Title: **Clinical Trials of the new Boston Digital™ Arm System**

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Learning Outcomes: At the conclusion of this presentation the attendees will:

1. Understand the clinical application of the new Boston Digital™ Arm System  
2. Understand microprocessor based control options for the system.  
3. Understand computer-generated graphical interface screens and better client training techniques.

Abstract:

Microprocessor-based controllers for upper-limb powered prostheses have made significant advances over the past few years. These devices allow prosthetists to evaluate the patient and set-up prosthetic controls to optimize performance for the user. This enables the user to obtain a controller that is customized to suit their specific needs and capabilities.

The new Boston Digital™ Arm System is the first powered elbow prosthesis to offer this advanced technology. This System serves as a "platform" for upper-limb prosthetic control. With five motor controllers, the Boston Digital Arm System can operate hands grippers, wrist rotators, shoulder lock actuators and more. The System is universal – it works with prosthetic devices from any manufacturer, allowing prosthetist to create the optimal prosthesis for their client.

Rather than requiring users to adapt to a pre-defined control strategy, this system is adaptable and can be set-up so that the user can select and control the prosthetic devices using motions that are relatively easy for them to do. Since it accepts input
signals from many transducers such as; myoelectrodes, force-sensitive resistors, positional-servo sensors and switches, the control options are practically limitless.

This presentation will describe the results of recent field trials for the new Boston Digital™ Arm System. This clinical experience has led to improvements in the computer-generated graphical interface screens as well as better client training techniques. Control strategies will be discussed and examples of simple and complex strategies will be reviewed. Prosthetists will gain an understanding of the versatility of this system through these case reviews.

FINAL PAPER NOT RECEIVED AT PRESS TIME