

Vascular Access and Infections from Dialysis Claims

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Introduction

- Vascular access infections are a common issue for patients receiving hemodialysis (HD).
- 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 for dialysis, and whether or not there was a dialysis vascular access infection.

Methods

- Using the USRDS database, we identified HD patients who had OP dialysis claims during July through December of 2010 (the study period).
- Patients were classified as "incident" if day 91 of ESRD occurred during the study period, otherwise they were classified as "prevalent."
- HCPCs modifier codes were used to identify vascular access and infection during the study period:
 - V5 = Catheter
 - V6 = Arteriovenous Graft (AVG)
 - V7 = Arteriovenous Fistula (AVF)
 - V8 = Vascular Access Infection
- A vascular access infection represents the presence of the HCPCs modifier code (V8) on at least one OP dialysis claim during the study period.

Results

- The study cohort included 177,875 prevalent patients and 11,290 incident patients.
- Among prevalent patients, only 10% used only a catheter, but over 7% of these patients experienced a vascular access infection. Approximately three-fourths of patients used only an internal access, with less than 1% of these patients experiencing a vascular access infection.
- Among incident patients, catheters were more common (38% of patients) than internal accesses (23%), but vascular access infections were more common among catheter patients (6%) than those with internal accesses (1.6%).
- After adjusting for other factors, patients with a catheter had significantly higher odds of a vascular access infection.

Table 1
Demographics

	Prevalent Pts	Incident Pts
Total	177,875	11,290
Age < 45	24,311 13.7%	1,108 9.8%
Age 45-64	73,956 41.6%	3,564 31.6%
Age 65-74	41,831 23.5%	3,095 27.4%
Age 75+	37,777 21.2%	3,523 31.2%
Male	96,209 54.1%	6,199 54.9%
Female	81,666 45.9%	5,091 45.1%
White	92,473 52.0%	7,312 64.8%
Black	74,253 41.7%	3,340 29.6%
Other	11,149 6.3%	638 5.7%
PCOD: DM	78,074 43.9%	5,384 47.7%
PCOD: HTN	52,216 29.4%	3,603 31.9%

Figure 1
Incident Patients: Vascular Access Infections

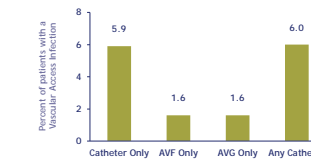


Figure 3
Incident Patients: Vascular Access Infections within age groups

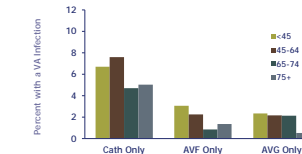


Table 3
Adjusted Odds of a Vascular Access Infection

	Prevalent Pts	Incident Pts
	Odds Ratio	p-value
Cath vs. Internal	7.40	< .0001
Age 45-64	0.77	< .0001
Age 65-74	0.62	< .0001
Age 75+	0.57	< .0001
Black Race	0.90	0.0042
Other Race	1.16	0.0269
Female	0.97	0.3004
PCOD: HTN	0.88	0.0023
PCOD: Other	0.91	0.6363

Reference Categories: Age < 45, White Race, Male, PCOD: DM. *Cath vs. Internal* represents patients with any catheter use vs. patients using only an internal access.

Table 2
Vascular Access Use During the Study Period

	Prevalent Pts	Incident Pts
Total	177,875	11,290
Catheter Only	18,381 10.3%	4,245 37.6%
AVF Only	99,898 56.2%	2,073 18.4%
AVG Only	37,843 21.3%	555 4.9%
Cath + Internal	17,473 9.8%	4,331 38.4%

Figure 2
Prevalent Patients: Vascular Access Infections

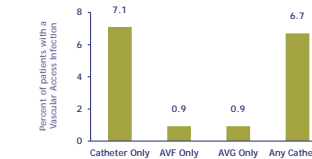
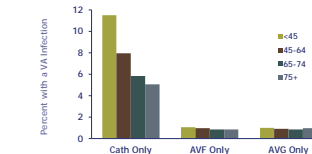


Figure 4
Prevalent Patients: Vascular Access Infections within age groups



Conclusions

- This is the first opportunity to track vascular access use for chronic hemodialysis patients in the U.S.
- As expected, catheters are common among incident patients, while internal accesses are more common in patients who have been on dialysis longer.
- Vascular access infections occurred more frequently in those using catheters for part or all of the period.