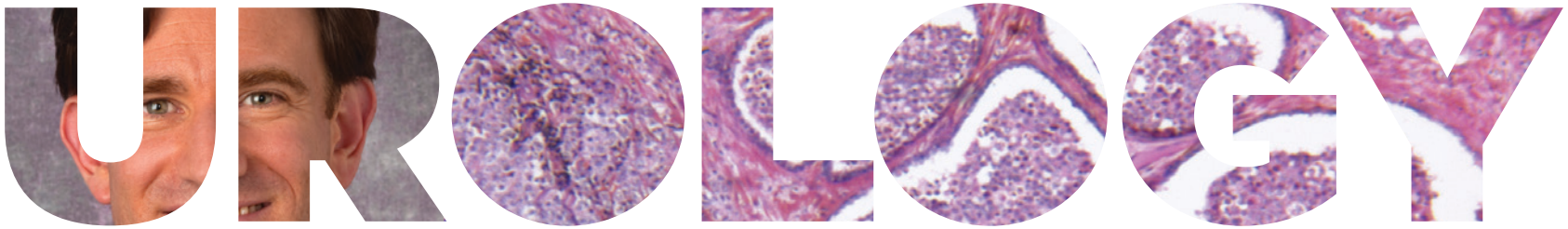

UPMC DEPARTMENT OF UROLOGY

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PROSTATE CANCER CARE: NEW TECHNOLOGIES, ADOPTION, LOCAL COVERAGE DETERMINATION

Health Services Research and Prostate Cancer Care: New Technologies, Adoption, Local Coverage Determination

The research of **Bruce L. Jacobs, MD, MPH**, spans the continuum of urologic cancer care and beyond with a particular emphasis on how providers adopt new treatment technologies, and how technology adoption influences clinical outcomes and health policy decisions.

Dr. Jacobs is fellowship-trained in urologic oncology, laparoscopy, and endourology. He also completed a fellowship in health services research during his urologic training at the University of Michigan before joining the UPMC Department of Urology as an assistant professor in 2013. While at the University of Michigan, Dr. Jacobs earned his master's in public health (MPH) with a concentration in epidemiology.

Dr. Jacobs' training and clinical practice have culminated in a career that focuses on improving the access to and quality of urologic cancer care, much of which has been focused on the world of prostate cancer. Other significant aspects of Dr. Jacobs' research have involved characterizing readmissions after major surgical procedures in order to develop better protocols and practices that can prevent and/or reduce avoidable readmissions.

IMRT and SBRT in Prostate Cancer Care: Trends in Early Adoption and the Effects of Local Coverage Determination

Both intensity-modulated radiation therapy (IMRT) and stereotactic body radiation therapy (SBRT) have become part of the treatment armamentarium for prostate cancer, but with markedly different adoption patterns.

"IMRT effectively appeared on the prostate cancer treatment scene in 2001, and its adoption was very swift and broad with providers and health systems, with both clinical and nonclinical factors playing a role," says Dr. Jacobs.

Within five years of its implementation, IMRT accounted for over 40 percent of the radiation treatments for prostate cancer.

On the other hand, SBRT, which arrived around 2007 as a new radiotherapy for prostate cancer, lagged behind IMRT in terms of its adoption and coverage with insurance carriers.

"At the time of its implementation, SBRT's initial results showed similar efficacy to IMRT, but its adoption was very slow. There are both clinical and nonclinical factors that account for this, but five years after SBRT's introduction, it only accounted for four percent of the radiation treatments for prostate cancer," says Dr. Jacobs. "We wanted to know why?"

While longer-term clinical trials involving SBRT are still maturing, Dr. Jacobs' research sought to better clarify the reasons for these differing adoption patterns for what appears to be two relatively comparable treatment approaches, the latter of which requires fewer fractionated treatment doses over a shorter period of time. Unlike IMRT, which requires 40 treatments over eight weeks, SBRT is delivered with five treatments over two-and-a-half weeks, which may greatly reduce the treatment burden for patients and potentially decrease the cost to the health care system.

Several patient-specific factors were associated with a higher likelihood of receiving IMRT compared with standard radiation at that time, including older age, higher grade tumors, and living in more populated areas. Men receiving SBRT were more likely to be white, have lower grade tumors, live in more populated areas, and more likely live in the Northeast.

> "At the time of its implementation, SBRT's initial results showed similar efficacy to IMRT, but its adoption was very slow."
>
> *— Bruce L. Jacobs, MD, MPH*

SBRT and Local Coverage Determination: Trends Affecting Adoption

Policies that govern the adoption and use of SBRT vary throughout the United States, making the treatment modality more common in some areas and virtually nonexistent in others. The adoption of new health care technologies — how widespread they become — is intimately tied to local coverage determinations.

Research by Dr. Jacobs and colleagues published in 2015 on IMRT and SBRT showed that not only do local coverage determinations affect the adoption and spread of technologies, but that they can potentially create a health care disparity where patients' options for care are based on where they live instead of whether or not the treatment would be a good choice for them.

"To paraphrase our findings from that study, SBRT use increased as local coverage determinations became more favorable, where use in areas with favorable coverage nearly tripling the use in areas with unfavorable coverage. I think one barrier to the adoption of SBRT for prostate cancer is the fact that we practice in a fee-for-service environment. If we were to move to an alternative payment model where organizations and/or providers are rewarded for providing more cost-effective yet high-quality care, we may see the adoption of treatments such as SBRT occur more rapidly," says Dr. Jacobs.

Variations in Technology Adoption: New Research

Traditionally, researchers have used geographic units, such as hospital referral regions or hospital service areas, to study variation in technology adoption and its influence on the delivery of care. However, these units are limited by the variation of provider practices and health care systems within small geographic areas.

Ongoing research by Dr. Jacobs and his team is examining aspects of the variety, delivery, and quality of care through the lens of physician-hospital networks.

"These networks connect patients to their treating physicians who are then connected to their primary hospital, allowing for the study of the variation in technology adoption at a network level, which may provide us with more clinically relevant and actionable information," says Dr. Jacobs.

These networks have the potential to become targets for policy interventions focused on improving the delivery of prostate cancer care in the future.

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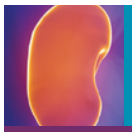

ABOUT THE UPMC DEPARTMENT OF UROLOGY

The Department of Urology at UPMC is at the forefront of providing clinical services, innovative treatment strategies, and fundamental research for diseases of the male and female urinary tract and the male reproductive organs.

We offer a multidisciplinary approach to care, with our team of nationally recognized clinicians and researchers working together to offer the very latest in diagnostic and treatment options for urologic disease.

Through the Comprehensive Prostate and Urologic Cancer Center, we strive to provide state-of-the-art treatments and therapies for those with prostate and urologic cancers.

We are nationally renowned for our expertise in highly specialized technologies and minimally invasive surgical techniques, many of which have been developed or refined by UPMC surgeons.

Fellowship Programs

The Department of Urology at the University of Pittsburgh currently offers two fellowship training programs for interested candidates:

- Urologic Oncology — Fellowship Director: Benjamin J. Davies, MD
- Pediatric Urology — Fellowship Director: Francis X. Schneck, MD

To learn more about the UPMC Department of Urology, please visit **UPMCPhysicianResources.com/Urology**.

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