SUTURELESS SECUREMENT OF CENTRAL VENOUS CATHETERS AND PERIPHERALLY INSERTED CENTRAL CATHETERS WITH A NOVEL SECUREMENT SYSTEM

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INTRODUCTION
Securement of central venous catheters, irrespective of whether the entry site is in the extremity or the torso, is critical to use. Sutureless securement has been encouraged as a way to provide care with reduced risk of needlestick injury or local infection. We describe the results of the development of a system (PICC/CVC) of securement that does not require sutures.

METHODS
Force required for removal was measured using a porcine preclinical model (n=8) using peak axial pull force. Total protein extracted from skin was measured using Bicinchoninic Acid (BCA) Protein Assay. Skin changes were measured clinically using an ordinal scale of absent (0) to severe edema or erythema (3) on 97 patients in 37 institutions. Clinical assessment of performance used survey methods and graded scaling (equal performance, inferior or superior) compared to securement method currently employed. Removal force values indicate 95% confidence intervals (box) and minimum/maximum values (lines). BCA values were normalized against values from the PICC/CVC test system. Normalized results were distributed normally and t-tests for significance adjusted for multiple comparisons were used for analysis. Fraction of dressings with significant edema/erythema were analyzed using analysis of variance. Performance measures were analyzed using the method of Rousson and Seifert Biometrical J (2008) 2: 190-204.

RESULTS

Skin damage minimised with silicone adhesive.

Materials
The test system consists of a silicone based adhesive anchor (left) and acrylate based adhesive film for securement and barrier function.

Conclusion
In a clinical assessment, the system was compared to standard securement methods (suture with or without adhesive anchor) in patients with peripherally inserted central venous catheters and deemed superior in all categories except catheter migration on removal.

Skin trauma was reduced significantly with the device, consistent with healthy human testing.