



# Comparative and cost-effectiveness research: Competencies, opportunities, and training for nurse scientists

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## ABSTRACT

**Background:** Comparative and cost-effectiveness research develops knowledge on the everyday effectiveness and value of treatments and care delivery models.

**Purpose:** To describe comparative and cost-effectiveness research; identify needed competencies for this research; identify federal funding; and describe current training opportunities.

**Methods:** Published recommended competencies were reviewed. Current federal funding and training opportunities were identified. A federally funded training program and other training opportunities are described.

**Discussion:** Fourteen core competencies were identified that have both analytic and theoretical foci from nursing and other fields. There are multiple sources of federal funding for research and training. Interdisciplinary training is needed.

**Conclusion:** Comparative and cost-effectiveness research has the opportunity to transform health care delivery and improve the outcomes of patients. Nurses, as clinicians and scientists, are in a unique position to contribute to this important research. We encourage nurses to seek the needed interdisciplinary research training to participate in this important endeavor. We also encourage educators to use the competencies and processes identified in current training programs to help shape their doctoral programs.

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## Background

Currently, the United States is spending almost 18% of the gross domestic product (GDP) on health care; and economists and actuaries from the Centers for

Medicare and Medicaid projected health care spending to rise on average 5.6% per year between 2016 and 2025 to 19.9% of the GDP by 2025 (Keehan et al., 2017). This is far more than any other developed country, and the U.S. population has poorer health outcomes and higher health risk factors (OECD, 2015). Therefore, achieving

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high value has become an overarching goal and a necessity with value defined as the health outcomes achieved per dollar spent (Porter, 2010). Furthermore, irrespective of any changes in national health policy, the projected cost pressures will likely be associated with patients, clinicians, payers, and health policy-makers continuing to seek innovative strategies to increase value.

One reason for the problem in optimizing health care value is the lack of comparative clinical data on the effectiveness and costs of treatments and care delivery models. The U.S. research community, including nurse scientists, has an unprecedented opportunity to inform decisions and improve the nation's health system, the health of the population, and increase value through comparative and cost-effectiveness research (Lauer & Collins, 2010; Pincus, 2011; U.S. Department of Health and Human Services, 2009).

The purposes of this article are to describe the overall goals of comparative and cost-effectiveness research and the unique contribution nurse scientists may make; identify needed competencies for comparative and cost-effectiveness research; identify federal funding for comparative and cost-effectiveness research; and describe current training opportunities. This information should be useful to educators interested in including comparative and cost-effectiveness research methods in their PhD programs and the next generation of nurse scientists (i.e., predoctoral students, postdoctoral fellows, and midcareer nurse scientists) who would like to be trained in these methods.

## Goals of Comparative and Cost-Effectiveness Research

Comparative effectiveness research is an interdisciplinary field of inquiry that develops knowledge on the effectiveness of various interventions to inform decisions about health care delivery and value (Jacobson, 2007). Specifically, comparative effectiveness research is a translational science that has been defined as the conduct and synthesis of research comparing the benefits and harms of different interventions and strategies to prevent, diagnose, treat, and monitor health conditions in real-world settings (U.S. Department of Health and Human Services, 2009). Its purpose is to improve health outcomes by developing and disseminating evidence-based information about the effectiveness of interventions (Iglehart, 2009; U.S. Department of Health and Human Services, 2009; Volpp & Das, 2009). This is in contrast to efficacy research where the question is typically whether the treatment can work under a controlled environment (Greenfield & Kaplan, 2012).

Because comparative effectiveness research aims to inform actual clinical situations, it is much more

patient centered. Indeed, there is overlap between the terms patient-centered outcomes research and comparative effectiveness research. Both these research paradigms focus on the everyday needs and outcomes of concern to patients in making health care decisions.

The Patient Centered Outcomes Research Institute (PCORI) is an independent nonprofit organization that was authorized by Congress in 2010 (<http://www.pcori.org>). The mandate of PCORI is to improve the quality and relevance of evidence available to help patients, caregivers, clinicians, employers, insurers, and policymakers to make informed health decisions. For example, PCORI has funded researchers at the University of Rochester to analyze how telehealth can impact participants' well-being, access to care, and system efficiency. This has led to publication that outlines the issues that health systems should consider when making decisions about adoption of telehealth and a discussion of the current disincentives because of lack of reimbursement (Dorsey & Topol, 2016). Furthermore, PCORI supports work that will improve the methods used to conduct comparative effectiveness studies and emphasizes the importance of including patients and other stakeholders' values through engagement in the entire research process (i.e., from developing the questions to disseminating the results).

Cost-effectiveness research is part of a comprehensive comparative effectiveness evaluation (Roberts, 2016). Specifically, cost-effectiveness analysis is a set of economic evaluation tools designed to compare relative costs and effectiveness of two or more comparable health care interventions (Frick & Stone, 2009; Garber, 2011; Jacobson, 2007). Although cost-effectiveness research evaluates both cost and effectiveness, it has sometimes been equated with rationing and therefore is associated with some degree of political controversy (Rich, 2012). Indeed, this is why PCORI is mandated by the Congress not to fund cost-effectiveness research (Pincus, 2011). However, leading scientists recognize the rigor and applicability of well-conducted cost-effectiveness analyses. For example, in a recent National Institute of Health (NIH) Director's Blog, Dr Francis Collins discussed the importance of results from an NIH-funded cost-effectiveness analysis in informing clinical decision making and health policy (Collins, 2016). In 2015, NIH clarified its priorities for health economics research, which includes measuring or modeling the impact of interventions on health outcomes, behaviors, and utilization (NOT-OD-16-025). Furthermore, the Council for the Advancement of Nursing Science Idea Festival Advisory Committee identified health economics as an emerging area of nursing science to be incorporated in nursing PhD programs because of its importance to achieving high value care (Henly, McCarthy, Wyman, Alt-White et al., 2015a, 2015b, 2015c). The National Institute of Nursing Research (NINR) leadership recognizes that innovative study designs and analytic techniques are needed

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