

AccuBoost[®] Booster Club

Notes from the Editor

The AccuBoost Booster Club newsletter is written and distributed to provide data and promote information exchange among AccuBoost users.

It serves as a communication channel to broadcast the latest information, data and innovations of the procedure. The newsletter is prepared on a monthly schedule electronically and in print.

It is the editor's pledge to keep the content brief, scientific and always factual. The editor is not responsible for the quotations provided by parties that contribute statements to the newsletter.

To sign up for the electronic version contact us at info@AccuBoost.com.

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Let the Treatments Begin...

With the start of a new year we are taking a moment to reflect upon the accomplishments of 2007. It was a momentous year for AccuBoost, one highlighted by FDA clearance and a host of design and manufacturing activities that culminated in the limited market launch for the product.

The first patient was successfully treated in mid-July at the Texas Cancer Clinic in San Antonio. From the beginning, we have taken a conservative approach with an emphasis on patient benefits. We have encouraged AccuBoost facilities to use extra care in screening the patients and to err on the side of caution in targeting the boost dose to ensure accuracy.

AccuBoost users have employed a liberal exclusion criteria – in cases where the lumpectomy cavity could not be definitively identified or

where the lesions were too close to the chest wall. We think that the deliberate, prudent and conservative approach, in patient selection and follow-up, has been a sound policy that has served the patients and all of us involved in providing the AccuBoost service.

With the accumulated clinical experience, we now have solid evidence that the patient selection criteria can be relaxed, as AccuBoost offers significant advantages over conventional electron boost.

We completed the year with five facilities nationwide offering AccuBoost treatment. These facilities are:

- DuPage County Nuclear Oncology (outside of Chicago),
- St Louis Cancer and Breast Institute,
- Texas Cancer Clinic (San Antonio)

Presentation at ABS School of Breast Brachytherapy



The AccuBoost design and procedure will be pre-

sented at the upcoming **ABS School of Breast Brachytherapy**, February 28-29, 2008 at the Scottsdale Plaza Resort in Scottsdale, Arizona. In addition to coverage from the



- Tufts-NEMC (Boston)
- Virginia Commonwealth University Medical Center (Richmond).

As we look to 2008, we are heartened by the numerous facilities that have shown interest in having access to the AccuBoost System. We are highly selective in where we install AccuBoost Systems. The intention is to partner with facilities that have solid reputations, high patient traffic and good physics support teams. We are also mindful to install AccuBoost Systems in distributed geographical locations to achieve the right mixture of academic institutions, community hospitals and freestanding radiation oncology centers.

podium, AccuBoost equipment will be displayed at the workshop to give the attendees a chance to learn the complete features of the product.

*“With Accubooost,
we clearly define
the target
volume prior to
each fraction”*



Jennifer Perkins

Quotes from Experts: Dr. David E. Wazer

Dr David E. Wazer, Radiation Oncologist-in-chief at Tufts New England Medical Center and Rhode Island Hospital, serves as Chairman of the AccuBoost Medical Advisory Board. Dr Wazer made the following observation after finishing the AccuBoost treatment of a patient.

“Targeting the boost dose has presented a clinical challenge to radiation oncologists. With Accubooost, we clearly define the target volume prior to each fraction. We now have the utmost confidence that we are treating exactly where we need to be.”



News From Equipment Partners: Carestream Health

Carestream Health (formerly Kodak) is a partner that supplies the Computed Radiography® (CR) equipment component of the AccuBoost System.

Carestream has assigned Jennifer Perkins, to be responsible for the CR requirements of the AccuBoost System.

Jennifer attends the trade shows as part of the AccuBoost team and participates, when appropriate, in AccuBoost meetings and

training at new installations. She is also responsible for communicating the market needs of the AccuBoost CR equipment to responsible executives at Carestream.

In December 2007, she assembled a team of 6 Carestream individuals in our headquarters to exchange information about how best to transmit lumpectomy images - via PACS - from various facilities to a central location. Jennifer states “We see a

major opportunity to develop the capability to send AccuBoost images to remote sites allowing independent target delineation and confirmation. We believe the capability to send the image to other locations allows a more accurate target designation and can provide a standard of care that was not possible until recently.” Jennifer added “Carestream is committed to addressing the needs of AccuBoost and being an integral part of this new design for breast

Invoicing and Billing Support is Available

The Pinnacle Health Group, a leading consulting organization that provides assistance to hospitals and freestanding radiation oncology centers on reimbursement, has been engaged to help AccuBoost

users in their coding efforts.

Pinnacle has already provided basic guidelines for billing and coding which are available on www.AccuBoost.com.

Specific billing issues can be addressed via

AccuBoost@thepinnaclehealthgroup.com



Phone: 215-369-9290

Email:

info@thepinnaclehealthgroup.com

New Addition to the Team...

Richard D. Spector has joined the AccuBoost team as of January 2008.

Richard has extensive experience in partial breast radiation therapy. He joins us to take on the role of **Director of Sales** for the AccuBoost product line.

"Before coming to AccuBoost, I spoke with many of the thought leaders in the radiation therapy and was

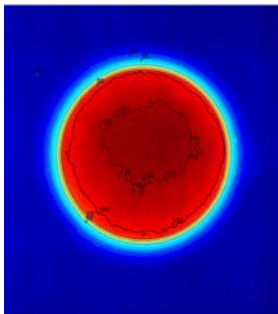
impressed by the uniformly positive reputation that the AccuBoost product and the procedure have earned. AccuBoost has identified an unfilled need in the industry by sharing a common platform between imaging and treatment of the breast. Now we can be certain that the boost dose is accurately targeted to the intended site."

Richard added, "I believe the ultimate beneficiaries of the AccuBoost design are the patients that receive the prescribed dose with minimum side effects from a non-invasive, patient-friendly procedure. I look forward to working with the AccuBoost team in educating customers on how to implement the procedure in their practice."



Richard Spector

AccuBoost Demonstrates Uniform, Conformal Dose



Planar Dose Distribution

One of the primary objectives and accomplishments of the AccuBoost applicators is to provide a uniform, homogeneous and conformal dose to the lumpectomy cavity margin.

The **uniform dose** is achieved by placing a peripheral catheter in the applicator and relying on numerous dwell positions for the HDR Ir-192 source.

The **dose homogeneity** is accomplished by moving the source dwell position (~25 mm) away from the face of the applicator.

The **conformal dose** is achieved using an attenuating applicator shell, where the tungsten walls of the applicator form a cylindrical beam that substantially reduces the external dose and minimizes the exposure of the heart and lungs.

The **figures** on the top left and bottom right show the planar and transverse dose, as measured by GAFCHROMIC film from a typical AccuBoost applicator.

The **dose homogeneity index**, as defined by

$$\frac{V(100) - V(150)}{V(100)}$$

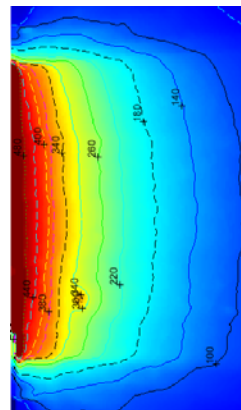
is typically 1, as there is no part of the tissue that (on average) receives 150% of the prescribed dose.

The design criteria for **dose conformity** is to make sure that the prescribed boost

dose volume is limited to the lumpectomy margin and less than 50 % of breast tissue is exposed to more than 50% of the prescribed dose, (in other words: $V(50) < 50\%$ of breast volume).

The shared platform for imaging and radiation therapy, where CTV and PTV are virtually the same, and where extra margins due to

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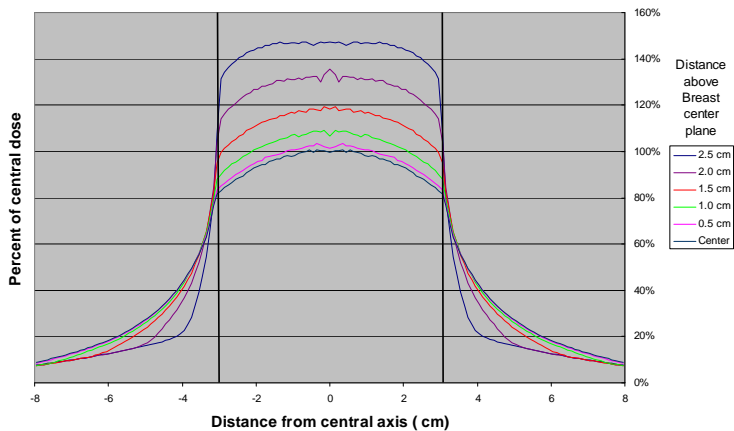


Transverse Dose Distribution

"the AccuBoost applicators provide a uniform, homogeneous and conformal dose to the lumpectomy cavity margin"

Uniform, Conformal Dose *(continued from page 3)*

Single axis dose distribution - 5 cm breast, 6 cm applicator



breathing motion are not required are contributing factors for **dose conformity**.

Monte Carlo (MC) simula-

tions have been used to predict the AccuBoost dose for various size breasts. The MC data (Developed by Mark Rivard, Ph.D. at Tufts-NEMC) has been

generated for breasts that, when immobilized by mammography paddles, present a range of thicknesses from 2 to 8 cm.

The **figure** to the left shows a typical MC dose from a single axis. The AccuBoost applicators generate a uniform axial field and significantly reduce external exposure. The dose levels have been normalized with respect to the center of the breast. It is important to note that when the dose is delivered from an orthogonal axis (on a subsequent day) the dose to

central tissue is doubled without additional skin dose from the new exposure.

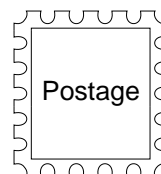
The AccuBoost dose distribution has been extensively characterized. Independent measurements in breast phantoms have validated the theoretical models. The simplicity of the geometrical shape of the breast and the predictable nature of the AccuBoost dose suggest that a simple nomogram is a convenient method for dose planning.



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...achieving results



striving for perfection...