

The long-term cost-effectiveness of treatments for benign prostatic hyperplasia

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Abstract: Benign prostatic hyperplasia (BPH) is a chronic and nearly universal phenomenon in the aging male characterized by lower urinary tract symptoms. Most randomized clinical trials used to evaluate the safety and effectiveness of treatment alternatives are narrow in scope and duration in terms of the number of treatments being compared and the duration of these comparisons.

This dissertation examines the long-term cost-effectiveness and cost-consequences of treatment alternatives for the treatment of BPH over a 20-year period using a Markov model. Treatment alternatives included watchful waiting, pharmaceuticals (α -blockers, 5- α -reductase inhibitors [5-ARIs], and combination therapy), transurethral microwave thermotherapy (TUMT), and transurethral resection of the prostate (TURP). The policy implications of the model and need for additional research were assessed using value of information analysis. Data for the analysis were extracted from BPH recent treatment guidelines and systematic reviews, and traditional cost-effectiveness methods were employed.

The 20-year cost-effectiveness analysis results illustrated that α -blockers and TURP were more cost-effective than alternatives for patients with moderate and severe symptoms, respectively, relative to the alternatives. For patients with severe symptoms, TURP remains the "gold standard" but TUMT was promising among the oldest old, providing a cost-effective treatment that was less expensive and less invasive than surgery.

Examining the cost-consequences, α -blockers were the least expensive active treatment; however, they had little effect on clinical outcomes including BPH progression relative to other active treatments, suggesting that they do not treat the underlying disease. Other treatments, including 5-ARIs and combination pharmaceutical therapy, offer more benefits than α -blockers with regard to lower disease progression and improved clinical outcomes; however, the benefits come at an increased price.

The value of information analysis demonstrated that additional research into BPH treatment alternatives is merited, as the opportunity cost of making an incorrect decision from the societal perspective likely exceeds the cost of additional research. Additional research is particularly important for the probability and extent of improvement. Due to the aging of the population and the development of newer treatments for BPH, further work is necessary to determine more information about which treatments might be more cost-effective in the future.

Links: [Linking Service](#)

Subject: Public health; Surgery; Studies; Prostate;

Classification: 0573: Public health; 0564: Surgery

Identifier / keyword: Health and environmental sciences, Benign prostatic hyperplasia, Transurethral resection

Pages: 150 p.

Number of pages: 150

Publication year: 2005

Degree date: 2005

School code: 0153

Source: DAI-B 66/09, p. 4753, Mar 2006

Place of publication: Ann Arbor

Country of publication: United States

ISBN: 0542339560, 9780542339561

Advisor: Biddle, Andrea K

University/institution: The University of North Carolina at Chapel Hill

University location: United States -- North Carolina

Degree: Ph.D.

Source type: Dissertations & Theses

Language: English

Document type: Dissertation/Thesis

Dissertation/thesis number: 3190239

ProQuest document ID: 305393890

Document URL:

<http://libproxy.lib.unc.edu/login?url=http://search.proquest.com/docview/305393890?accountid=14244>

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