



Vascular Access Utilization in the Dialysis Population

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CMS 2728

18. Prior to ESRD therapy:

- | | | | | |
|---|------------------------------|--------------------------------|-----------------------------------|--------------------------------|
| a. Did patient receive exogenous erythropoetin or equivalent? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown | If Yes |
| b. Was patient under care of a nephrologist? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown | If Yes |
| c. Was patient under care of kidney dietitian? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown | If Yes |
| d. For hemodialysis patients only, what access was used on first outpatient dialysis? | <input type="checkbox"/> AVF | <input type="checkbox"/> Graft | <input type="checkbox"/> Catheter | <input type="checkbox"/> Other |
| If not AVF, then: Is maturing AVF present? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | | |
| Is maturing graft present? | <input type="checkbox"/> Yes | <input type="checkbox"/> 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

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

Validation of ME Vascular Access

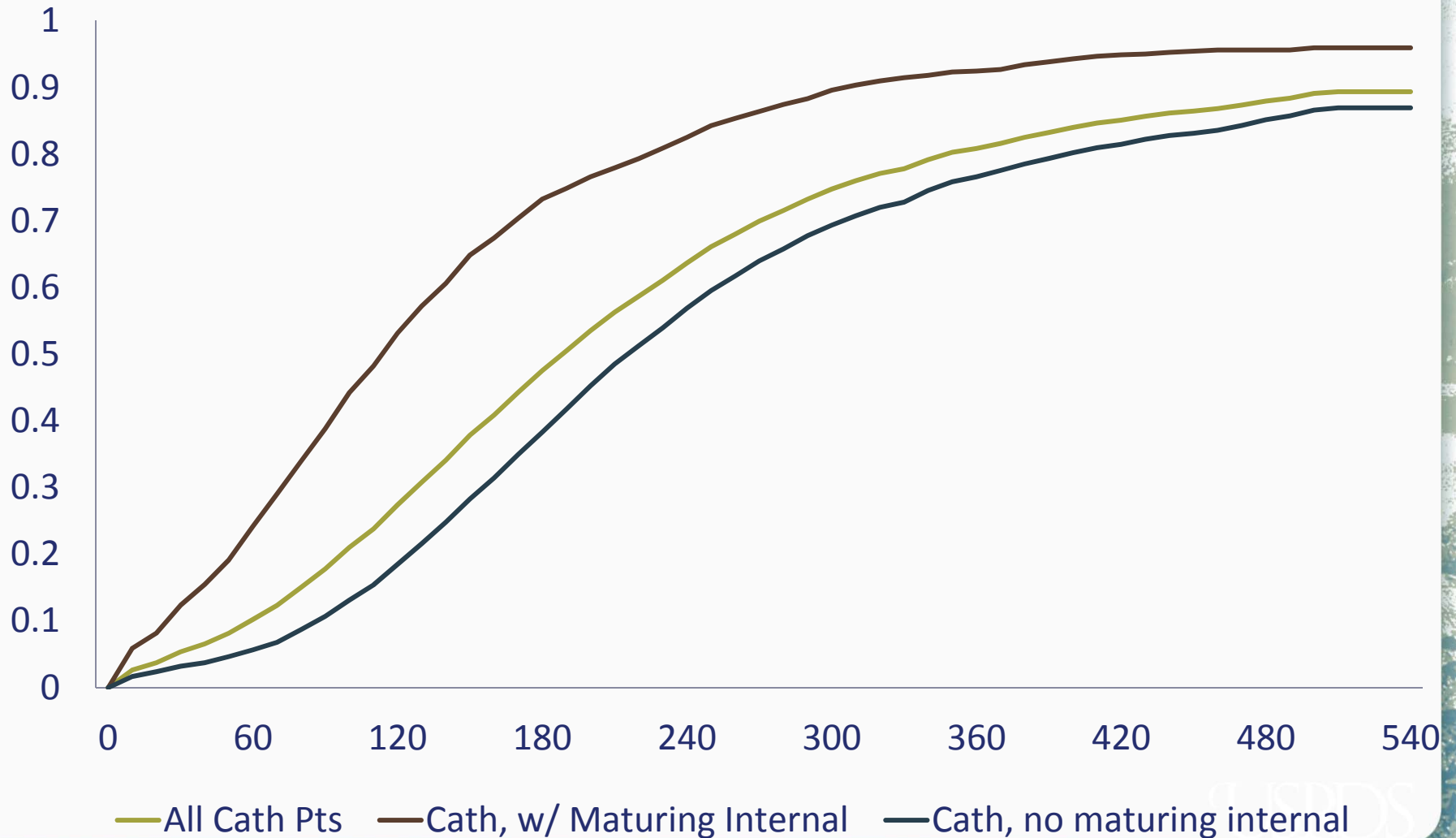
- In the elderly – the CMS 2728 is a fairly good indicator of actual access type used at initiation
- One category where there is a small discrepancy is in those who are listed as initiating with a fistula – approximately 11.4% of patients appear to be using a catheter

In Patients initiating Hemodialysis with a Catheter – How long does it take for them to start using a more “permanent” type of Access?

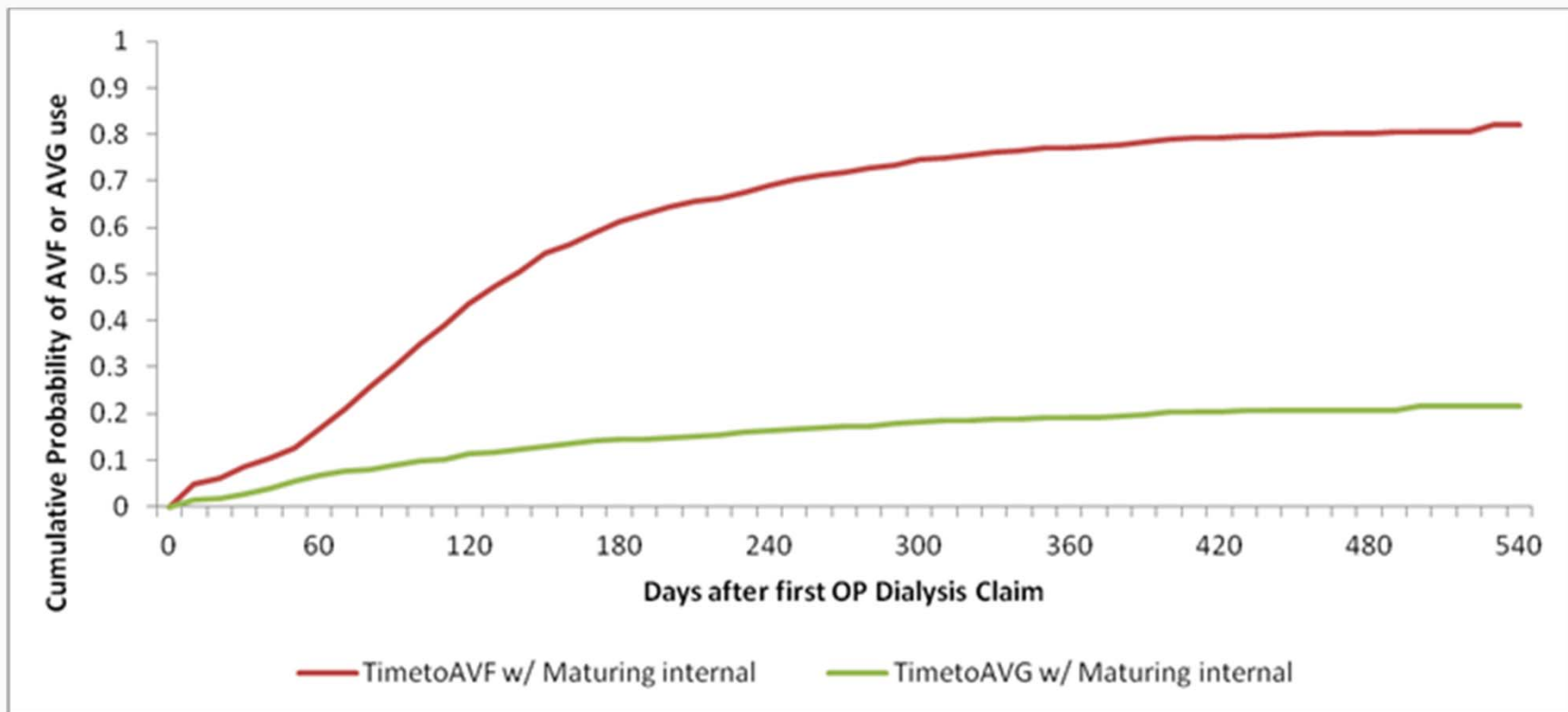
- Identified incident HD patients between 7-12/2010
- Includes patients with a ME form whose access at first dialysis was a catheter – irrespective of whether a maturing internal access was present
- Follow up through the end of 2011 (18 months)
- Time zero is the first outpatient dialysis claim
- Patients 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

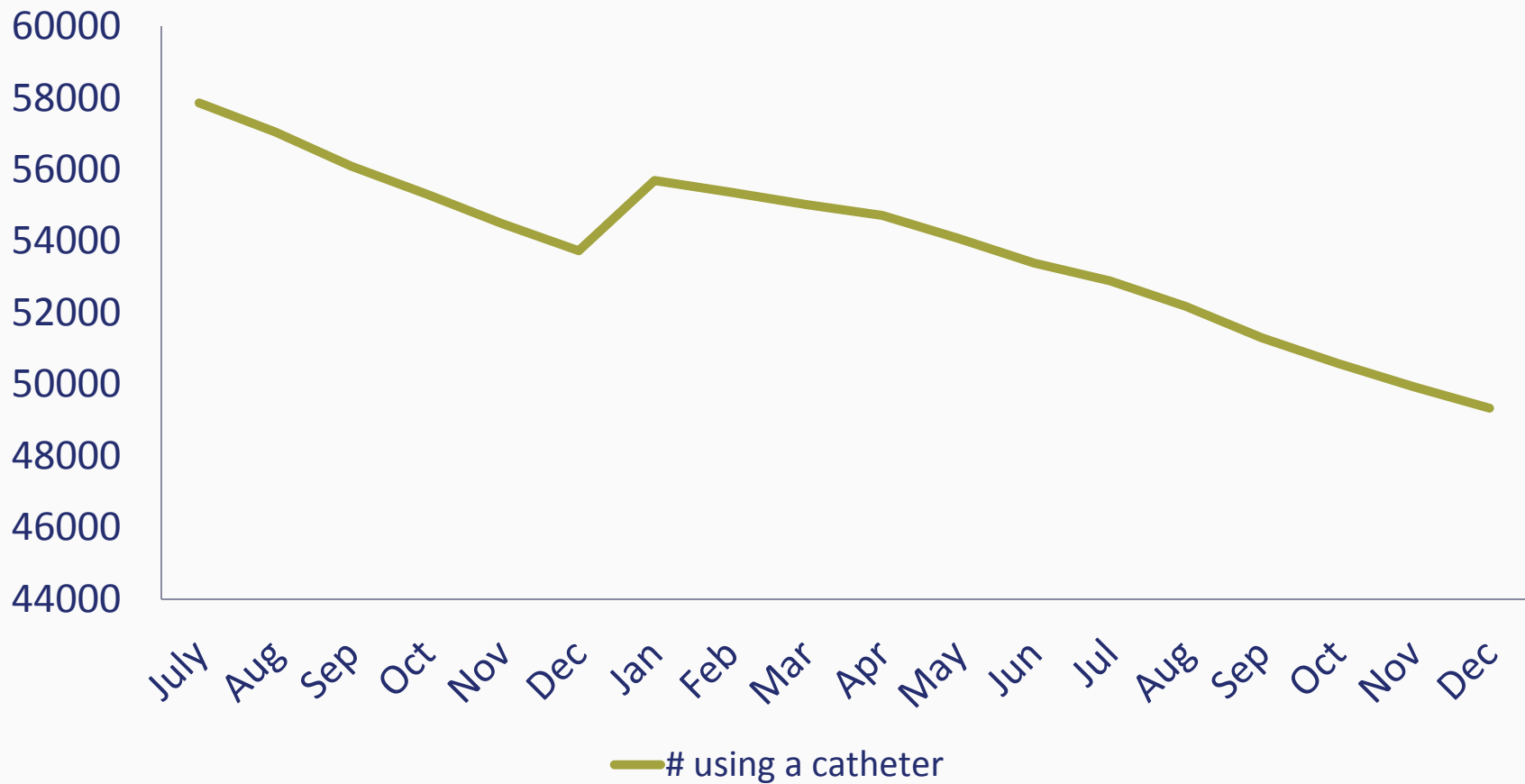


Bundle and Dialysis Catheters

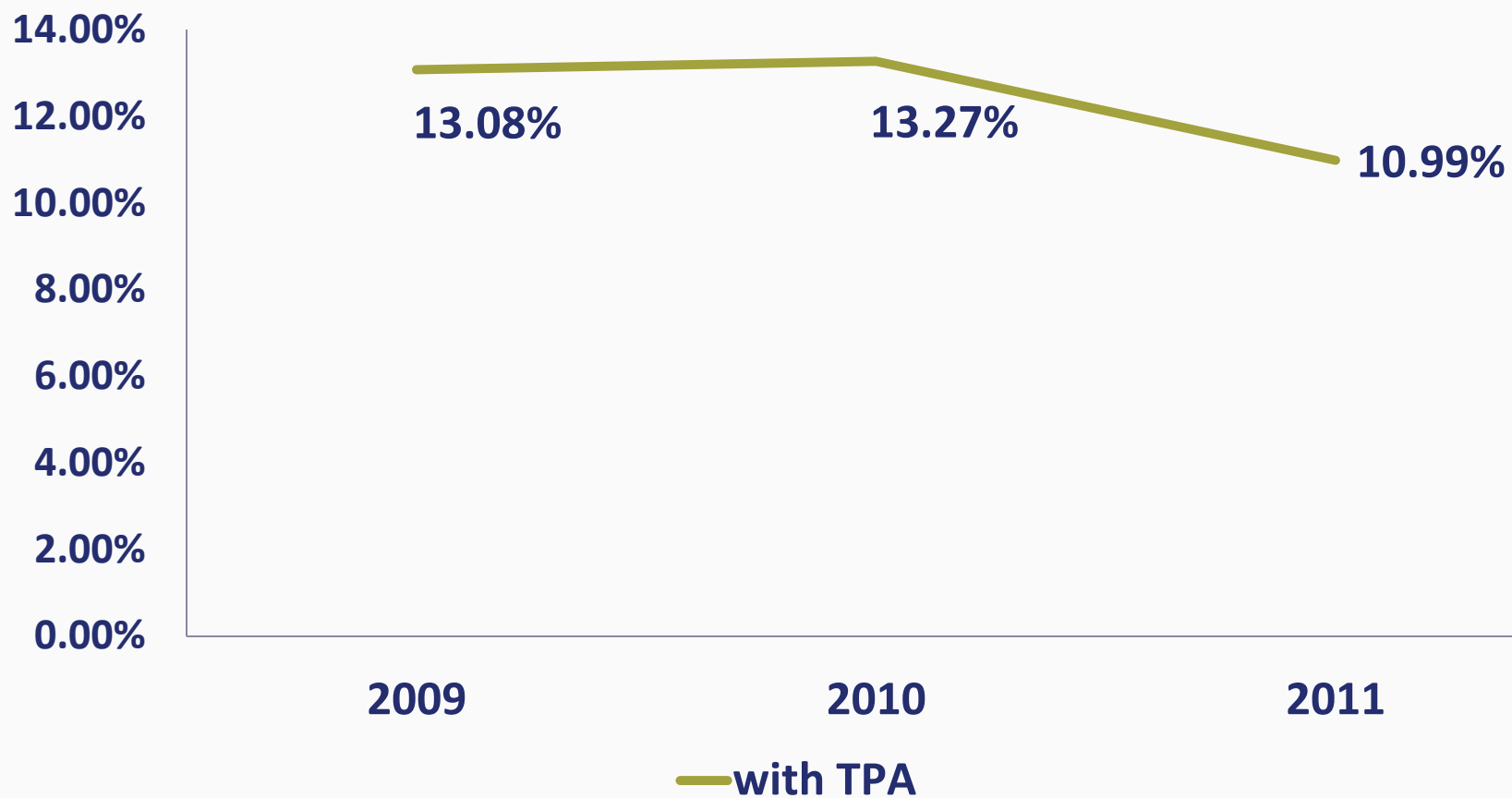
- Dialysis payment bundle provides a fixed reimbursement per dialysis session
- Included in the bundle are medications related to the provision of dialysis such as tPA
- Concern:
 - With the bundle providers may be less likely to use tPA for poorly performing catheters as the cost for tPA is not reimbursable.
 - 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.

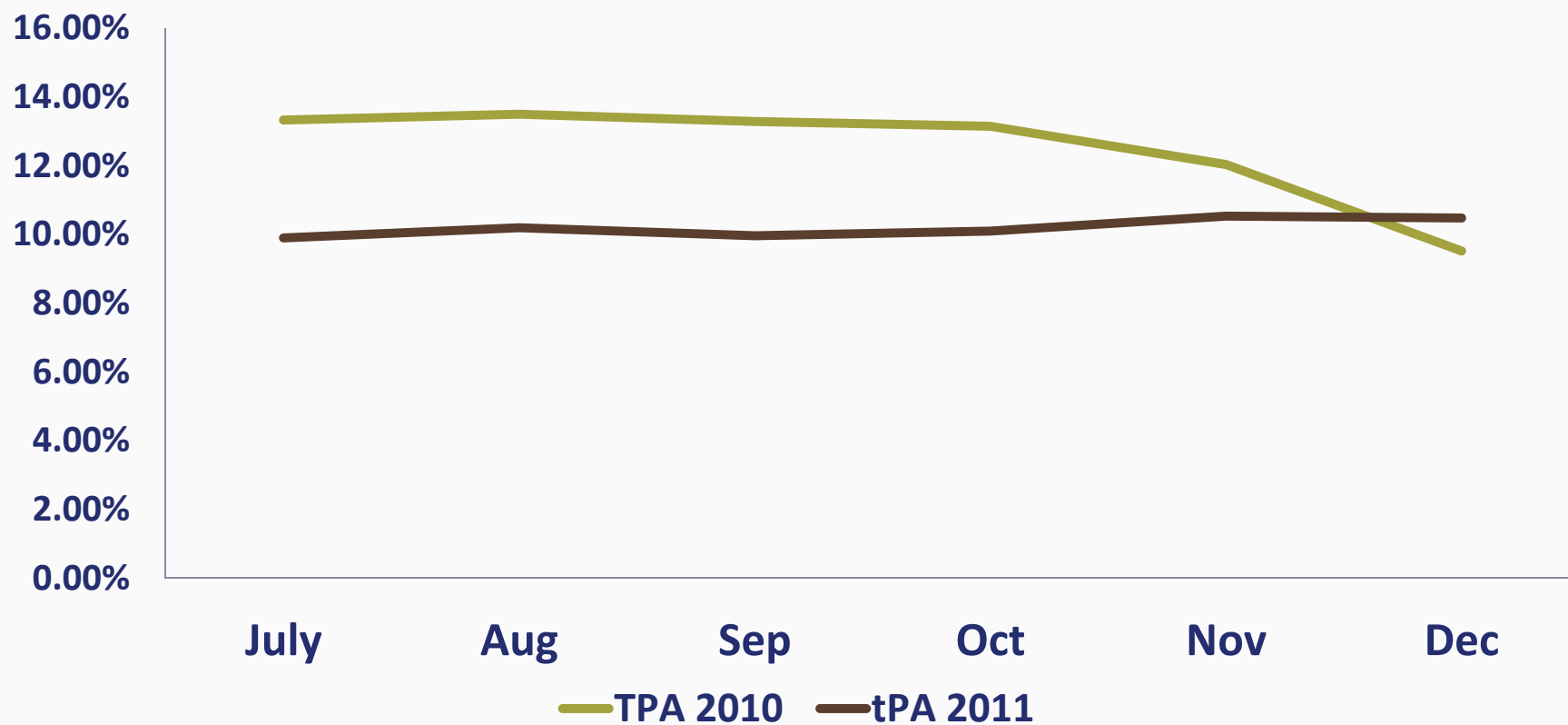
Catheter Trends in HD patients



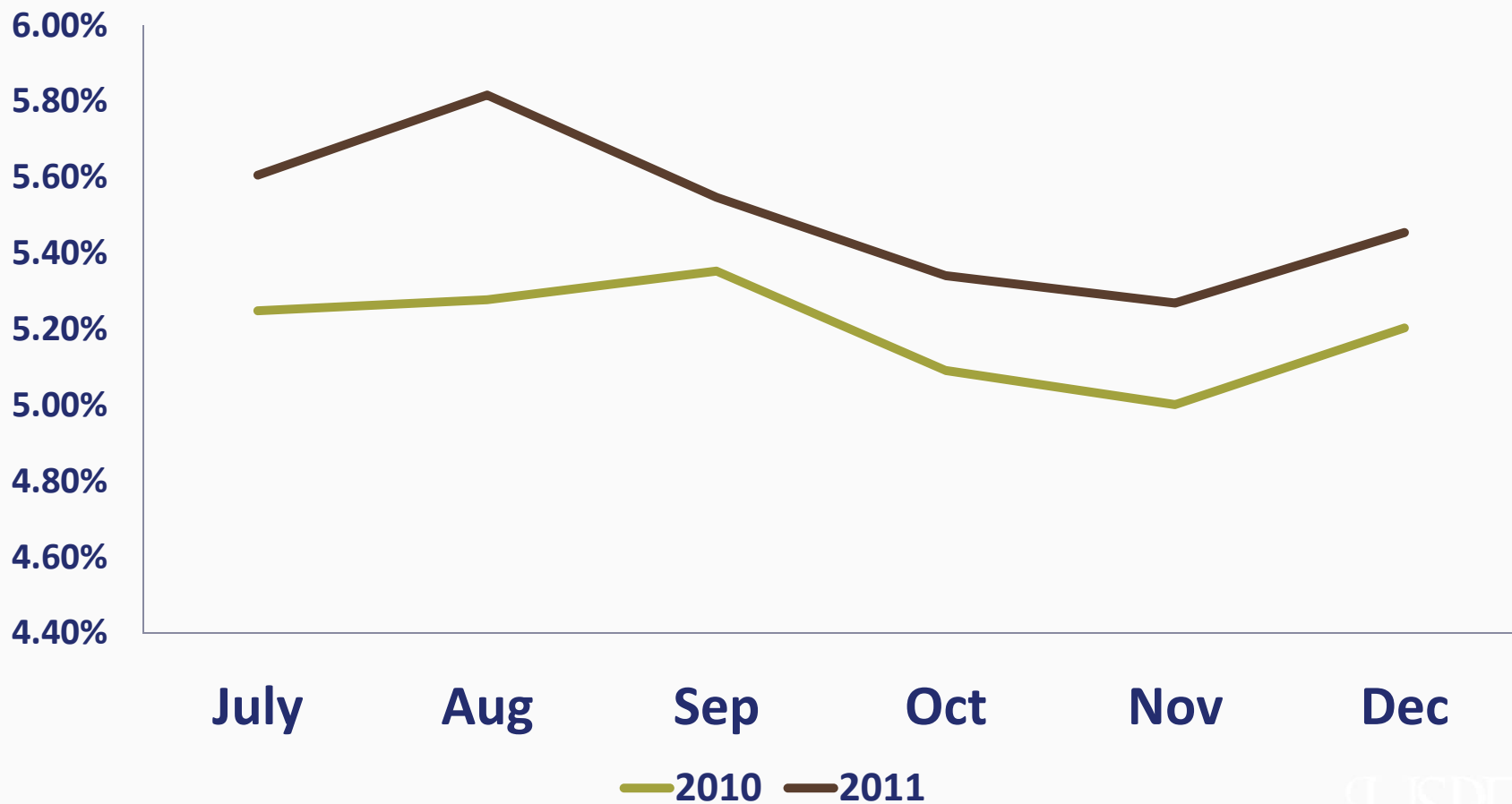
tPA use over time – All prevalent patients



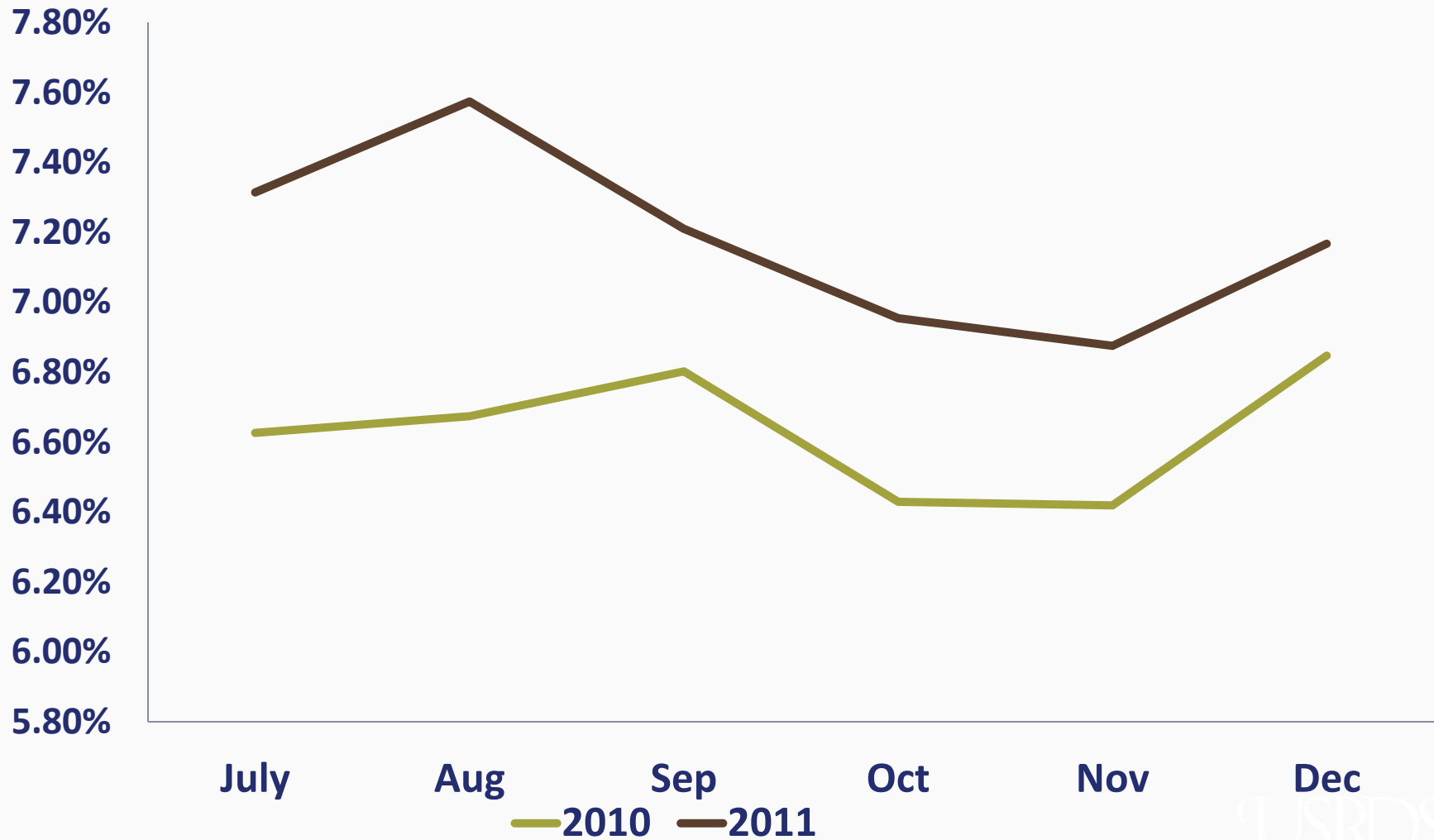
Percentage of Patients with a Catheter and tPA claim – 2010 vs 2011



Year over Year Comparison of % of Patients with a catheter replacement



Mean Percentage of Catheters replaced per month



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 with out 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.