

Functional status among patients receiving peritoneal dialysis: Results from the PDOPPS

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Background / Goal

Background

- We have shown that high functional dependence among hemodialysis (HD) patients varies across DOPPS countries and is associated with mortality. However, little is known about functional status in peritoneal dialysis (PD) patients, its variation by country, determinants, or clinical outcomes.

Goals

- To examine functional status variation across 7 PDOPPS countries
- To compare functional status for PD vs. HD patients
- To estimate the hypothesized effects of functional status on all-cause mortality and permanent transition to HD in PD patients

Methods

- Sample:** 2563 PD and 3898 HD patients that have completed patient questionnaires on functional status (instrumental and basic activities of daily living, using the Katz and Lawton-Brody questionnaires)
- Analysis:**
 - Functional status compared across PDOPPS countries, and between PD/HD
 - Model: Marginal logistic GEE model to estimate odds ratios (OR & 95% CI)
 - Outcome: functional status score < 11
 - Exposure: country, PD/HD
 - Covariates: demographics, comorbidities, labs, and PD characteristics for PDOPPS country comparison
 - Association between functional status and A) all-cause mortality, B) permanent transition to HD, or C) The composite outcome of mortality or permanent transition to HD, for PD patients
 - Model: Cox model to estimate hazard ratios (HR & 95% CI)
 - Exposure: functional status summary score categorized as <8 (functionally dependent), 8-<11, 11-<13, or 13 (independent)
 - Covariates: demographics, comorbidities, labs, and PD characteristics

Katz S, Downs TD, Cash HR, Grotz RC. Progress in development of the index of ADL. Gerontologist. 1970;10:20-30.

Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. Gerontologist. 1969;9:179-186.

PDOPPS The Peritoneal Dialysis Outcomes and Practice Patterns Study



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The PDOPPS is an international prospective cohort study of peritoneal dialysis treatment and patient outcomes in Australia, Canada, Colombia, Japan, New Zealand, South Korea, Thailand, the United Kingdom and the United States. Data collection (beginning in 2014) is ongoing and will include up to 3 years of follow-up for > 7,000 patients in > 200 practices. Additional countries may join the study depending on funding and data availability. More details regarding study design can be found in Perl et al (2015) Perit Dial Int.

Results

Figure 1: Distribution of functional status in patients, by modality and DOPPS country

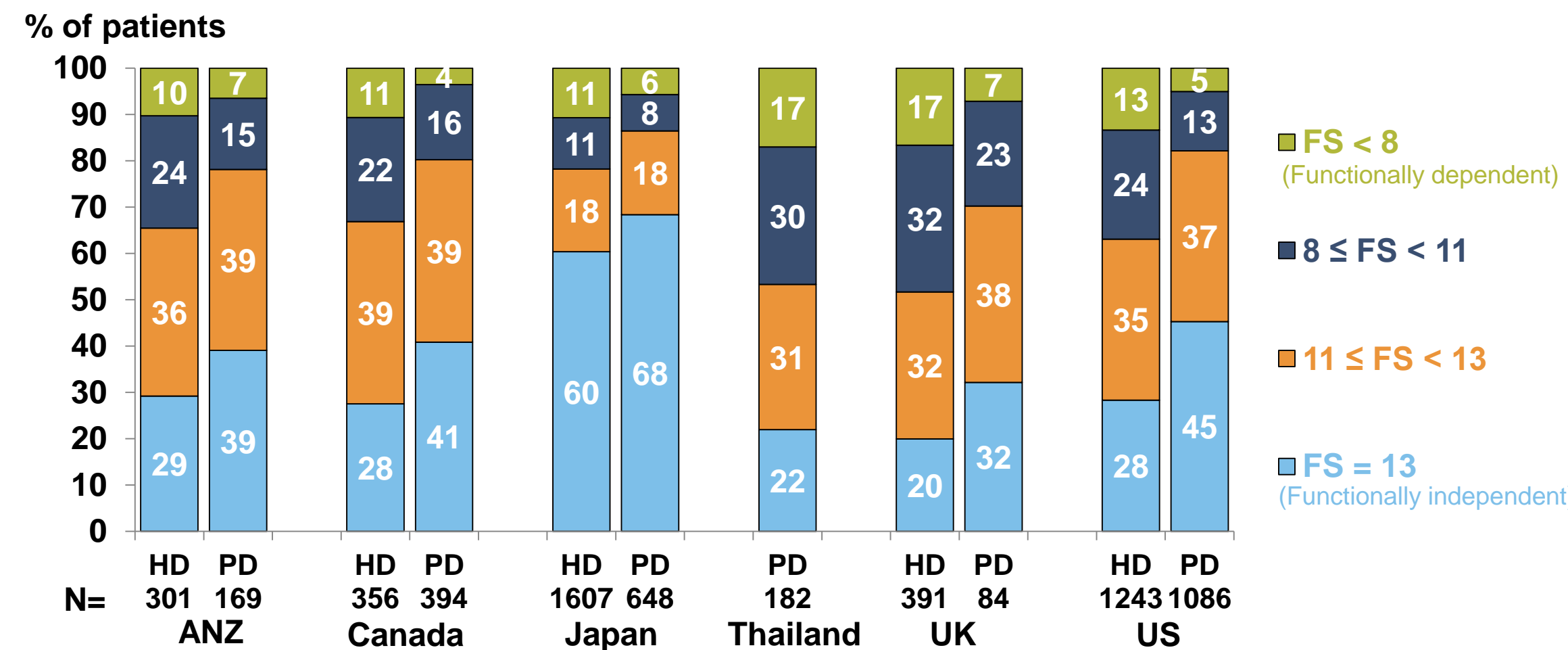
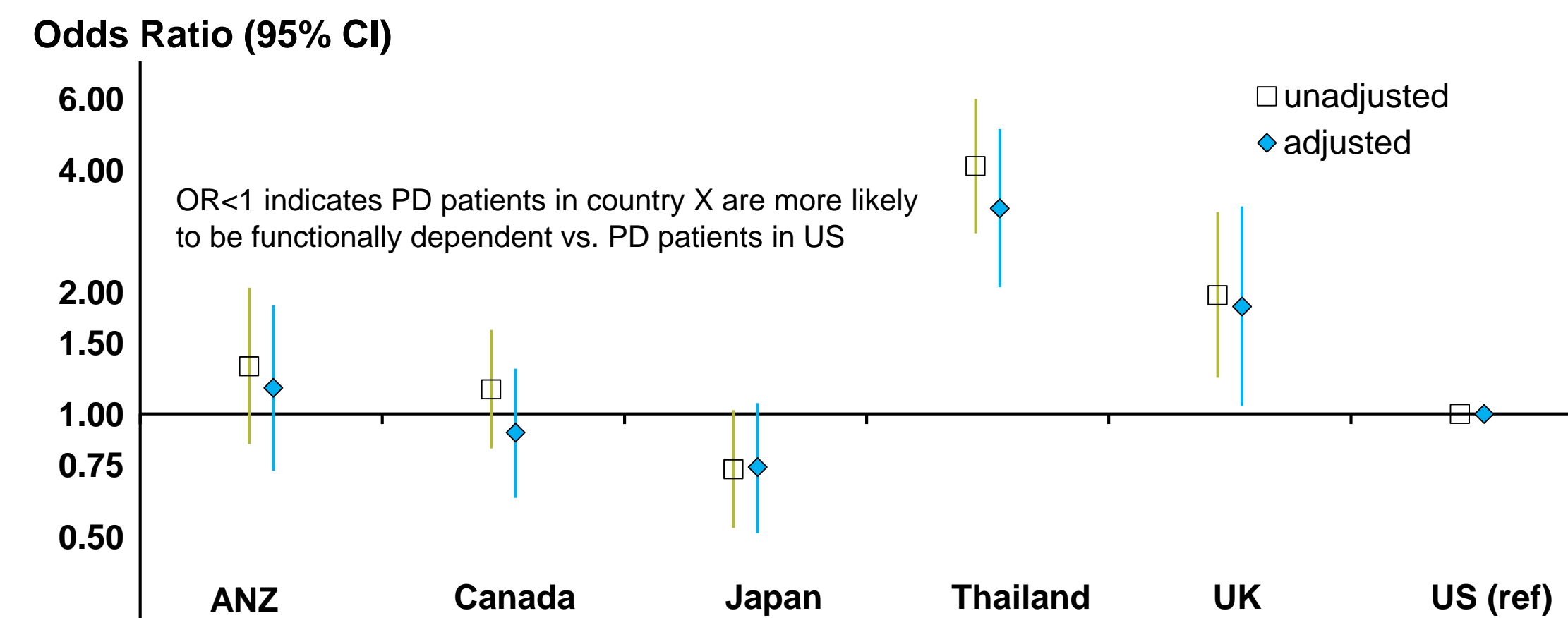


Figure 2: Crude and adjusted odds ratio (95% CI) of FS score <11 for PD patients in each country compared with the US

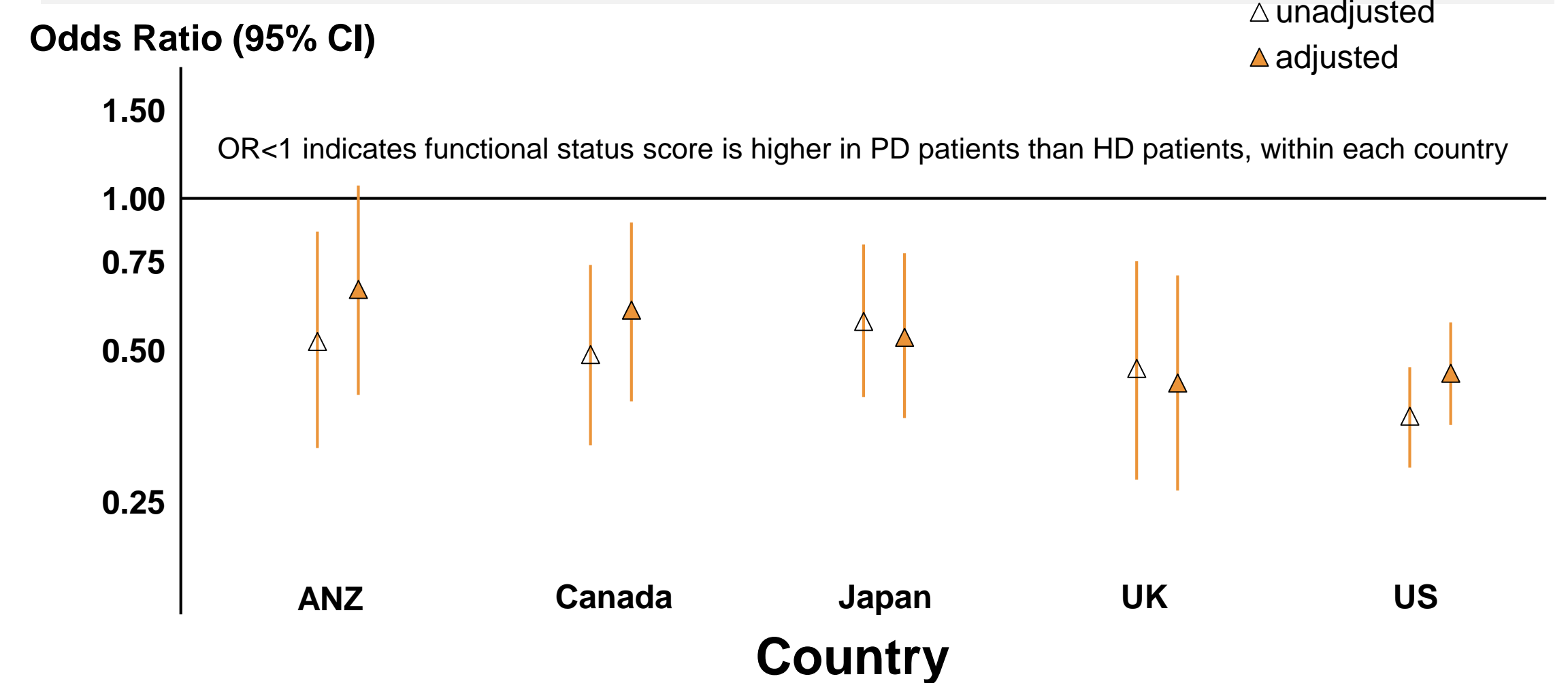


Model adjusted for demographics, comorbidities, labs, and PD characteristics
ANZ is Australia and New Zealand.

Summary / Conclusions

- Among PD patients, the prevalence of a FS score <11 was highest in Thailand and lowest in Japan but varied relatively little across the other 4 countries (Figures 1-2).
- The prevalence of a functional status score <11 was lower in PD patients than in HD patients living in the same country (Figure 3).
- Adjusting for many potential confounders, functional status was strongly inversely and monotonically associated with mortality but not with the risk of technique failure (Table 1).
- Conclusions:** Functional status appears to be a strong predictor of mortality that cannot be fully explained by its associations with the many covariates used in these analyses. We found little association between functional status and technique failure, which may be explained by the availability of nurse or caregiver assistance for peritoneal dialysis. Future evaluations of patient outcomes for assisted versus unassisted PD across the DOPPS is an important undertaking.

Figure 3: Odds ratio (95% CI) of functional status score <11 for PD vs. HD patients (reference group), by country



Thailand data not available in HD. Model adjusted for demographics, comorbidities, and labs.

Table 1: Crude and adjusted hazard ratio (HR, 95% CI) for the association of functional status with mortality, transition to HD, and mortality or transition to HD

Outcome	Functional status	N patients	N events (%)	Crude HR	Adjusted HR
Mortality	FS < 8	154	51 (33%)	9.8 (6.1-15.7)	3.8 (2.3-6.3)
	8 ≤ FS < 11	353	78 (22%)	5.4 (3.7-7.9)	2.9 (2.0-4.2)
	11 ≤ FS < 13	827	73 (9%)	1.9 (1.4-2.7)	1.5 (1.0-2.2)
	FS = 13	1229	56 (5%)	1 (reference)	1 (reference)
Transition to HD	FS < 8	154	34 (22%)	1.6 (1.1-2.4)	1.2 (0.7-1.9)
	8 ≤ FS < 11	353	68 (19%)	1.2 (0.9-1.6)	1.0 (0.7-1.3)
	11 ≤ FS < 13	827	163 (20%)	1.1 (0.9-1.4)	1.1 (0.8-1.3)
	FS = 13	1229	219 (18%)	1 (reference)	1 (reference)
Mortality or transition to HD	FS < 8	154	85 (55%)	3.3 (2.5-4.4)	1.9 (1.4-2.7)
	8 ≤ FS < 11	353	145 (41%)	2.1 (1.7-2.5)	1.5 (1.2-1.8)
	11 ≤ FS < 13	827	235 (28%)	1.3 (1.1-1.6)	1.1 (0.9-1.4)
	FS = 13	1229	275 (22%)	1 (reference)	1 (reference)

Median follow up time is 1.33 years. 258 deaths, and 484 patients permanently transitioned to HD. All models stratified by country and accounting for facility clustering effects. **Demographics:** body mass index, dialysis vintage. **Comorbid conditions:** amputation, coronary artery disease, cancer (non-skin), other cardiovascular disease, cerebrovascular disease, congestive heart failure, diabetes, gastrointestinal bleeding, hypertension, lung disease, neurologic disease, psychiatric disorder, peripheral vascular disease, gangrene/recurrent cellulitis. **Laboratory variables:** serum albumin, hemoglobin. **PD characteristics:** APD, PD assist, transport to PD facilities.