Vascular Access Utilization in the Dialysis Population

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18. Prior to ESRD therapy:
   a. Did patient receive exogenous erythropoetin or equivalent?  □ Yes  □ No  □ Unknown  If Yes
   b. Was patient under care of a nephrologist?  □ Yes  □ No  □ Unknown  If Yes
   c. Was patient under care of kidney dietitian?  □ Yes  □ No  □ Unknown  If Yes
   d. For hemodialysis patients only, what access was used on first outpatient dialysis?
      □ AVF  □ Graft  □ Catheter  □ Other
      If not AVF, then:
      Is maturing AVF present?  □ Yes  □ No
      Is maturing graft present?  □ Yes  □ No

• Beginning in 2010 - dialysis providers are required to report the type of vascular access used for dialysis at least on a monthly basis
Validation of the CMS 2728 for type of Vascular Access at Hemodialysis Initiation

- Identified all incident Hemodialysis Patients in 2010 > 67 years of age Medicare coverage prior to dialysis initiation (n=13,486)
- Identify the subset of patients who have a valid dialysis claim (with at least one of the vascular modifier codes) (n=9,812)
## Comparison of ME Access to type of access on Medicare Claim

<table>
<thead>
<tr>
<th>Access Type from Claims</th>
<th>ME Form</th>
<th>Catheter</th>
<th>Graft</th>
<th>Fistula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter (%)</td>
<td>7658</td>
<td>7406 (96.7)</td>
<td>64 (0.8)</td>
<td>189 (2.5)</td>
</tr>
<tr>
<td>Catheter and NO maturing AVF/AVG (%)</td>
<td>5865</td>
<td>5743 (97.9)</td>
<td>33 (0.6)</td>
<td>90 (1.5)</td>
</tr>
<tr>
<td>Graft (%)</td>
<td>371</td>
<td>34 (9.2)</td>
<td>308 (83.0)</td>
<td>29 (7.8)</td>
</tr>
<tr>
<td>Fistula (%)</td>
<td>1748</td>
<td>200 (11.4)</td>
<td>58 (3.3)</td>
<td>1490 (85.2)</td>
</tr>
</tbody>
</table>
Validation of ME Vascular Access

- In the elderly - the CMS 2728 is a fairly good indicator of actual access type used at initiation
- One category where there is a small discrepancy is in those who are listed as initiating with a fistula - approximately 11.4% of patients appear to be using a catheter
In Patients initiating Hemodialysis with a Catheter - How long does it take for them to start using a more “permanent” type of Access?

- Identified incident HD patients between 7-12/2010
- Includes patients with a ME form whose access at first dialysis was a catheter - irrespective of whether a maturing internal access was present
- Follow up through the end of 2011 (18 months)
- Time zero is the first outpatient dialysis claim
- Patients considered to have transitioned to an internal access at their first outpatient claim indicating an internal access was used without a catheter
- Patients censored for death, or change of modality
• Overall 9919 patients initiating with a catheter based on the ME form
  ▪ 2275 with a maturing fistula/graft
  ▪ 7644 without a maturing fistula/graft
Cumulative Probability of using a fistula or graft in incident HD patients starting with a catheter
Time to Fistula or Graft Use in patients initiating dialysis with a catheter and a maturing AVF/AVG

![Graph showing cumulative probability of AVF or AVG use over days after first OP Dialysis Claim. The graph compares Time to AVF with Maturing internal and Time to AVG with Maturing internal.]
Bundle and Dialysis Catheters

- Dialysis payment bundle provides a fixed reimbursement per dialysis session
- Included in the bundle are medications related to the provision of dialysis such as tPA

- Concern:
  - With the bundle providers may be less likely to use tPA for poorly performing catheters as the cost for tPA is not reimbursable.
  - Hypothesis: Is the rate of catheter replacement different after the bundle compared to before?
• Point prevalent HD patients in 2009 - 2011
• Identified using claims data the number with a catheter replacement and the number with a claim for tPA use.
tPA use over time - All prevalent patients

- 2009: 13.08%
- 2010: 13.27%
- 2011: 10.99%
Percentage of Patients with a Catheter and tPA claim - 2010 vs 2011
Year over Year Comparison of % of Patients with a catheter replacement

Yearly Data:
- July: 4.40%
- Aug: 4.60%
- Sep: 4.80%
- Oct: 5.00%
- Nov: 5.20%
- Dec: 5.40%

Comparison for 2010 and 2011.
Mean Percentage of Catheters replaced per month

*Graph showing the mean percentage of catheters replaced from July to December.*
Conclusion

- In the elderly, the ME form is fairly accurate in defining the type of vascular access in use at dialysis initiation.
- Most patients initiating dialysis with a catheter transition to an internal access:
  - 50% of patients with a maturing access upon initiation will transition 4 months after initiation.
  - In those without a maturing internal access, 50% of patients will transition to an internal access after 7 months.
Conclusions cont

- Catheter churn does not appear to be a problem early after implementation of the bundle; however there is a marked decrease in tPA use
  - Unclear how the decrease in tPA use will influence either dialysis clearances or future catheter replacement rates.