**Purpose**

Ultrasound-guided peripheral IV access is becoming the standard of care for difficult IV access patients. While most studies have focused on improved outcomes of catheters placed without ultrasound, little attention has been given to catheter performance. (1) The purpose of the present study is to compare ultrasound-guided IV access using a standard polyurethane catheter (PIV) versus a novel extended-dwell catheter (EDPIV).

**Background & Significance**

Ultrasound guided PIVs have a successful cannulation rate, but disappointingly low dwell times. For example, using a 2.5 inch “18g angio-catheter” Dargin reported a median dwell time of only 26 hours and an overall IV survival rate of 56%. (2) Given the time, effort and expense necessary for ultrasound placement of a PIV, clinicians need discover vascular access devices capable of lasting an extended period of time without complications.

**Method**

This is a single-center, prospective cohort study extending from May 1 to June 30. The PIV used was either an 18g/1.88” or 20g/1.88” over-needle, polyurethane catheter, as selected by the clinician at the bedside. The EDPIV used was a 3Fr/2.4” over-wire, ChronoFlex™ catheter. All lines were placed with sterile technique (including sterile probe cover) using the dynamic ultrasound method in the transverse axis. Skin antisepsis was achieved with 2% chlorhexidine gluconate. Securement was done with a 3.5 x 4.5 inch bordered transparent dressing.

**Result**

A total of 361 patients were observed: 278 UGPIVs, 83 UGEDPIVs. Average dwell time in the UGPIV group was 5.08 days (1-16 days) with 5.7% having their central lines removed upon placement of UGPIV. Average dwell time in the UGEDPIV group was 10.7 days (1-29 days) with 37.3% having their central lines removed upon placement of UGEDPIV. Numerous UGEDPIV patients were discharged home for antibiotics; had they been followed, the EDPIV dwell time may have been even longer. Central line utilization (i.e., percentage of central lines per overall patient days) decreased from 20.3% during the same period the previous year, during which EDPIVs were not used, to 17.2%--a 15.3% reduction.

**Conclusion**

This novel ultrasound-guided extended-dwell catheter outperformed the standard PIV, lasting over twice as long. Most important, during the trial period, 37.3% of patients receiving the UGEDPIV were able to have their central lines removed upon placement, resulting in a 15.3% decrease in central line utilization.