

## INTRODUCTION

The USRDS has estimated that the overall use of antibiotics for any type of infection approaches 30% in six months. Central venous catheters (CVCs) have the highest rate of access-related bloodstream infections. Sodium hypochlorite solution is an effective topical disinfectant and is used to prophylactically reduce the risk of bacterial contamination and skin infections with CVCs for dialysis. However, little comparative data have been shown about this preparation vs. the use of iodine for skin site preparation with ESRD patients. To identify best practices, we surveyed dialysis clinics to document this infection control procedure, and compared all-type infection rates (inferred from antibiotic use) between the two protocols.

## METHODOLOGY

- Surveys asking about exit site skin preparation prior to dialysis were sent to all DaVita facility administrators (FA) for whom we had email contact (~1700). Valid responses were received from 568 FAs at unique facilities. Facilities with a patient census  $\geq 20$  were analyzed further (n=226).
- Overall use of antibiotics by patients in facilities using an electrolytically-produced sodium hypochlorite (ESH; ExSept Plus or Alcavis 50) were compared to those using conventional iodine-based antiseptic protocol.
- Infection was inferred retrospectively by facility administration of antibiotics. While exit site infections could not be identified directly, to the extent antibiotic use systematically differed between ESH and iodine-using facilities that were otherwise similar, differences in exit site infections was inferred.
- The use of any antibiotic in the six-month window was calculated, and the all-type infection rate was defined as the number of uses of antibiotic found in the study period divided by the number of individuals at risk and their number of days at risk.

## RESULTS

Table 1. Patient Demographics from Facilities Completing the Survey

	Facilities Queried
N	7,212
Age (yr)	61.3 $\pm$ 15.7
% Male	51.9%
Race and Ethnicity	
% African American	31.4%
% Hispanic	11.9%
% Asian, Pacific Islander	2.7%
% Native American	0.8%
% Other	0.2%
% Diabetic	71.5%
Vintage (yr)	1.9 $\pm$ 3.2
BMI	28.1 $\pm$ 8.0

Table 2. Product Use by Facility

Product	Frequency of Use Number (percent)
ESH	76 (78.4%)
Betadine	10 (10.3%)
Hibiclens	0 (0%)
Provodine	1 (1.0%)
Iodine	
Other	10 (10.3%)

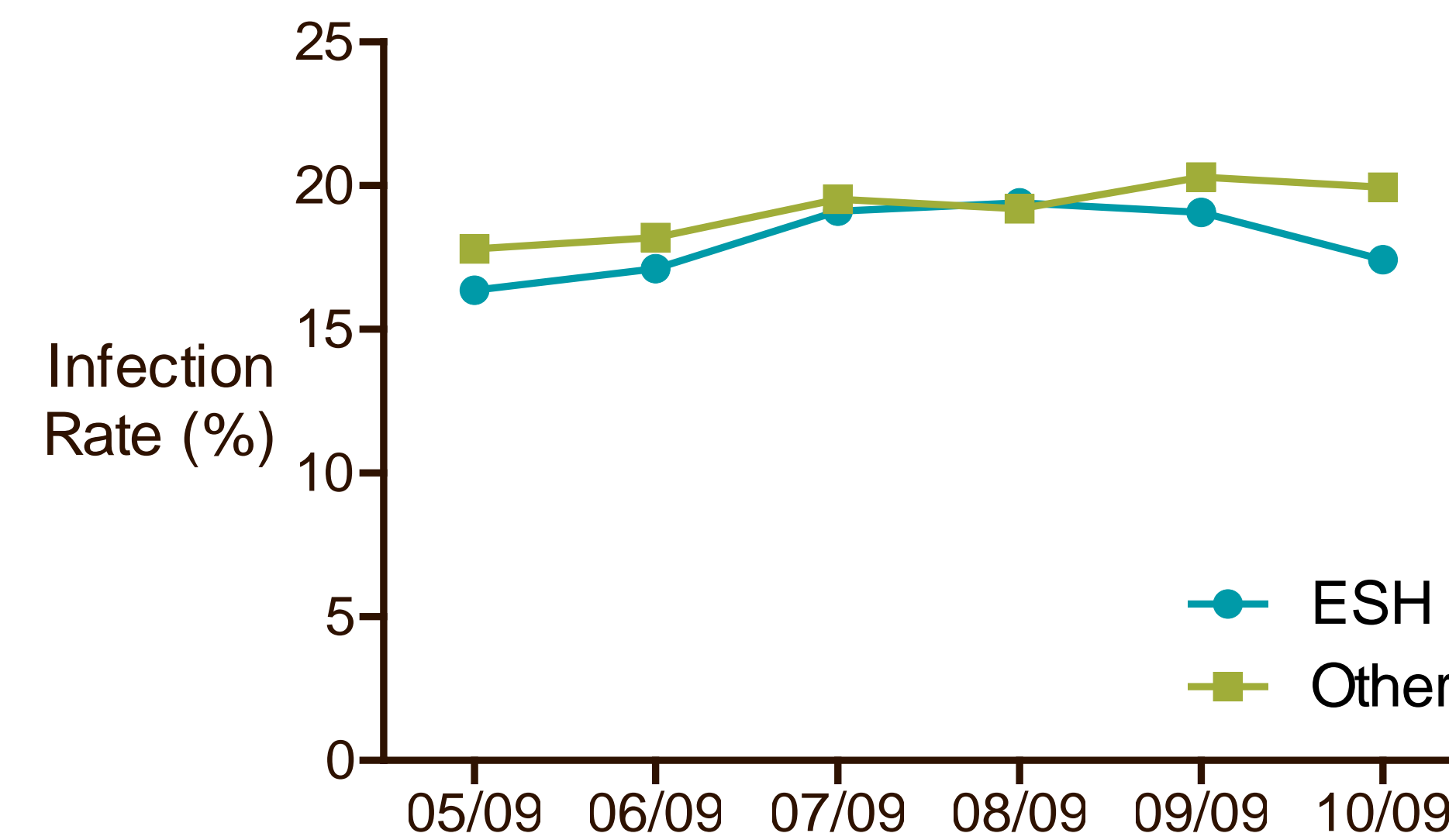


Figure 1. Facility Infection Rate by Disinfectant Type

Table 3. Facilities Compared by Infection Rate

	Facilities Using ESH	Not Using ESH
Facilities	180	46
Facility Census	65.4 $\pm$ 35.3	52.8 $\pm$ 28.6
% CVC	24%	25%
Facility Quality Index	60.4 $\pm$ 7.3	60.6 $\pm$ 7.1

## SUMMARY of RESULTS

- 78.4% of facilities reported using an ESH for exit site disinfection (Table 2). 17% of facilities applied an antibiotic ointment to the exit site following disinfection.
- Antibiotic use was observed in 18.1% of ESH facilities and 19.2% in iodine facilities. This difference was suggestive but not significant (p=0.09). The expected use of antibiotics was 30% in the USRDS.
- Use of antibiotics from May to October 2009 showed no significant differences for any month, although in almost all months the observed percentage of infections was lower in facilities using ESH (Figure 1). These facilities had an observed overall rate of antibiotic use of 7.21  $\pm$  0.12 per 1000 patient days with CVC while conventional facilities had an observed antibiotic use rate of 7.57  $\pm$  0.26 infections per 1000 patient days with CVC (ns).

## KEY LEARNINGS

- ✓ ESH use was much higher than expected. This may show a possible change in practice pattern of using ESH in dialysis treatments where both the use of CVCs and infections is common.
- ✓ The observed use of antibiotics for any reason was lower than expected from USRDS estimates.
- ✓ While the observed proportion of antibiotic use (and all-type infections) was lower in ESH facilities in 5 of 6 months, this difference was not statistically significant.
- ✓ FAs reported anecdotally the perceived benefits of a reduced procedure time to achieve skin disinfection, less aggressive cleaning of the site, no sensitization, and catheter material compatibility.

Our sincere appreciation to the teammates in our nearly 1600 clinics who work everyday not only to take care of patients but who also 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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