6. Guidelines on how to use the research in the clinical setting are difficult to develop and are lacking in many areas.
7. There is a fear that EBHC may be abused by health care purchasers (i.e., inappropriately used to deny paying for services).

McColl et al. (19) conducted a survey of the perception of general practitioners on EBHC. Although most agreed that EBHC methods were worthwhile, most did not have the skills or facilities to practice it. Only 40% of the respondents had heard of the Cochrane database. Only 20% had access to Medline or other bibliographic databases, and 17% access to the Internet at their office. Forty-nine percent had not conducted a database search during the past year, and only 39% percent had had formal training in critical analysis of literature. The chief barrier seen to implementing EBHC in their practices was lack of time.

To help overcome these barriers, new methods are being developed. One example is abstracting services that can critically appraise studies in an area and present the results in a journal. The Cochrane Collection has become an important registry of RCT. With the expansion of technology into doctors' offices, the literature is now more accessible than previously. Appendix II contains a list of available resources for practicing EBHC.

For chiropractors, a lack of high-quality evidence may continue to be a problem for the near future. There are few RCT or meta-analyses on the treatment of conditions other than spinal pain and headaches by interventions commonly used by chiropractors, including manipulation. In these cases, chiropractors must rely on clinical expertise and patient preferences. Macnaughton (20) pointed out that clinicians must always use their judgment along with the evidence, and consider issues such as consent, compliance, the meaning of this disease for this patient, family support, and costs. Clinical cases involve a range of complex factors that cannot be fully taken into account by RCT. Shapiro and Talbot (21) presented a model of patient-centered care where the practitioner mutually constructs solutions to clinical problems with patients. In this exercise, the physician uses "reflection in action" when faced with an unexpected element in clinical practice, weighing his or her findings in conjunction with his or her past theoretical knowledge, previous clinical experience, the patient's psychosocial history, and other factors.

Frosch and Kaplan (22) reviewed the literature on shared clinical decision making. Some research has shown that patients want to share in health care decisions, particularly regarding outcomes of care. They state that shared decision making is best used when there is uncertainty about a patient's condition. Weinstein (23) opines how shared decision making is the missing piece that needs to be explored in order to reform health care. As an example, he states that patients often get more health care than they want at the end of life, and at great expense.

Strengths and Limitations

One strength of this survey was that the respondents included a range of colleges worldwide. There was also a broad range of chiropractic ideologies represented, from Sherman College of Straight Chiropractic to Western States Chiropractic College.

A limitation of this study was that, for expediency, the survey was only directed to the clinic administrators of chiropractic colleges. It is unknown how accurately these responses reflect what students and clinicians actually use in their clinic practice. A survey of clinical faculty and students will likely yield data that are more representative.

The survey utilized was self-generated, and no study of its reliability or validity was performed. Future studies should be conducted to determine more accurately how EBHC methods are being utilized in chiropractic college practices.

CONCLUSIONS

EBHC methods have the potential to improve the quality of care offered in chiropractic college clinics and, by extension, by practicing chiropractors. Incorporating EBHC into the curriculum of chiropractic college clinics will require recognition of its importance and faculty development.

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Reprint requests: Kevin A. Rose, Los Angeles College of Chiropractic, 16200 East Amber Valley Drive, Whittier, CA 90609

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APPENDIX I: SURVEY ON THE UTILIZATION OF EVIDENCE BASED CARE IN CHIROPRACTIC COLLEGE CLINICS

1. Do your research methods or other preclinic courses teach students how to identify key articles in the health care literature?
2. Do your research methods or other preclinic courses teach students how to evaluate the quality and relevance of health care articles?
3. Do your research methods or other preclinic courses teach students how to apply research evidence to patient care?
4. Do your interns routinely generate research questions about their clinic cases?
5. Are your interns required to conduct literature searches to help with clinic patients on a routine basis?
6. Are your interns required to write summaries of their literature searches?
7. Do your interns participate in regular oral case presentations?
8. If your interns do participate in oral case presentations, are they required to use literature to support their diagnosis and/or procedures?
9. Are your students required to write a case report during their internship?
10. Are your interns required to participate in formal journal clubs?
11. To what extent are the procedures utilized in your clinic system based on the collection, analysis, and utilization of health care literature?
12. Does your college offer clinic faculty development on evidence-based care (e.g., systematic reviews of the literature/meta-analysis)?
13. Rank the following sources for importance in how your interns typically obtain the information used for their clinical practice [Scale: 1) not important at all, seldom used; 2) somewhat important, used occasionally; 3) important, used frequently; 4) very important, used routinely]:

    a. Preclinic class instruction and notes
    b. Chiropractic non-peer-reviewed journals
    c. Chiropractic peer-reviewed journals
    d. Nonchiropractic health care journals
    e. Textbooks
    f. Seminars/Workshops
    g. Clinical faculty
    h. Nonclinical faculty
    i. Literature searches

APPENDIX II. EVIDENCE-BASED HEALTH CARE RESOURCES

Journals

- Evidence-Based Medicine
- Evidence-Based Health Policy and Management
- ACP Journal Club

CD-ROM

- Medline
- Best Evidence
- The Cochrane Library
- Database of Abstracts of Reviews of Effectiveness
- Critical Appraisal Skills Programme (CASP)

Internet

- Medline—http://www.ncbi.nlm.nih.gov/PubMed/
- NHS Research and Development Centre for Evidence-Based Medicine—http://cebm.jr2.ox.ac.uk/
- How to Teach Evidence-based Clinical Practice, '99—http://hiru.mcmaster.ca/ebm
- Cochrane Collaboration—http://hiru.mcmaster.ca/COCHRANE
- E-mail discussion list—evidence-based-health@mailbase.ac.uk
- Netting the Evidence—http://www.shef.ac.uk/~scharr/ir/netting
- Clinical Evidence—http://www.bmjpg.com/evid99/index
- Wisdom Project—http://www.shef.ac.uk/uni/projects/wrp/index
- Critical Appraisal Skills Programme (CASP)—http://www.his.ox.ac.uk/casp/home_page
- New York Academy of Medicine Evidence Based Medicine Bibliography—http://www.nyam.org./library/ebmbib