Patient satisfaction continues to be an important driver in today’s ever changing health care environment. The ability to influence patient satisfaction through improving infusion delivery makes it an important responsibility in the field of intravenous therapy. Currently peripheral intravenous (PIV) outcomes are multi-challenged:

- Patient satisfaction averages 42% overall.
- First attempt success averages only 40% in adults and 44-46% in pediatrics.
- Complications occur 47% of the time.
- Average PIV dwell time is 44 hours.
- 50% of PIV lines require replacement before completion of therapy.
- Unsuccessful PIV access is escalated to midline or central line therapy increasing CLABSI risk and cost.
- This sub-optimal care results in poor clinician satisfaction, inefficiencies and unnecessary costs.

A new peripheral IV catheter technology that uses a proprietary coiled tip guidewire design is now available and has been shown in a previous study to improve PIV performance when used by general nursing staff in a university hospital.

This prospective study will collect catheter performance data with a Vascular Access Team to validate improvement opportunities offered with guidewire technology compared to published literature for conventional catheter outcomes.

Outcomes evaluated included: first attempt success, complication rates, dwell times, completion of therapy, patient satisfaction and overall costs of therapy.

Methods:

- Hospital and IRB approval were obtained prior to beginning the study.
- Adult medical-surgical patients who required a non-emergent IV catheter were enrolled and consented.
- Data was collected using a standardized instrument by Vascular Access Team RNs with greater than 7 years of experience.
- The study enrolled 95 total patients using the study IV from insertion to removal.
- Outcomes were assessed using parametric and non-parametric tests.

Background

Patient satisfaction using a 5 point Likert Scale (Score 3-5 defined satisfaction):

<table>
<thead>
<tr>
<th>Overall Patient Satisfaction</th>
<th>N</th>
<th>Number Satisfied</th>
<th>Percent</th>
<th>95% Confidence Interval</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Insertion</td>
<td>95</td>
<td>95</td>
<td>100%</td>
<td>96.2% - 100%</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>At Discharge</td>
<td>95</td>
<td>93</td>
<td>97.9%</td>
<td>92.6% - 99.7%</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

*Compared to 42% average satisfaction rate in published literature for conventional catheters.

Conclusions

- This novel, proprietary guidewire technology offers an opportunity for significant improvement in patient satisfaction and clinical outcomes by increasing first attempt success, lowering complications, improving dwell time and completion of therapy.
- All of these are reasonable IV therapy objectives in today’s health care environment with patient satisfaction playing a key role as it’s now linked to reimbursement and highly influenced by this patient’s overall IV experience.
- Change can be accomplished by nursing action to impact review and adoption of new technologies, especially those that are evidenced based.
Patient satisfaction continues to be an important driver in today’s ever changing health care environment. The ability to influence patient satisfaction through improving infusion delivery makes it an important responsibility in the field of intravenous therapy. Currently peripheral intravenous (PIV) outcomes are multi-challenged:

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The long range goal being to validate a new technology that can significantly improve patient satisfaction at a time when it now impacts overall hospital reimbursement.

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*Adult medical-surgical patients who required a non-emergent IV catheter were enrolled and consented.
*Data was collected using a standardized instrument by Vascular Access Team RNs with greater than 7 years of experience.
*The study enrolled 95 total patients using the study IV from insertion to removal.
*Outcomes were assessed using parametric and non-parametric tests.
With INS (Infusion Nursing Society) standards now stating IVs can dwell until complication, there is significant opportunity to improve patient outcomes with guidewire technology that offers greater first attempt success, longer dwell time and improved satisfaction as seen with the study IV.
AccuCath® Intravenous Catheter System

- Safety Chamber
- Blood Control Valve
- Power Injection Indicator (Maximum 300psi at 6mL per second)
- Actuation Button
- Catheter
- Echogenic Tip
- AccuTip™ Coiled Nitinol Guidewire

Slider
STUDY RESULTS

OVERALL PATIENT SATISFACTION

Patient satisfaction using a 5 point Likert Scale (Score 3-5 defined satisfaction):

<table>
<thead>
<tr>
<th>Overall Patient Satisfaction</th>
<th>N</th>
<th>Number Satisfied</th>
<th>Percent</th>
<th>95% Confidence Interval</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Insertion</td>
<td>95</td>
<td>95</td>
<td>100%</td>
<td>96.2% - 100%</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>At Discharge</td>
<td>95</td>
<td>93</td>
<td>97.9%</td>
<td>92.6% - 99.7%</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

*Compared to 42% average satisfaction rate in published literature for conventional catheters.

FIRST ATTEMPT SUCCESS

1.2 catheters were required per IV start compared to 2.18 for conventional catheters.

<table>
<thead>
<tr>
<th>First Attempt Success</th>
<th>N</th>
<th>First Attempt Success</th>
<th>Percent</th>
<th>95% Confidence Interval</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95</td>
<td>81</td>
<td>85.3%</td>
<td>76.5% - 91.7%</td>
<td>&lt; 0.001</td>
</tr>
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</table>

*Compared to 40% average first attempt success in published literature for conventional catheters.

COMPLICATION RATES

<table>
<thead>
<tr>
<th>Complications</th>
<th>N</th>
<th>Complications</th>
<th>Percent</th>
<th>95% Confidence Interval</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95</td>
<td>17</td>
<td>17.9%</td>
<td>10.8% - 27.1%</td>
<td>&lt; 0.001</td>
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</table>

*Compared to 47% average complications in published literature for conventional catheters.

DWELL TIME

<table>
<thead>
<tr>
<th>Dwell Time</th>
<th>N</th>
<th>Av. Dwell Time Hrs.**</th>
<th>Av. Dwell Time Hrs. Without Complications</th>
<th>Av. Dwell Time Hrs. With Complications</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95</td>
<td>58</td>
<td>59.1 (78)</td>
<td>52.6 (17)</td>
<td>&lt; 0.002</td>
</tr>
</tbody>
</table>

*Compared to 44 hrs. average dwell in published literature for conventional catheters. **Hospital av. LOS was 2.98 days during study.

COMPLETION OF THERAPY

<table>
<thead>
<tr>
<th>Completion of Therapy</th>
<th>N</th>
<th>First Attempt Success</th>
<th>Percent</th>
<th>95% Confidence Interval</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95</td>
<td>78</td>
<td>82%</td>
<td>70.5% - 87.5%</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

*Compared to 47% average completion of therapy in published literature for conventional catheters. Defined as original IV in place as long as needed.
This novel, proprietary guidewire technology offers an opportunity for significant improvement in patient satisfaction and clinical outcomes by increasing first attempt success, lowering complications, improving dwell time and completion of therapy.

All of these are reasonable IV therapy objectives in today’s health care environment with patient satisfaction playing a key role as it’s now linked to reimbursement and highly influenced by the patient’s overall IV experience.

Change can be accomplished by nursing action to impact review and adoption of new technologies, especially those that are evidenced based.