

Evidence-Based Medicine (EBM): What Long-Term Care Providers Need to Know

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KEYWORDS

- Evidence-based medicine • Long-term care facility
- Nursing homes • EBM

Evidence-based medicine (EBM) has been exponentially disseminated to every field of medicine over past 2 decades.¹⁻⁷ EBM is now a part of postgraduate competency through practice-based learning.⁸ However, its potential use in the long-term care setting was only recently appreciated in the literature.^{1,9,10} EBM may play an important role in reforming nursing homes and improving quality care.^{1-5,9,10}

The simple search term “EBM,” limited to English and human in Medline, generated 49,304 citations, which narrowed to only 173 when “nursing homes” was added, indicating that EBP is not rare and is being implemented in long-term care. It has been a great effort that each article in this special issue presents evidence-based recommendations to long-term care providers to guide their daily practice. In contrast to the evidence-based approach to individual geriatric conditions addressed in the other articles in this issue, this article briefly introduces the basic concept of EBM; addresses some potential benefits, harms, and challenges of its practice in a long-term care setting; and promotes its appropriate use among providers of long-term care. For those who already know the EBM basics and are interested in become experts, several textbooks on EBM are recommended.¹¹⁻¹³ Attending an EBM workshop, such as one run by McMaster University,¹⁴ could also be helpful. Many Internet resources are also useful, including PIER: The Physicians’ Information and Education Resource (pier.acponline.org), Clinical Evidence (www.clinicalevidence.bmj.com), UpToDate

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(www.uptodate.com), Evidence-Based Medicine Guidelines (<http://onlinelibrary.wiley.com>), The Cochrane Library (<http://www.thecochranelibrary.com>), Clinical Guidelines (<http://www.guideline.gov/>), and ACP Journal Club (www.acpjc.org). KC Clearinghouse (<http://ktclearinghouse.ca/cebm/syllabi/geriatric>) has a page introducing the EBM concept and framework for the geriatric population, which can be very useful for long-term care providers.

THE EBM CONCEPT

The concept of EBM was developed in 1991 by Professor Gordon Guyatt at McMaster University.¹⁵ EBM is defined as the integration of the best available evidence with clinical expertise, patient values and preferences, and clinical circumstances (**Fig. 1**).¹⁶ The concept is that EBM offers health care providers a framework to make the best decisions for individual patients. From this perspective, evidence-based clinical practice or evidence-based practice (EBP) is also used.^{17,18} EBM and EBP are used interchangeably in this article.

The concept of EBM is particularly relevant to long-term care, in which patients often have multiple coexisting conditions, including medical diseases, mental and psychological disorders, functional decline, and multiple symptoms. Their preferences may be different from those of patients receiving non-long-term care, such as wanting care that provides more comfort rather than prolongs life.

Research findings are one part of the available evidence. Because evidence is lacking for many situations, long-term care providers may have to use their clinical

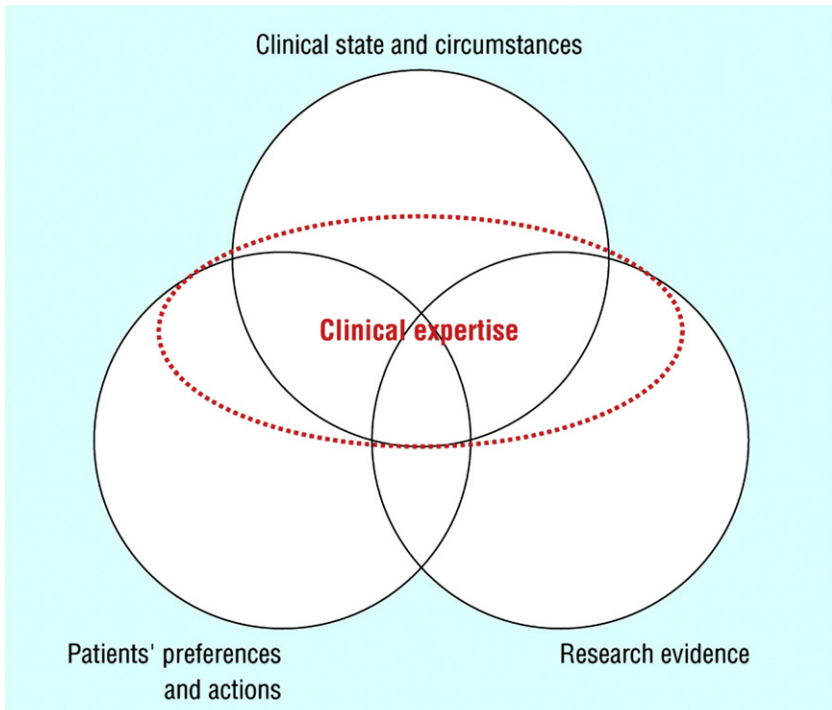


Fig. 1. Definition of EBM. (From Haynes RB, Devereaux PJ, Guyatt GH. Physicians' and patients' choices in evidence based practice. *BMJ* 2002;324:1350; with permission.)

experience and judgment to decide what is best for their frail patients. The application of EBM obviously extends beyond results of randomized controlled trials or systematic reviews, such as Cochrane reviews. EBP is important in the context of long-term care.

Although the strongest evidence on therapeutic interventions in general is provided by systematic reviews of either multiple or single, large, well-performed randomized controlled trials, few have been conducted in the long-term care setting.^{9,19} A search of Medline using the simple terms “randomized controlled trials” and “nursing home,” and limited to English and human from 1968 to 2009, showed that only 300 trials were conducted in nursing homes (**Table 1**).²⁰ More non-drug randomized controlled trials were conducted than drug trials. Some randomized controlled trials tested the efficacy of intervention for psychological disorders and vaccinations. The results from these randomized controlled trials can be integrated with clinical decision making in managing these conditions.

No single trial has tested drug efficacy in treating hypertension, congestive heart failure, hyperlipidemia, and other cardiovascular diseases in the nursing home setting, although many residents take cardiovascular drugs. Therapeutic decisions for patients with these diseases may be difficult for long-term care providers. Additionally, randomized controlled trials addressing some conditions might be impossible or inappropriate to perform in the long-term care setting. For example, whether inserting a feeding tube for a nursing home patient with advanced dementia could prolong life or improve quality of life could be difficult to evaluate in randomized controlled trials. Under these circumstances, decision making can be challenging, and the evidence must come from non-randomized controlled trials. Provider experience and patient values and preferences may contribute substantially to the decision making process for long-term care providers who wish to treat the whole patient. Evidence from non-randomized controlled trials has been used to support decision making for certain conditions.

Improvement of quality care and pay for performance have become important topics in the long-term care literature.¹⁻⁷ EBM can be used to develop clinical guidelines to standardize clinical practice and hopefully control medical expenditure (ie, *regulatory EBM*).²¹ However, this is an area of controversy, and the concerns about using EBM to regulate long-term care practice and measure quality of care^{6,7} should be considered.

EBM APPLICATION IN LONG-TERM CARE FACILITIES

The practice of EBM in long-term care settings, especially nursing homes, is unique in many ways. Long-term care is more tightly regulated than other settings. Patients

Trial Types	2001–2009	1968–2000	Total
Drug trials (n) ^a	59	45	104
Vaccine trials	4	6	10
Non-drug trials (n) ^b	131	53	184
Mixed drug and non-drug trials	2	None	2
Total	196	104	300

^a Prescribed medications, over-the-counter drugs, and nutritional supplements.

^b Involving exercise, smoking cessation, and physical therapy.

receiving long-term care are usually old and frail, often have multiple conditions, and take many pills. Providing high-quality care for these patients is challenging.¹⁻⁷ The potential benefits, harms, and challenges in practicing EBM in long-term care facilities are discussed briefly.

A recent report by the Institute of Medicine summarized the concerns regarding quality of care in the long-term care setting.²² Nursing home reform, improvement of care and pay for performance, and implementation of EBM in long-term care settings have been recent topics of interest.^{1-7,10} The needs for high-quality and standardized care in long-term care facilities clearly should and must be met. Some clinical practice guidelines have been developed and some randomized controlled trials have been conducted in the long-term care setting. However, implementation of these guidelines requires long-term care providers to understand the evidence and comply with the recommendations. Understanding of the basic EBM concept could help long-term care providers use the evidence appropriately, offer them a new way to practice medicine, and help them make better decisions for their older patients and the families, potentially improving the quality of care in these settings.

Despite this potential benefit, practicing EBM in a long-term care setting has many challenges.^{1,9,10} First, practicing EBM might require training and education for providers and perhaps other staff members. A formal EBM workshop for long-term care providers is urgently needed. Money and time are limiting factors. The good news is that the *Journal of American Medical Director Association*, a leading journal of long-term care providers, recently published some valuable review articles on EBM.^{1,9,10}

Second, EBM has not been well tested to show that it improves outcomes and quality of care in general medicine and long-term care. Little evidence is available from high-quality randomized controlled trials performed in the long-term care setting.²⁰ Furthermore, most randomized controlled trials are efficacy trials, meaning they are conducted in ideal conditions, rather than effectiveness trials, meaning they are conducted in the real world. Also, achieving clinical outcomes depends on multiple factors.²³ The results from the research population might not be applicable to individual patients in the real world, which could make providers unwilling to use EBM. More randomized controlled trials must be performed in the long-term care setting.^{9,19}

Third, old and frail patients in long-term care facilities often have multiple coexisting problems, including medical diseases, psychological and mental disorders, functional decline, and multiple symptoms. Unfortunately, most clinical practice guidelines, randomized controlled trials, and meta-analyses are disease- or organ-based. The targeted outcomes are often prevention of mortality and morbidity. This kind of evidence might not be applicable to a long-term care setting, where providers treat the whole person, and often according to the patient's individual goals of care, such as prolonging life, improving and maintaining function, or relieving symptoms.²⁴ These goals can sometimes present a conflict for an individual patient. For example, treating hypertension to prolong life and prevent stroke may cause some well-known side effects, such as constipation and fatigue secondary to antihypertensive drugs, leading to decreased comfort.

Furthermore, because of frequent cognitive impairment among patients in long-term care facilities, the patients are unable to express their major issues and preferences to providers, and therefore shared or patient-centered decision making can be difficult. Under these circumstance, providers must speak to the individual with power of attorney or the health proxy, such as a family member.

Finally, many important clinical questions in long-term care facilities are difficult to answer based on evidence from randomized controlled trials, which could be

frustrating to long-term care providers. Therefore, evidence from non-randomized controlled trials must be used, such as from those examining the benefit or harm of tube feeding, the secondary prevention of cardiovascular diseases, outcomes of palliative care, and hospice care. The danger is if this easily obtained evidence becomes the only focus and results in the “Idries Shah effect,” in which some treatments become the norm, but not because they are actually better, rather because the evidence for them was better tested.²¹

Practicing EBM in the long-term care setting could also cause some potential and unexpected harm. First, whether the evidence based on research in middle-aged or healthy old patients can be applied to old and frail patients receiving long-term care is unclear. The benefit for patients not receiving long-term care might not be reproducible for old and frail patients who are receiving this care, and harm might become more common and potentially worse. Good examples are aggressive treatment of diabetes mellitus and hypertension.

Second, providers must be careful to not simply follow disease-based guidelines when treating older persons. These may not take into consideration drug–drug and drug–disease interactions. For example, treating one problem may cause another problem in some older patients, depending on their comorbid conditions and current medications. Therefore, long-term care providers must examine the results for non-long-term care patients carefully.

Third, government, insurance, or other agencies may potentially misuse EBM in policymaking (ie, *regulatory EBM*),²¹ such as when using EBM to determine pay for performance, which could cause many unexpected problems in the long-term care setting.^{6,7}

SUMMARY

EBM has been widely used in medicine for 2 decades. Recently, EBM has become a central part of reforming nursing homes and quality improvement.^{1–7,10} It can be very important for long-term care providers to practice EBM. This article introduces the concept of EBM; addresses some potential benefits, harms, and challenges of practicing EBM in the long-term care setting; and promotes EBM and its appropriate use among long-term care providers.

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