Maturation of Arteriovenous Fistulas Placed Prior to Dialysis Initiation

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Introduction
- Few data exist describing the percent of placed arteriovenous fistulas (AVFs) that reach maturation.
- Until recently, the tracking of vascular access use was limited to data from the CMS-2728 Medical Evidence form, which indicates the vascular access used at initiation.
- Starting in July of 2010, outpatient (OP) dialysis claims indicate the vascular access used at initiation.
- For patients with an AVF placed prior to dialysis, this allows one to identify when the AVF was first used for dialysis.
- Information regarding patient demographics and primary cause of renal failure were obtained from the USRDS database.

Methods
- Using the USRDS database, we identified incident hemodialysis (HD) patients who began treatment between July and December of 2010.
- The cohort was limited to those who were aged 67+ at initiation (to allow for Medicare coverage prior to initiation).
- We used OP dialysis claims after July 2010 to identify when an AVF was first used for HD.
- Using Medicare claims prior to initiation, we identified patients who had an AVF placed within 1 year prior to initiation.
- We used OP dialysis claims after initiation to identify when an AVF was first used for HD.
- Information regarding patient demographics and primary cause of renal failure were obtained from the USRDS database.

Results
- There were 2,476 patients who met the inclusion criteria. Their average age was 76.6 years, 77% were of white race, and 58% were male.
- Fewer than 40% of patients who had an AVF placed prior to initiation used an AVF at their first OP dialysis session.
- Of those whose AVF was placed at least 60 days prior to initiation, almost one-third had a functioning AVF at initiation.
- Only 37% of patients whose AVF was placed 6 to 12 months prior to initiation used it at their first OP dialysis session.
- Among patients who did not use an AVF at their first OP dialysis session, two-thirds had a functioning AVF within 6 months.

Conclusions
- While many patients studied had an AVF placed 6-12 months prior to initiation, a significant percentage (28.4%) had an AVF placed less than 30 days prior to initiation.
- As expected, the length of time between AVF placement and dialysis initiation is associated with whether the AVF was ready for use at the first OP dialysis session.
- The percent of patients who used an AVF at initiation is relatively low, even for those whose placement was 6-12 months prior.
- However, the large majority of patients were using an AVF within 6 months after initiation.
- Limitations:
  - Those aged 67+ are a subset of all AVF patients, and may not be representative
  - Retrospective, claims-based analysis

Table 1: Demographics

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Sex</th>
<th>Race</th>
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</thead>
<tbody>
<tr>
<td>Median</td>
<td>Mean</td>
<td>Male (%)</td>
</tr>
<tr>
<td>76.6</td>
<td>77%</td>
<td>58%</td>
</tr>
<tr>
<td>White</td>
<td>76%</td>
<td>76.9%</td>
</tr>
<tr>
<td>Female</td>
<td>42%</td>
<td>35.6%</td>
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</tbody>
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Figure 1: Distribution of days prior to AVF placement.