

Catheter Reduction Reduces Mortality

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INTRODUCTION

Use of central venous catheters (CVC) in hemodialysis (HD) patients is associated with increased mortality. Published data have shown that an aggressive catheter reduction initiative can decrease new catheter placement, but less is known about catheter survival and total catheter time. We examined the impact of CathAway™, the DaVita catheter reduction initiative introduced in 2008, on catheter incidence and duration, and the association between catheter reduction and mortality rates.

METHODOLOGY

- This was a retrospective analysis of electronic medical records of patients receiving hemodialysis between 1/1/07 and 12/31/09 (n=247,306) at a large dialysis organization (Table 1).
- We examined catheter initiation in both incident (≤120 days) and prevalent (>120 days) dialysis patients.
- We calculated catheter survival (time from first catheter use to catheter removal or first fistula/graft use).
- We normalized catheter time by hundred patient years.

RESULTS

Table 1. Patient Demographics

	Mean ± SD
N	247,306
Age (yr)	61.5 ± 15.4
% Male	55.7%
<i>Race and Ethnicity</i>	
% African American	35.0%
% Hispanic	14.4%
% Asian/Pacific Islander	3.7%
% Native American	1.3%
% Unknown	0.2%
% Diabetic	69.8%
Vintage (yr)	3.6 ± 3.6
BMI	28.2 ± 9.2

Table 3. Deaths per 100 Patient Years: 2007-2009

Year	Deaths per 100 patient years
2007	13.33
2008	13.25
2009	13.17

Table 2. Incidence and Prevalence of CVC Catheters by year

	2007	2008	2009
Incident patients			
No CVC	8,533 (20.7%)	8,702 (20.1%)	8,980 (20.1%)
Any CVC	32,676 (79.3%)	34,656 (79.9%)	35,689 (79.9%)
Prevalent patients			
No CVC	70,597 (55.9%)	79,256 (58.9%)	85,582 (60.8%)
Any CVC	55,653 (44.1%)	55,281 (41.1%)	55,084 (39.2%)
All patients			
No CVC	79,130 (53.4%)	87,958 (55.1%)	94,562 (57.6%)
Any CVC	68,982 (46.6%)	69,361 (44.1%)	69,520 (42.4%)
Total number of CVCs (existing & placed)	69,833	70,291	70,459
CVCs placed per 100 patient years	11.9	11.5	11.0
Total CVC days	286,930	238,079	225,535
CVC days per 100 patient years	221.2	174.1	159.9

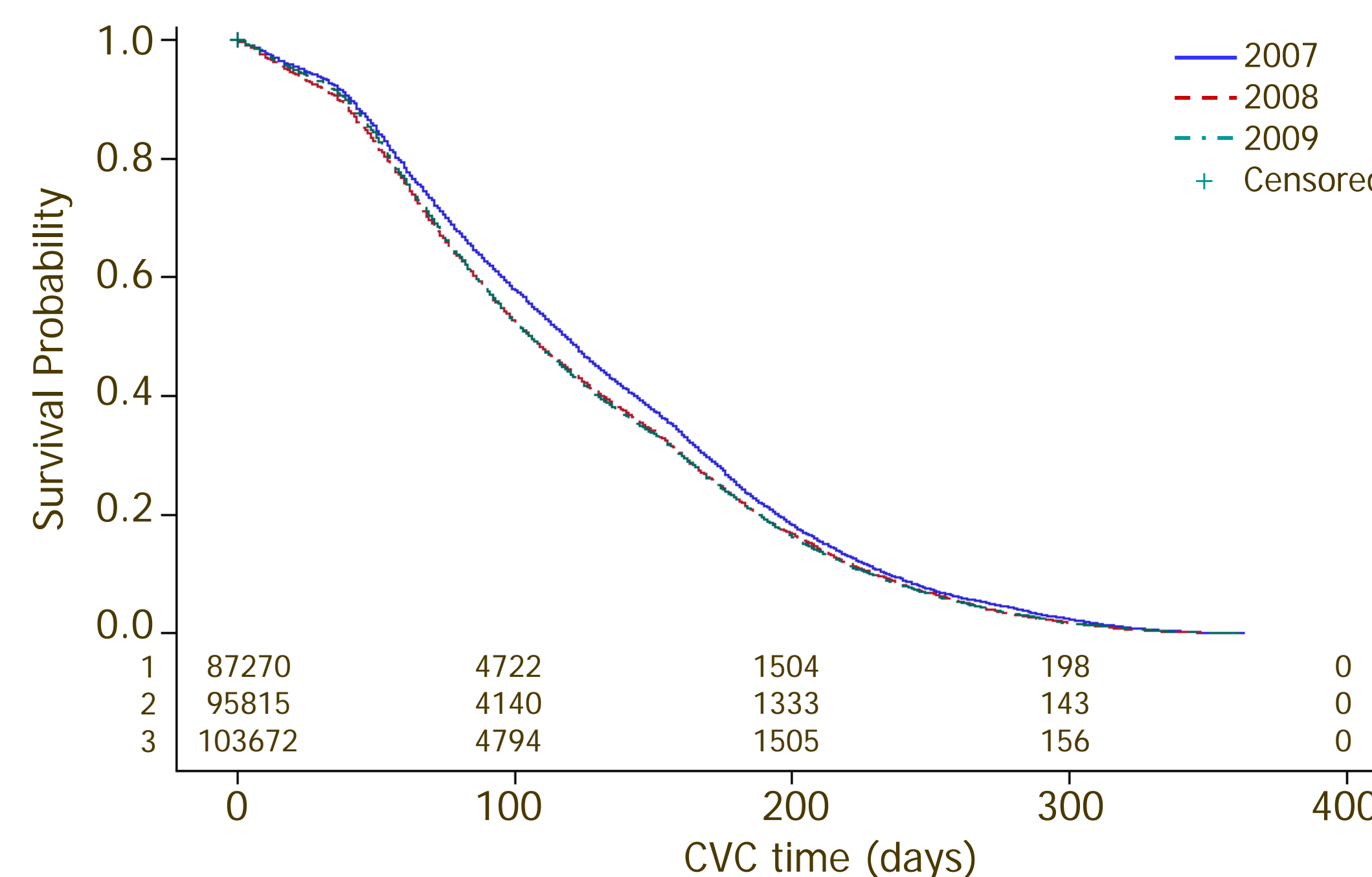


Figure 1. Catheter Survival by Days

SUMMARY of RESULTS

- From 2007 - 2009, there was no change in the percent of patients starting dialysis with a CVC (Table 2).
- Over this same period, there was an 11% relative and 5% absolute decrease in catheters among prevalent HD patients.
- Catheter survival time decreased over this period as well. The combination of decreased placement and shorter catheter survival resulted in a decrease of 61 catheter days per 100 patient years (Figure 1).
- While mortality dropped in this population during this time of decreased catheter utilization (Table 3), multiple quality improvement initiatives likely contributed to this decrease.

KEY LEARNINGS

- ✓ Targeted catheter initiatives can decrease both placement of new catheters and total catheter time.
- ✓ Less progress has been made on the utilization of catheters among incident patients, which falls outside of the control of dialysis organizations.
- ✓ The expected increase in survival was observed in conjunction with decreased catheter time.

We express our sincere appreciation to the teammates in our nearly 1600 clinics who work every day, not only to take care of patients but also to ensure the extensive data collection on which our work is based. We thank DaVita Clinical Research® for support in preparing this poster. DCR is committed to advancing the knowledge and practice of kidney care.

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American Society of Nephrology RenalWeek 2010, Denver, CO