

Hospitalization Patterns for All Causes, CV Disease and Infections under the Old and New Bundled Payment System

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Methods

Hospital admission rates

- Study subjects were monthly period prevalent dialysis patients from January to September, from 2009 to 2011.
- Centers for Medicare and Medicaid Services SAFs provided inpatient data for 2009 and 2010, and QSAFs provided data for 2011.

Inclusion criteria

- Included patients were age 20 and older, were residents of the 50 U.S. States, the District of Columbia, Puerto Rico, and Territories, and reached day 90 of ESRD.
- Patients known to be on hemodialysis or peritoneal dialysis patients were studied.
- Counts ranged from 252,190 in February 2009 to 279,907 in August 2011.
- In January 2011, 83.6% of study patients had dialysis providers with bundled rates, 7.7% had blended rates, and 8.8% were unknown. Findings were similar when analyses were restricted to patients in the bundle.

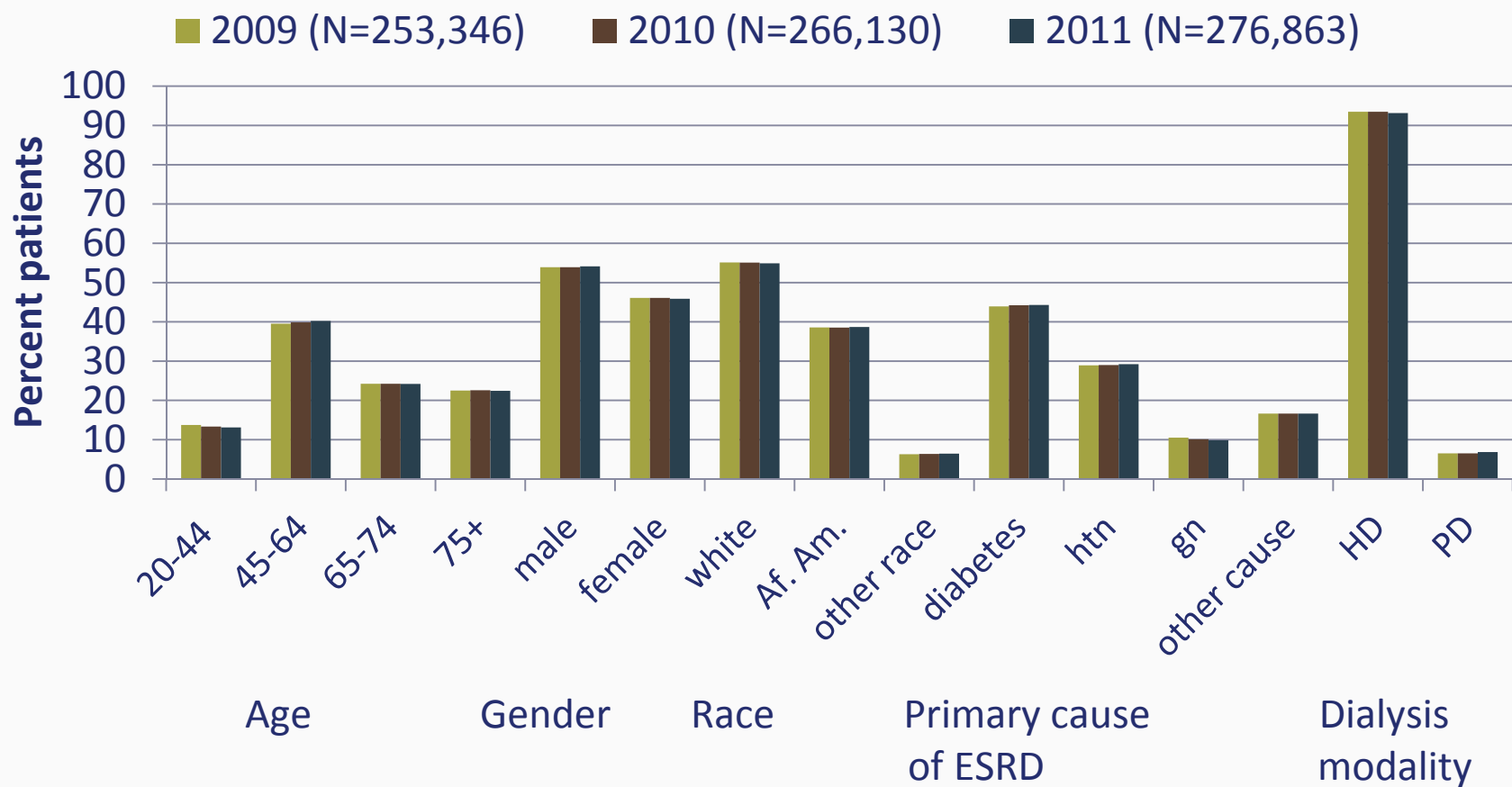
Rate calculation

- For time at risk for hospital admission in a given month, the following criteria had to apply:
 - > 90 days elapsed since starting dialysis
 - no gap in Medicare claims activity > 60 days.
- Follow-up within a given month was censored at the earliest occurrence of death, a claims gap reaching 60 days, or the end of the month.
- Dialysis modality was defined during the first dialysis claims period in the month and was intent-to-treat within each month.
- ICD-9-CM diagnosis codes were used for calculating cause-specific admission rates.
- Methods were similar for calculating days in hospital, except that hospital days were included in the denominator.

Re-hospitalization

- First quarter discharges were included from January 1 to March 31 of each year.
- Patients with at least one discharge after day 90 following RRT initiation were included.
- Discharges were excluded with a gap in claims data during the 30-day post discharge period.
- Rehabilitation claims, transfers, and discharges with a same-day admission to long-term care and critical access hospitals were excluded.

Patient characteristics: Values shown for January of each year



Hospital Admissions

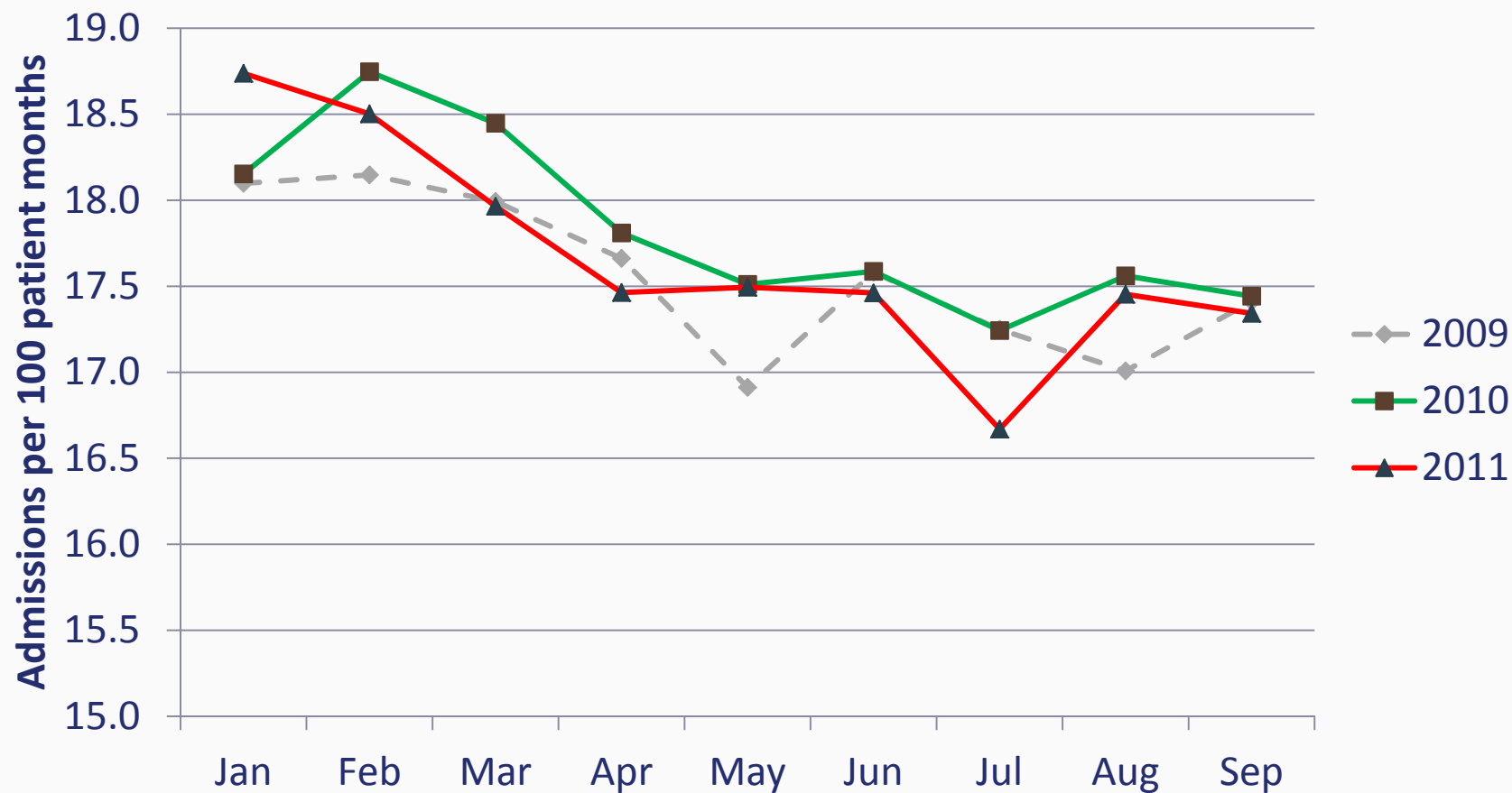
Day of Month 1  31

In Hospital 6  10

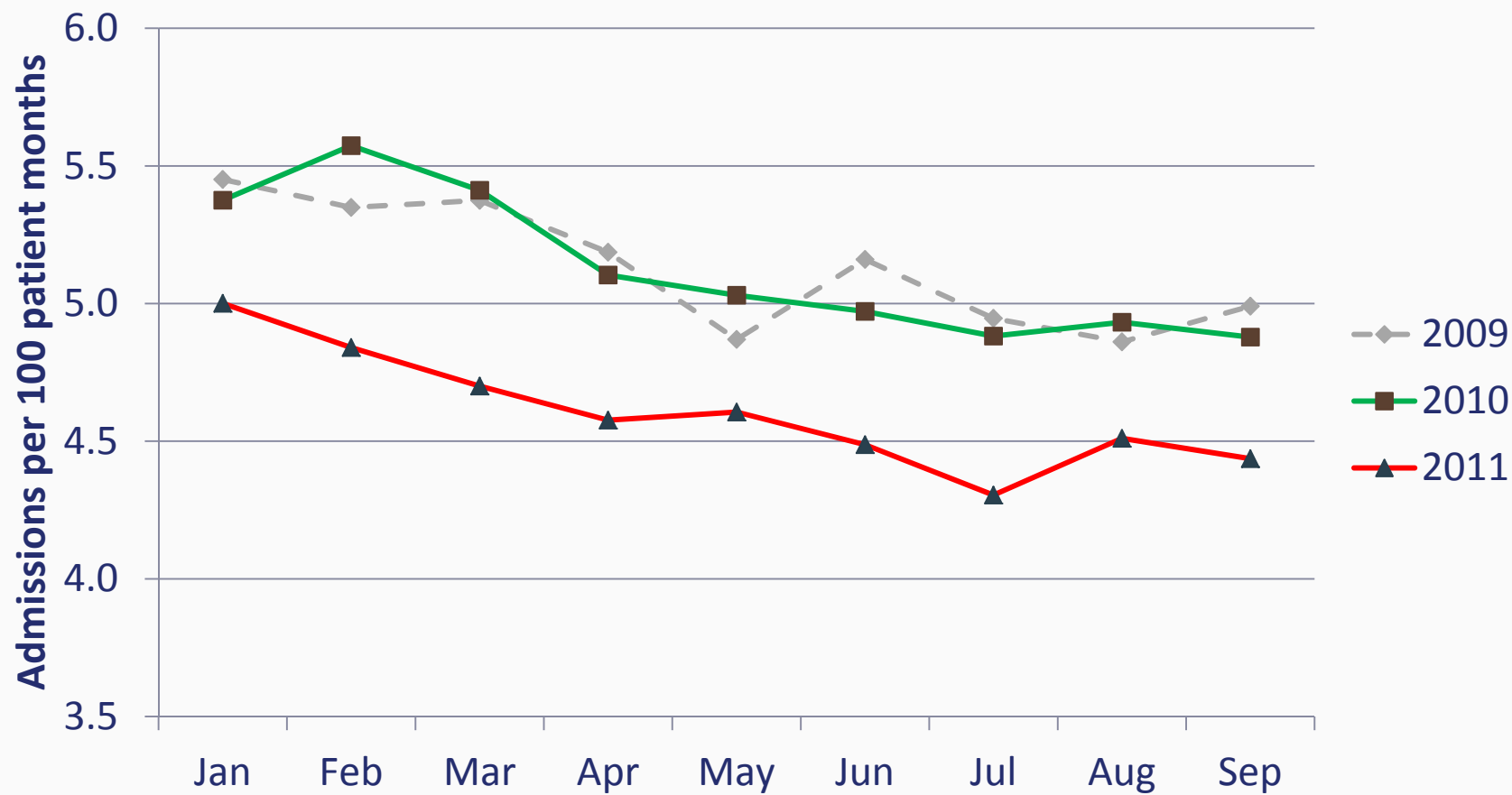
Time at risk 28 days = $28 / 31 = 0.903$ patient months

Rate $1 / 0.903 = 1.1$ admissions per patient month

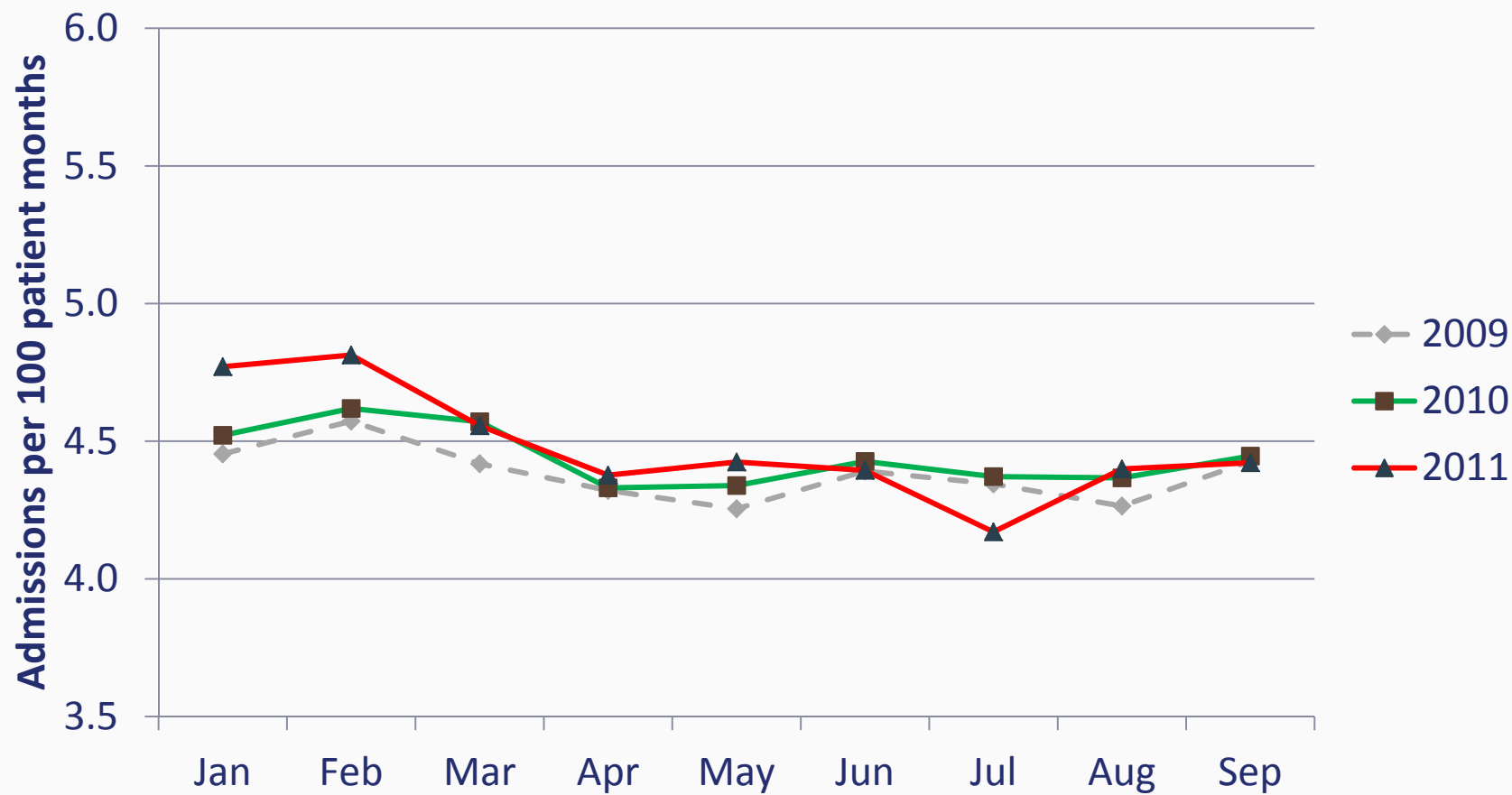
All-cause hospital admission rates



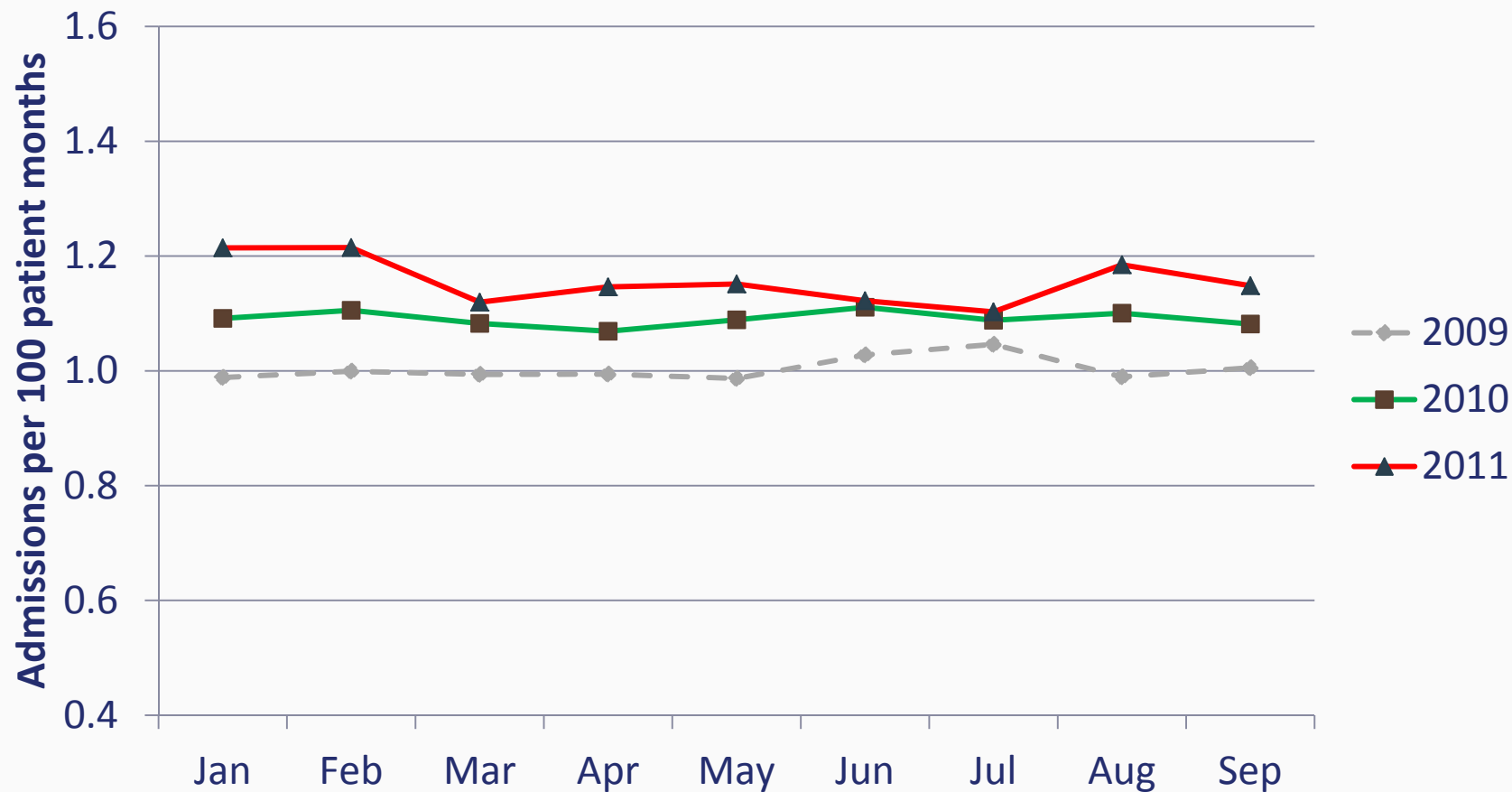
CV hospital admission rates



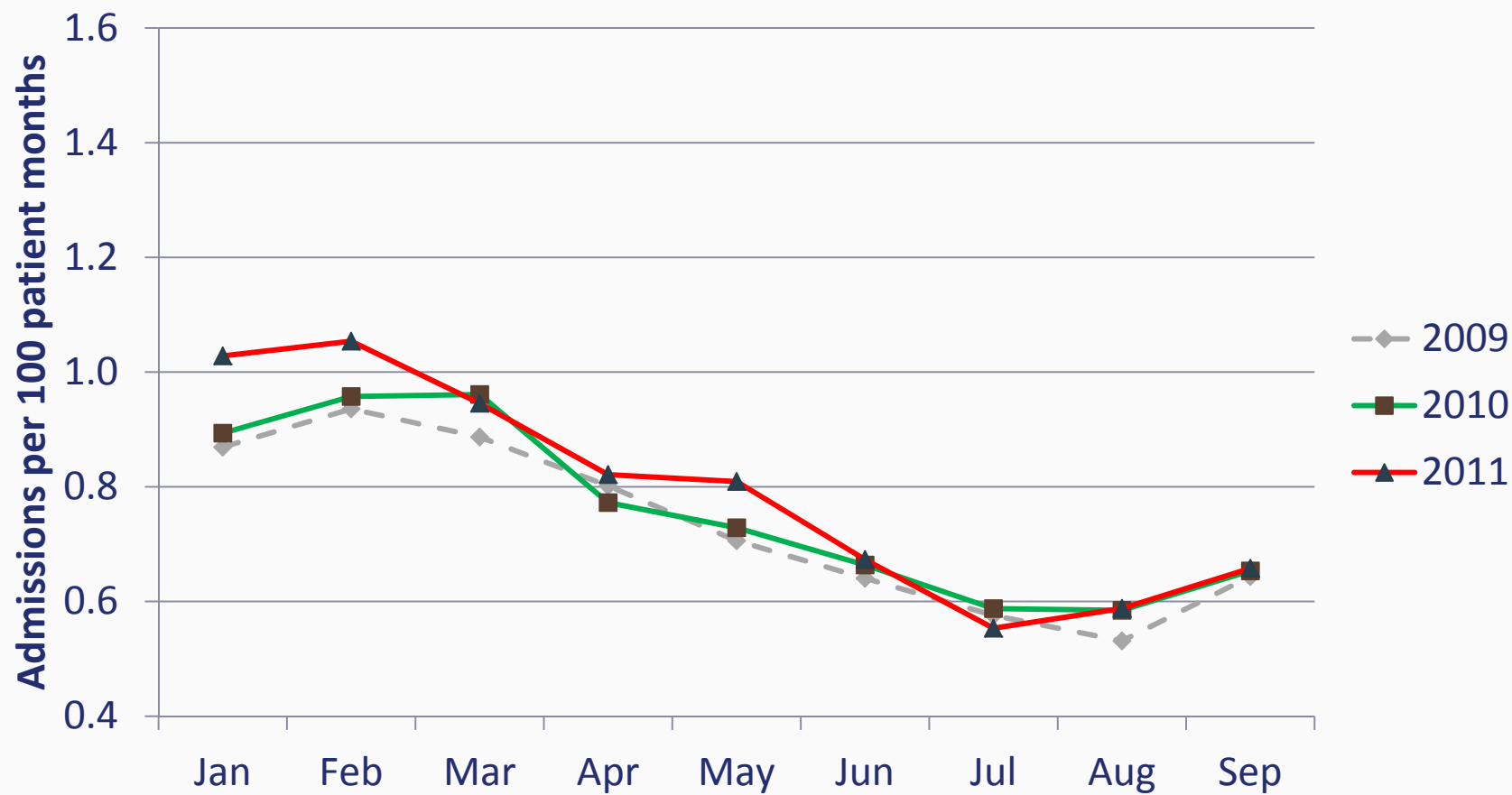
Infectious hospital admission rates



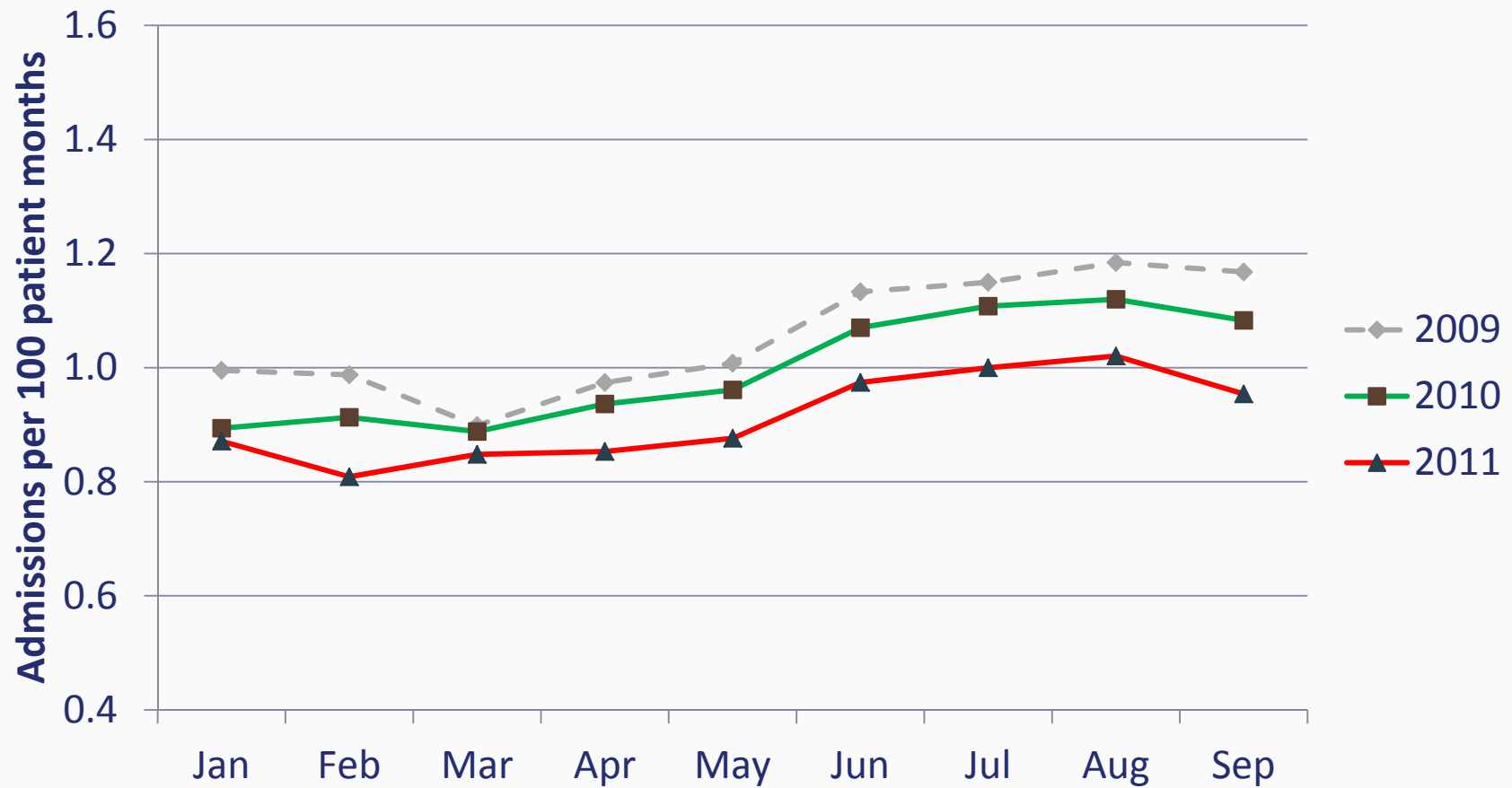
Sepsis/bacteremia hospital admission rates



Pneumonia hospital admission rates



Vascular access infection hospital admission rates (hemodialysis only)



Hospital Days

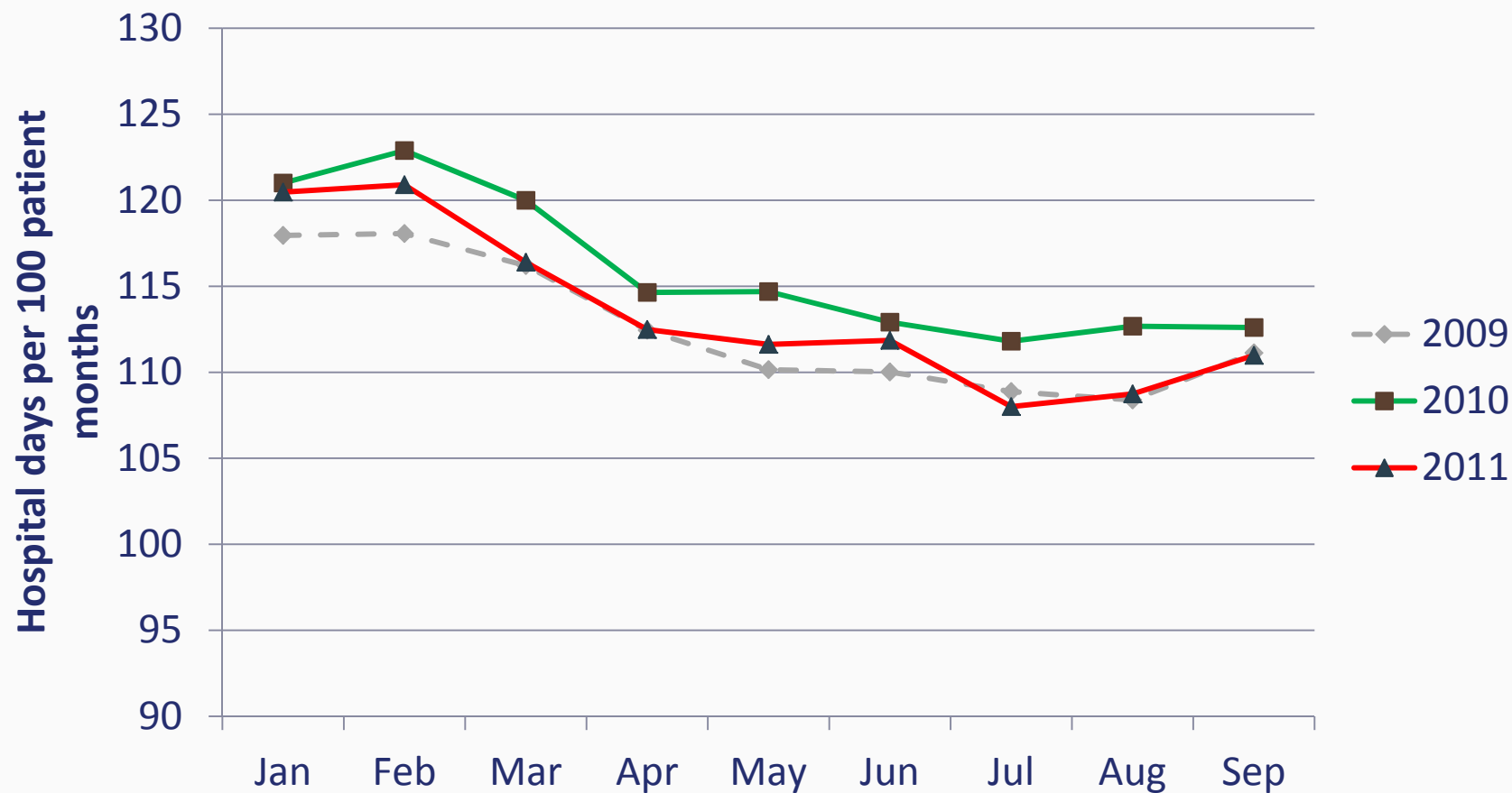
Day of Month 1  31

In Hospital 6  10

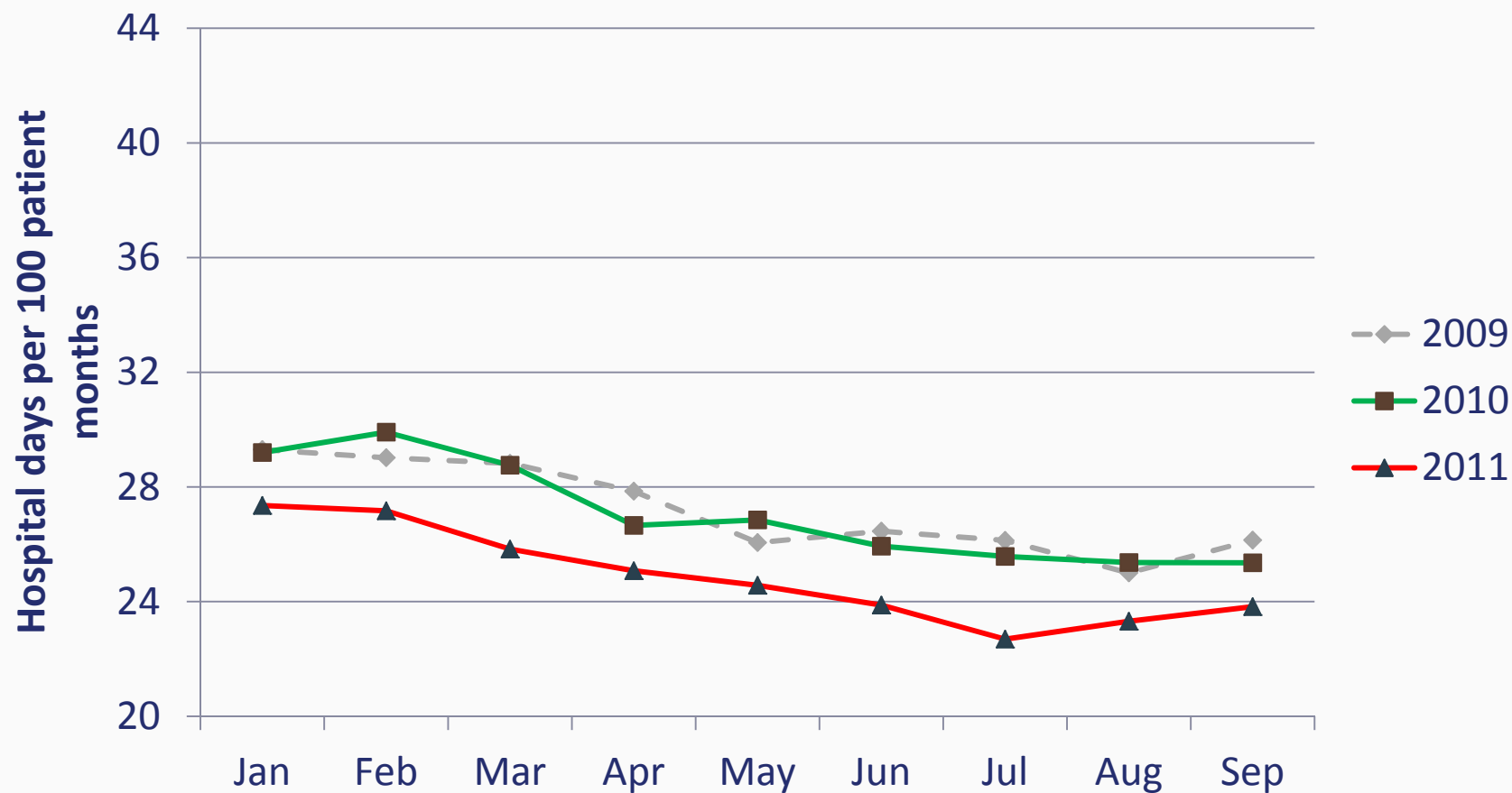
Time at risk 31 days = 1 patient month

Rate $4 / 1 = 4$ days per patient month

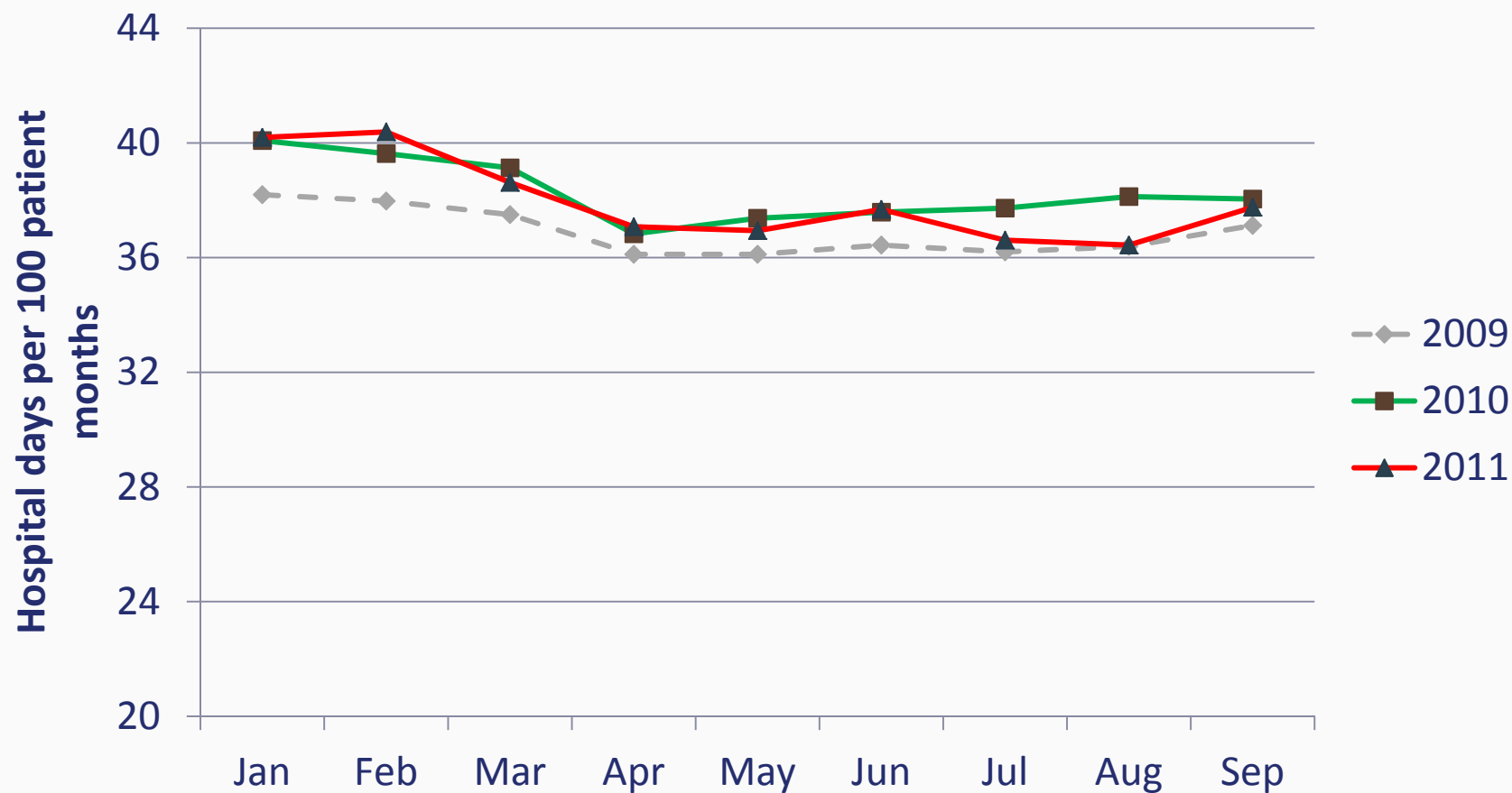
All-cause hospital day rates



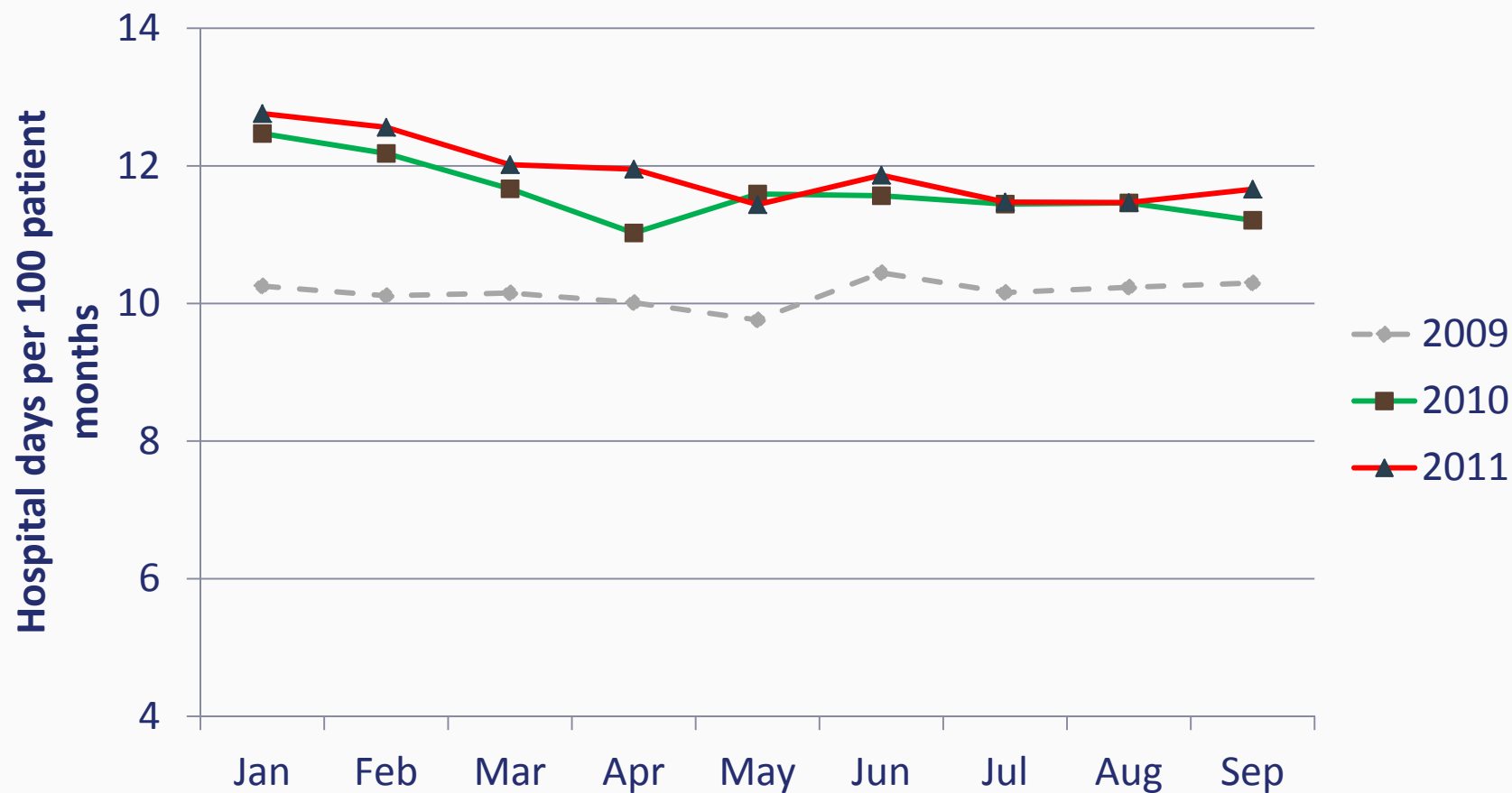
Cardiovascular hospital day rates



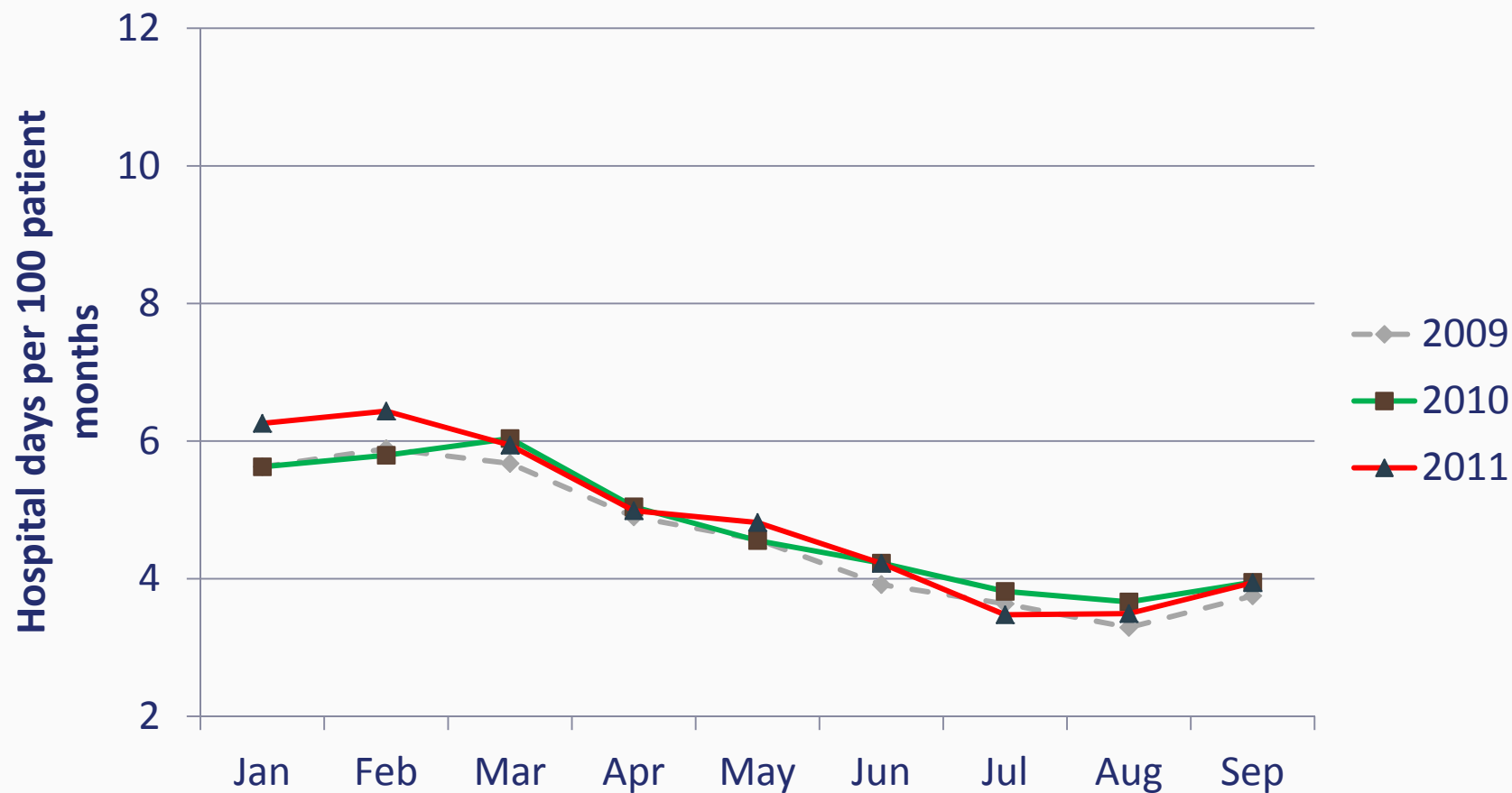
Infectious hospital day rates



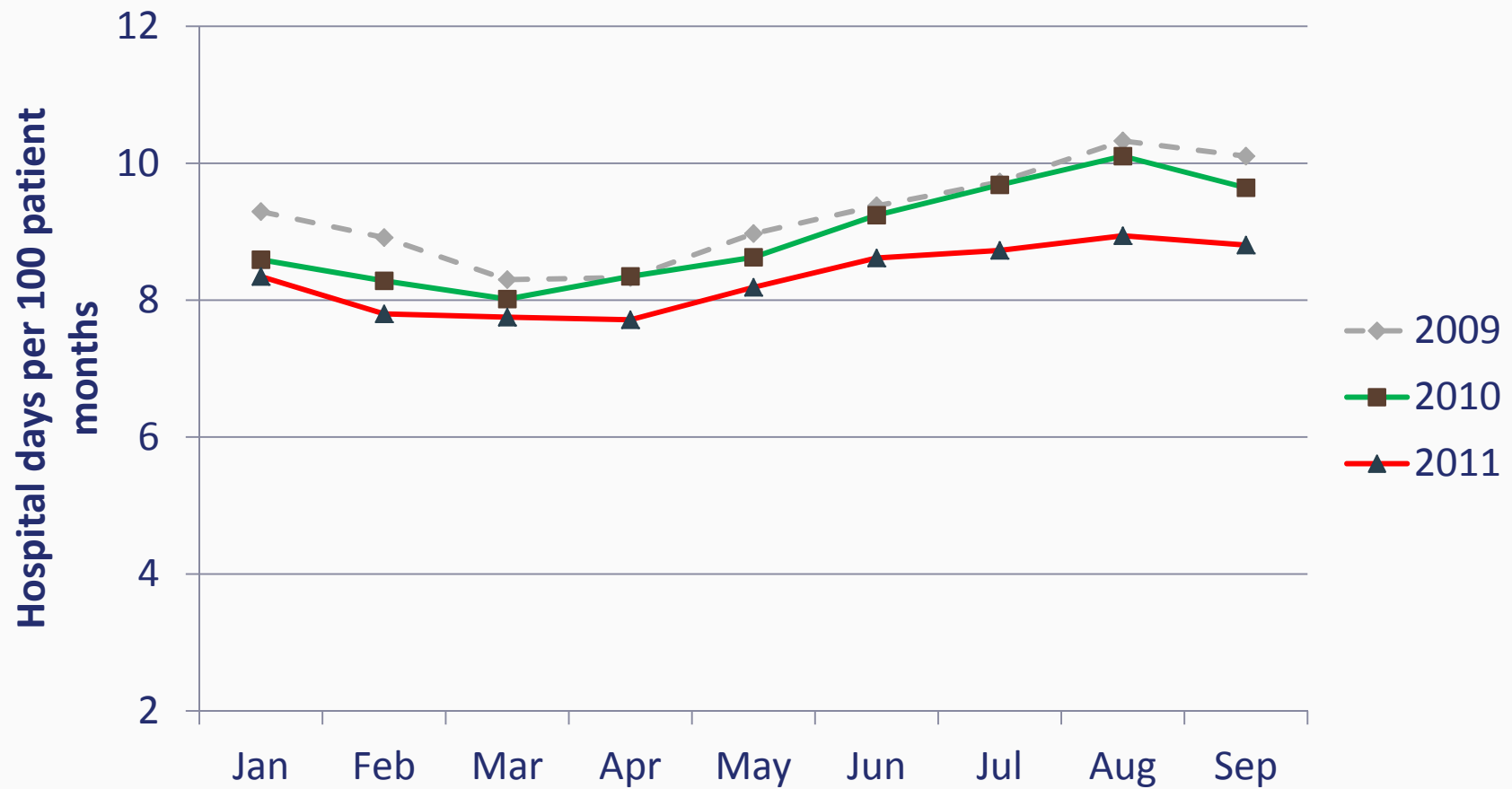
Sepsis/bacteremia hospital day rates



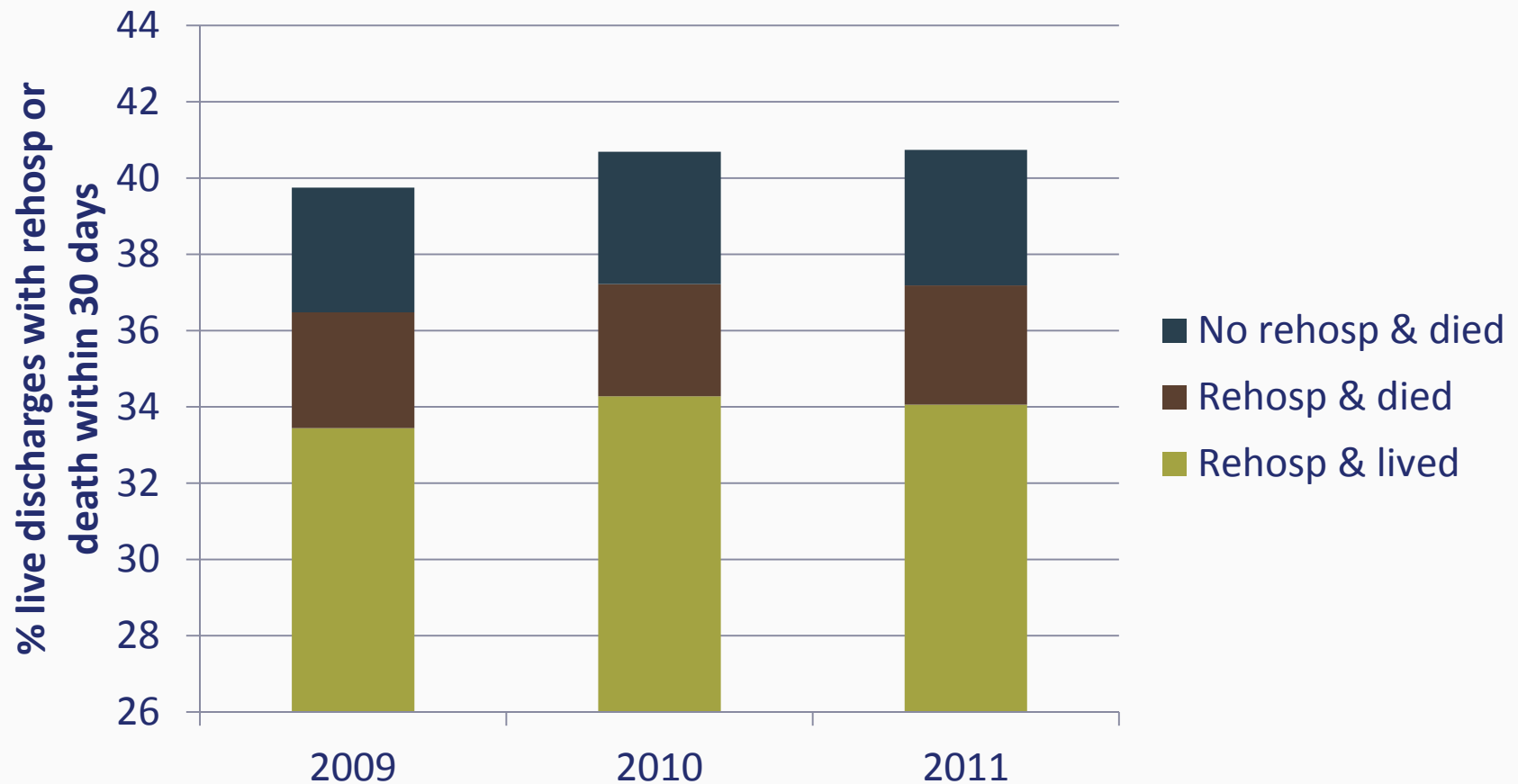
Pneumonia hospital day rates



Vascular access infection hospital day rates (hemodialysis only)



30-day rehospitalization and/or death rate following live discharges from **all-cause** hospitalizations during the first quarter



Conclusions

Comparing similar time periods before and after the bundle

- Hospital admission rates
 - All-cause ↑ January only; otherwise ↓ than 2010
 - CV ↓
 - Infectious ↑ January and February
 - Sepsis/bacteremia ↑
 - Hemodialysis vascular access infection ↓
 - Pneumonia ↑ January, February, and May
- Days in hospital
 - All-cause ↓ than 2010 after January
 - CV ↓
 - Infectious Similar
 - Sepsis/bacteremia ↑ January to April
 - Hemodialysis vascular access infection ↓
 - Pneumonia ↑ January and February
- 30-day re-hospitalization
 - After all-cause discharge Similar
 - After CV discharge Similar
 - After infectious discharge Similar