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DIALYSIS OUTCOMES AND PRACTICE PATTERNS STUDY

Key hemodialysis practice changes and their impact

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ARBOR RESEARCH COLLABORATIVE FOR HEALTH

Key lessons from 20 years:
Outline

1. Rising burden of dialysis
2. HD practices
   - Vascular access
   - Adequacy / volume
   - Anemia
   - MBD
3. Unmet needs & looking ahead

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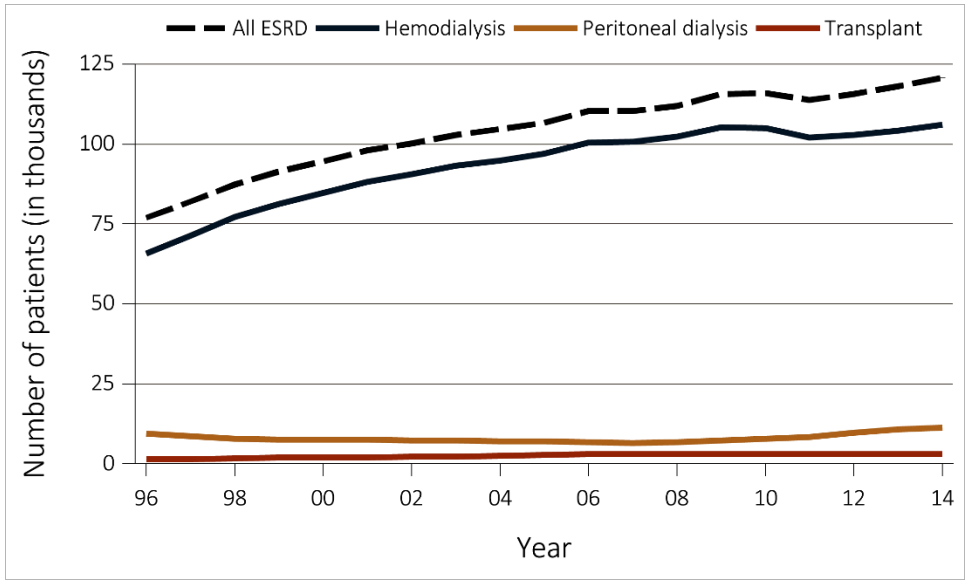
Rising Burden of Dialysis

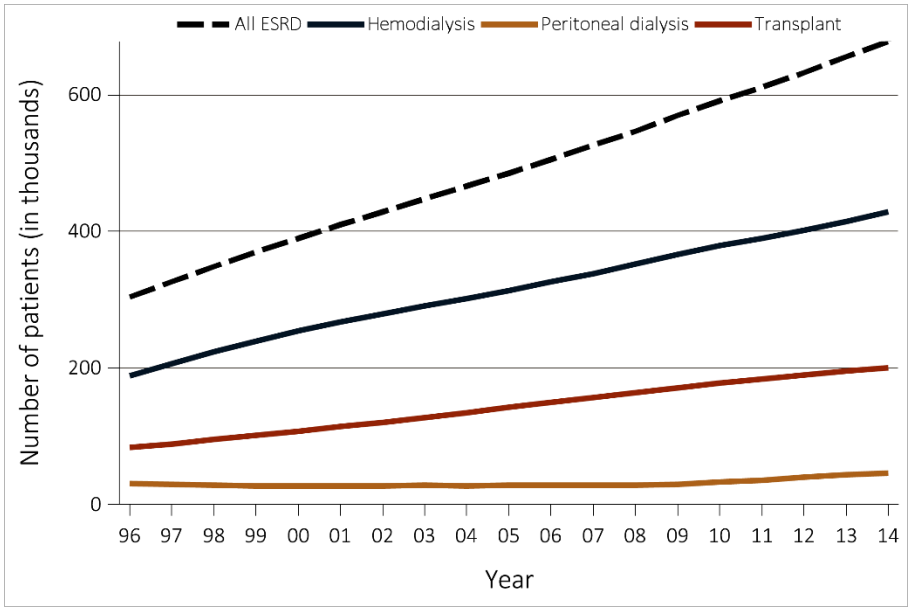
Incidence, Prevalence, Mortality

USRDS: Trends in the annual number of ESRD incident and prevalent cases (in thousands) by modality, in the U.S. population, 1996-2014

Incidence

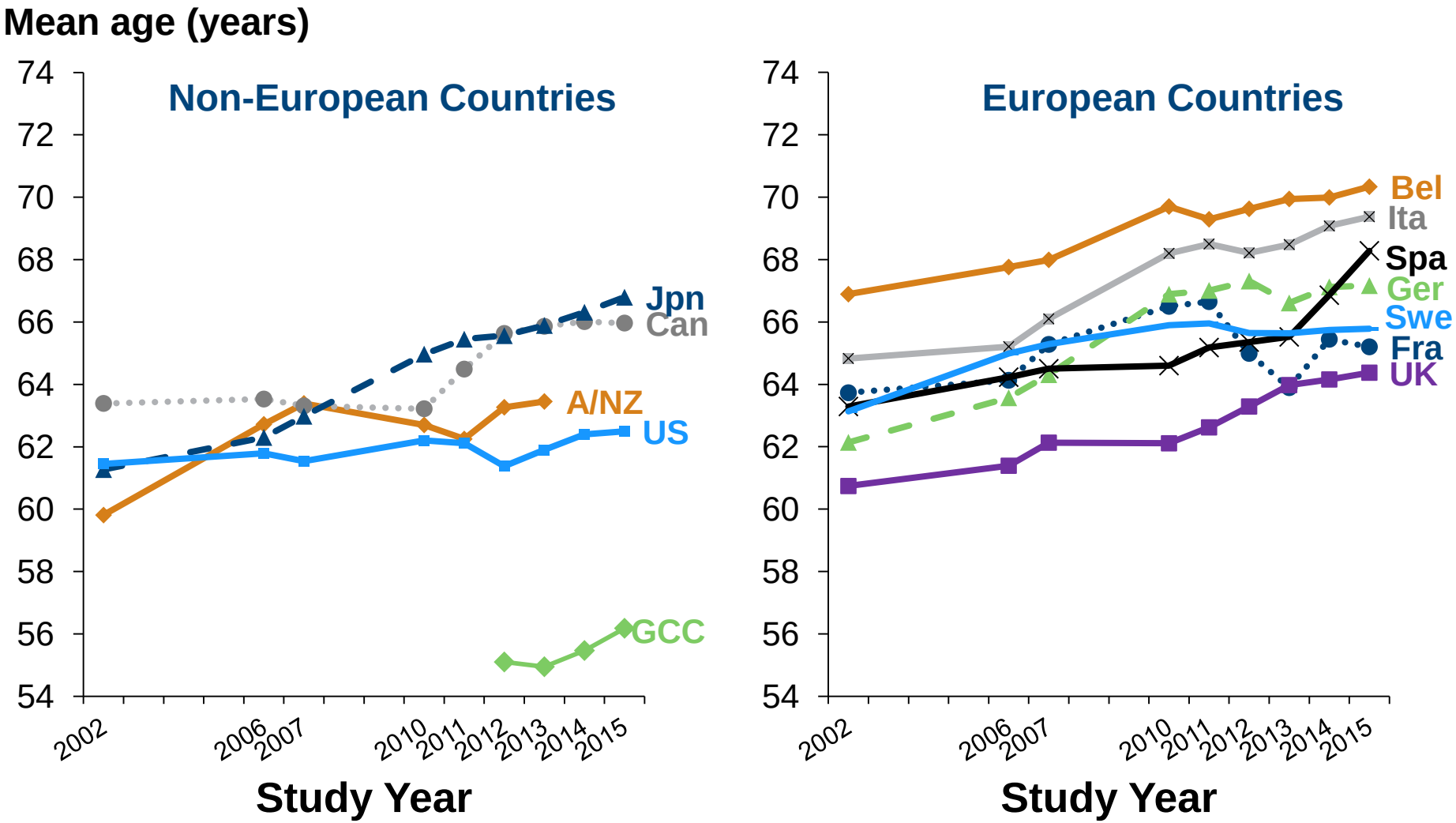


Prevalence



Age Trends by Country

DOPPS 2-5 (2002-2013)



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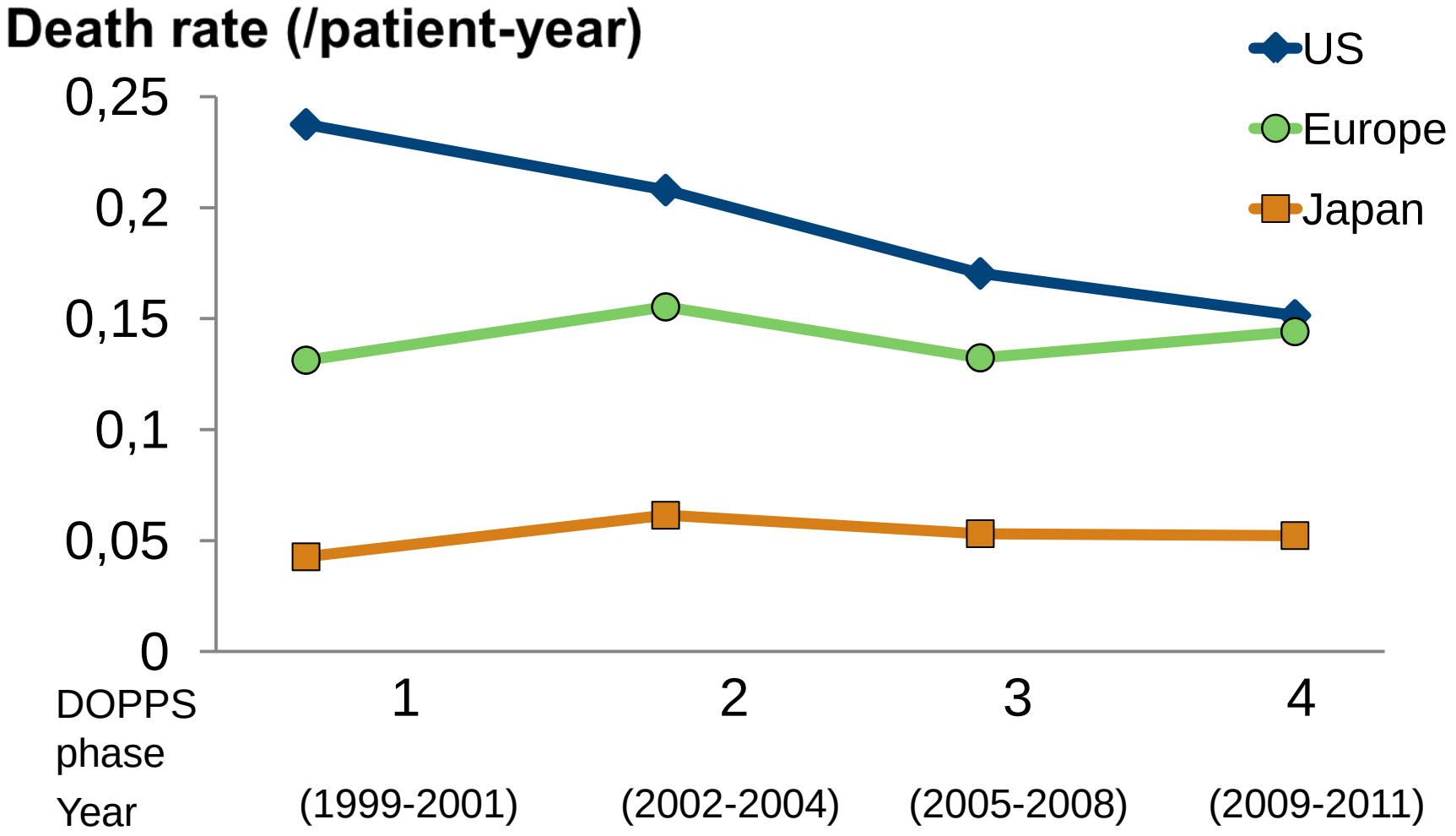
Changes in Death Rates Over Time, by Region



***Improvements in fistula use, Kt/V, phosphorous control, and hemoglobin may explain some of the decline in mortality**

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McCullough et al. ASN Abstract (2013)

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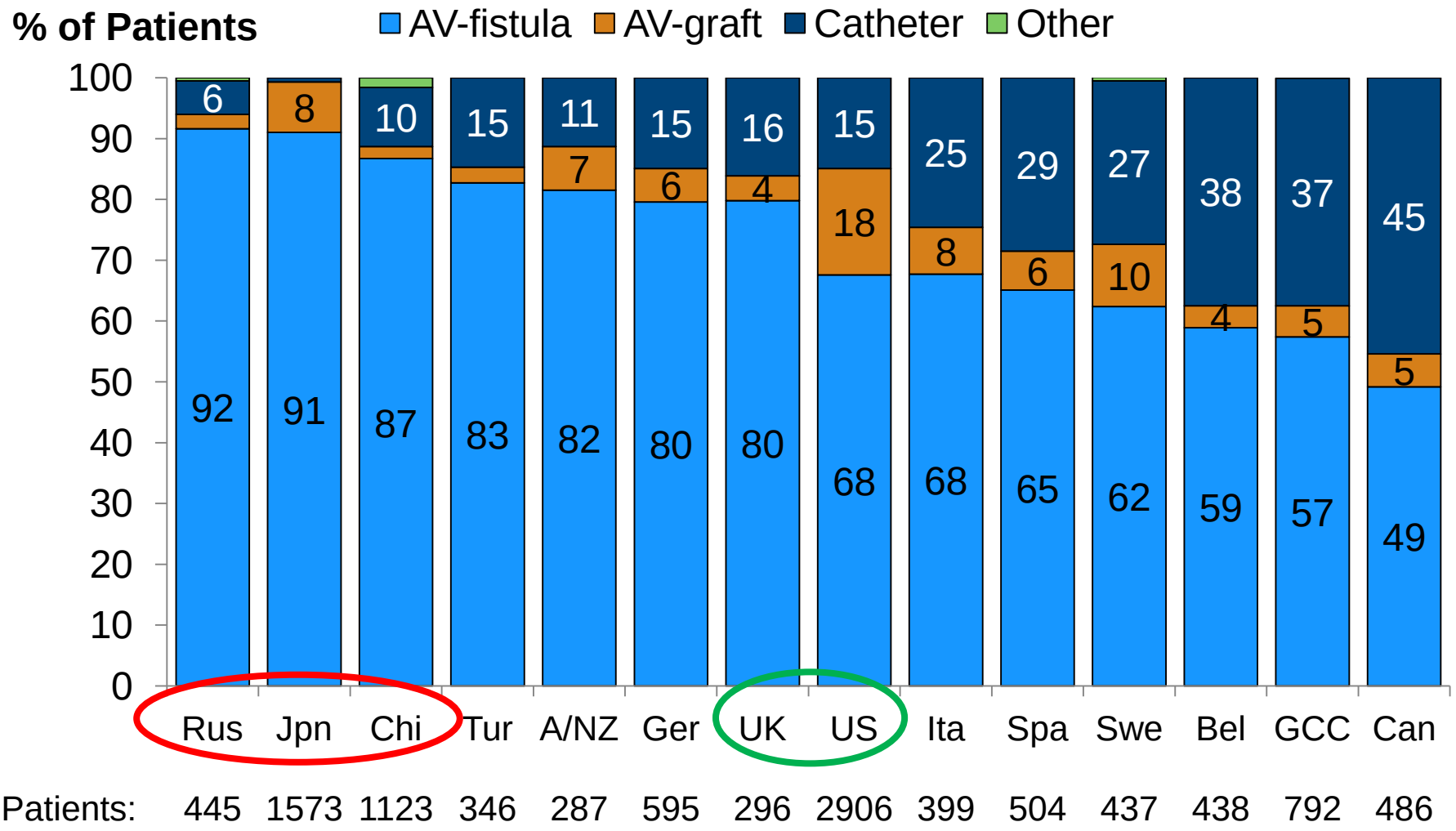
Key Practice Changes & Impact

Vascular Access

Vascular access use[a] – prevalent patients

DOPPS 5 (2012-2014)



[a] At study entry regardless of time on dialysis since at DOPPS enrollment

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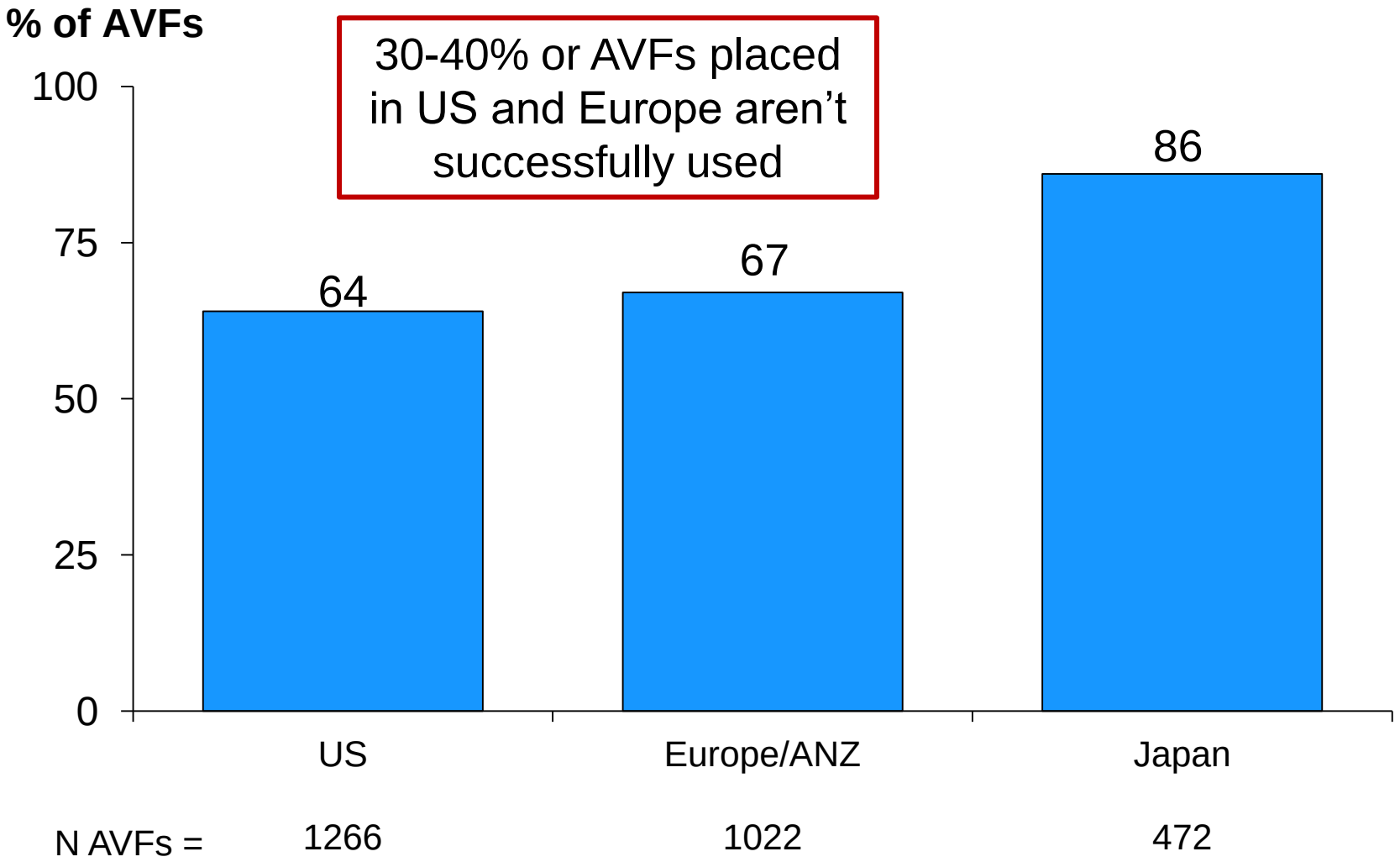
Pisoni et al. Am J Kidney Dis. 2015;65(6):905-915

AVF maturation success*, by region



***AVF maturation success was defined as use ≥ 30 days**

Restricted to AVFs created in DOPPS 4 and 5 (2009-2015) in US, Europe, Australia and New Zealand, and Japan

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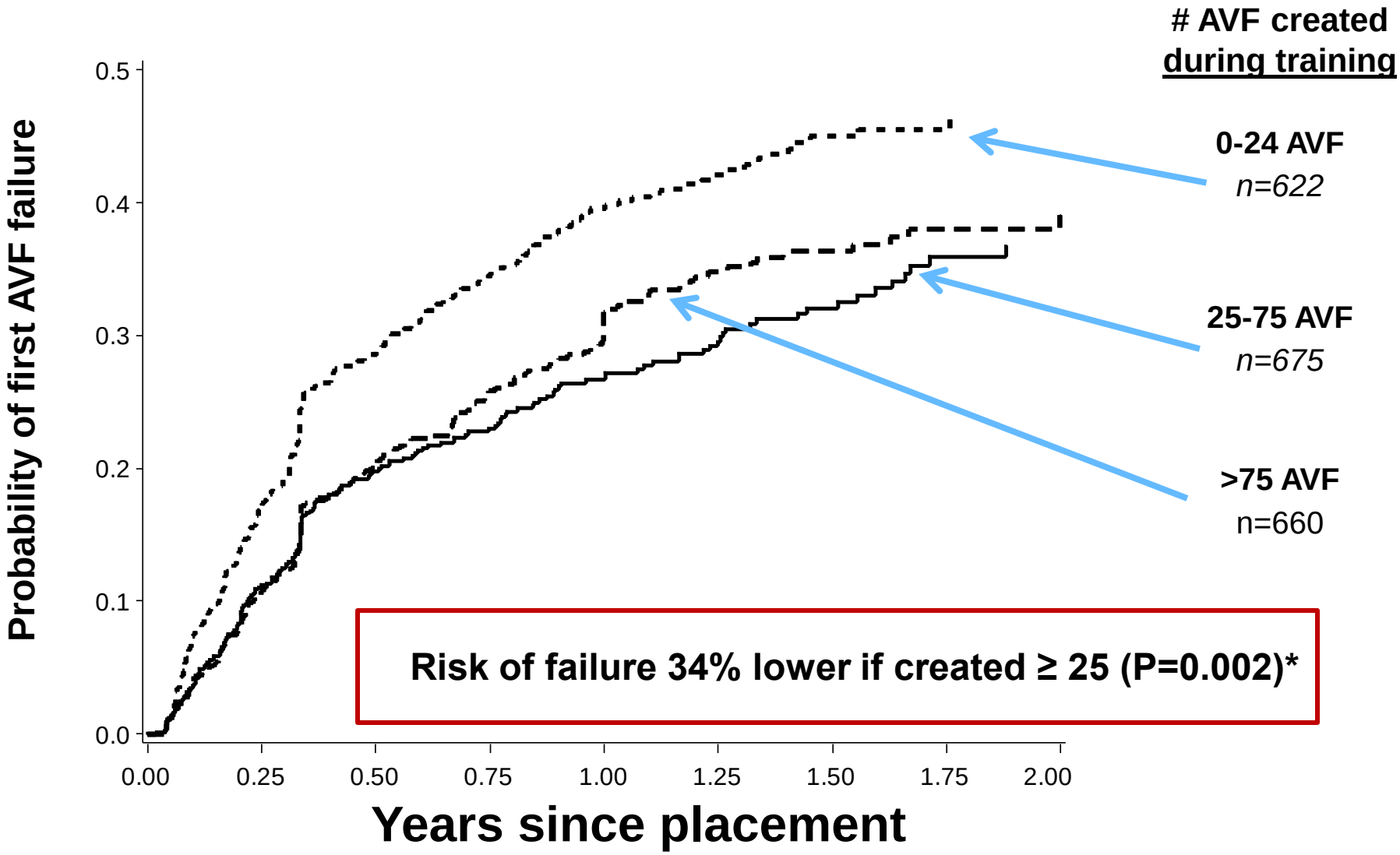
Time to Primary Fistula Failure by Number Created by Surgeon During Training



* Adjusted for age, sex, race, vintage, 14 comorbidities, prior catheter use, country

Goodkin et al. AJKD 2010;56:1032

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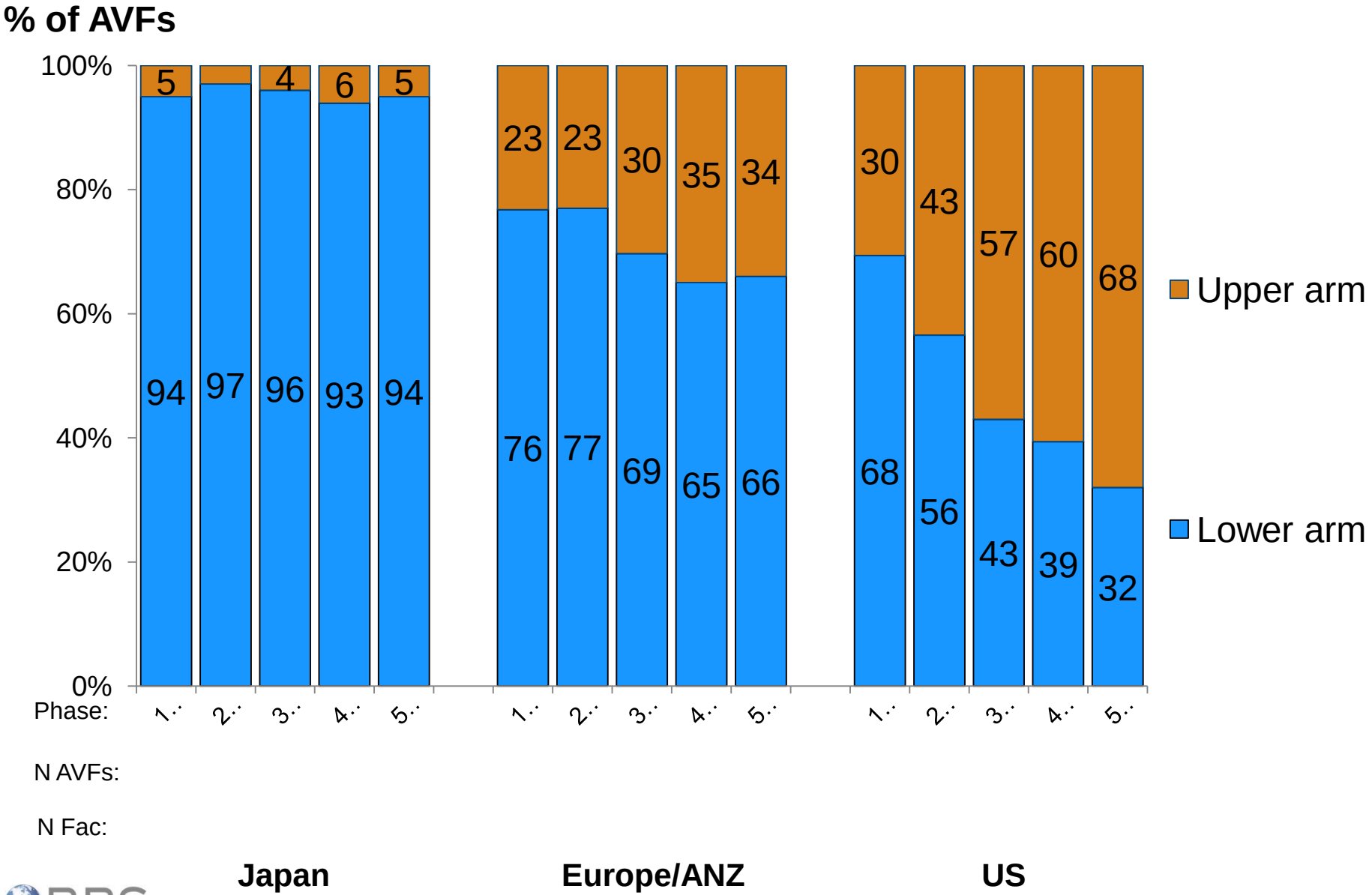
AV Fistula location, by region and phase

DOPPS 1-5 (1996-2015)



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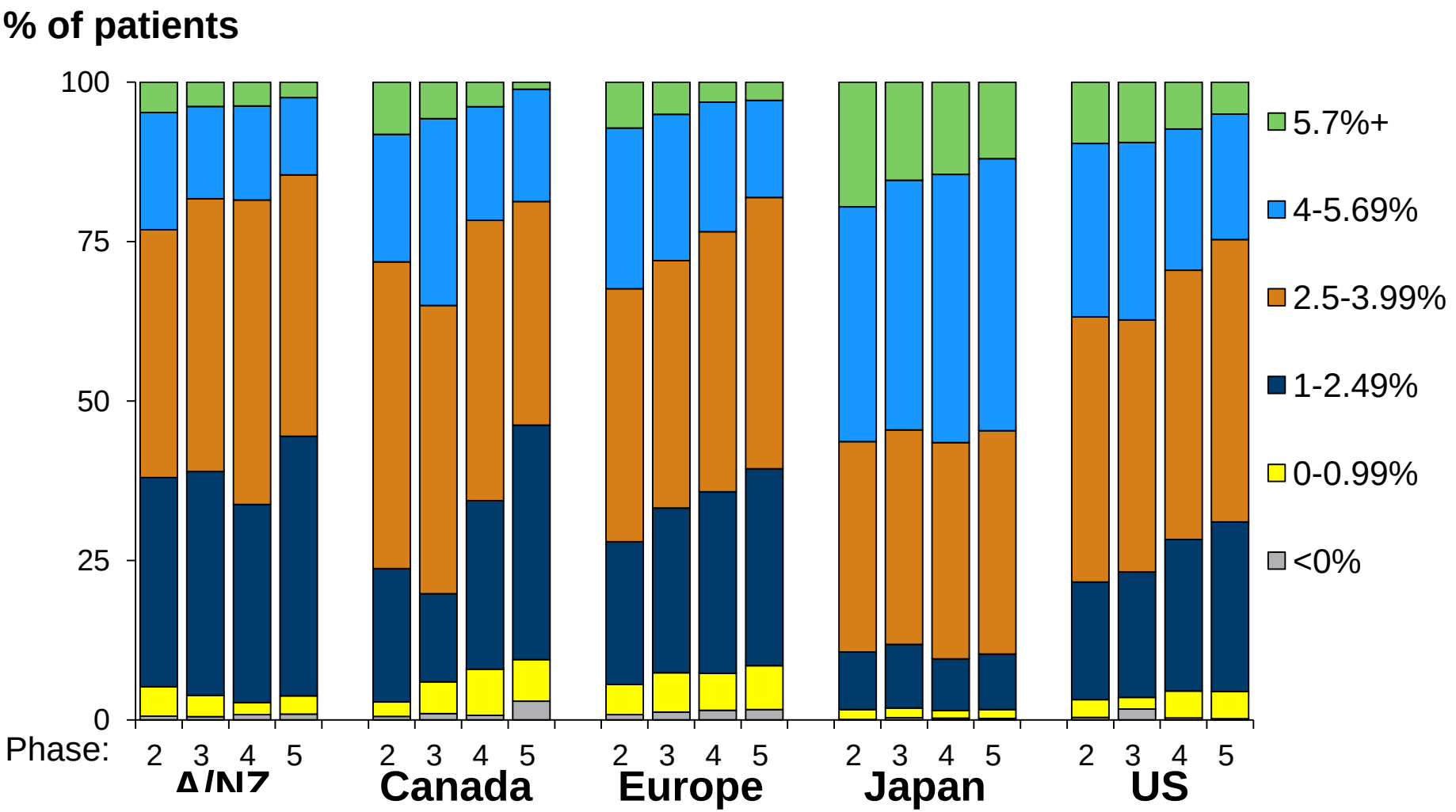
Key Practice Changes & Impact

Adequacy / Volume

Intradialytic weight gain, by DOPPS phase

DOPPS 2-5 (2002-2015)



IDWG expressed as % of post-HD weight

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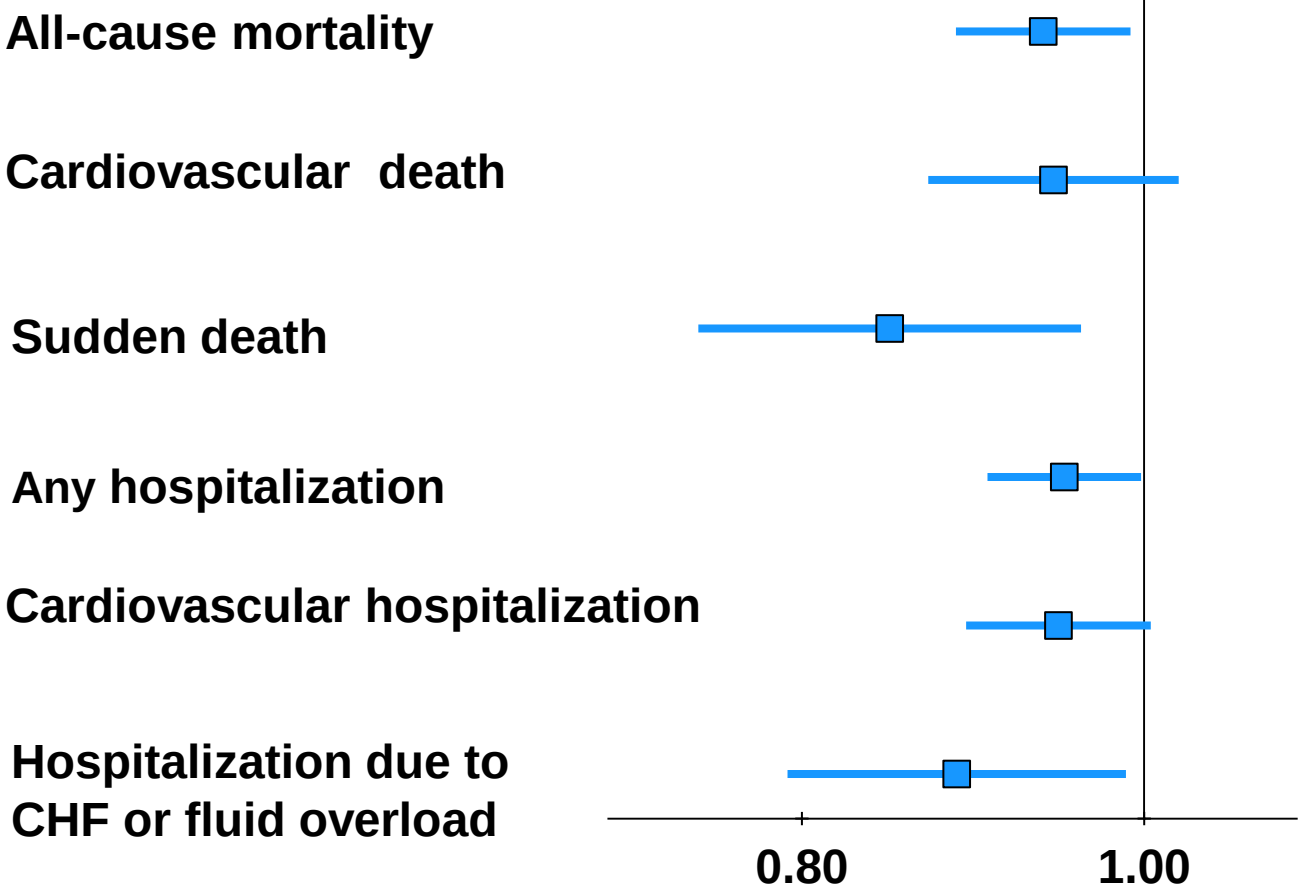
Wong et al. AJKD (in press)

Lower Mortality & Hospitalization Risks in Facilities with Longer Treatment Time
(Facility Practice-based Analysis)



DOPPS 1-4 . Adjusted for age, sex, race, time on dialysis, BMI, 13 summary comorbid conditions, residual kidney function, spKt/V, catheter use, stratified by country & study phase. CHF = congestive heart failure

Tentori et al. *NDT,* 2012

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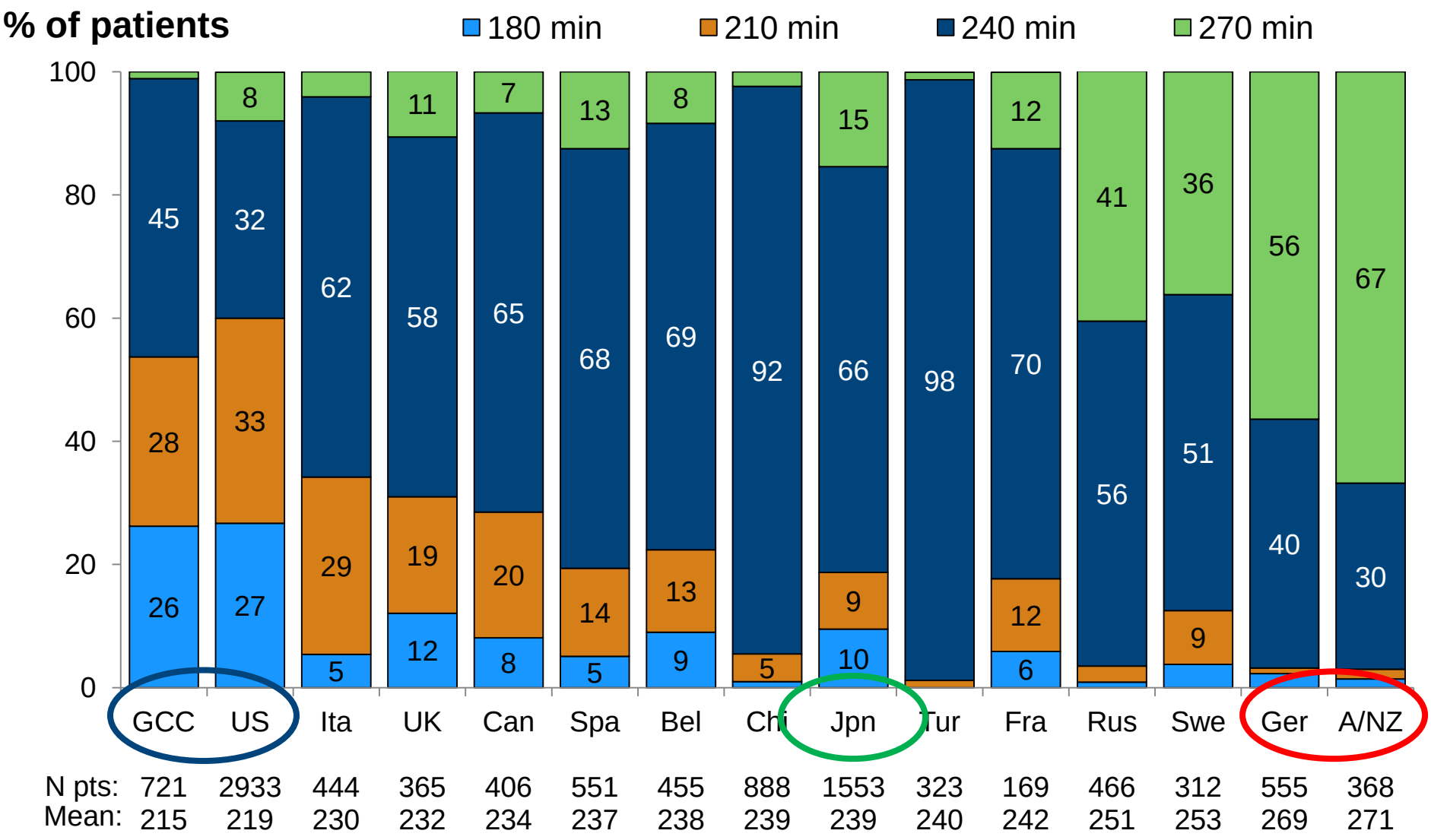
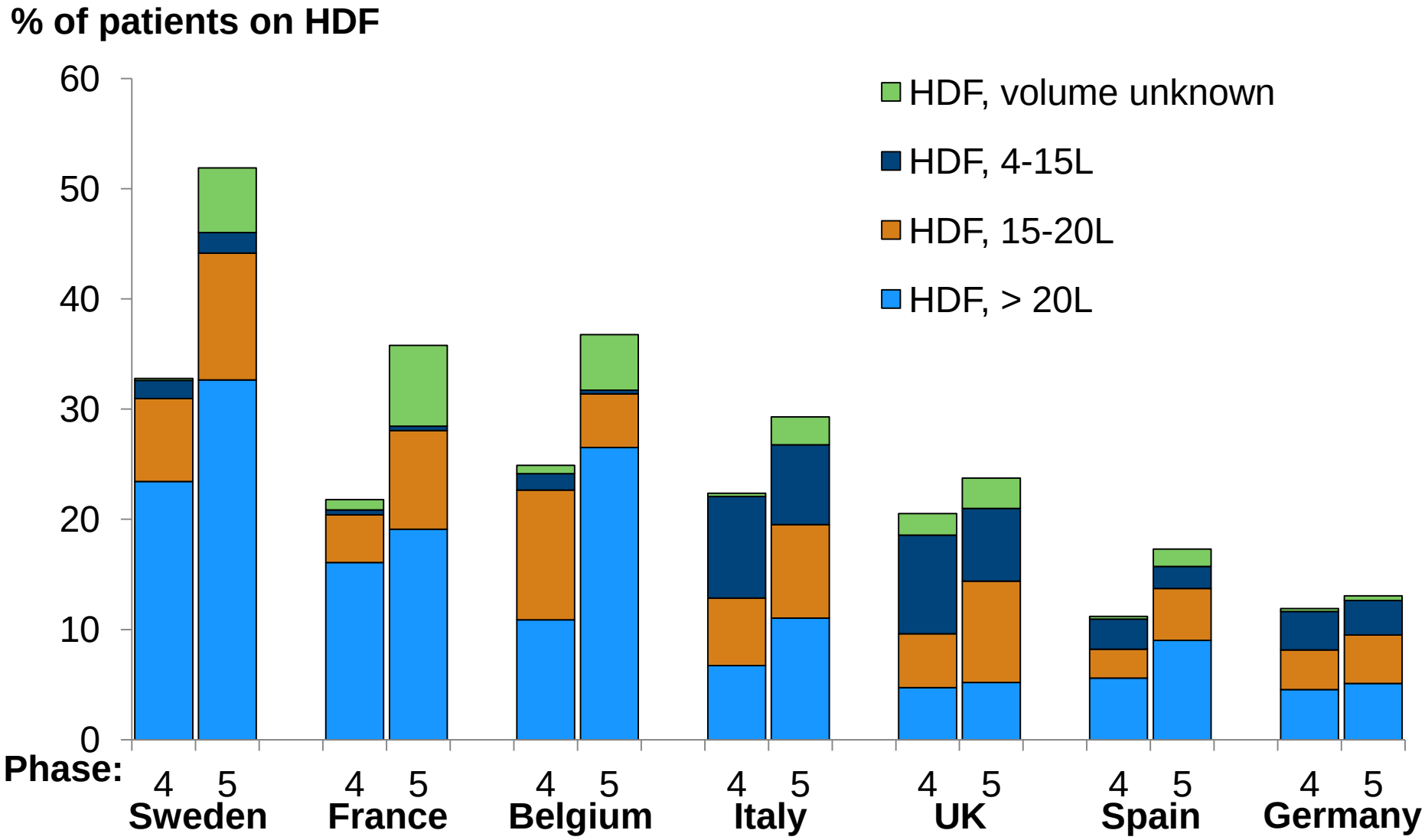
Treatment time, by country

DOPPS 5 (2012-2015)



HDF use, by replacement fluid volume

DOPPS 4,5 (2009-2015)



DOPPS phase 4: 2009-2011, DOPPS phase 5: 2012-2015

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Karaboyas et al. EDTA abstract (2015)

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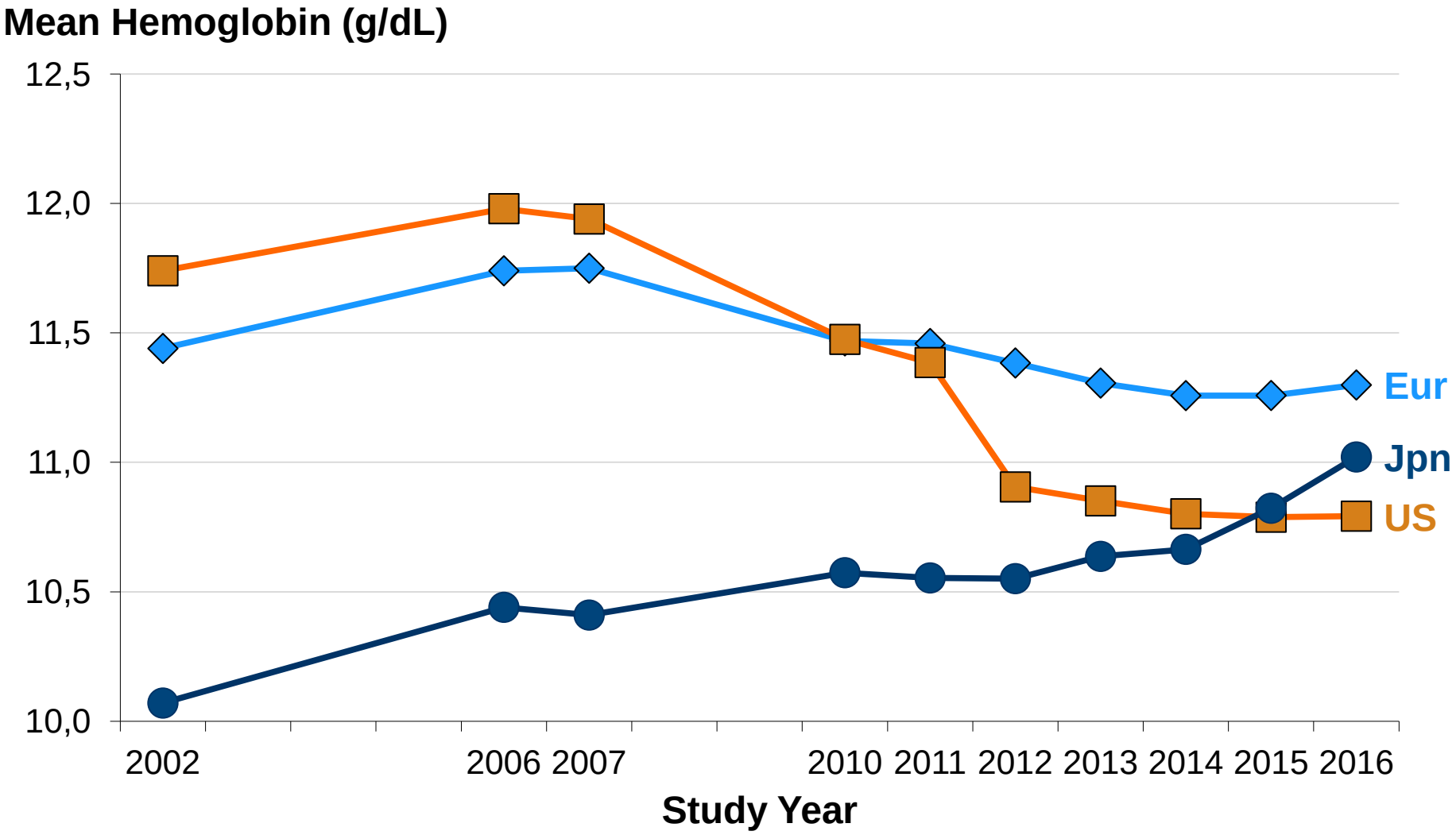
Key Practice Changes & Impact

Anemia

Mean Hemoglobin Trends

DOPPS 2-6 (2002-2016)



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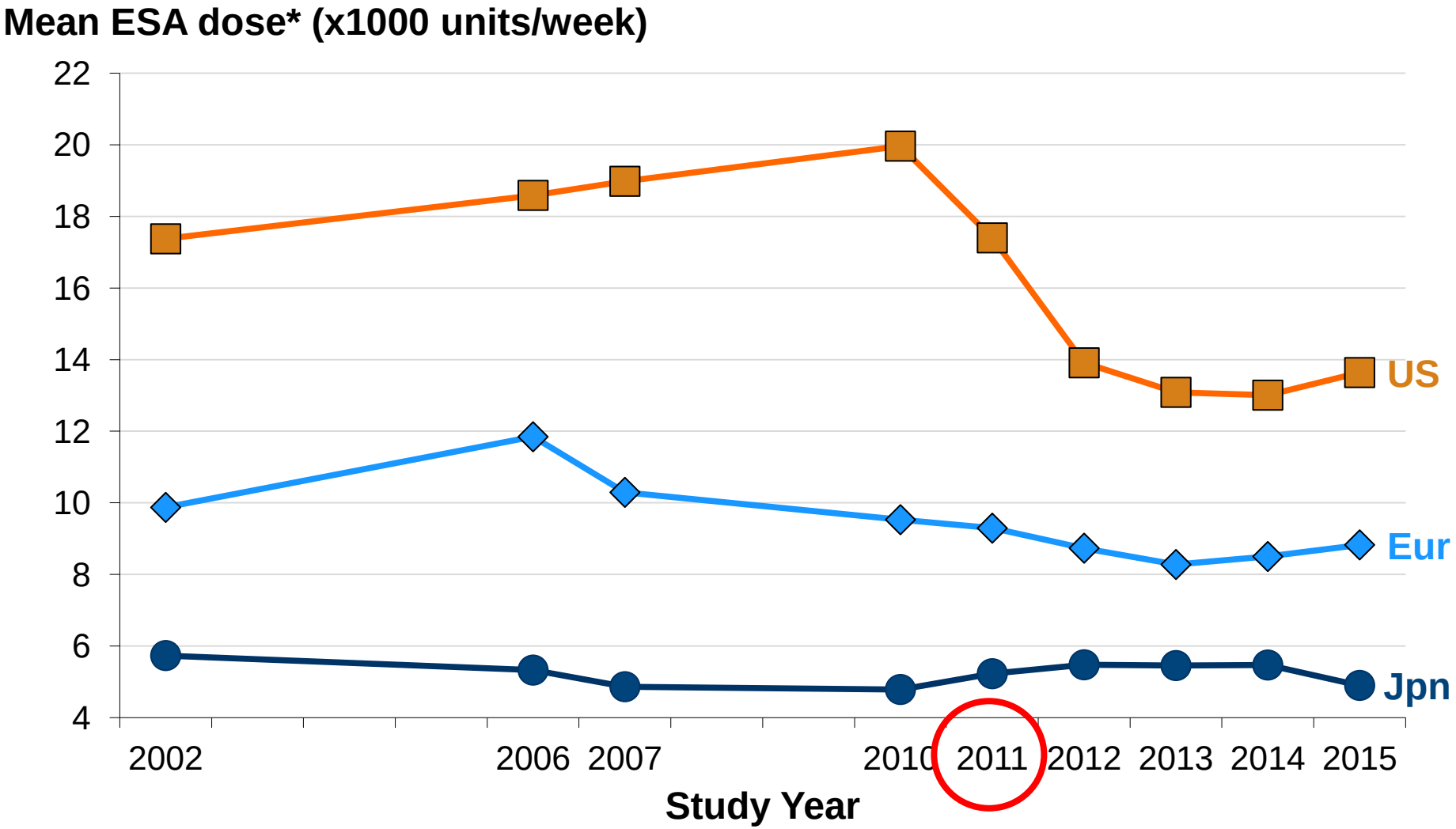
Unpublished DOPPS data

Prescribed Mean ESA Dose Trends

DOPPS 2-5 (2002-2015)



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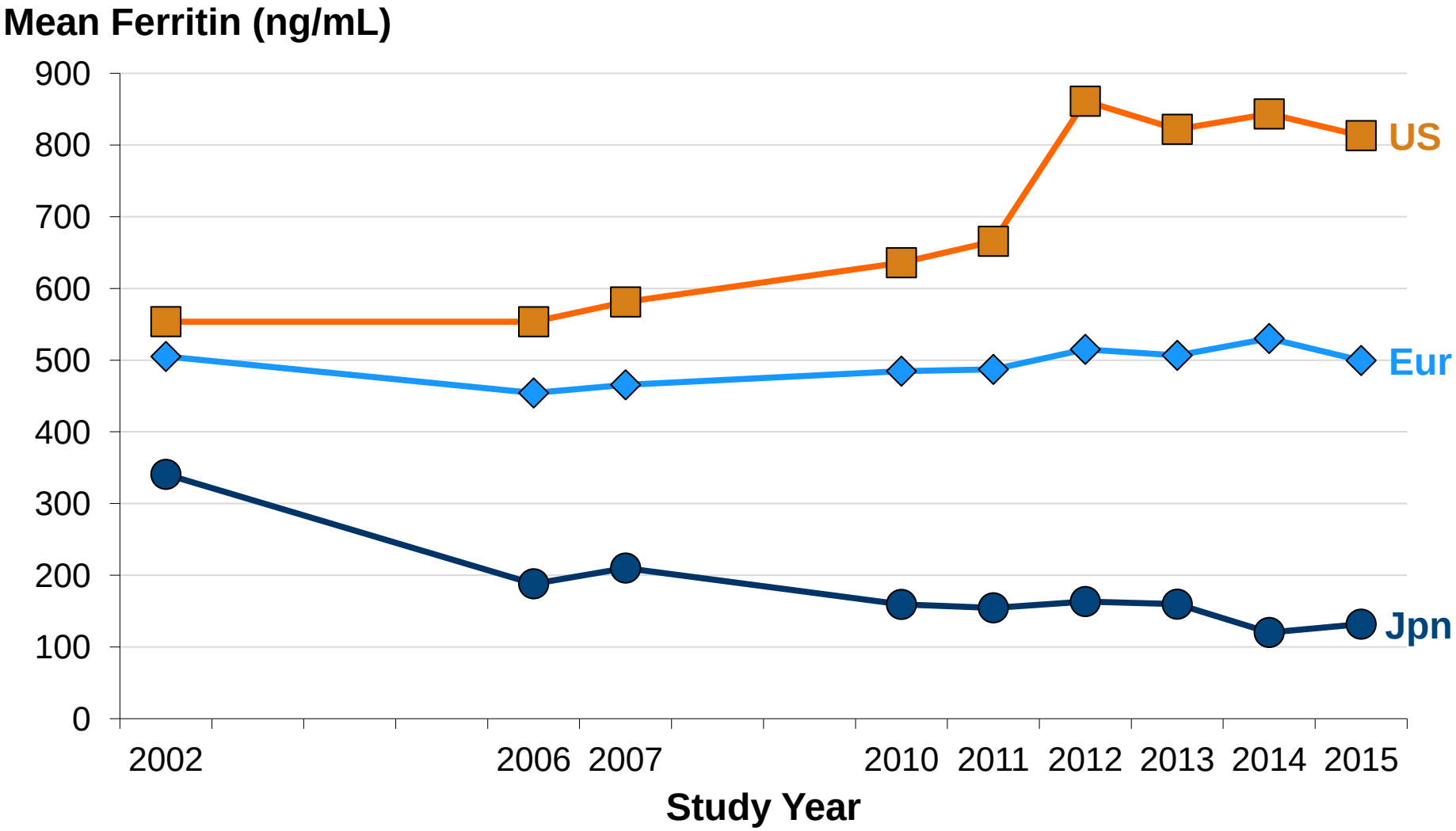
* Expressed as EPO-equivalent dose; Subcutaneous doses converted to IV 1.2:1; darbepoetin doses converted to EPO 200:1; Mircera not included

Mean Ferritin Trends

DOPPS 2-5 (2002-2015)



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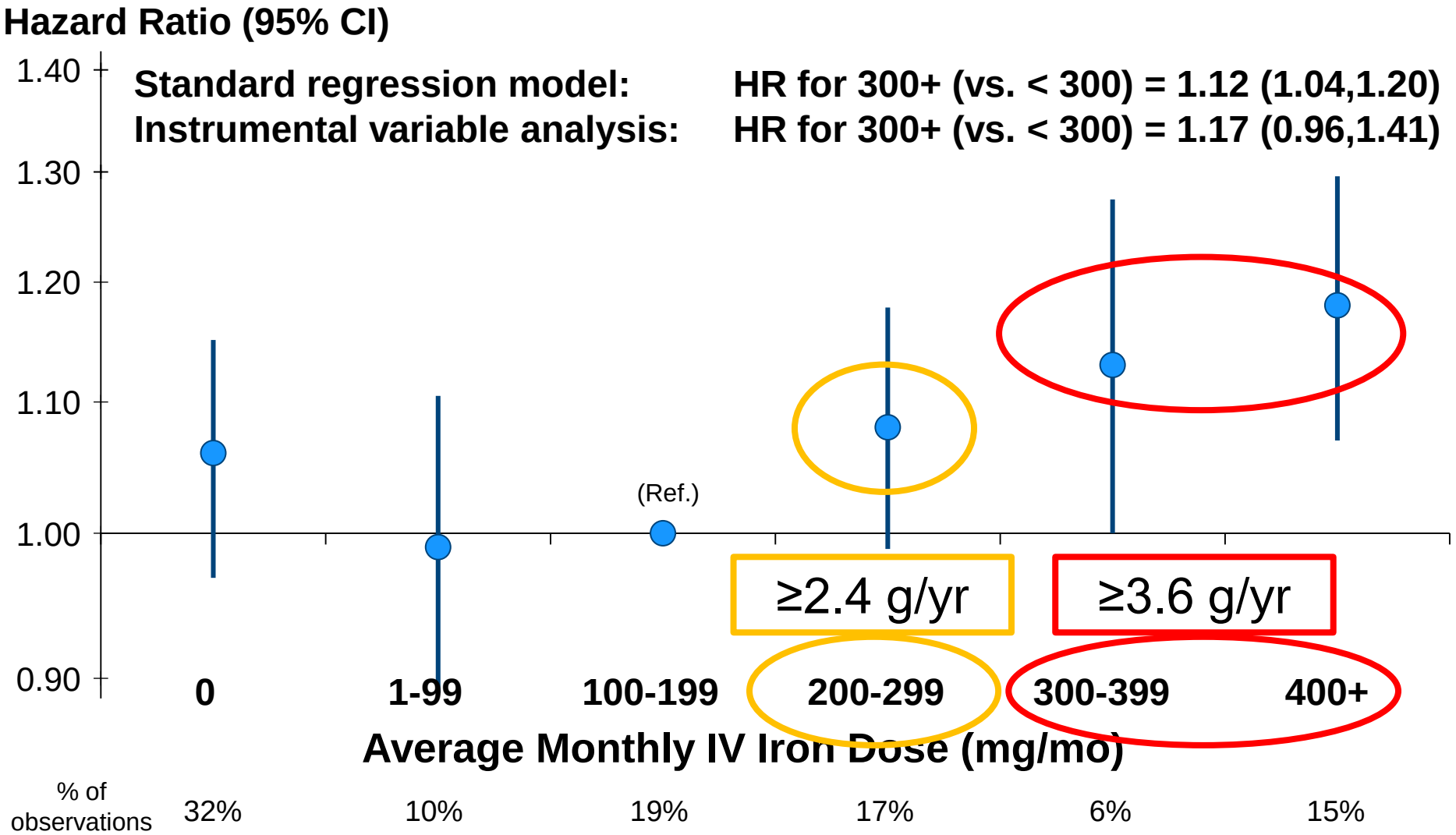
IV Iron Dose and All-Cause Mortality



Cox regressions were adjusted for age, vintage, gender, black race, baseline catheter use and 13 comorbidities, ESA weekly dose, Hgb, spKt/V, s.albumin, and creatinine, BMI, white blood cells, s. ferritin and TSAT; stratified by phase and country, accounting for facility clustering effects. N=32,435, DOPPS 2,3,4. In JP sample: 3% were in 200-299 category, and 2% were in 300+ category

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Bailie et al, KI (2014)

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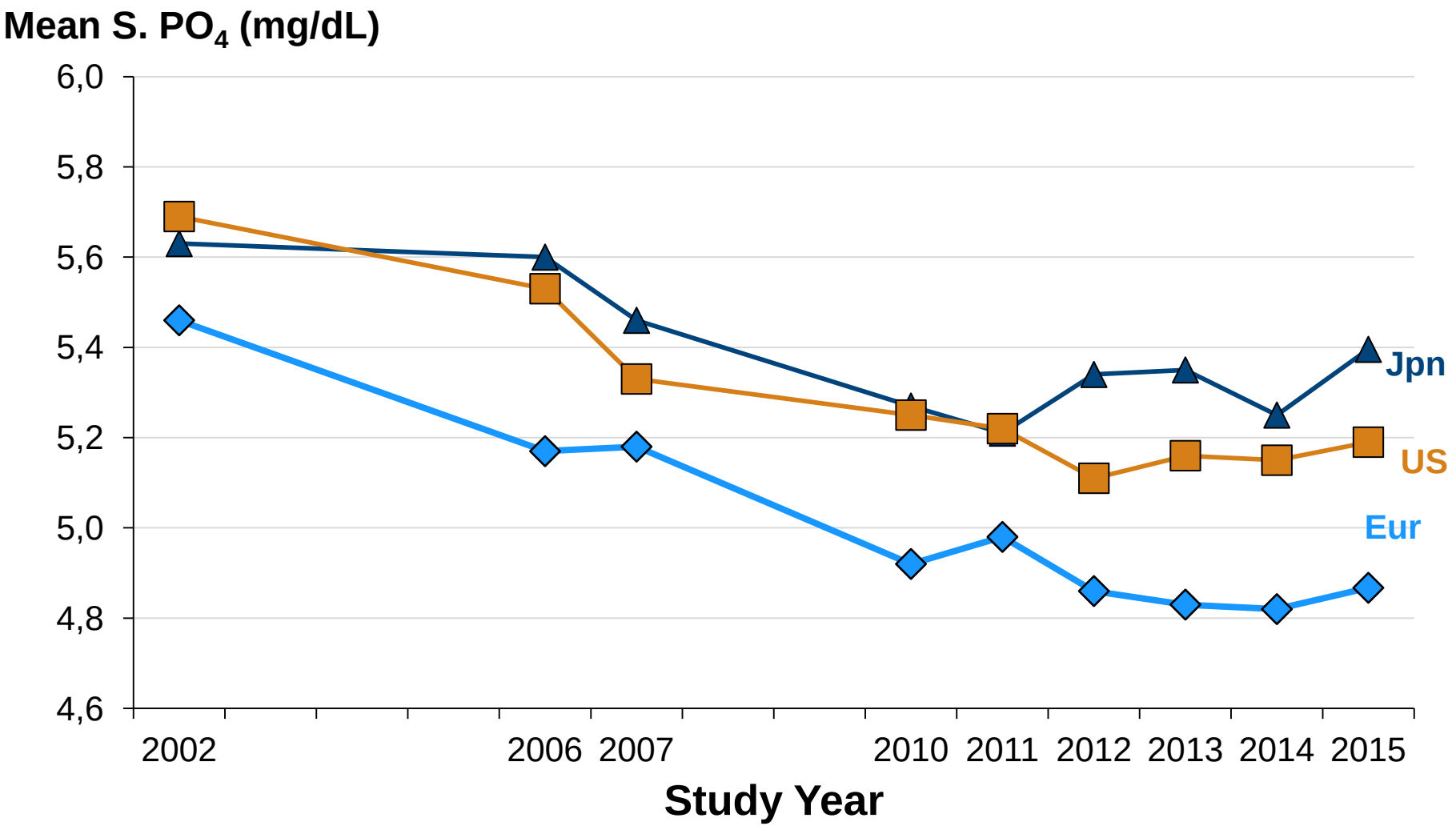
Key Practice Changes & Impact

Mineral Bone Disorder

S. Phosphorus Trends

DOPPS 2-5 (2002-2015)



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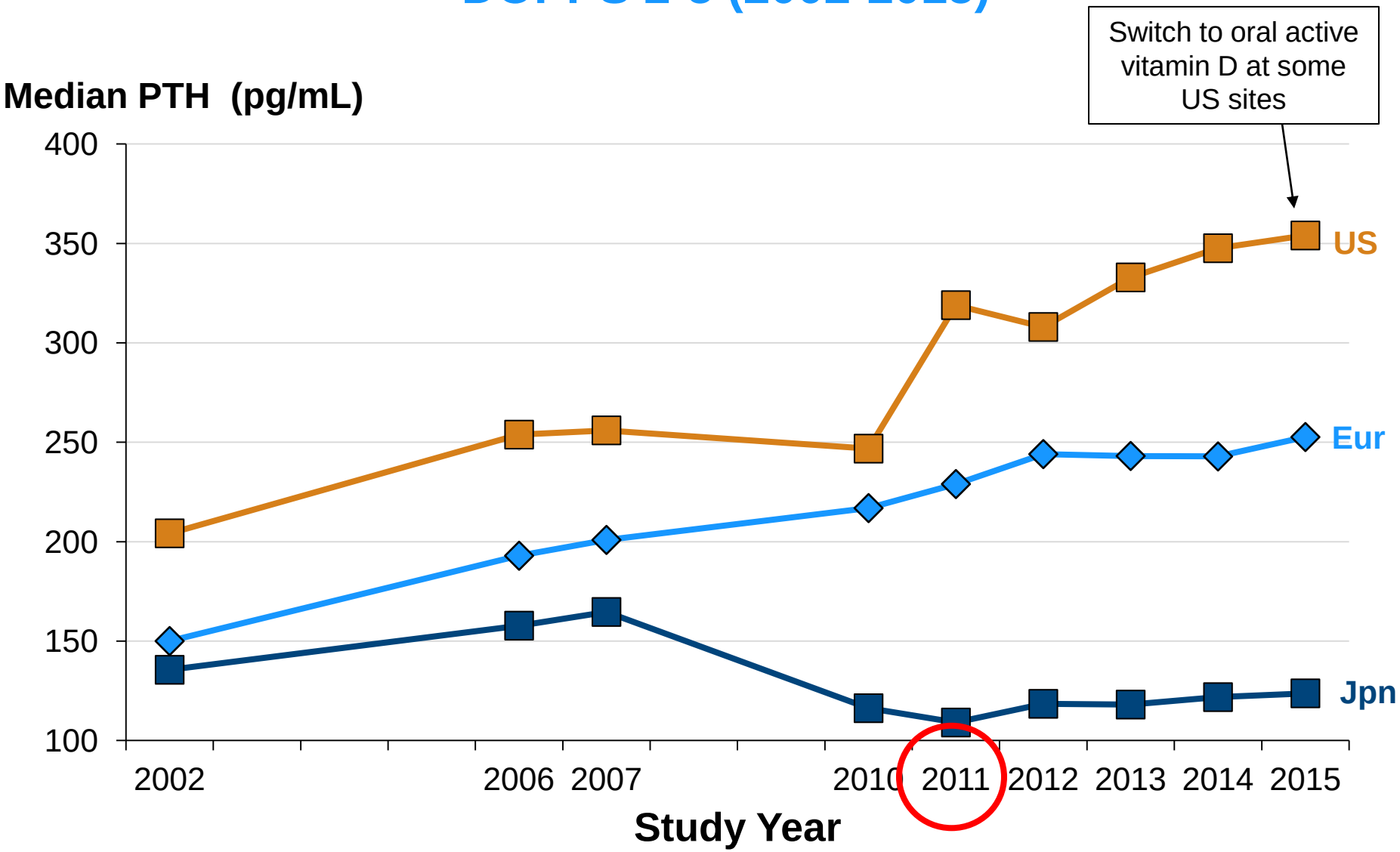
Median PTH Trends

DOPPS 2-5 (2002-2015)



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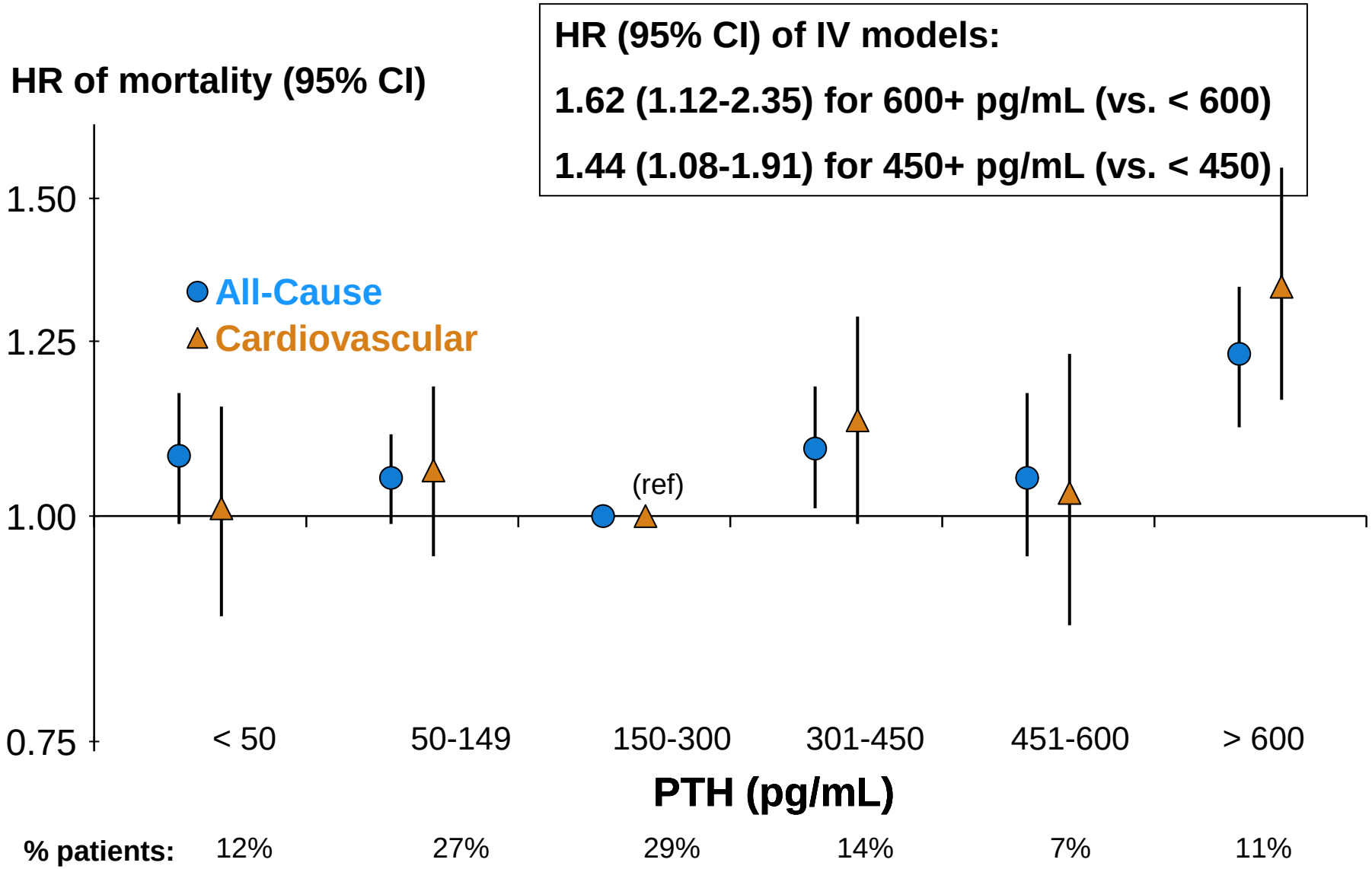
PTH and Mortality



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Tentori et al. *CJASN* 2015;10(1):98-109

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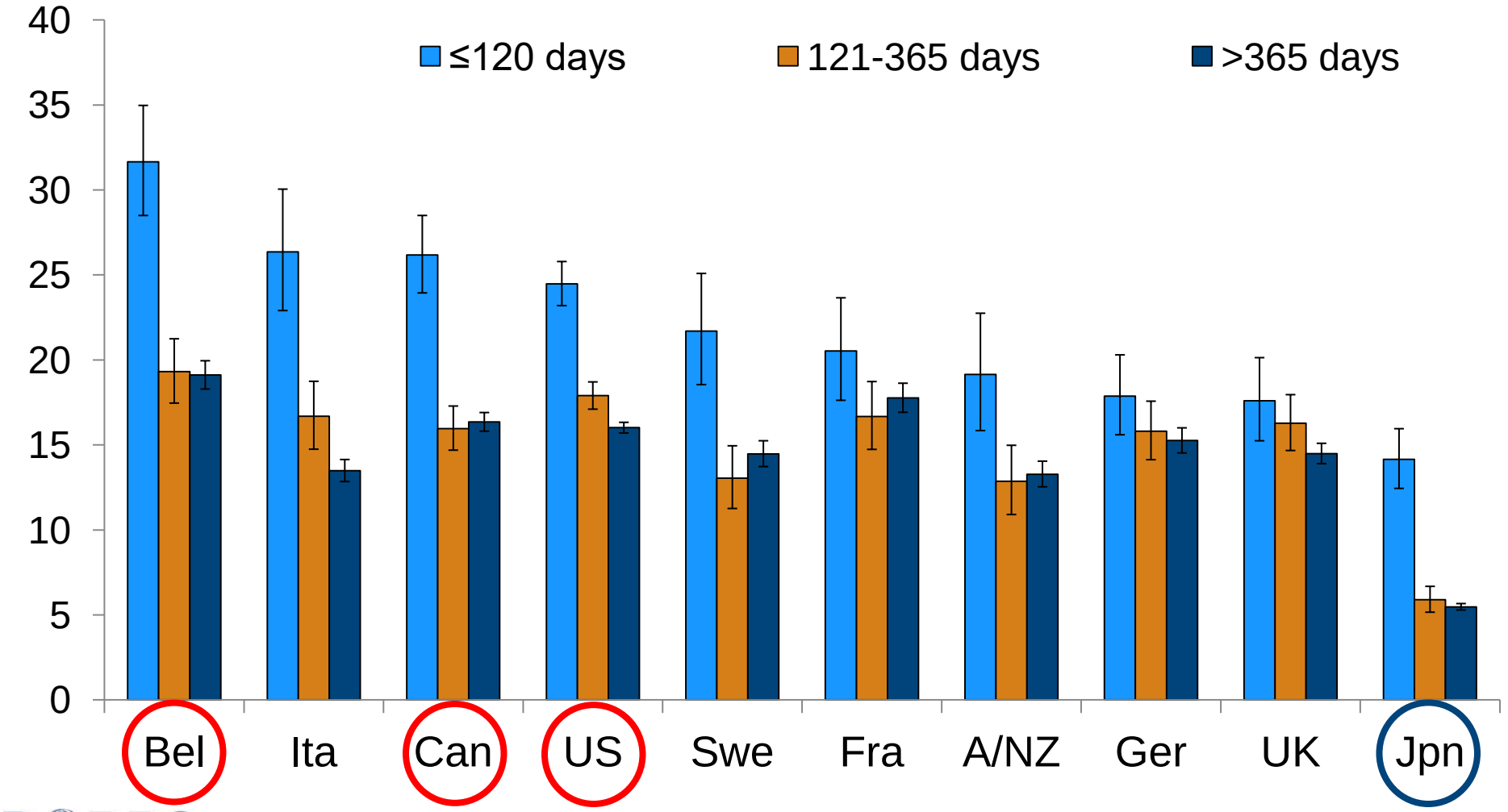
Unmet Need

Improving Outcomes During the Dialysis Transition Period

High Mortality Rates After Dialysis Start:

DOPPS 2-5 (2002-2015)

Mortality rate (deaths per 100 patient years)



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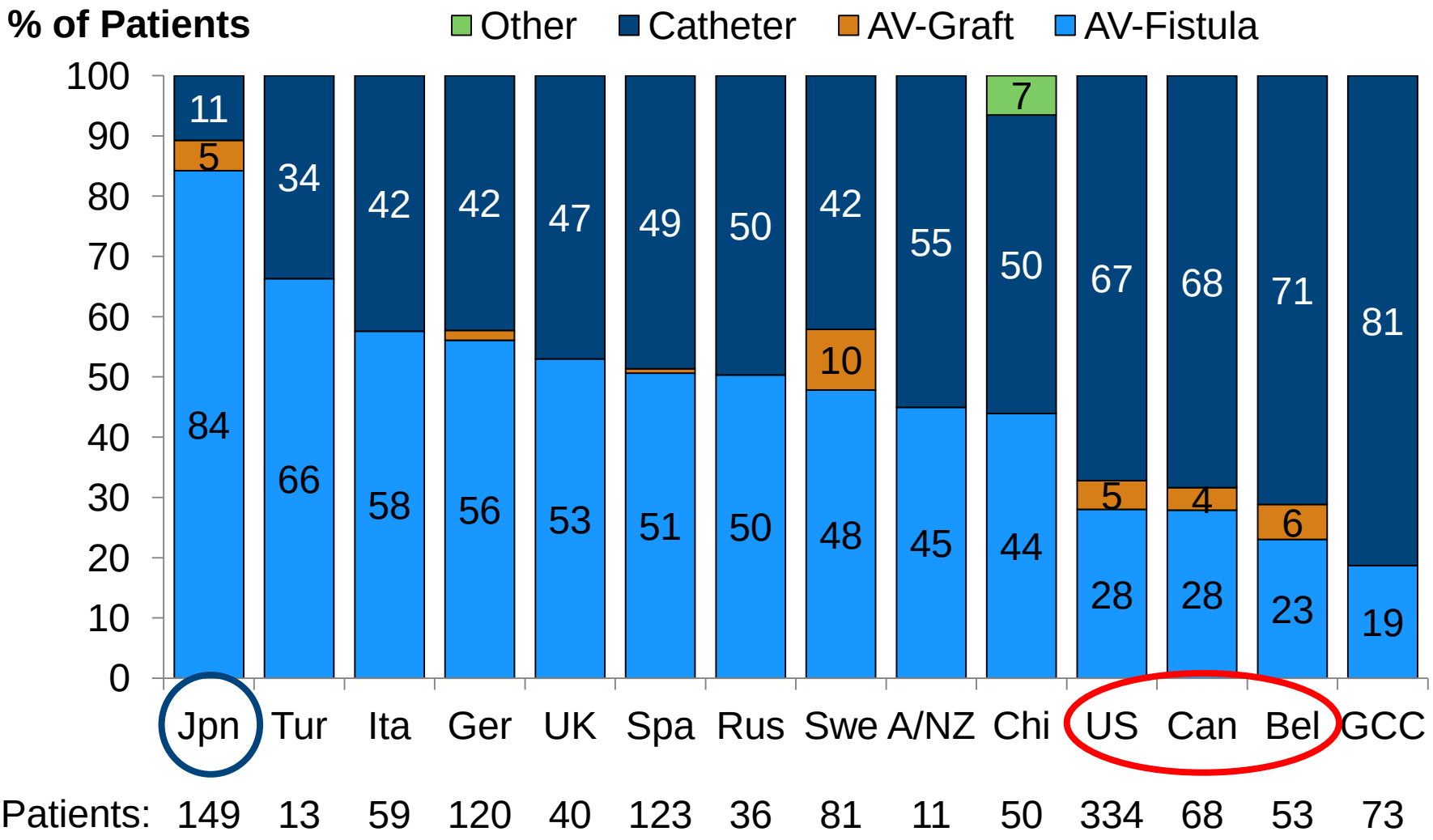
Robinson et al. *KI* *85*(1):158-65, 2014

Vascular access use[a] – incident patients

DOPPS 5 (2012-2014)



[a] At study entry for patients on dialysis ≤60 days at DOPPS enrollment

Pisoni et al. Am J Kidney Dis. 2015;65(6):905-915

How can we improve outcomes among dialysis patients now?

- Get ready! Rising prevalence and age (higher societal burden of dialysis) for foreseeable future
- For prevalent patients: Prioritize longer treatment time, volume management, and improving nutrition over ‘traditional’ metrics (Kt/V, anemia, etc.)
- For incident patients: Better outcomes at onset of kidney failure *must be achieved*, but this requires both practice improvement and policy changes
- <u>Prioritize the patient experience!</u>

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Thank you