



A statewide controlled trial intervention to reduce use of unproven or ineffective breast cancer care



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ARTICLE INFO

Article history:

Received 12 May 2016

Received in revised form 25 July 2016

Accepted 9 August 2016

Available online 10 August 2016

Keywords:

Breast cancer

Choosing Wisely®

Controlled trial

Complex intervention

High-value health care

ABSTRACT

Background: Challenged by public opinion, peers and the Congressional Budget Office, medical specialty societies have begun to develop “Top Five” lists of expensive procedures that do not provide meaningful benefit to at least some categories of patients for whom they are commonly ordered. The extent to which these lists have influenced the behavior of physicians or patients, however, remains unknown.

Methods: We partner with a statewide consortium of health systems to examine the effectiveness of two interventions: (i) “basic” public reporting and (ii) an “enhanced” intervention, augmenting public reporting with a smart phone-based application that gives providers just-in-time information, decision-making tools, and personalized patient education materials to support reductions in the use of eight breast cancer interventions targeted by Choosing Wisely® or oncology society guidelines. Our aims are: (1) to examine whether basic public reporting reduces use of targeted breast cancer practices among a contemporary cohort of patients with incident breast cancer in the intervention state relative to usual care in comparison states; (2) to examine the effectiveness of the enhanced intervention relative to the basic intervention; and (3) to simulate cost savings forthcoming from nationwide implementation of both interventions.

Discussion: The results will provide rigorous evidence regarding the effectiveness of a unique all-payer, all-age public reporting system for influencing provider behavior that may be easily exportable to other states, and potentially also to large healthcare systems. Findings will be further relevant to the ACO environment, which is expected to provide financial disincentives for ineffective or unproven care.

Trial Registration: ClinicalTrials.gov number pending.

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1. Background

The Congressional Budget Office estimates that 30% of health care provided is unnecessary, defined as services that do not improve the patient’s health [1]. Physicians resist the idea that they hold responsibility for rising healthcare costs, with 60% of physicians responding that trial lawyers bear major responsibility for healthcare costs and only 36% responding that practicing physicians bear that responsibility [1]. In 2009, Dr. Howard Brody challenged specialty societies to develop a Top Five list of relatively expensive procedures that do not provide meaningful benefit to at least some categories of patients for whom they are commonly ordered [2]. The Choosing Wisely® campaign was

developed by the American Board of Internal Medicine in response, and has been embraced by most of the major medical specialty societies, including the American Society of Clinical Oncology (ASCO) [3]. However, the extent to which the development of these lists has influenced the behavior of physicians or patients is not known. Given the difficulties encountered with engendering physician behavior change in the past, it is likely that supplemental methods will be needed to change the current culture of US healthcare.

Breast cancer care is an attractive model for the study of use of ineffective or unproven interventions for several reasons. It is the most common malignancy in US women, with about 232,000 new cases occurring in 2013, representing 29% of all new female cancer cases. The disease is relatively well-studied, with a strong evidence base regarding the need for initial and follow-up procedures. Two of the five items appearing on the first ASCO Choosing Wisely list focus on breast cancer specifically. Finally, breast cancer presents a particular challenge for the promotion of evidence-based care, because the care is often shared by

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several different physicians (surgeon, medical oncology, radiation oncology, others), and because care is quite decentralized, rather than being regionalized or provided primarily in academic health centers. For example, we have found that breast cancer operations represent only 4.5% of the total surgeries performed by US general surgeons, who operate on 90% of US breast cancer patients [1]. The decentralization of breast cancer care implies that methods of changing physician behavior that can target large populations would be preferred.

One method of doing so is public reporting of quality metrics [4,5,6]. Public reporting systems have proliferated significantly during the past decade. In 2008, Fung et al. [7] published a review of 45 studies of the effects of publicly reported data. It was noted that many of the studies focused on a select few publicly reported systems, and that many existing publicly reported systems had not been evaluated. A subsequent Cochrane Collaboration Review [8] applied more stringent eligibility criteria, and included only 4 published studies, with only 1 of these studies evaluating the effect of publicly reported data through the change pathway. Despite the extant of systems publicly reporting provider performance, recent reviews have found few rigorous evaluations [7–9] and have called for more studies of this promising method of influencing behavior.

2. Study goals

The goal of this project is to examine the effectiveness and potential cost savings of two organizational interventions aimed at reducing the use of ineffective or unproven care among women with incident breast cancer. Taking advantage of a unique existing infrastructure, we partnered with the Wisconsin Collaborative for Healthcare Quality (WCHQ), an all-patient, all-payer voluntary collaborative consortium in the state of Wisconsin that enabled us the possibility of testing our interventions in a consistent and cost-effective manner, particularly for reaching providers who are often decentralized.

The two interventions to be tested include (i) a “basic” public reporting intervention summarizing practice-level statistics on WCHQ’s website and (ii) an “enhanced” intervention, augmenting public reporting with a smart phone/web-based application (app) that gives providers just-in-time information, decision-making tools, patient education materials and personalized benchmarking. The “App,” a completely innovative aspect of this study, is especially well suited to improving the performance of providers who are generalists with regard to the disease of focus (e.g., surgeons and medical oncologists who are not necessarily specialized in breast cancer.) In addition to being a common form of interactive electronic access to information, the app permits the sending and receiving of information at an individual level and enables instruction to proceed regardless of geographic proximity or time scheduling barriers.

Specifically, our aims are: (1) To examine the extent to which basic public reporting reduces use of targeted breast cancer practices in the intervention state relative to usual care in comparison states; (2) To examine the effectiveness of the enhanced intervention relative to the basic intervention, using both an intent-to-treat and treatment-on-treated approach; and (3) To simulate cost savings forthcoming from nationwide implementation of both interventions (relative to each other and to usual care) and to describe the implications of these findings for reimbursement policy and program initiatives.

2.1. Hypotheses

We have formulated hypotheses in two broad areas: 1) provider behavior and 2) organizational or system cost savings. In the realm of provider behavior, we expect that both the basic and enhanced interventions will yield observable and significant reductions in the use of ineffective or unproven breast cancer interventions targeted by the study. We further hypothesize that the more intensive, enhanced intervention will demonstrate greater as well as more sustained

reductions in the use of ineffective or unproven breast cancer care relative to those in the basic group. Finally, we expect that both interventions will yield cost-savings relative to usual care.

3. Research design and methods

Our specific aims focus on quantifying, empirically, the impact of two information-based interventions aimed at reducing the use of unproven and ineffective breast cancer practices. We will begin by quantifying utilization of unproven or ineffective breast cancer care in the state of Wisconsin and contrast it to neighboring states and nationwide using Marketscan and Medicare data. It is important to recognize that while the WCHQ will determine the rates of use of discouraged interventions according to its customary practice of analyzing local billing data, the source of data used by the investigators to determine effectiveness of the interventions will be the national Marketscan and Medicare data. The use of these datasets provides an effective approach to characterizing “usual care” against which to determine the impact of the basic intervention for a “real world” sample of breast cancer patients of all ages. Having quantified the impact of the basic intervention relative to usual care (Aim 1) and the relative effectiveness of the basic and enhanced interventions relative to each other (Aim 2), we then use parameter estimates generated by these previous analyses to simulate the anticipated cost savings associated with nationwide implementation of the two proposed interventions (Aim 3) for reducing use of unproven and/or ineffective breast cancer care for the large number of women of all ages undergoing breast cancer care in the U.S.

3.1. Conceptual framework

Behavioral approaches to changing provider practices generally rely on a three-part conceptual model that emphasizes the importance of understanding: 1) the antecedents of a given behavior or practice, 2) the context in which the behavior occurs, and 3) its consequences [10]. Green and Kreuter’s [11] “Precede/Proceed” model is helpful in conceptualizing factors influencing provider practice change. That model emphasizes the influence of “predisposing,” “enabling,” and “reinforcing” factors on practitioner behavior. Predisposing factors include *individual practitioner characteristics* - such as training, knowledge and beliefs - that affect *motivation* to change. Enabling factors include *organizational and structural factors* - such as public reporting, reminders, or information systems - that *facilitate* change. Finally, reinforcing factors include *incentives*, both tangible and intangible, that reward selected behaviors. More recently, Berwick, James and Coye [12] proposed a framework focused specifically on the pathways whereby public reporting, the basis of our basic intervention, may improve provider performance. According to their framework, providers are driven by a desire to maintain or increase market share. Public reporting therefore encourages providers to change (improve) their practice behavior *directly* by (i) identifying and exposing poor quality providers who are then motivated to change in order to avoid being labeled or sanctioned as such by employers or payers (the reputation effect pathway) or *indirectly* by (ii) empowering patients to be better consumers and avoid providers who practice poor quality care (the patient choice pathway). Fig. 1 provides a diagram of the conceptual framework underlying our study emphasizing the dynamic relationship among the key elements of both models.

3.2. The Wisconsin Collaborative for Healthcare Quality (WCHQ)

Founded in 2003, WCHQ is a multi-stakeholder consortium of 32 organizations drawn from throughout the state of Wisconsin. The organization includes health systems, medical groups, hospitals, and health plans whose goal is to measure and improve the quality and affordability of healthcare in the state. This diverse group contains the state’s largest health systems, in addition to virtually all moderate-sized practices

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