

Odds of Missed Hemodialysis Sessions Are Increased During Holiday Periods Among In-Center Hemodialysis Patients S Crawford; X Wang; P Oberai; S Sibbel DaVita Inc., Denver, CO, USA

Introduction

- Hemodialysis places significant demands on a patient's lifestyle. The hemodialysis regimen consists of dietary and fluid restrictions, medications with potential side effects, and management of co-morbid conditions.
- Missed dialysis sessions place a significant economic burden on dialysis facilities, compromising dialysis delivery and increasing the cost of hemodialysis.
- Longer interdialytic intervals have been shown to increase morbidity and mortality and may result in increased time on dialysis.

Objective

• The aim of this study was to assess the likelihood of missed dialysis sessions among patients at a large dialysis organization (LDO) during holiday periods that represent long interdialytic intervals, potentially marking periods with higher risk of adverse events.

Methods

• We evaluated missed sessions during holiday and non-holiday periods among 2,474 in-center hemodialysis patients from 2006–2010.

Algorithm to Identify Holiday Periods

- We assessed 5 holidays:
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas/New Year's Day
- We compared the proportion of missed sessions in the week surrounding the holiday relative to non-holiday periods in the remainder of the year.
- A 3-week interval was utilized for periods during Christmas day and New Year's day with the exception of 2010, which utilized the 2-week interval leading up to New Year's, 2011.
- Missed sessions during a week with three or more attended sessions were excluded.

Modeling Approach

- Generalized binomial models were fit over time and adjusted for potential confounders including:
- Age
- Race
- Dialysis vintage
- Vascular access

Results

Figure 1: Proportion of Missed Dialysis Sessions During Holiday Periods

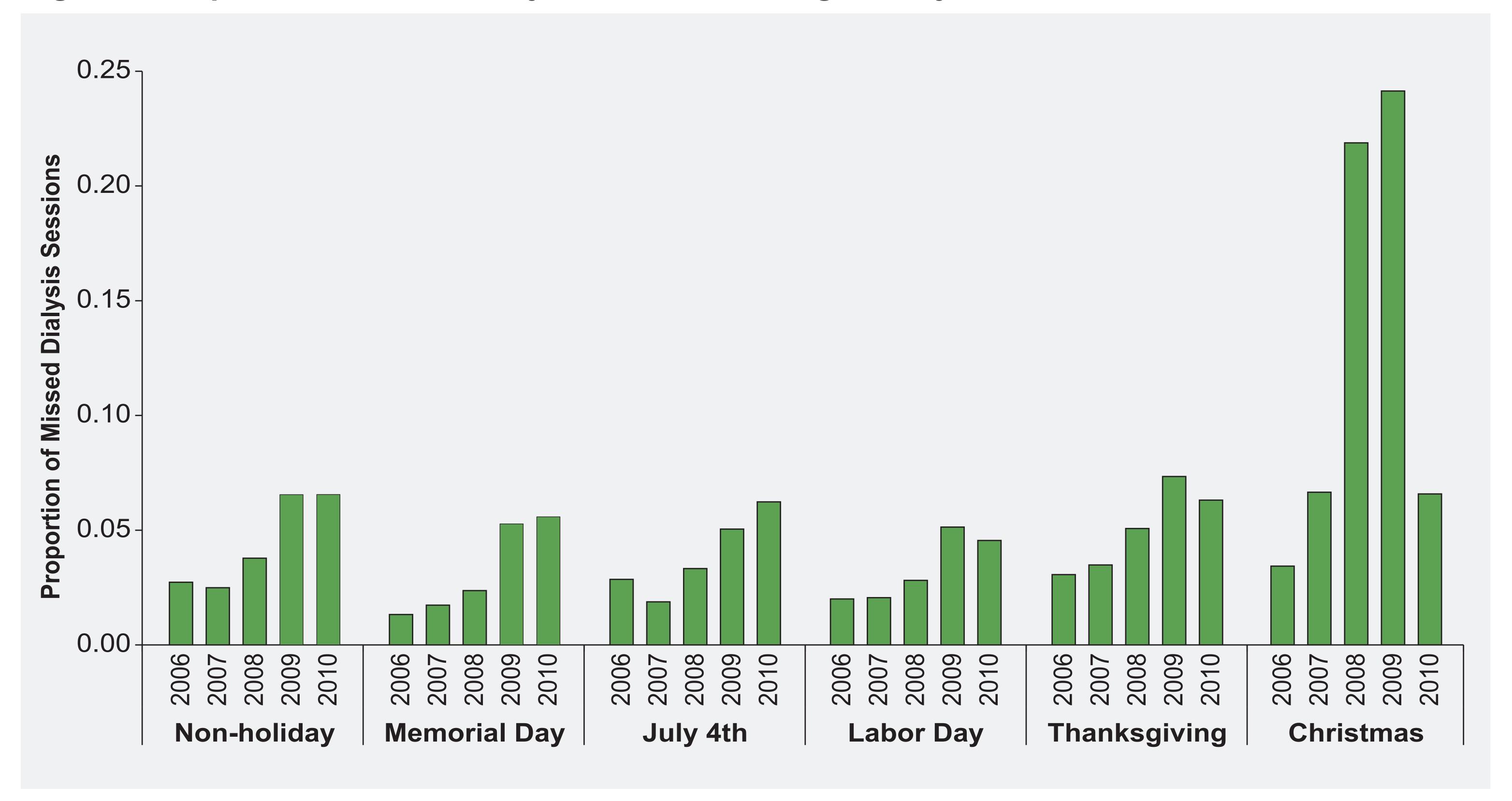


Table 1: Odds of Missed Dialysis Sessions During Holiday Periods

	2006		2007		2008		2009		2010		Overall	
	OR	p	OR	p	OR	p	OR	p	OR	p	OR	p
Non-holiday Periods	1		1		1		1		1		1	
Memorial Day	0.50	0.001	0.77	0.029	0.65	<0.001	0.84	0.024	0.92	0.274	0.81	< 0.001
Fourth of July	1.07	0.614	0.72	0.013	0.88	0.182	0.77	0.005	0.97	0.709	0.87	0.003
Labor Day	0.72	0.045	0.84	0.160	0.73	0.003	0.78	0.003	0.70	< 0.001	0.76	< 0.001
Thanksgiving Day	1.12	0.450	1.45	0.001	1.35	0.001	1.16	0.065	0.98	0.816	1.21	< 0.001
Christmas/New Year's	1.28	0.015	2.79	< 0.001	7.10	< 0.001	4.58	< 0.001	1.00	0.983	3.88	< 0.001

- Relative to non-holiday intervals, a high proportion of missed sessions was observed during the Christmas and New Year's day holidays, particularly in 2008 and 2009:
- 2008: 21.8% vs. 3.8% (p < 0.001)
- 2009: 24.1% vs. 6.5% (*p* < 0.001)
- A smaller impact was observed during Thanksgiving holiday week, particularly in later years.
- By comparison, the proportion of missed sessions during Memorial Day, Independence Day, and Labor Day was not meaningfully different from non-holiday intervals.

- There was a 7.1-fold and 4.6-fold higher odds of missed dialysis sessions during 2008 and 2009 Christmas holiday periods, respectively.
- There was a 1.5-fold and 1.4-fold higher odds of missed dialysis sessions during 2007 and 2008 Thanksgiving holiday periods; association attenuated in 2009 and 2010.
- Overall, Thanksgiving (OR: 1.21, 95%) CI: 1.10, 1.32) and Christmas (OR: 3.88, 95% CI: 3.68, 4.09) holidays were associated with a higher odds of missed sessions, after full adjustment.

Discussion

- An increasing trend in proportion of missed sessions over time regardless of holiday periods was observed.
- The spike observed in missed sessions during Christmas 2008 and 2009 is not well understood.
- The lower rate of missed sessions in Christmas 2010 may be due to a shorter time interval, which was truncated at December 31st, 2010.
- Lower likelihood of missed sessions during Memorial Day, Fourth of July and Labor Day suggests that patients are less likely to travel away from their home dialysis facility during these shorter holiday periods.

Summary/Conclusions

- The Thanksgiving and Christmas holiday travel periods were associated with a higher likelihood of missed dialysis sessions.
- Further research should verify the association in larger samples and assess the economic impact of missed hemodialysis sessions.
- A continued need for vigilant patient communication during holidays will help mitigate the potential adverse effects of missed dialysis sessions.

Acknowledgements

Our sincere appreciation to the teammates in more than 1600 DaVita clinics who work every day to take care of patients but also to ensure the extensive data collection on which our work is based. We thank DaVita Clinical Research[®] (DCR[®]), and specifically acknowledge Barbara A. Nambu, PhD of DCR for editorial contributions in preparing this poster. DCR is committed to advancing the knowledge and practice of kidney care.

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International Society for Pharmacoeconomics and Outcomes Research 17th Annual International Meeting, Washington, DC, June 2–6, 2012