

THE POWER OF CHOICE: MIDLINE CATHETER IMPROVES PATIENT SAFETY AND COMFORT WHILE INCREASING VASCULAR ACCESS REVENUE AND PRODUCTIVITY



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PURPOSE



The vascular access/PICC team at Texas Health Harris Methodist Hospital Fort Worth (THFW) in Fort Worth, Texas sought an alternative to peripheral IVs for patients who did not require central lines.

Toward this end, the team assessed the efficacy of a 5Fr long-dwelling, power injectable midline catheter (POWERWAND,[®] Access Scientific). The team hoped the new catheter would:

- **Increase patient comfort and satisfaction** by reducing the number of placements patients had to endure (the literature showed that the midline had a much higher rate of first-attempt success than is typical for PIVs)
- **Increase revenue** by increasing the number of billable procedures (PIVs are not billable for a PICC team but midlines are)
- **Increase productivity** by decreasing the number of placement attempts relative to the number of billable procedures

Note: The manufacturer describes the catheter as an extended dwell peripheral IV but at 8 cm in length, it is technically a midline and billable as such.

PROJECT DESCRIPTION

THFW created an early assessment algorithm so the vascular access/PICC team staff could determine which of their patients were candidates for the midline. To assess the performance of the midline, metrics were recorded regarding completion of therapy, complications, dwell time, and blood draw-ability. The impact of the midline on billable procedures was also analyzed.

MAJOR OUTCOMES

Data

149 Midlines Placed for a Total of 624 Catheter Days

Completion of therapy	79% of patients
Bloodstream infections*	0
Average dwell time	5.3 days**
Longest dwell time	16 days**
Ability to draw blood at the time of midline removal	84%
Billable procedures	10% increase

*Other complications are not listed in the table because of extenuating circumstances. Four catheters leaked at the extension set connection, but the tubing—not the catheter—was the cause. There were 14 infiltrations but these were due in some cases to the learning curve associated with a new catheter and in other cases were

vein-related. We also had one thrombus formation. Overall, the complication rate with the midline was extremely low.

**The catheter can be left in place for up to 29 days. Our shorter dwell times were due to earlier completion of therapy.

CONCLUSIONS/IMPLICATIONS FOR PRACTICE

The midline met THFW's goals of increasing patient comfort, billable procedures, and productivity.

Other conclusions:

- The midline makes it possible for patients to receive a long-dwelling catheter without an invasive central line placement.
- As a long-dwelling alternative to multiple PIV placements, the midline also promotes vein preservation and patient satisfaction.
- The zero rate of bloodstream infections underlines the value of replacing PICCs with midlines when feasible. Central lines are more susceptible than all other lines to bloodstream infections. In contrast, midlines have lower published bloodstream rates than any other catheter type.
- The low complication rate, high completion-of-therapy rate, and excellent blood draw-ability of the midline device are consistent with reports in the literature* about the device.
- Productivity was improved because the increase in billable procedures was combined with a large decrease in non-reimbursable PIV starts.

* William G. Warrington WG, Penoyer DA, Kamps TA, Van Hoeck EH, RN. Outcomes of using a Modified Seldinger Technique for long term intravenous therapy in hospitalized patients with difficult venous access. The Journal of the Association for Vascular Access; 17(1): 24-31.



LIMITATIONS

Prospective observational study following interventions. Not a randomized controlled trial.

FUNDING SOURCE

None

DISCLOSURE STATEMENT

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