Peripheral IV infiltration and Extravasation (PIVIE)

Safe Table Cases
Case #1
Solutions for Patient Safety Journey

- We are currently in a pioneer collaboration with Solutions for Patient Safety (which includes multiple hospitals).

- Looking at factors to reduce Grade 3 and 4 infiltrates, which then will turn into bundle elements.

- Only looking at inpatient units.

- Aim is to reduce Grade 3 and 4 infiltrates by 20% by December 2016.
What are we looking at

- Tracking and monitoring Grade 3 and 4 infiltrates, the worst ones
- Hourly assessment and documentation of checking IV’s
- Are we infusing the right medications through Peripheral IV’s
- Are nurses performing TLC (touch, look, compare)
- Doing 30 real-time bedside audits a month asking/watching staff assess IV’s
- Doing real-time assessment of IV infiltrates, asking the questions of why it might have happened
- Sharing data and results with units, hospital leadership
Challenges

• Staff not consistently checking IV’s using Touch, Look, Compare

• Inconsistently in checking IV’s every hour

• Not wanting to check IV’s at night

• PIV infiltrates and management of infiltrates were being documented inconsistently in EHR

• Higher rate of infiltrates identified between the hours of 0600-1000 am

• Difficulty in identifying reasons IV infiltrates are happening, so trending issues is difficult
Case #2
Patient admitted the hospital with complaints of shortness of breath and weakness related to a-fib with RVR requiring amiodarone. In a week the patient had the following:

- 16G IV L AC infusing amiodarone, d/c’d due to infiltration
- 18G IV L FA with LR + 20K, d/c’d due to unknown reason
- 20G IV R FA d/c’d after 12 hours due to infiltration
- 20G IV R FA with amiodarone lasted 36hrs till infiltration
- 22G IV L FA lasting 18 hours till infiltrated
- 22G IV R hand lasted 26 hours till infiltration
- 22G IV R FA lasted 48 hours despite constantly leaking

Patient developed UE swelling and pain prompting an US showing an occlusive thrombus requiring heparin. There was no consideration for CL prior.
Story 2

Patient was discharged from the hospital s/p aortic valve replacement and an aortic resection. Patient returned to the hospital 5 days later with complaint of increasing erythema and edema of the left forearm/AC. Patient on previous admission had an 18 G IV at the site were the complaints were located. US was obtained showing a VTE. Patient was hospitalized for 13 days for the VTE and development of cellulitis.
What is Risk Trigger Monitoring

Risk Trigger Monitoring is . . .

✓ A product of Pascal Metrics
✓ A Patient Safety Work Product
✓ A Patient Safety Organization
✓ A means to identify all harm and measure improvement
✓ Not maintained in the electronic health records
What is a Trigger

- A Trigger is a warning sign that something might have occurred and should be reviewed.
- A trigger does not automatically equate to harm.
- Currently there are 66 triggers in place with an additional 10 being looked into for Maternal/Child.
- Three triggers related directly to IV infiltrates that were instituted in late March.
<table>
<thead>
<tr>
<th>Hospital</th>
<th>Total Infiltrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital A</td>
<td>787</td>
</tr>
<tr>
<td>Hospital B</td>
<td>437</td>
</tr>
<tr>
<td>Hospital C</td>
<td>1409</td>
</tr>
<tr>
<td>Hospital D</td>
<td>567</td>
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</tbody>
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### Histograms

**IV Infiltrate**

- Hospital A: 104
- Hospital B: 66
- Hospital C: 58
- Hospital D: 119
Commonalities

• Lack of urgency to address the issue - common theme is that these are known complications and nothing can be done.

• Poor documentation/assessments
  – RN not assessing the site for an entire 12 hour shift
  – RN’s assessing the site at 0800 stating IV is patent only to note it is infiltrated at 0900 when first IV infusion of the day is hung up
  – Commonly placing IV’s in areas that bend/move
  – Using large gauge IV’s for medications that need small bore for dilution such as vancomycin and amiodarone
  – EHR is setup in a way to prime nurses to select the first item that shows up: infiltrated vs. occluded.