

# PD Cycler With 2-Way Remote Management Technology Reveals Patient Adherence Patterns to Dialysis

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## Background

Non-adherence to >10% of the Peritoneal Dialysis (PD) prescription is associated with technique failure, peritonitis, hospitalizations and mortality.<sup>1,2</sup> Historically, clinicians have been unable to proactively identify patients missing or shortening prescribed PD treatments, precluding intervention. Automated Peritoneal Dialysis (APD) cyclers embedded with Remote Patient Management (RPM) technology can detect early treatment related issues, allowing intervention to potentially prevent clinically significant events.

## Objective

To evaluate actual APD treatment time compared with prescribed treatment time spent performing APD utilizing an APD device with embedded RPM technology (Amia APD System with Sharesource- Fig 1).

## Methods

Data on 544 United States APD patients during the period of December 2015 to December 2016 were analyzed. Patients with  $\geq 3$  months on the Amia APD cycler with RPM capabilities were examined for weekly treatment frequency and actual versus prescribed treatment time. An assumption made is that patients perform APD therapy 7 days per week. Subjects with gaps in treatment > 30 days were omitted/excluded. Any treatments occurring in the first 14 days from the very first available treatment were considered as training time and were excluded. Months are considered in increments of 30 days. Time (days) on treatment was determined by counting the number of calendar days from the first treatment after the training period to the last available treatment for a patient. E.g., If a subject completed 125 days of treatment, they will be counted in the time on therapy categories of 30, 60, 90, and 120 days of treatment.

Figure 1: Remote Patient Monitoring Schemata

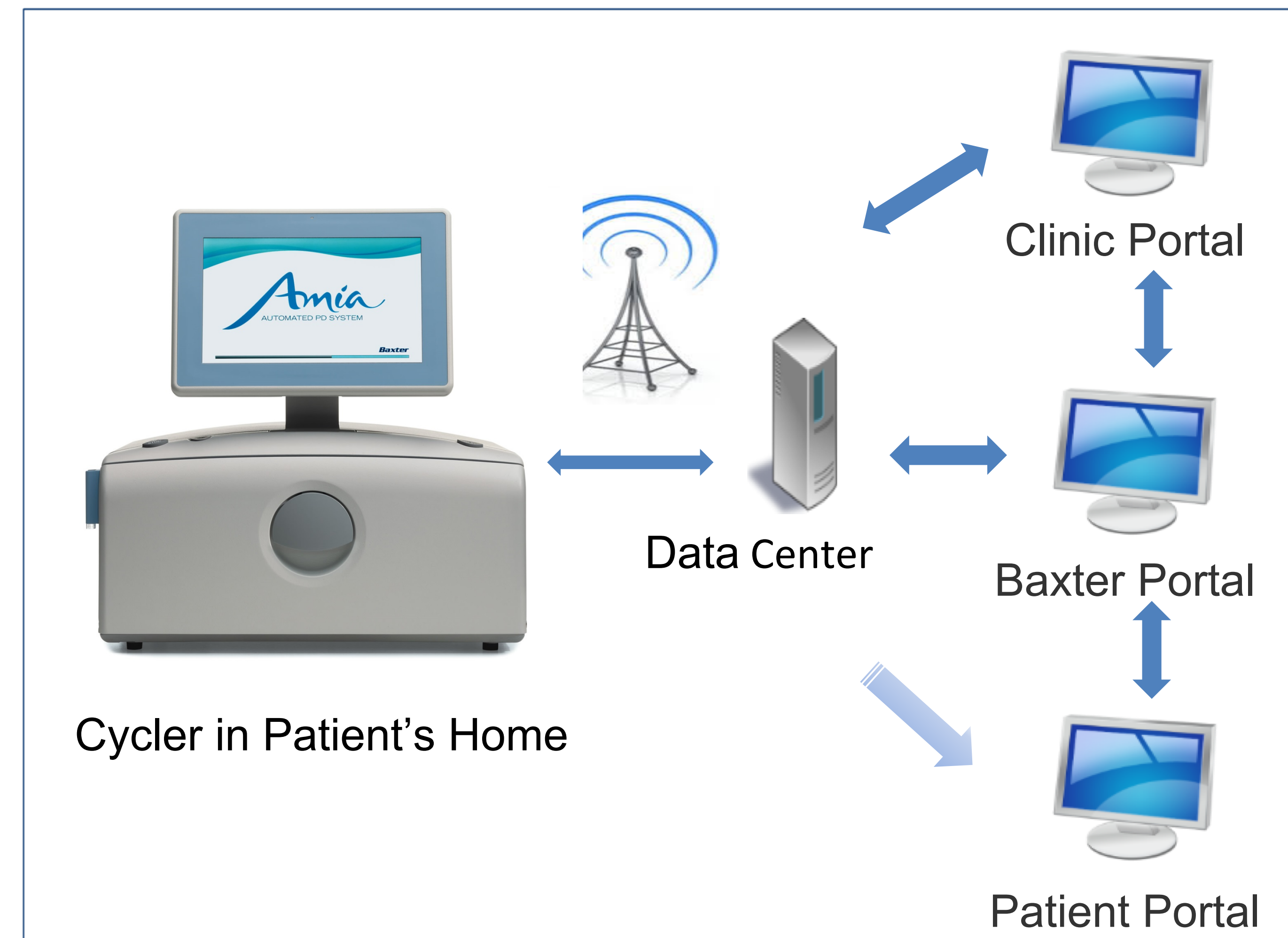
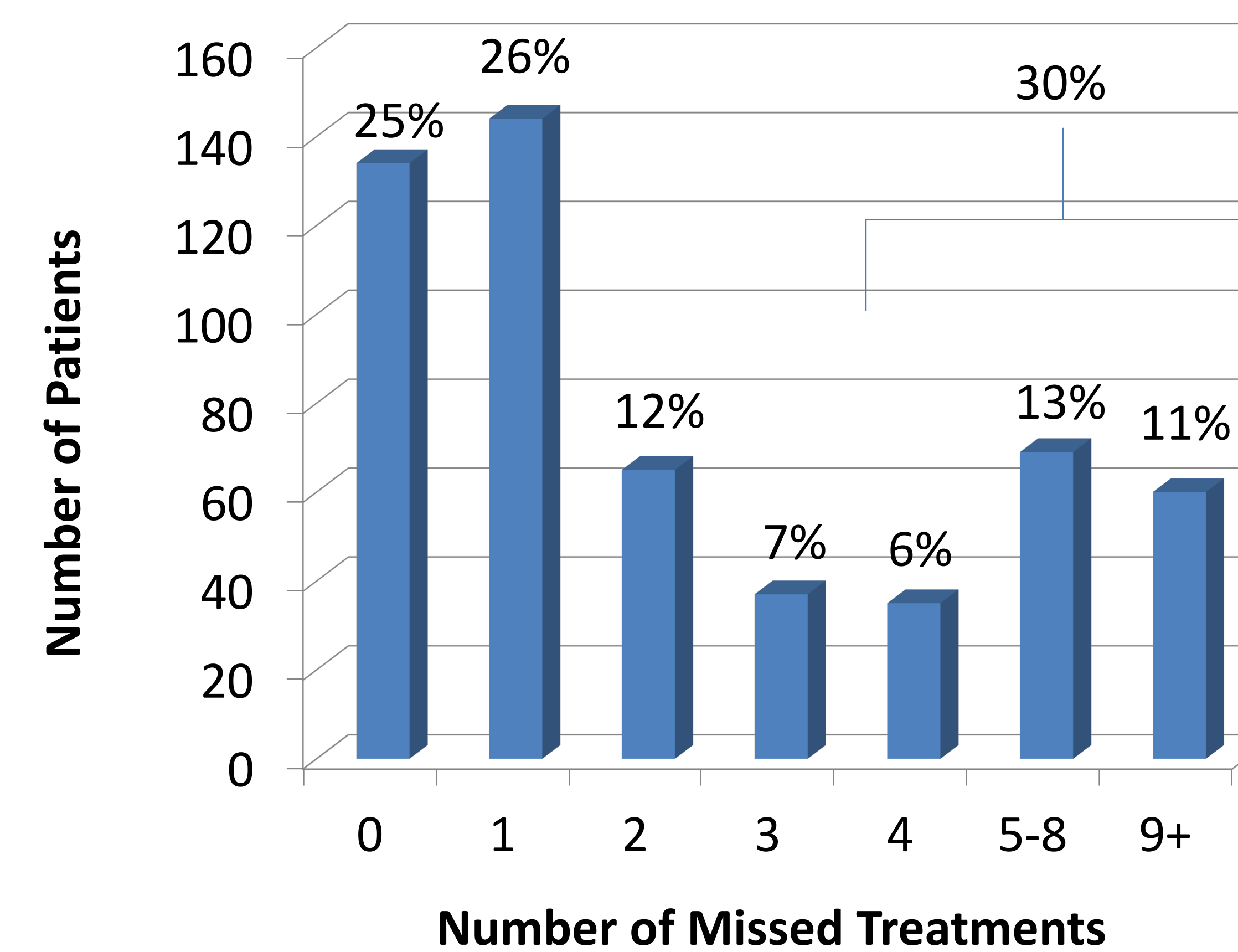


Figure 2: Number of Missed Treatments in First Month of Dialysis (N=544)



Treatment frequency is a weekly rate for a specified period. It was calculated by counting the number of treatments in Sharesource/30 \* 7. If patient was found to have 27 treatments out of 30 days, then weekly rate was calculated as: Weekly rate=(27/30) \* 7 = 6.3. Treatment differences were calculated as (Rx treatment time – actual treatment time).

## Results

During the 1st month of therapy, 30% (164) of patients missed  $\geq 4$  treatments (>10% of prescribed therapy); 11% (60) of pts missed  $\geq 9$  treatments (Fig 2). In the first week of therapy, 34.9% (190) and 12.7% (69) of patients had  $\geq 100$  minutes and  $\geq 300$  minutes, respectively, less actual therapy time than prescribed (Fig 3). Similar results occurred over subsequent weeks. In combined results of weeks 1,2,4 and 6, 13% of pts missed >5%, 8.7% missed >10%, 5% missed >15% and 3% missed >20% of prescribed dwell time (Fig 4).

Figure 3: Number of Patients With at Least 3 Months of Treatment Who Missed Significant Treatment Time per Week by Week of Therapy (N=544)

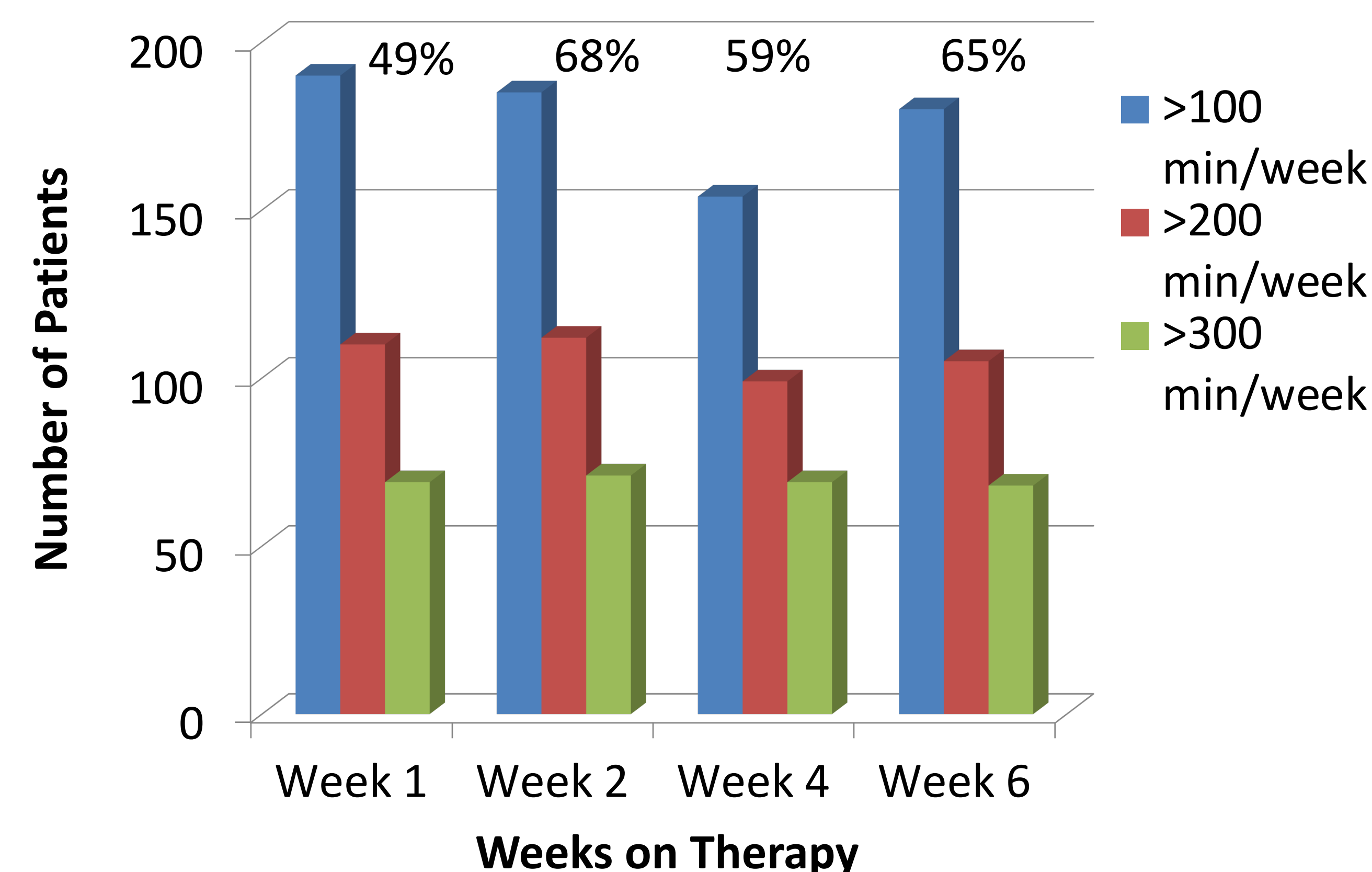
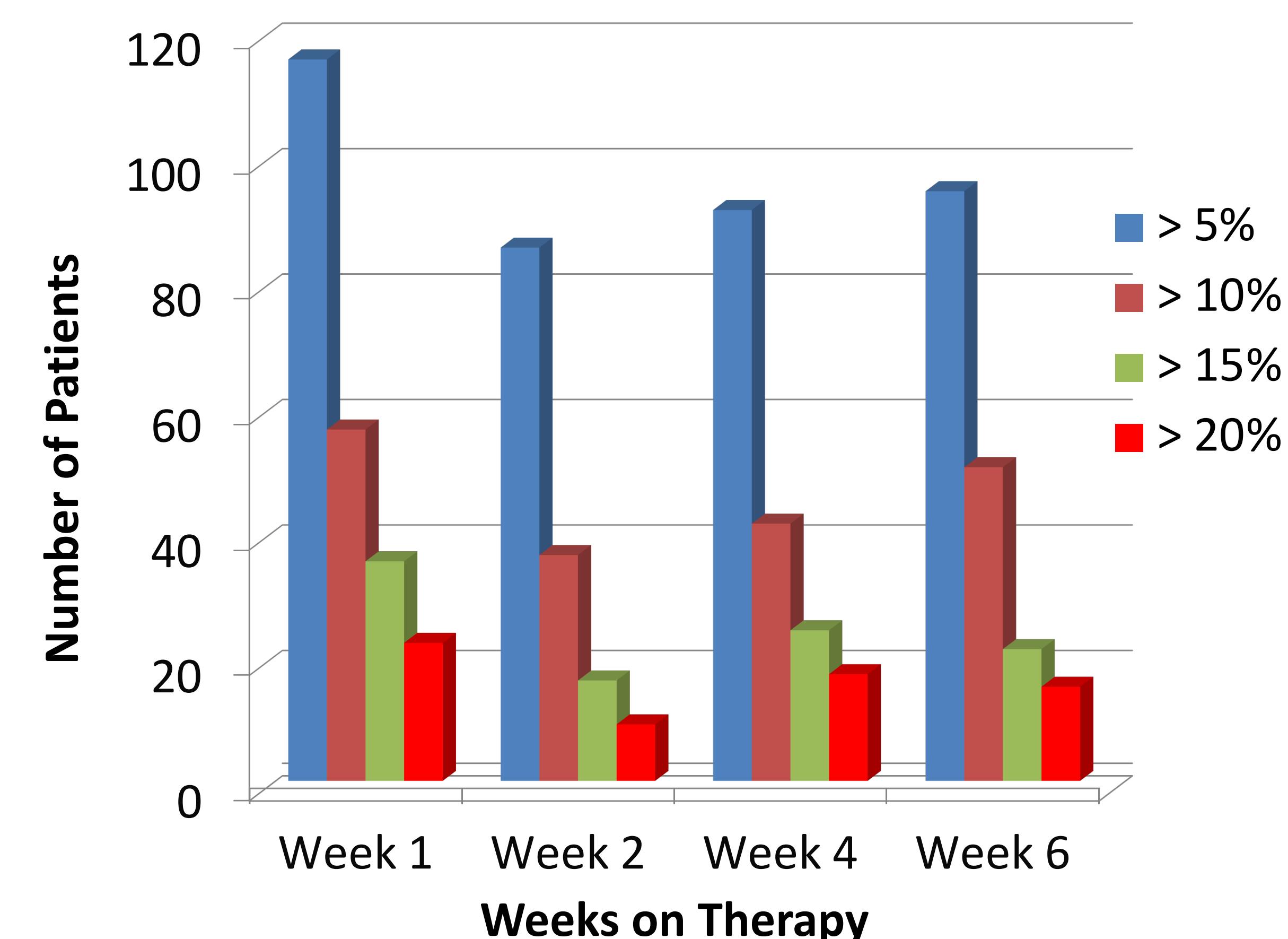


Figure 4: Number of Patients With at Least 3 Months of Treatment Who Missed Significant Dwell Time by Week of Therapy (N=544)



## Summary/Conclusions

Non-Adherence (>10%) to the prescribed PD regimen is associated with significant negative clinical outcomes. Current standard of care does not allow visibility for clinicians to determine adherence patterns to prescribed PD therapy. Sharesource remote patient management platform allows clinicians to securely view their patients' daily home dialysis-related treatment data. Visibility to adherence patterns may provide opportunities for clinicians to intervene and educate or retrain the patient in a more timely manner.

1. J Bernardini, M Nagy, B Piraino. Pattern of Noncompliance with Dialysis Exchanges in Peritoneal Dialysis Patients. *Am J Kidney Dis* 2000; 35: 1104-1110.  
 2. J Bernardini, B Piraino. Compliance in CAPD and CCPD Patients as Measured by Supply Inventories During Home Visits. *Am J Kidney Dis* 1998; 31: 107-107.