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# Hiatt's Insights - October 2011

## Dear Colleague,

Welcome to *Hiatt's Insights*. In each newsletter, I take on a timely topic to provide guidance to HealthHelp's payer clients and other industry leaders. My experience as a diagnostic radiologist combines with my current role as chief medical officer for HealthHelp to give me a broader understanding of healthcare's evolving economic context and the transformative role of technology in medicine. I hope you find this month's topic both informative and thought-provoking.

## Can The Risk Of Breast Cancer From CT Radiation Be Reduced?

National Breast Cancer Awareness Month celebrates its twenty-fifth anniversary this October, making it an appropriate time to answer the question, "Can the risk of breast cancer from CT radiation be reduced?" Breast radiation dose to females during CT imaging is a significant concern because of the potential for development of cancer. Industry responses include partial volume scanning, improved collimation to reduce overscanning, iterative reconstruction techniques, bismuth shields, and breast displacement. There are advantages and disadvantages to all of these approaches.

Partial volume scanning reduces breast dose by 30% to 40%. Image quality is not reduced, and this technique is easily accommodated into workflow. A downside is the increase in dose to the posterior lungs, concerning in view of the susceptibility of lung tissue in women and the potential for development of lung cancer. Patients with particularly large breasts also require special protocols. Improved collimation reduces the breast dose when scanning the abdomen but has less impact on coronary arterial and thoracic CT. Overall dose savings to the body range from 15% to 25%, depending on the length of the scan.

## About the Author



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Dr. Hiatt serves as chief medical officer for [HealthHelp](#), a leading specialty benefit management company. Prior to joining HealthHelp, he was a radiology departmental leader and board member for a health system. Dr. Hiatt has published numerous scientific articles and chapters, has presented at various scientific conferences, and is active in many professional organizations.

Dr. Hiatt completed a fellowship in cardiovascular imaging at Stanford University after a residency in diagnostic radiology at the University of Virginia. He has a master's in Health Evaluation Sciences,

Iterative reconstruction techniques produce maximal overall dose reductions of 40% to 60% while maintaining image quality. The downsides are cost and limited availability for each scanner.

Bismuth shields shield the breast tissue when in the scan plane. Breast dose reductions range from 25% to 50%, depending on the thickness of the shield. Dose reductions realized are additive to those reduction techniques of CT manufacturers, with minimal degradation of image quality. Downsides include the relatively small dose reduction of 50% in the best scenarios, need for compensation with all CT manufacturers depending on the type of exposure control, the potential for dose increase in the dorsal lungs, the need to actively place the shields when scanning patients, and difficulties in patients with particularly large breasts.

Finally, breast displacement may be achieved with the Chrysalis Breast Displacement system. In a presentation at RSNA 2009, median dose reductions of 88% and 94% at the nipples and outer quadrants, respectively, were quoted for coronary arterial CTA by moving the breasts upward out of the scan plane. Dose reduction in the inferior quadrants of the breasts was 32%. Downsides include the need to displace and secure the breasts, requiring two personnel for optimal results. Additionally, use in thoracic CT is contraindicated in those patients with small-to-medium breasts since the tissue would be displaced upward to the level of the shoulder girdle, thereby increasing breast dose.

Radiation to breast tissue during CT imaging can increase the risk of developing cancer. Fortunately, many techniques to reduce radiation exposure exist and are undergoing refinement. For an expanded look at this topic, please read my full article.

Best regards to you as we seek together the best care for our patients,

Mark Hiatt, MD, MBA, MS

## Upcoming Presentation by Dr. Hiatt

**Drs. Jeffery Robinson & Mark Hiatt**

RSNA

Chicago, IL

November 28 - 11:50 a.m.

**"Transitioning from Denials to Endorsements: Toward a More Collaborative Approach to Utilization Management"**

with an emphasis in medical informatics and resource management, from the University of Virginia. Dr. Hiatt earned his MD and MBA degrees from Wake Forest University.

## About HealthHelp

HealthHelp, a leader in specialty benefit management, generates significant savings and return on investment for health care payers by enhancing physician knowledge, improving quality of care, and reducing unnecessary radiation exposure. Each of its programs addresses a different aspect of diagnostic imaging, cardiology, and radiation oncology. The clients of HealthHelp administer local, statewide, and national health care plans. For more information about HealthHelp's programs, visit [www.healthhelp.com](http://www.healthhelp.com).



