

BRACHYWARE NEWS

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The Reality of Realtime

Fall 2001

Dosimetry by: W. F. Whitmore MD

Improvements in ultrasound imaging, seed visualization technology and planning software are rapidly advancing the feasibility of real time dosimetric analysis. Intra-operative plan modification as the actual locations of implanted seeds are detected will become increasingly commonplace as the accuracy of all phases of the prostate brachytherapy procedure continues to improve and these new technologies are disseminated. Improved performance of the seed placement hardware and accessories must be made in parallel to facilitate the convergence of the improved imaging and planning technologies with implantation results. We remain committed to providing the clinician with the equipment solutions to reach these goals.

Barzell-Whitmore Maroon bells, Inc., is focused on providing hardware and accessories to take maximum advantage of these progressive imaging and planning technologies by improving the accuracy, versatility, and user convenience of our equipment at every phase of the procedure.

This news letter is the first in a series of communications designed to keep you up to date on our activities, new programs, and new products, so you can take best advantage of the new technologies to match your requirements.

Brachystepper Needle Path

Verification

Every facility establishes it's own quality assurance protocol regarding needle path verification. The process typically involves loading the ultrasound transducer into the stepper with the grid mounted and then passing the appropriate gauge needle through the grid and into the transducer imaging field.

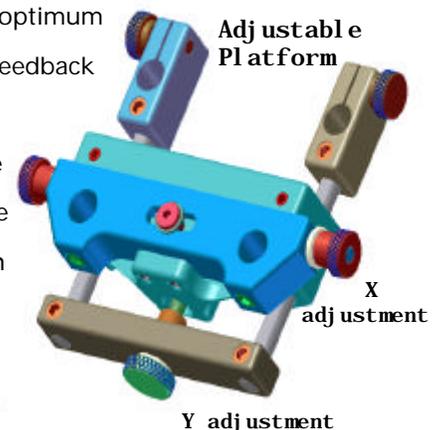
The classic Brachystepper is designed for the user who wants the 'off the shelf' simplicity of a non adjustable, factory calibrated stepping and needle guide system.

There is no "out of adjustment" and one only needs to periodically perform needle path verification to assure that the system continues to meet local standards of quality and repeatability.

The Brachystepper **AP (adjustable platform)** is designed for the user who wants the additional flexibility of incremental platform micro-adjustment. The fine pitch incremental adjustment knobs allow the user to quickly and easily "dial-in" a very high level of accuracy that will compensate for transducer, equipment, or software deviations. The **AP** system gives you the control to

minimize error and create the optimum operating field. Initial clinical feedback

on the **AP** shows a reduction in implant duration due to the reduction of the manual needle manipulation required to reach some desired coordinates.

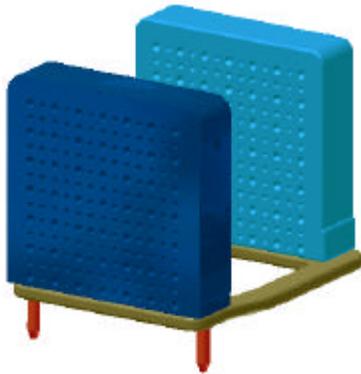


General Procedure

for Needle Path

Verification

- 1) Place ultrasound transducer in the Brachystepper.
- 2) Insert the calibration plate on to the Brachystepper grid platform and tighten platform thumb screws (make sure plate is in contact with top of platform).



NOTE: The calibration plate is exactly 5 mm (1 row) in thickness.

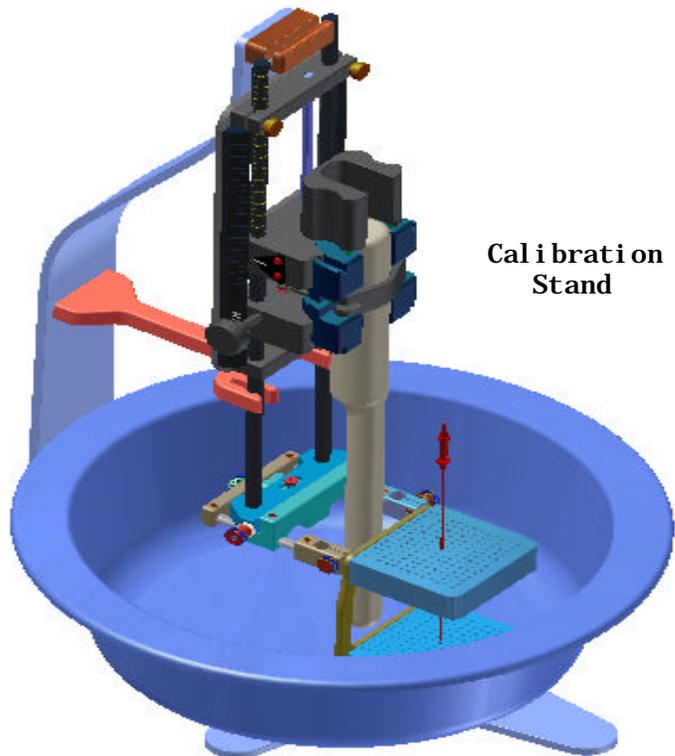
This means that the template grids are sitting exactly 1 row(5 mm) higher than normal.

However, the marking of the template has been shifted down to compensate for this difference and to exactly match the markings on the ultrasound display.

When inserted, a needle will be supported on both ends which facilitates quick set up and true tracking of the needle as viewed through the ultrasound viewing cutout in the plate. The view window is approximately the length of a

prostate so that needle path verification can be achieved at various points along the stepping path.

- 3) Fill a common 3-5 liter basin with the desired liquid medium (tissue mimicking) and place basin on stand.
- 4) Hang the Brachystepper previously loaded with the transducer on the stand and snap into a vertical position.
- 5) Step the transducer so that the imaging crystal(s) are well immersed and centered in the viewing window. Insert the



appropriate gauge needle into a central hole coordinate in the grids so that the needle is supported by both grids. Verify on the ultrasound display the coordinate of the needle in the grid. Continue and check alternate co-ordinates around the grid and verify the needle path meets local standards.

Note: If verifying the needle path on the **AP** the position of the platform can be adjusted as desired. (see AP manual for detailed instructions).

- 6) Remove the stepper from the basin and stand. Remove the calibration plate and air-dry for future use.

Brachystepper^{AP} available now!

Classic Brachystepper upgrade package also available.

Please contact cwalters@seedos.com for details

Interface Control

System by W. E. Barzell M.D.

Prostate brachytherapy is an exercise in positioning. Positioning the patient, positioning the transducer relative to the gland, and ultimately positioning the therapeutic source for proper dosing. Sometimes these exercises can be quite time consuming. The Brachyballoon interface control system saves time and improves the quality of my implants. It allows me to rapidly obtain the best ultrasound image by giving me control of the interface between the ultrasound transducer and the prostate and ideal prostate position within the focal depth of field of the transducer. This greatly accelerates initial set up and positioning.

Using the Brachyballoon

Remove the fill tube cap and open the stopcock to allow air to escape balloon.



Apply approximately 2ml of ultrasound gel into the opening of the transducer sheath.



Orient the balloon so that it is centered over the the crystal array. This is indicated by aligning the balloon fill tube with the the longitudinal array on the transducer. Slide the sheath onto the transducer and allow the trapped air to escape.



Using your fingers smooth the balloon surface to remove any air bubbles in the jelly from the field of view.



Tape the balloon securely to the transducer using 1" paper tape around the plastic tabs at the sheath opening.



Fill a 30cc syringe with warm saline or water (degassed if available). Attach the syringe to the luer lock fitting and begin filling the balloon while holding the transducer tip toward the floor. Fill and aspirate 10-20cc until all air is removed. Manually smooth out any wrinkles or air bubbles that may remain. Withdraw the fluid back into the syringe deflating the balloon while leaving the syringe attached. The transducer is now ready to be inserted into the patient.



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What's inside:

- ◆ Update on needle path verification
- ◆ **NEW** brachystepper**AP**
- ◆ Using the Interface Stand-Off "Brachyballoon"

Don't forget 17 gauge disposable Brachygrids are now available. These handy pre-sterilized, single use grids save time and reduce the hassles of hand cleaning and re-sterilizing. Want to do a sterile procedure? Use the Brachydrape feugiat

Require a sterile field for your implant? Try the Brachydrape. A pre-sterilized, single use disposable drape designed to be used during prostate brachytherapy. Covers the instruments during the implant giving the added benefit of saving on clean up between

New Brachyplanner available now. Read about it in the next issue of the Brachyware News!

