SA-CME

Value Analysis of Digital Breast Tomosynthesis for Breast Cancer Screening in a US Medicaid Population

Jeffrey D. Miller, MS[a], *Machaon M. Bonafede, PhD, MPH*[a], *Sally D. Herschorn, MD*[b], *Scott K. Pohlman, MS*[c], *Kathleen A. Troeger, MPH*[c], *Laurie L. Fajardo, MD, MBA*[d]

Abstract

Purpose: Better understanding regarding the clinical-economic value of digital breast tomosynthesis (DBT) for breast cancer screening for Medicaid enrollees is needed to help inform sound, value-based decision making. The objective of this study was to conduct a clinical-economic value analysis of DBT for breast cancer screening among women enrolled in Medicaid to assess the potential clinical benefits, associated expenditures, and net budget impact of DBT.

Methods: Two annual screening mammography scenarios were evaluated with an economic model: (1) full-field digital mammography and (2) combined full-field digital mammography and DBT. The model focused on two main drivers of DBT value: (1) capacity for DBT to reduce the number of women recalled for additional follow-up imaging and diagnostic services and (2) capacity of DBT to facilitate earlier diagnosis of cancer at earlier stages, when treatment costs are lower.

Results: Model analysis results showed that the use of DBT as a mammographic screening modality by Medicaid enrollees potentially reduces the need for follow-up diagnostic services and improves the detection of invasive cancers, allowing earlier, less costly treatment. With the modest incremental reimbursement of $37 for DBT expected for a typical Medicaid claim, annual cost savings from DBT predicted by the model amounts to $8.14 per patient, potentially translating into more than $12,000 savings per year for an average-sized Medicaid plan and as much as $207,000 savings per year for a typical state Medicaid program.

Conclusions: Wider adoption of DBT presents an opportunity to deliver value-based care to Medicaid programs and to help address disparities and barriers to accessing preventive care by some of the nation's most vulnerable citizens.

Key Words: Breast cancer screening, mammography, digital breast tomosynthesis, cost analysis, Medicaid

J Am Coll Radiol 2017;14:467-474.

Copyright © 2016 American College of Radiology. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

INTRODUCTION

Breast cancer is the most common cancer among women and is the second most common cause of cancer-related death in women in the US, although mortality rates have been declining in recent years because of the combination of earlier detection and improvements in cancer diagnostics and treatment [1]. Nonetheless, a variety of socioeconomic disparities seem to be associated with breast cancer screening, including many that may stem from lack of, or inadequate, health

[a]Truven Health Analytics, an IBM Company, Cambridge, Massachusetts.

[b]Department of Radiology and Vermont Cancer Center, Robert Larner College of Medicine at the University of Vermont, Burlington, Vermont.

[c]Hologic, Inc., Marlborough, Massachusetts.

[d]Department of Radiology and Imaging Sciences, University of Utah School of Medicine, Salt Lake City, Utah.

Corresponding author and reprints: Jeffrey D. Miller, MS, Truven Health Analytics, an IBM Company, 75 Binney Street, Cambridge, MA 02142; e-mail: jeffrey.d.miller@truvenhealth.com.

Funding for this study was provided by Hologic, Inc. (Marlborough, Massachusetts). Mr Pohlman and Mr Troeger were employed at the time the study was conducted by Hologic, Inc. Drs Herschorn and Fajardo serve as unpaid consulting advisers to Hologic, Inc. Dr Herschorn was formerly a Hologic, Inc. shareholder but divested all Hologic, Inc. stock before the conduct of this study. Mr Miller and Dr Bonafede were employed at the time the study was conducted by Truven Health Analytics, an IBM Company, which received research funding from Hologic, Inc. The authors have no other relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript apart from those disclosed.

© 2016 American College of Radiology. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
1546-1440/17 ■ http://dx.doi.org/10.1016/j.jacr.2016.11.019

insurance coverage [2-7]. Breast cancer screening historically has occurred at much lower rates for women enrolled in Medicaid, which funds medical care for nearly 72 million persons in the US [2,5,6,8,9]. Remarkably, Medicaid enrollees are 2.5 times more likely to be diagnosed with later stage cancer compared with privately insured women, who generally undergo more regular mammographic screening [4,10]. In direct consequence, women enrolled in Medicaid experience increased morbidity and mortality from breast cancer, as delayed diagnosis and/or advanced-stage diagnosis lead to longer and more complicated and debilitating treatment and, ultimately, lower survival [4-6,8,10].

After implementation of the Patient Protection and Affordable Care Act in 2010 and subsequent expansion of health insurance marketplaces and Medicaid eligibility, the number of uninsured women is decreasing whereas demand for breast cancer screening is increasing, most prominently in Medicaid expansion states [2,11-14]. Contributing factors include the Affordable Care Act requirement to cover breast cancer screening without cost sharing [11,14] and technological advances in mammography, such as digital breast tomosynthesis (DBT) [15-17]. Although DBT coverage is discretionary by Medicaid programs, in 2015 CMS established a payment rate for Current Procedural Terminology code 77063 for screening DBT mammography; under Medicare coverage, the same policies that were applicable to other screening mammography codes became applicable to DBT with Current Procedural Terminology code 77063 [18].

As the clinical advantages of DBT are appreciated by health care providers and payers, the economic attributes of DBT are also being realized [19-23]. In 2015, a value analysis of DBT for breast cancer screening among women enrolled in US commercial health insurance plans was published [19]. Results from the analysis showed that through the use of DBT, an estimated 4,500 women in a million-member health plan potentially could avoid unnecessary testing and/or treatment and the associated anxiety-provoking experience of false-positive findings on mammography. The potential cost savings for the use of DBT with an assumed reimbursement of $50 were estimated at $28.53 per screened patient, or $2.4 million per year for the health plan. These modeled results demonstrate the clinical and economic favorability of DBT for breast cancer screening among commercially insured US women, but they do not address the clinical-economic value of DBT for the 6.9 million women aged 40 to 65 years [9,24] who are enrolled in Medicaid.

Better understanding regarding the clinical-economic value of DBT for Medicaid is needed to inform sound decision making, especially considering the vast scope of Medicaid insurance coverage in the US and the vulnerability of the population it covers. Medicaid expansion is having a positive impact on mammographic screening rates, but this expansion is occurring in a cost-conscious environment [2,11-14]. The objective of this study was to conduct a value analysis of DBT for breast cancer screening among women enrolled in Medicaid to assess its clinical benefits, associated expenditures, and net budget impact.

METHODS

Economic Model Overview

The primary driver of DBT economic value comes from the capacity for DBT to reduce the number of women recalled for additional follow-up imaging and diagnostic testing services and the corresponding reduction in the costs of health care resource utilization. A secondary driver of DBT economic value is the capacity of DBT to facilitate earlier diagnosis of cancer, particularly diagnosis of cancers at earlier stages, when treatment costs are less [25]. Together, these value drivers offset additional reimbursement costs of DBT and produce a potential net cost savings for Medicaid plans. To simulate these dynamics in a Medicaid population, we adapted a previously developed economic model [19] to estimate the financial impact of DBT combined with full-field digital mammography (FFDM) as a breast cancer screening modality. Adaptation of this model for a Medicaid perspective concentrated mostly on the data elements in the model, as the structure and operation of the previously developed model remained unchanged. Aside from published literature, the primary source of data for the model came from custom analyses of the Truven Health Analytics Medicaid Multi-State Database [26], a real-world claims database of health care resource utilization and costs from more than 31 million deidentified Medicaid enrollees from approximately 12 geographically dispersed states. Additional information about the Medicaid model input parameters and the sources for these data has been made available in the Online Appendix.

The modeling analyses center on hypothetical cohorts of Medicaid enrollees, disaggregated by average state program size and individual plan sizes. The total number of Medicaid enrollees in all 50 US states, the District of

Download English Version:

https://daneshyari.com/en/article/5726544

Download Persian Version:

https://daneshyari.com/article/5726544

Daneshyari.com