

An Employer-Based Health Care Waste Indicator Tool: Prospects, Potential and Problems

By Paul Hughes-Cromwick, George Miller and Paul Fronstin

BACKGROUND

The [Altarum Health Sector Economic IndicatorsSM](#) estimate that, as of May 2019, U.S. health spending reached a seasonally adjusted annual rate of \$3.81 trillion, nearly 18 percent of the U.S. gross domestic product. [Berwick and Hackbarth \(2012\)](#) estimate that between 21 and 47 percent of this spending is wasteful. Thus, whether waste is as “low” as 21 percent or as high as 47 percent, we are looking at between \$800 billion and nearly \$1.8 trillion in annual waste. Imagine the economic potential of liberating this loss!

Low-value care constitutes a significant portion of this waste. Recognition of the importance of reducing low-value care and outright waste has grown apace with increasing sophistication of the associated tools. These tools are equipped to analyze claims for a specific population and measure the waste associated with specific clinical services (e.g., the work of [Schwartz and colleagues \(2014\)](#), [Milliman’s MedInsight Health Waste Calculator](#), and [Altarum’s PROMETHEUS Value](#)).

A recent discussion by Delbanco, Lehan and Murray of promising activities of employers to reduce waste can be found [here](#). They conclude: “It’s clearly going to take myriad approaches to reduce inappropriate care. Employers and other health care purchasers are in a position to take steps. Employee education and navigation support—such as strengthening employee communications about appropriate sites of care and helping patients seek the right course of treatment—are critical elements. It will also be important to support payment and delivery reforms that incentivize providers to reduce inappropriate care and the waste that accompanies it.”

However, we believe these efforts could be dramatically accelerated if there existed a health care waste calculator or tool that could be specifically applied to a medium to large employer. In this paper, we describe the prospects, potential and problems of developing such an employer-based health waste tool.

MOTIVATION

Berwick and Hackbarth’s estimates and [similar assessments](#) can help motivate action to reduce wasteful spending, but they are based on limited, highly aggregate data; are not tied to specific populations, providers, or payers; and do not address specific classes of clinical waste (e.g., imaging, surgical procedures, or pathology). Alternative approaches to measuring clinical waste in detail using tools such as those mentioned above are based on meticulous analysis of individual clinical services. Because of the limitations of the claims data used in these analyses and the extensive effort required to develop the estimates, they are typically restricted to a small number of services and therefore do not provide comprehensive estimates of overall waste. While these efforts are certainly useful, there is a need for a relatively simple, more “macro” approach for approximating overall waste for a specific population, including an indication of the types of services that contribute most to this waste. Such an approach would help motivate action to further investigate waste, facilitate taking steps to reallocate health care resources to high-value care, and identify the clinical areas most in need of actions to effect such improvements.

We envision a macro tool that takes as input characteristics of a population and provides estimates of the size of the burden of wasteful spending for this population (measured in frequency or fraction of services that are wasteful and associated costs) and clinical areas that contribute most to this waste. Population characteristics would include those readily discerned from data specific to an employer and would include both publicly-available data and administrative data, such as:

- Location (area of the country, urban versus rural)
- Patient age
- Patient gender
- Employment characteristics
- Income
- Indicators of supply-side concentration
- Population health metrics
- Disease prevalence and severity measures
- Prices paid for services
- Measures of provider technology use
- Provider and facility quality metrics
- Coverage type (commercial insurance, Medicare, Medicaid, no insurance)
- Plan type (managed care, fee for service)
- Cost sharing (high-deductible, co-pays, maximum out-of-pocket)

TECHNICAL APPROACH

We believe it would be possible to develop a predictive model of waste that could evolve into a free, publicly-available tool for users to estimate the magnitude and likely clinical areas for their specific population. An initial phase of such an effort would identify candidate methods to be employed, design and evaluate varying specifications of predictive models to estimate waste and low-value care based on population characteristics and conduct tests of those models in a set of employer populations. These tests would serve to validate the models and elucidate needs of potential users for a measurement tool that could be web-based. While we envision the predictive models to estimate waste without the need for claims data analyses, one might use administrative claims in the testing and evaluation process of building the model to test its effectiveness and consistency. For example, claims could be used to benchmark the level of waste in services or clinical areas, as measured by other detailed techniques.

In a second phase, whose details would emerge from the results of phase 1, the work would produce a tool and develop an on-line version that could be used by provider groups, payers, and policy analysts to identify needs for follow-on, detailed analysis and subsequent fielding of interventions to reduce waste. While the results found in the tool would be broad-based, macro estimates of waste, these results would empower employers and potentially other payers (e.g., insurers or state governments for their Medicaid programs) with estimates of the financial burden of low-value care, which could motivate deeper investigations and efforts to reduce that care and reallocate to higher-value services. The tool would also highlight key clinical areas where users should focus future efforts.

While at this point the work is prospective, we believe the tasks to achieve the first phase of this goal would include:

1. Conduct an environmental scan with the emphasis on identification of potential correlates of wasteful spending from population characteristics such as those listed above. The focus areas would include:
 - Methods to estimate overall wasteful spending, such as those used by Berwick and Hackbarth
 - The work of [Segal and colleagues \(2015\)](#) to develop an index of systemic overuse of clinical services
 - Methods and results from the [Dartmouth Atlas](#) to identify variation in the use of clinical services across the U.S.
 - Reviews of low-value care measures such as the work of [de Vries and colleagues \(2016\)](#)
 - Previous detailed efforts to measure low-value care of specific services using claims data, such as those by [Schwartz and colleagues \(2014\)](#), [Colla and colleagues \(2018\)](#) (who investigated some of the potential correlates of low-value care), [Mafi and colleagues \(2017\)](#), or [Rhyan and colleagues \(2019\)](#).

The scan could be supplemented with discussions with experts who have studied low-value care.

2. Identify the approach using the results of the environmental scan to identify specific methods to be employed by the tool. This would involve designing a model that identifies the likely correlates of wasteful spending and that would predict waste as a function of values of these correlates.
3. Test components of the approach. These tests be designed to ensure that the model provides the appropriate foundation for development of an on-line tool. They would include, for example, testing the ability of candidate correlates to contribute to accurate estimates of wasteful spending. These tests would inform any modifications that are required to the approach.

FEASIBILITY AND PROSPECTS

The results of the above three tasks would lead to an assessment of the feasibility of developing a tool that produces reasonably accurate estimates of wasteful spending. If development of the tool is deemed to be feasible, a research plan for phase 2 of the effort would describe an approach for (1) converting the model to a working tool, (2) hosting the tool on a web site for use by systems, payers, and policy analysts, (3) testing the tool with one or more candidate populations (such as the beneficiaries of a large employer or the population served by a large health provider), and (4) providing user documentation and documentation of the underlying methodology.

CONCLUSION

We believe that constructing an employer-based health care waste calculator would be quite valuable and that it is feasible. Doing so would not be trivial, would require research resources and likely at least a year to complete. The result, however, would help advance efforts to control spending in the U.S. health care system.



ABOUT US

The Research Consortium for Health Care Value Assessment is a partnership between Altarum and VBID Health, with funding from the PhRMA Foundation as part of its Value Assessment Initiative, established to promote the pursuit of value in health care delivery in the U.S.

Contact: Beth Beaudin-Seiler, Ph.D., 3520 Green Court, Suite 300, Ann Arbor, MI 48105
(734) 302-5691 | www.hcvalueassessment.org | [@ValueConsortium](#)