

HOW TO START AND SUPPORT PATIENTS TO STAY ON PD

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WHAT SHALL WE TALK ABOUT

- ▶ **How to best prepare a patient for PD**
 - **Referral, education, pre-dialysis care, modality selection, assessment for PD**
- ▶ **When to start PD**
- ▶ **And afterwards**

LACK OF CKD EDUCATION

- ▶ **Questionnaires sent to 1143 patients starting dialysis in southern California**
 - **428 patient surveys returned**
 - **36% unaware they had kidney disease**
 - **66% had no discussion of PD**
 - **74% had no discussion of transplantation**

CHOICES GIVEN TO THE PEOPLE

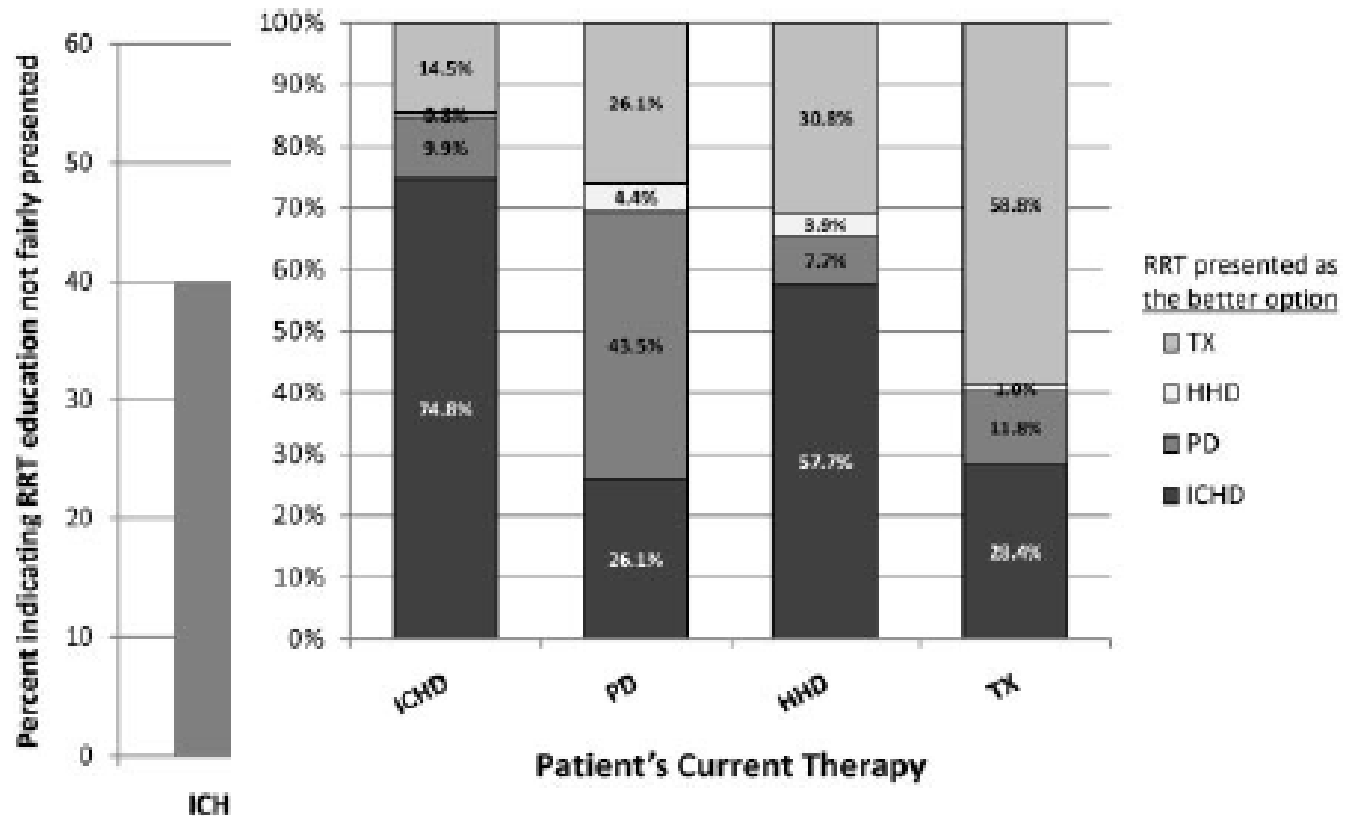


Figure 3. Percent of patients indicating which RRT was presented as the better option.

Figure 2. Percent of patients indicating that RRT modalities were not presented equally or fairly.

WHAT DO PEOPLE WANT TO KNOW?

N=100	Do <i>not</i> want to know (%)	Would like to know (%)	Absolute need to know (%)
Life expectancy on dialysis	3	46	51
Limitations on quality of life	1	45	54
What it does to the body	3	44	53
What it will accomplish	4	43	53
Possible side effects	4	48	48

- ▶ **Patients are asking for information on**
 - **Survival**
 - **Quality of life**
 - **Outcomes and achievement of set targets**

WHAT DO WE SAY?

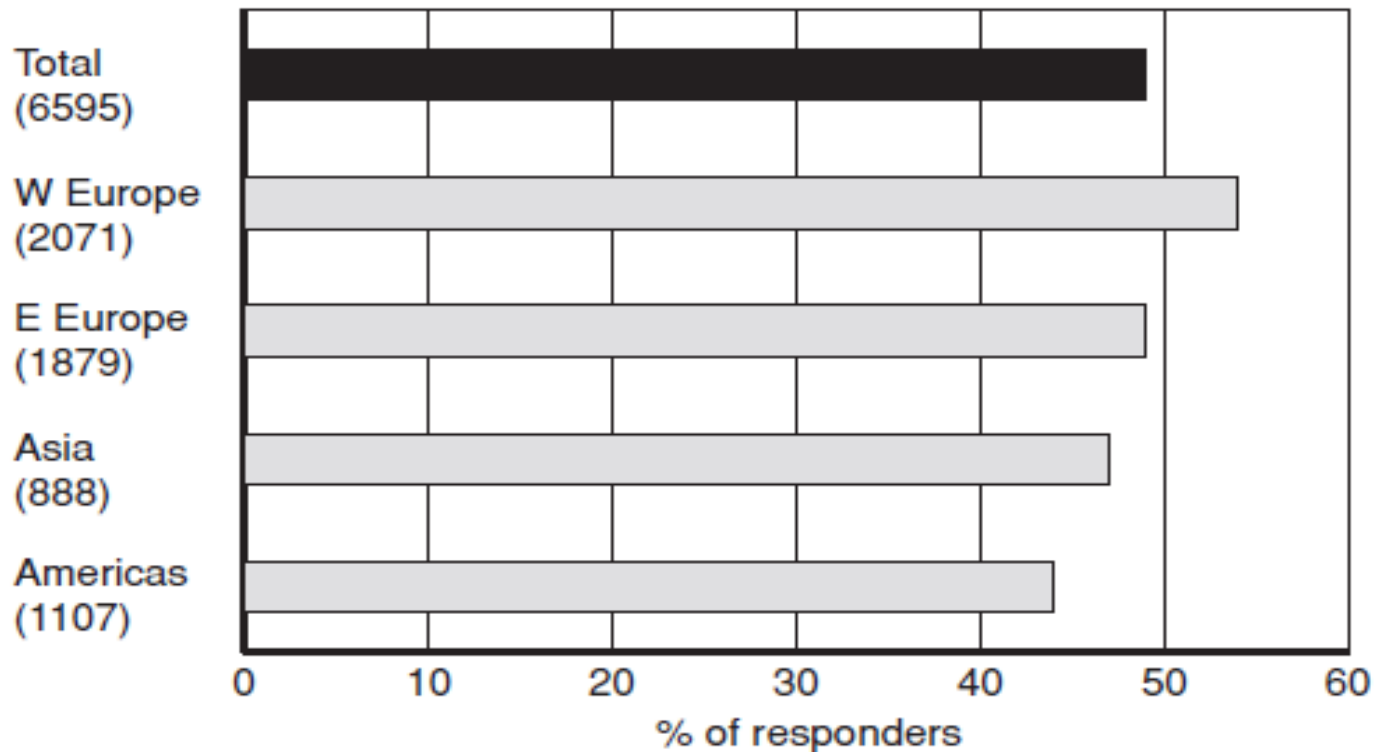


Fig. 1. Share of nephrology professionals who chose the answer 'CAPD/APD' in response to the question 'What do you consider to be the best initial dialysis treatment for a patient with planned start, today and in the near future?'

THE REALITY !!!

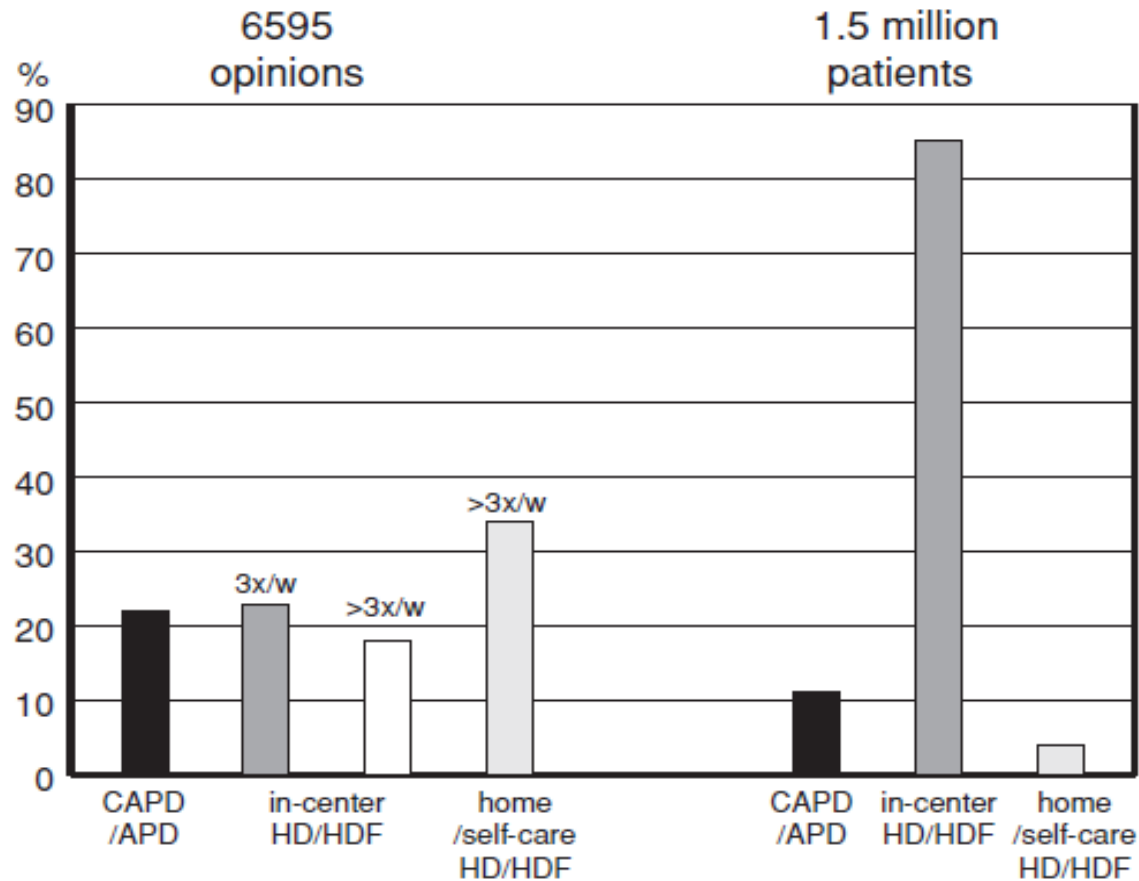
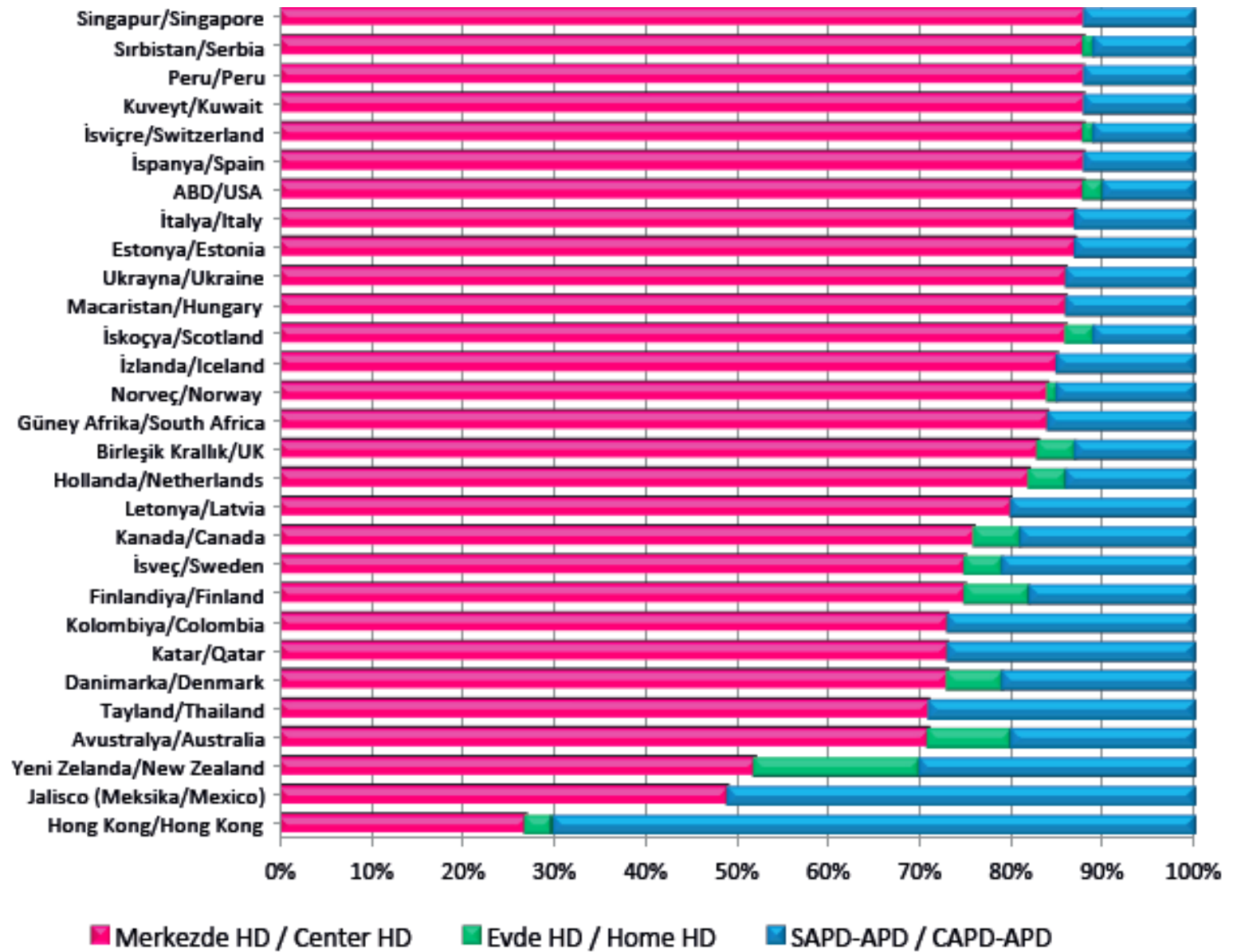


Fig. 5. What is the best long-term dialysis treatment? Opinion versus reality.



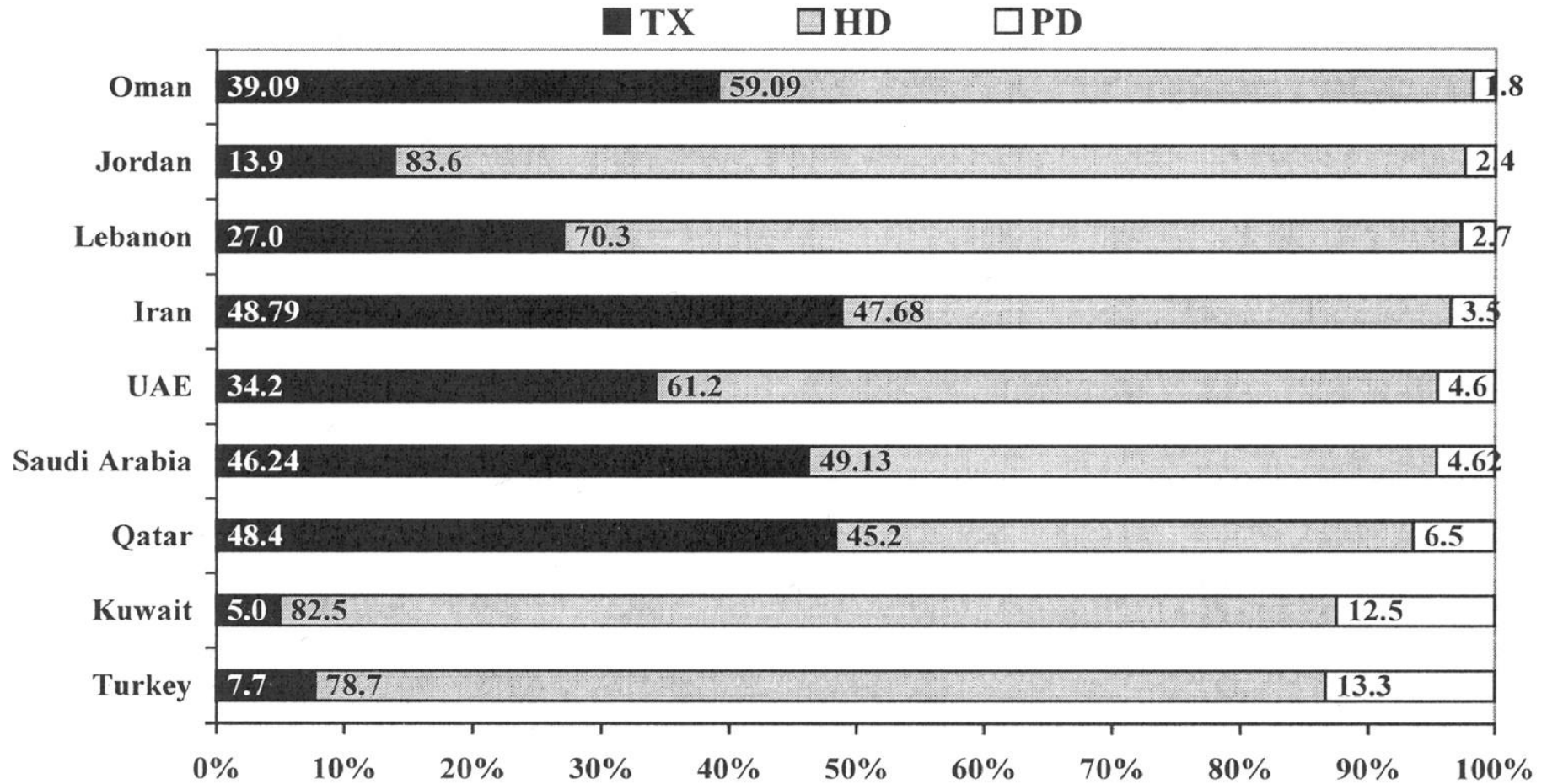
Distribution of dialysis modalities in prevalent patients, 2015



Distribution of dialysis modalities in prevalent patients, 2015

USRDS Annual Data Report 2017

PD PREVALENCE



Najafi I. Perit Dial Int 2009 suppl 217-221

TABLE 1. Distribution of incident peritoneal dialysis (PD) patients according PD type in 2018.

	n	%
SAPD / CAPD	669	75.51
APD / APD	217	24.49
Toplam / Total	886	100.00

TABLE 2. Distribution of chronic HD/PD patients or patients followed with functioning graft (including pediatric patients) according to RRT type as of the end of 2018.

	n	%
Hemodiyaliz / Hemodialysis	60.643	74.82
Periton diyalizi / Peritoneal dialysis	3.192	3.94
Transplantasyon / Transplantation *	17.220	21.24
Toplam / Total	81.055	100.00

Underutilization of peritoneal dialysis: the role of the nephrologist's referral pattern

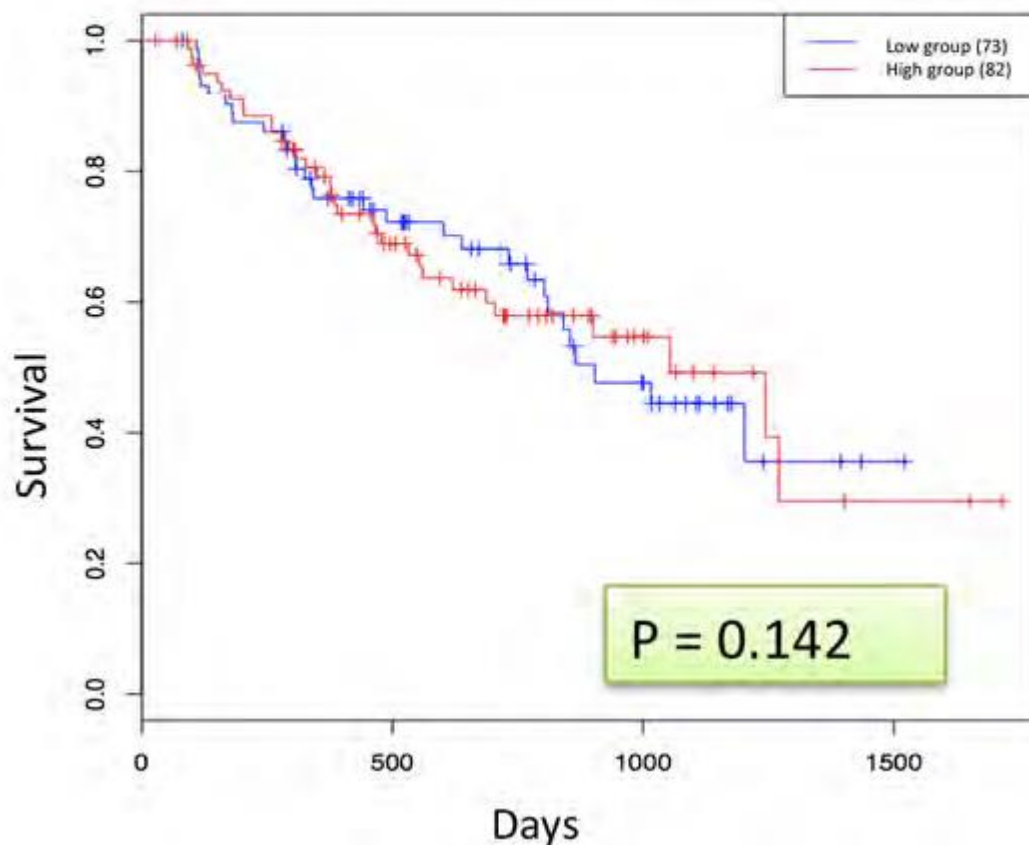
- ✓ **Retrospective review of the Manitoba (Canada) Renal Program databases from January 2004 to January 2010**
- ✓ **Analysis of 630 patients who commenced dialysis**
- ✓ **The primary intent of this study was to isolate the effect of individual nephrologist propensity for their patients to attempt PD in a large, universal payer/provider, renal program**
- ✓ **The effect of these differing practices on PD outcomes in the form of technique failure and mortality**

Underutilization of peritoneal dialysis: the role of the nephrologist's referral pattern

When comparing survival outcomes between the high-attempt group (with 9 nephrologists) and the low-attempt group (with 10 nephrologists)

- ❖ **The mortality at >90 days showed no significant difference**
- ❖ **The technique survival also found no significant difference between groups when compared**

Technique Survival: Low Vs High Referrers (>90 days on PD)

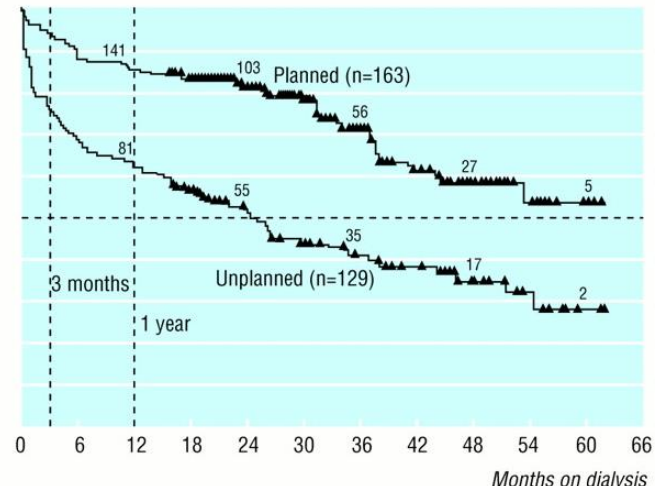


HOW TO BEST PREPARE PATIENTS FOR PERITONEAL DIALYSIS

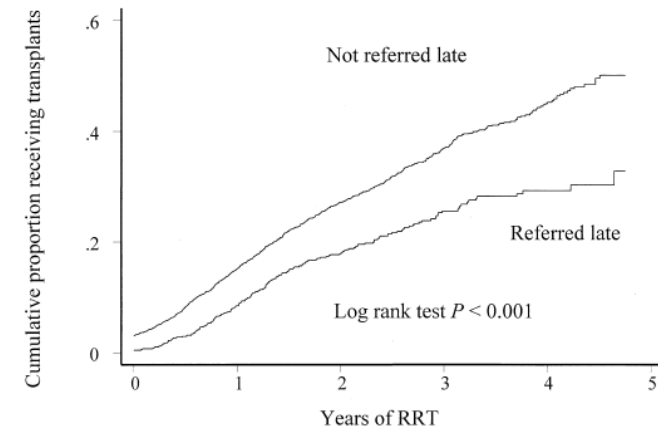
IS LATE REFERRAL A PROBLEM?

- ▶ Mortality
- ▶ No opportunity to slow CKD progression/more CKD complications
- ▶ Deprive patients of a choice of dialysis modality and pre-emptive transplantation
- ▶ No time for best possible choice of dialysis access
- ▶ Less likely to choose PD

d) Planned or unplanned presentation



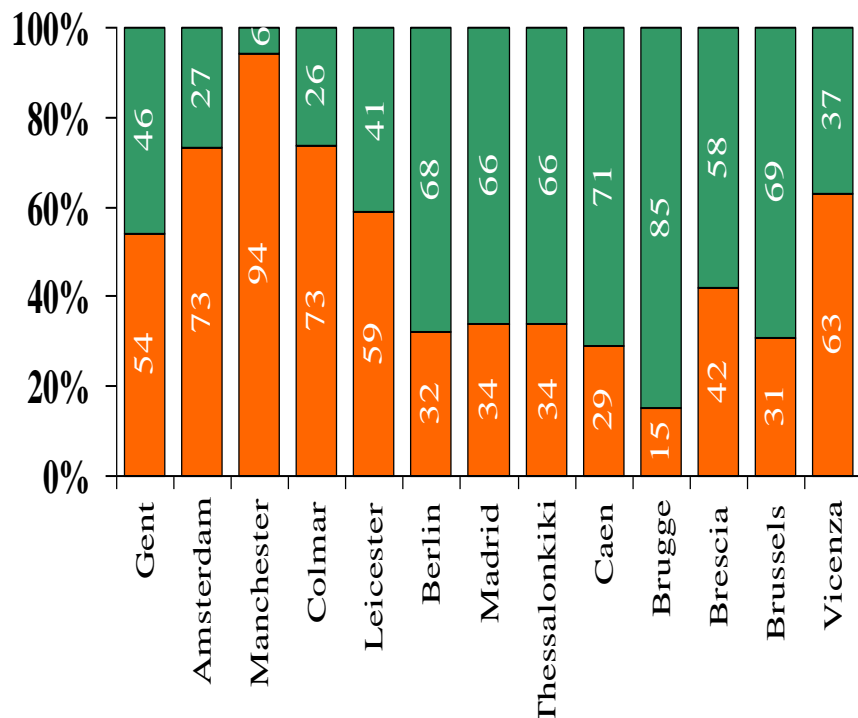
Chandna S et al: *BMJ* 1999;318:217-223



Cass A et al: *AJKD* 42:1043-1049, 2003.

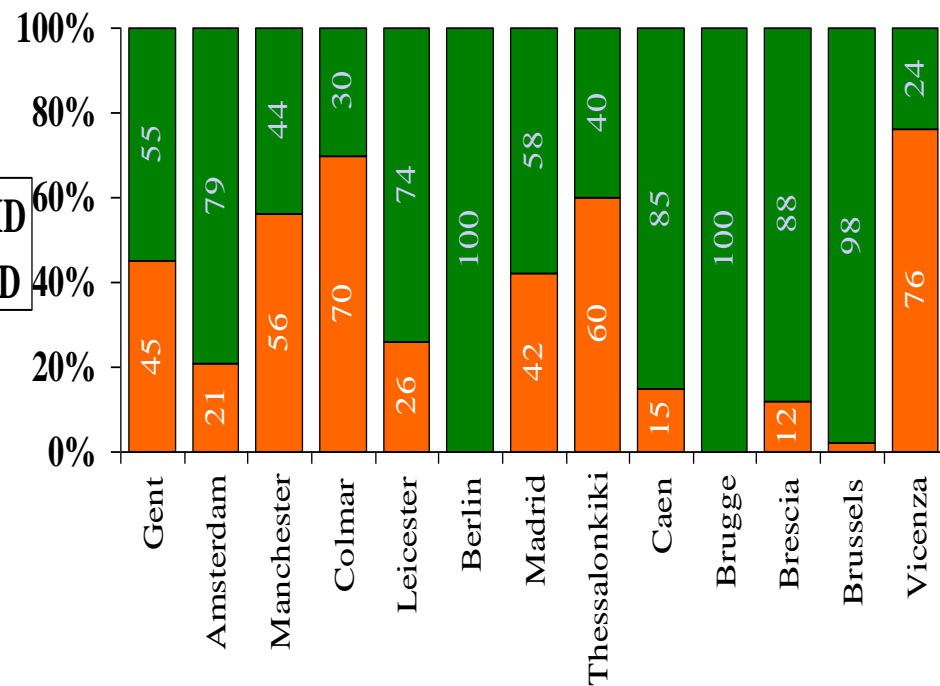
LATE REFERRAL – LESS PD

EARLY



Known to unit for at least one month

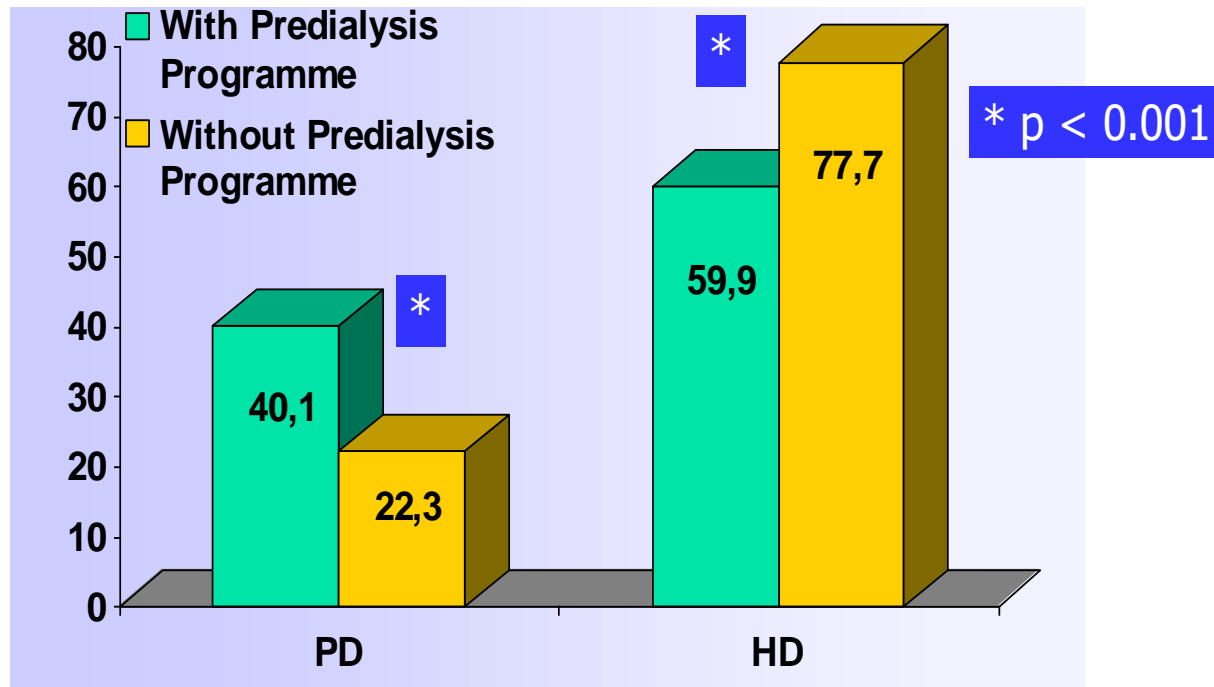
LATE



Admitted for dialysis in an emergency

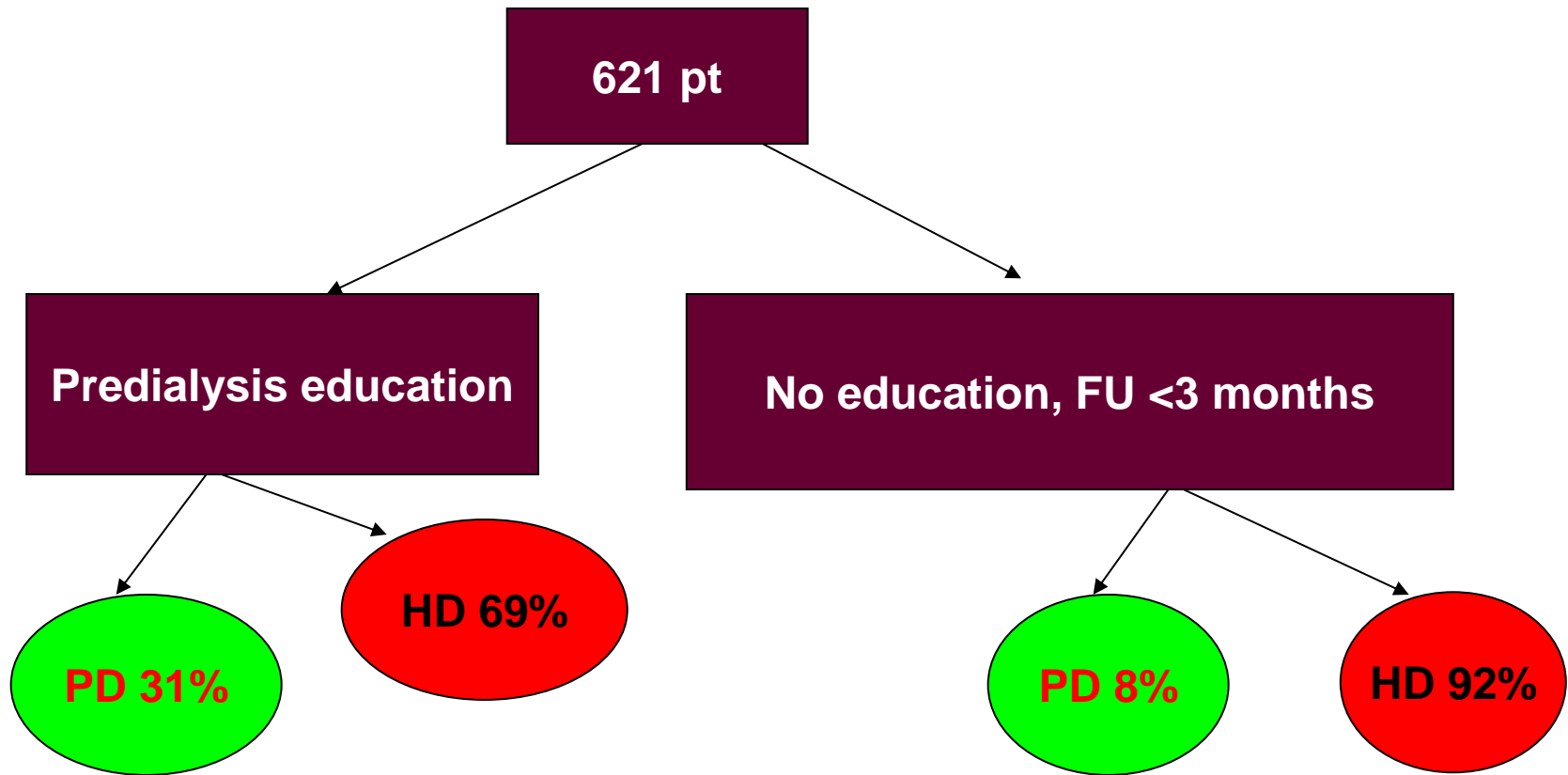
IMPACT OF EDUCATION

Treatment modality is influenced by the Pre-dialysis Programme



Ballerini 2002; for the Italian Multicentre study group

IMPACT OF EDUCATION



WHAT CAN WE DO?

- ▶ Referral to nephrology should ideally occur 1 - 2 years before dialysis is needed.
- ▶ Pace of assessment and education depends on predicted time before dialysis is needed.
- ▶ All available renal replacement modalities should be explained to patient to enable informed decision and choice.
- ▶ Early choice allows elective creation of best suitable access for dialysis.

-
- *Good partnership with primary care and other specialties*
 - *Educate the public (i.e. kidney day) – CKD is often SILENT*

START STRONG

**The success of a PD treatment is dependent on
the commitment and efforts of
all members of the PD healthcare team
as well as the patient himself**

START STRONG

The core team should include:

- ✓ **Nephrologist**
- ✓ **Certified PD nurse**
- ✓ **Access surgeon**
- ✓ **Dietitian**
- ✓ **Social worker**



IMPROVING THE QUALITY OF A PERITONEAL DIALYSIS SERVICE: LEARNING FROM EXPERIENCE

Rumeyza Kazancioglu

Faculty of Medicine, Department of Nephrology, Bezmialem Vakif University, Istanbul, Turkey

Pre-dialysis education and timely start on dialysis

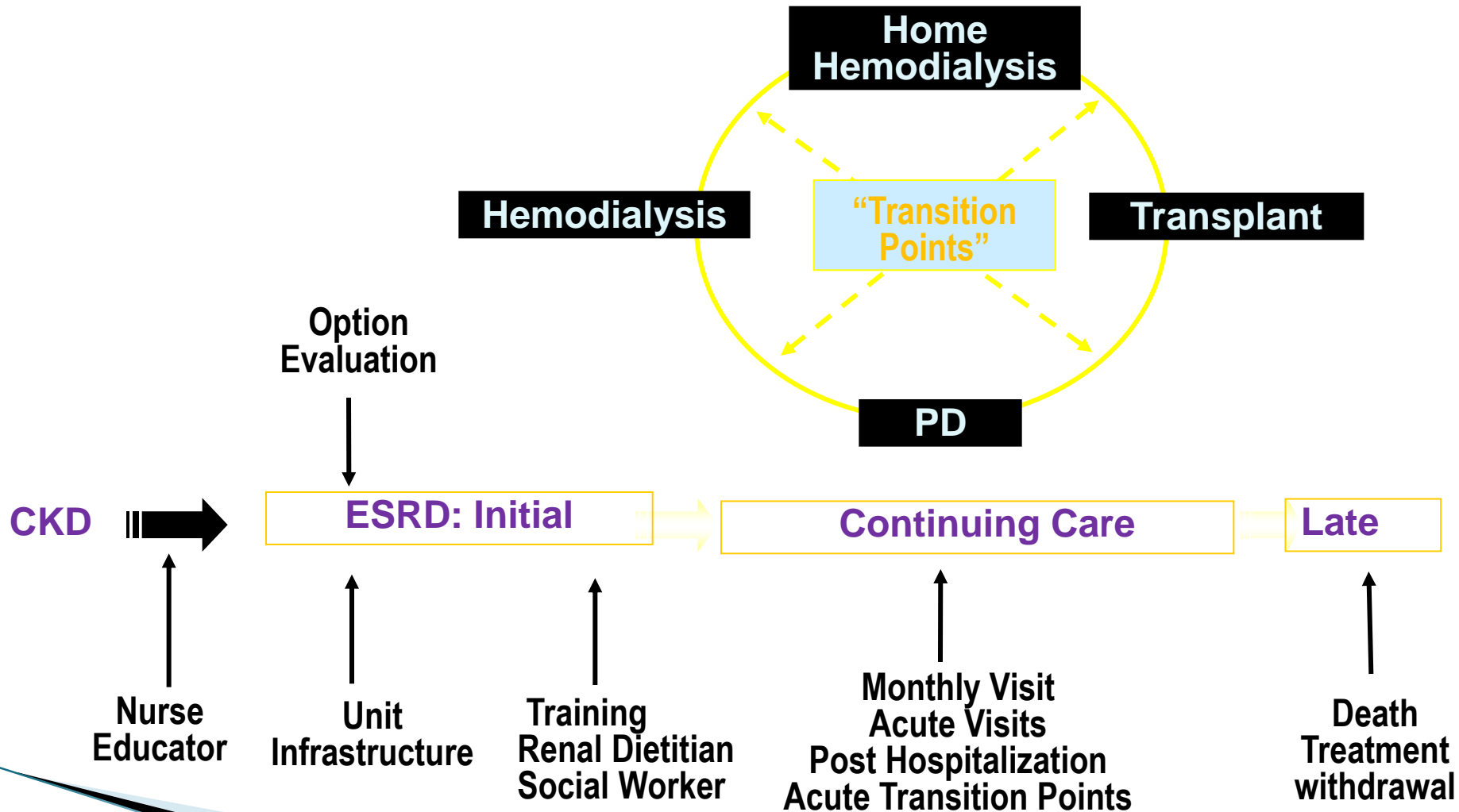
Adequate training for the physicians and nurses

Full support from complementary disciplines

Effective programme size

Continuous quality improvement strategies

CARE FOR THE PATIENT WITH CKD



Adapted from Schrieber, M. 2005

REFLECTIONS ON EDUCATION INTERVENTIONS AND OPTIMAL DIALYSIS STARTS

The impact of an intervention

90-minute

Interactive one-on-one slide-supported education session

A printed summary booklet

Supportive telephone calls every 3 weeks

The intervention was based on a

“Collaborative role-learning model”

Nesrallah GE, et al Perit Dial Int 33: 358–361, 2013

REFLECTIONS ON EDUCATION INTERVENTIONS AND OPTIMAL DIALYSIS STARTS

**Among the 172 patients who received the intervention
(compared with 163 control subjects)**

Dialysis initiation was delayed

Long-term knowledge retention was improved

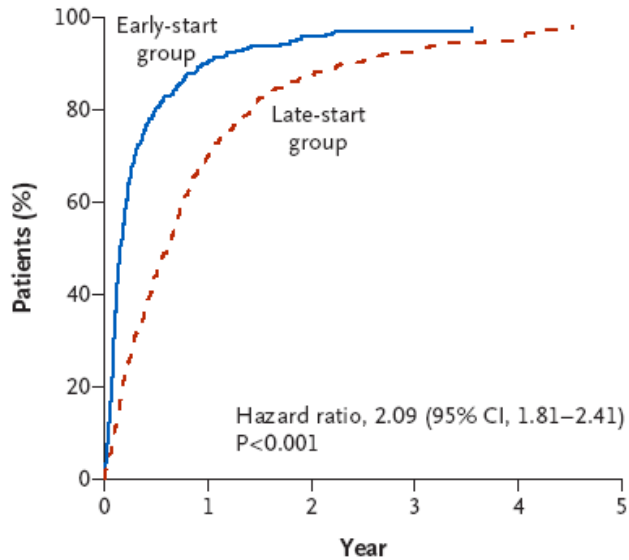
Survival was better at 20 years

Nesrallah GE, et al Perit Dial Int 33: 358–361, 2013

WHEN AND HOW TO START PD

IDEAL STUDY

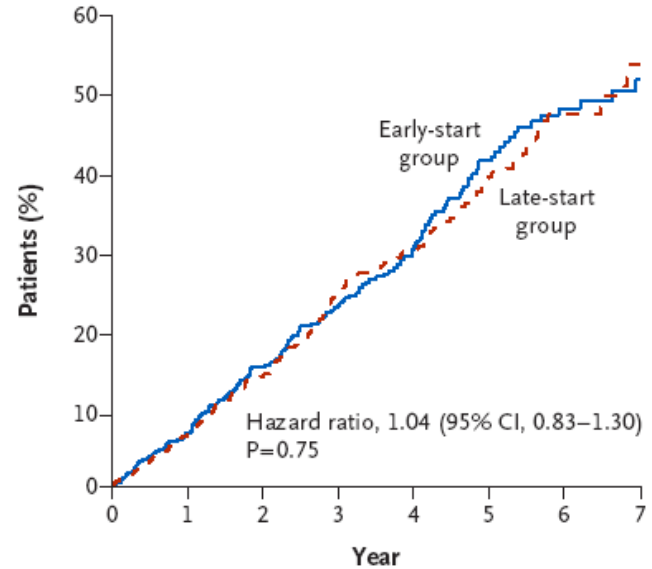
Time to Start of Dialysis



No. at Risk

Early start	404	35	12	8	2	1
Late start	424	118	45	21	9	3

Time to Death



No. at Risk

Early start	404	358	305	249	177	99	59	32
Late start	424	385	333	254	187	115	60	32

EFFECT OF TIMING OF DIALYSIS COMMENCEMENT ON CLINICAL OUTCOMES OF PATIENTS WITH PLANNED INITIATION OF PERITONEAL DIALYSIS IN THE IDEAL TRIAL

David W. Johnson,¹ Muh Geot Wong,² Bruce A. Cooper,² Pauline Branley,³ Liliana Bulfone,⁴ John F. Collins,⁵ Jonathan C. Craig,⁶ Margaret B. Fraenkel,⁷ Anthony Harris,⁸ Joan Kesselhut,² Jing Jing Li,⁸ Grant Luxton,⁹ Andrew Pilmore,⁴ David J. Tiller,¹⁰ David C. Harris,¹¹ and Carol A. Pollock²

Early initiation of dialysis in IDEAL trial participants with stage 5 CKD who planned to commence PD at the time of randomization was associated with clinical outcomes—including survival, composite cardiovascular events, composite infectious events, and dialysis complications—comparable to those in a late-start group.

Compared with early-start patients, late-start patients were significantly more likely to change their planned dialysis modality from PD to HD.

Nephrol Dial Transplant (2011) 26: 2082–2086

doi: 10.1093/ndt/gfr168

Advance Access publication 5 May 2011

When to start dialysis: updated guidance following publication of the Initiating Dialysis Early and Late (IDEAL) study

James Tattersall¹, Friedo Dekker², Olof Heimbürger³, Kitty J. Jager⁴, Norbert Lameire⁵, Elizabeth Lindley¹, Wim Van Biesen⁵, Raymond Vanholder⁵, and Carmine Zoccali⁶
on behalf of the ERBP Advisory board

UPDATE 2011:WHAT TO DO

- ▶ **Before CKD is symptomatic – prepare for dialysis, including access**
- ▶ **GFR < 15 ml/min/1.73m² – consider dialysis start when symptoms, volume overload, poor nutrition**

UPDATE 2011:WHAT TO DO

- ▶ **GFR 6-9 ml/min/1.73m² – most patients will become symptomatic (IDEAL data!)**
- ▶ **If poor surveillance and/or fast GFR reduction – consider start at asymptomatic CKD stage**

TIMING OF CATHETER PLACEMENT

- ▶ **Close to time of initiation of PD (6 weeks prior)**
- ▶ **Frequent follow up needed to avoid interim HD, hospitalisation or patient becoming too ill**
- ▶ **If possible catheter should be left to heal for at least 2 weeks**
- ▶ **Immediate use of catheters is possible and safe with modified APD regimes**

HOW TO ADDRESS BARRIERS TO PERITONEAL DIALYSIS IN THE ELDERLY

Edwina A. Brown

The prevalence of chronic kidney disease stages 3–5

- **25% in people over the age of 70 years**
- **30% in those over the age of 80 years**

compared to 11% overall

HOW TO ADDRESS BARRIERS TO PERITONEAL DIALYSIS IN THE ELDERLY

Edwina A. Brown

- ❖ **Barriers to PD for older patients**
 - ✓ **Poor vision**
 - ✓ **Frailty**
 - ✓ **Cognitive dysfunction**
 - ✓ **Accommodation issues**
 - ✓ **Bias from renal teams that older patients cannot do PD**

The development of assisted PD can overcome these barriers

HOW TO ADDRESS BARRIERS TO PERITONEAL DIALYSIS IN THE ELDERLY

Edwina A. Brown

In France PD is predominantly a treatment of the elderly

54% of men + 59% of women

in January 2006 >70 years of age

In Hong Kong,

in March 2007

80% of patients with a median age of 62.3 years

Success of the peritoneal dialysis programme in Hong Kong

Philip Kam-Tao Li and Cheuk-Chun Szeto

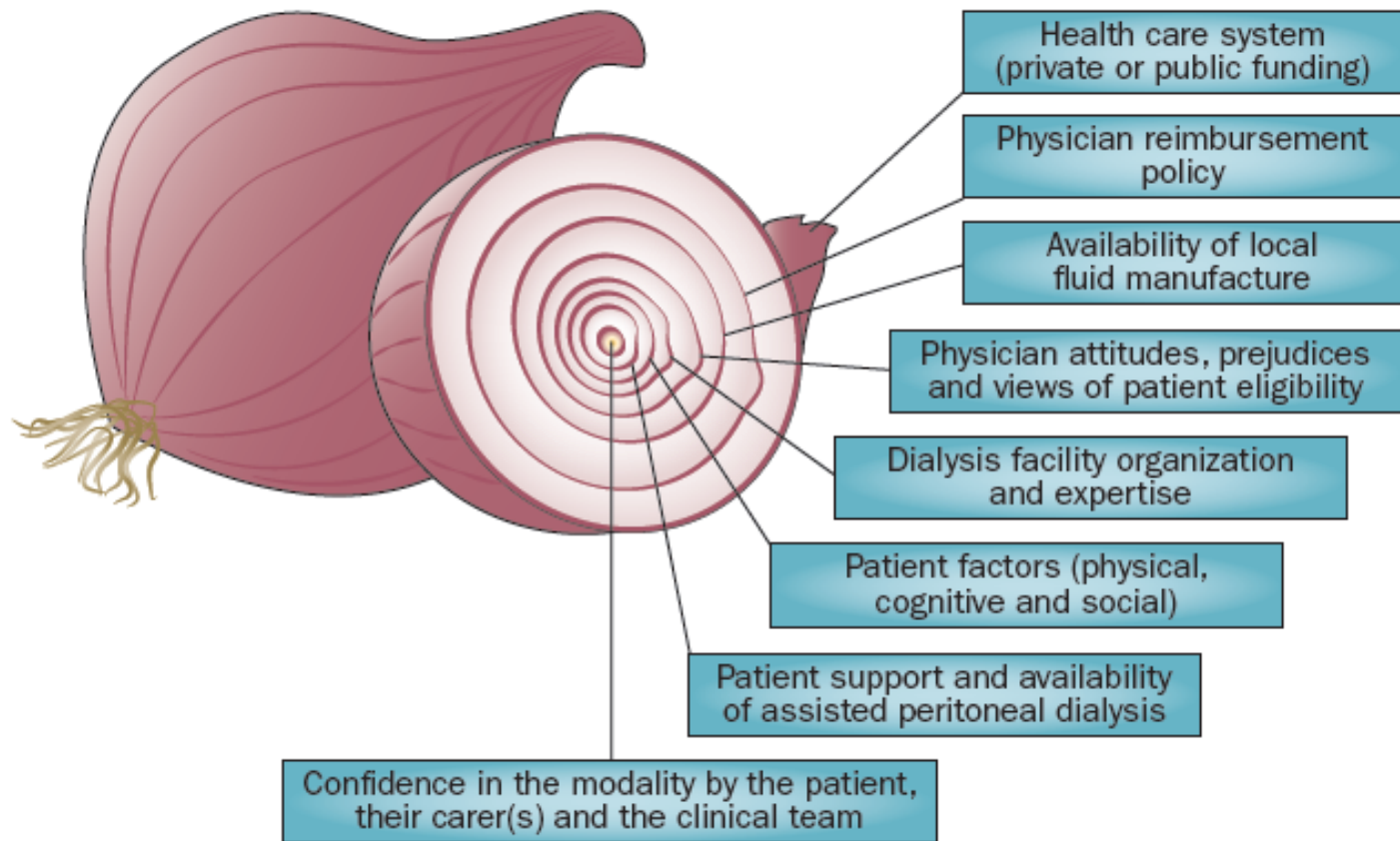
Departments of Medicine and Therapeutics, Prince of Wales Hospital, The Chinese University of Hong Kong, Shatin, Hong Kong, China

Table 1. Patient factors affecting survival in peritoneal dialysis

General populations	Dialysis populations
Genetics	Dialysis practices
Diets	Dialysis prescriptions
Cultural practices	Compliance to treatment
Lifestyles	Comorbid illnesses
Socioeconomic status	Body size
	Peritoneal membrane transport

Peritoneal dialysis—current status and future challenges

Simon J. Davies



STAY STRONG ON PD

Modality related

Peritonitis prophylaxis and treatment

Membrane preservation: Use of Glucose polymers/ACE inhibitors

Adjust dialysis prescription according to RRF

Correction of catheter malfunction

System related

Better infrastructure to support PD

Patient education/training

Physician and nursing education

Larger PD centers

Patient related

Social support

Psychological counseling (as needed)

Assisted PD

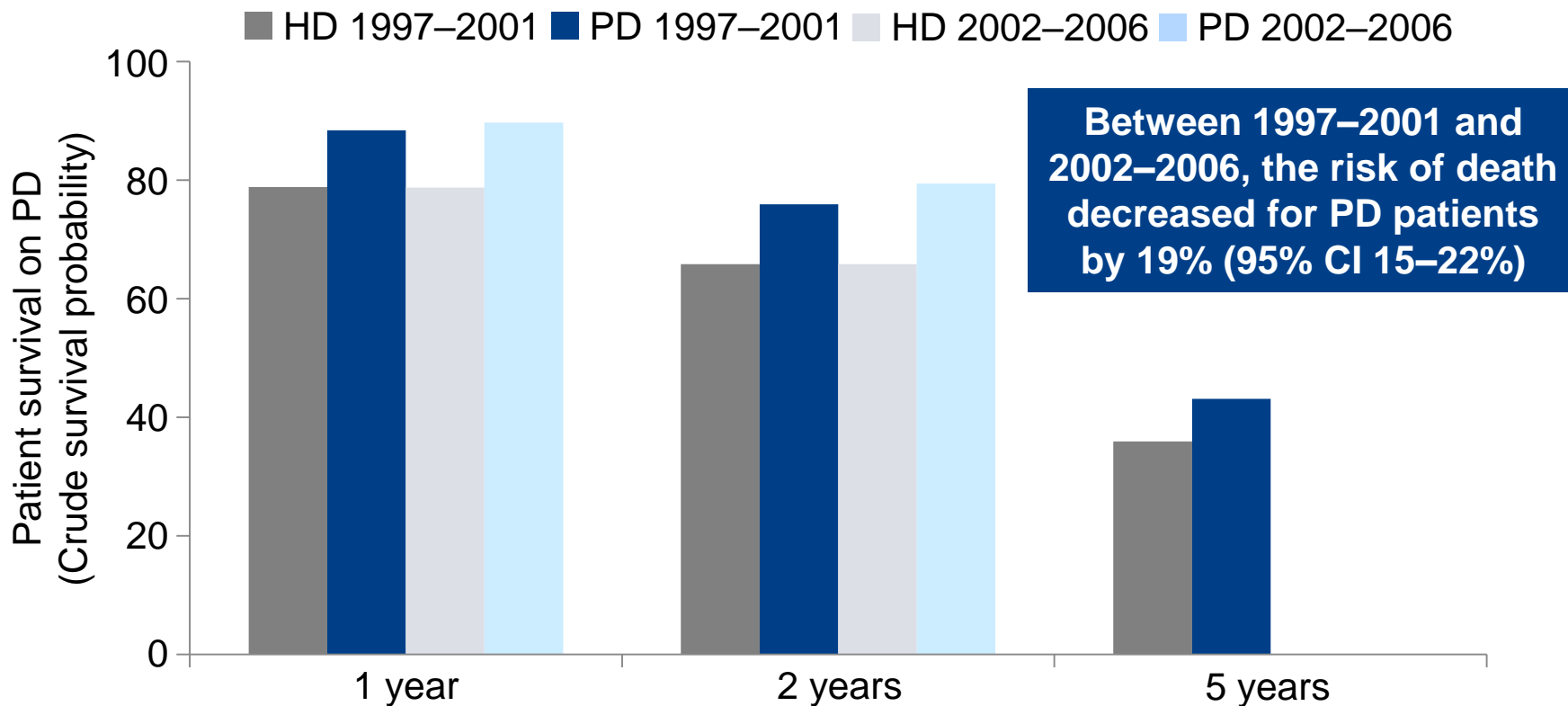
An update on peritoneal dialysis solutions

Elvia García-López, Bengt Lindholm and Simon Davies

Abstract | Peritoneal dialysis (PD) has achieved its current position as the most commonly used home-based dialysis therapy—and with patient survival equal to that seen with hemodialysis—despite the use of glucose-based dialysis solutions with high concentrations of glucose, glucose degradation products and lactate, high osmolality, and low pH, features that are harmful both for the peritoneum and the patient. Newer PD solutions with alternative buffers, a higher pH and fewer glucose degradation products, or ones that contain icodextrin or amino acids as osmotic agents, have been introduced in many countries and have been shown to improve peritoneal membrane health and viability. Icodextrin solution enhances fluid and sodium removal, and the once-daily use of icodextrin and/or amino acid solutions can lessen the harmful effects caused by the exposure of the peritoneal membrane to glucose. However, whether the newer PD solutions improve patient survival over the older solutions is not clear. Use of PD therapy, with or without the newer PD solutions, is associated with an improvement in patient survival that is equivalent to that obtained with hemodialysis. Therefore, the conventional glucose-based solutions—despite their known negative features—continue to have a well-established role in PD therapy, particularly in the many countries where the newer PD solutions are not easily available.

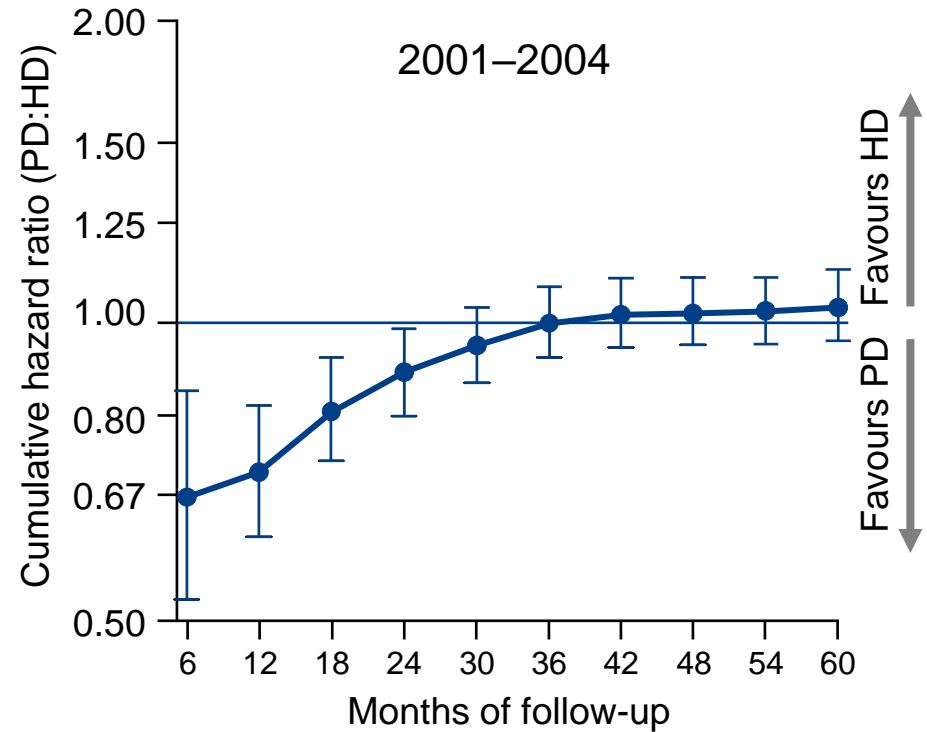
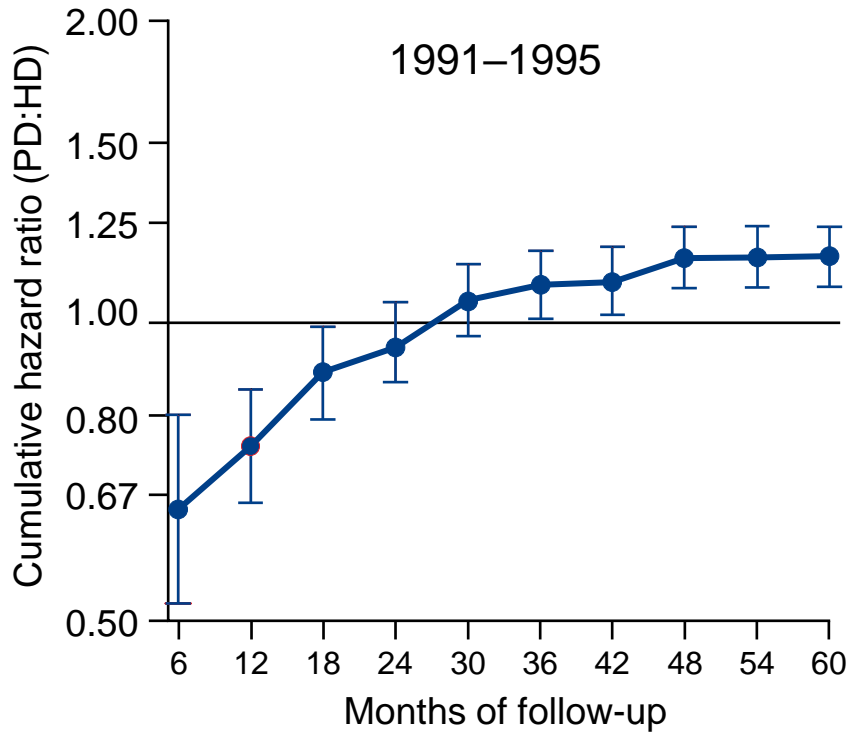
García-López, E. *et al. Nat. Rev. Nephrol.* 8, 224–233 (2012); published online 21 February 2012; [doi:10.1038/nrneph.2012.13](https://doi.org/10.1038/nrneph.2012.13)

PD SURVIVAL HAS IMPROVED



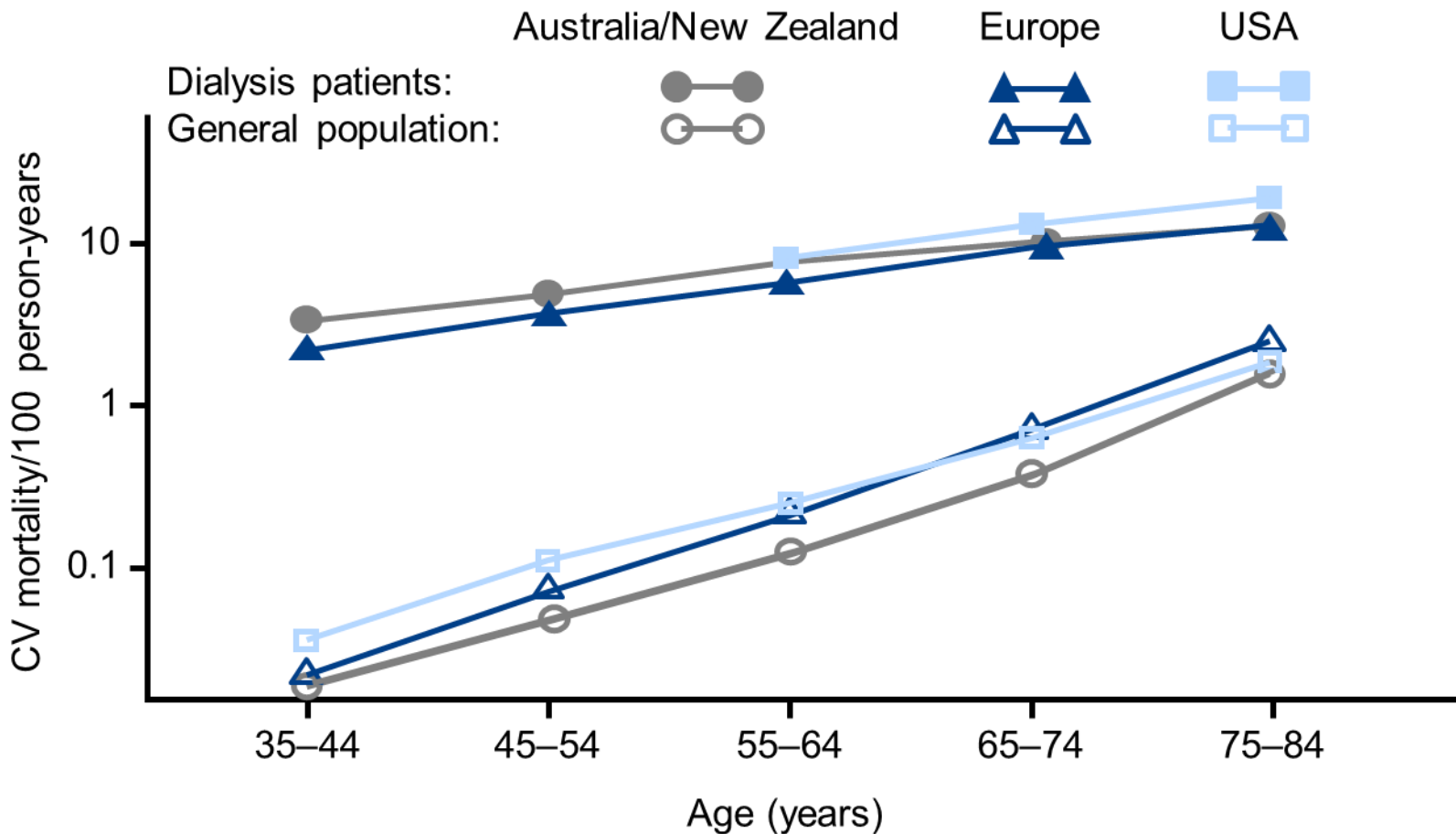
ERA-EDTA registry: Retrospective, Observational study of incident PD patients

PD SURVIVAL HAS IMPROVED



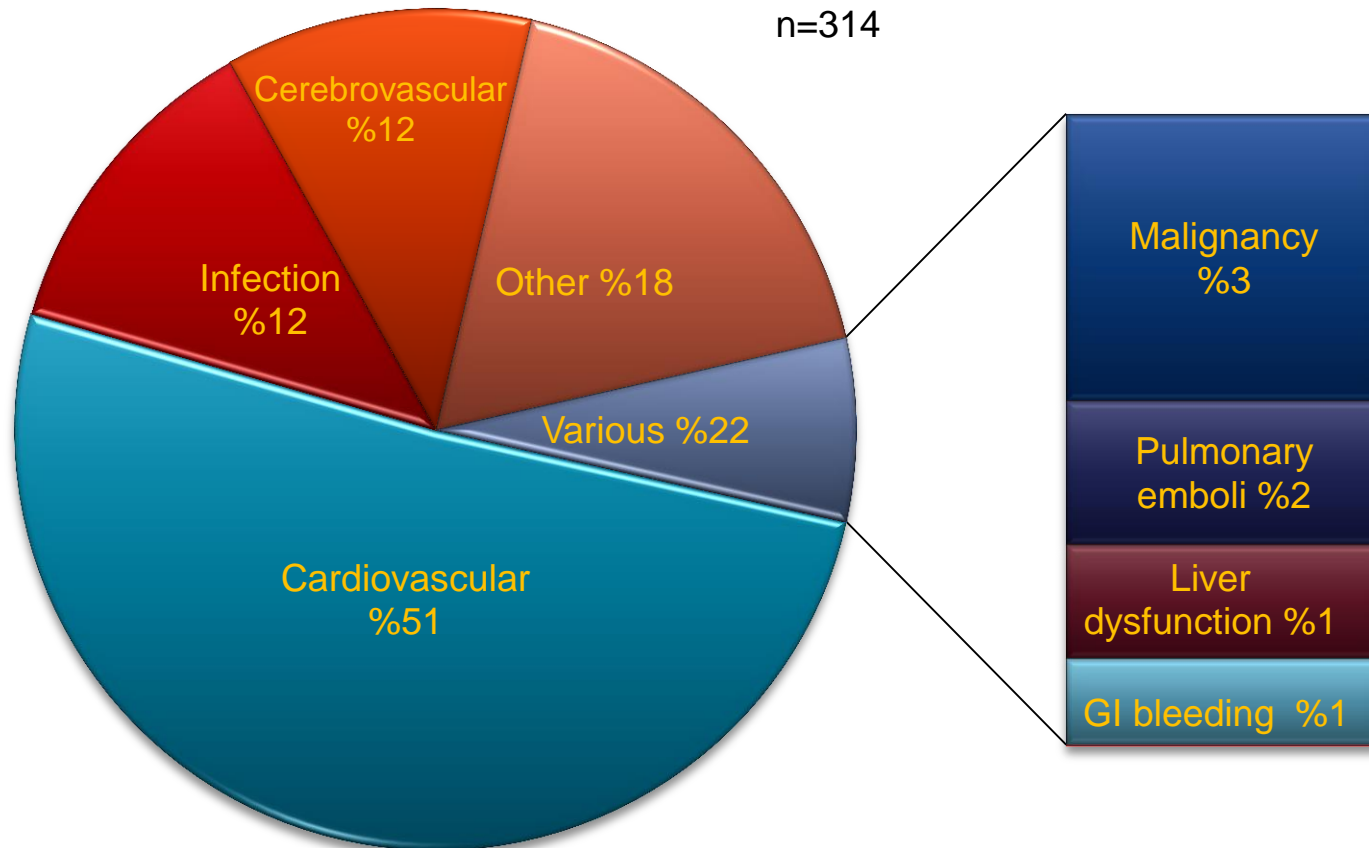
CORR: Retrospective, observational study in incident patients in Canada, with follow-up through to 2007 (N=>46,000)

CARDIOVASCULAR RISKS



Registry data from Australia/New Zealand, Europe and the United States (N=34,741)

CAUSES OF MORTALITY



CV RISK FACTORS IN PD PATIENTS

▶ General risk factors

- Dyslipidaemia
- Hypertension
- Smoking
- Obesity
- Glycaemic control in diabetes

▶ Factors related to ESRD

- Insulin resistance
- Vascular calcification
- Malnutrition
- Inflammation
- Endothelial dysfunction
- Oxidative stress

▶ Factors related to PD

- Residual renal function
- High glucose exposure
- Fluid overload
- Solute clearance



RESIDUAL RENAL FUNCTION

RESIDUAL RENAL FUNCTION

Provides endocrine functions

- *Erythropoietin production*
- *Ca⁺⁺, phosphorus and vitamin D homeostasis*

Contributes to total solute clearance

(1 ml/min CrCl = 10 liter CrCl/week)

Reduces
Mortality

Improves QoL

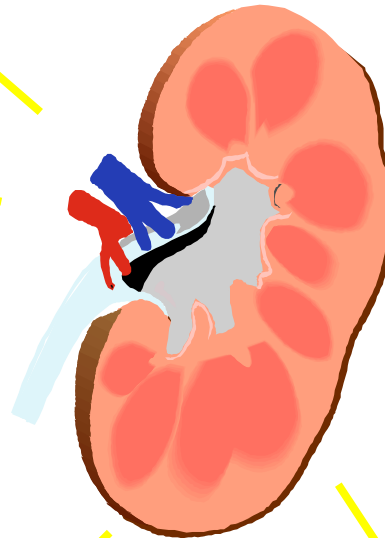
Increases total
Na removal

Improves nutritional
status

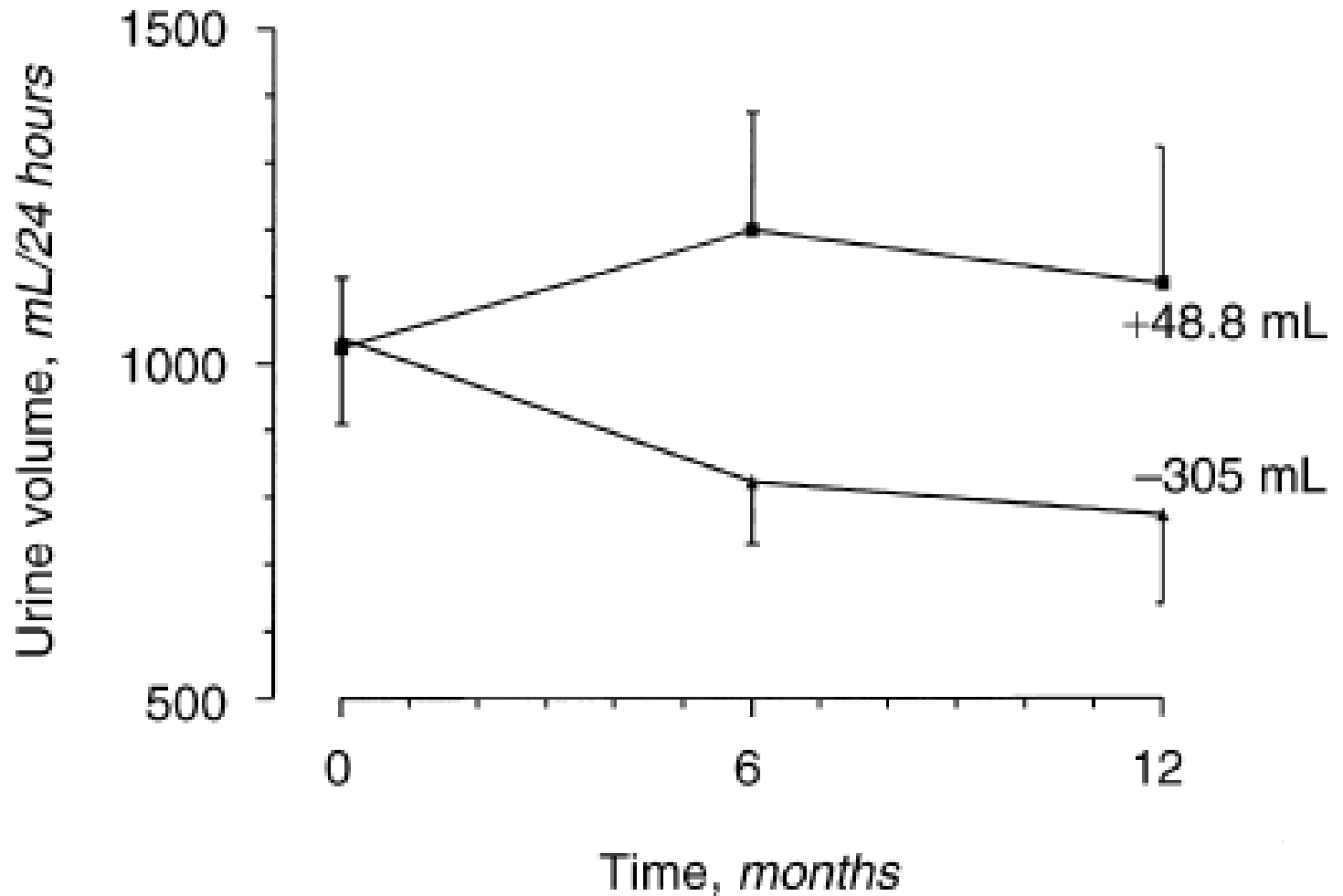
Allows for more
liberal diet and fluid
intake

Improves
 β 2-microglobulin and
middle molecule
clearance

Facilitates volume
control

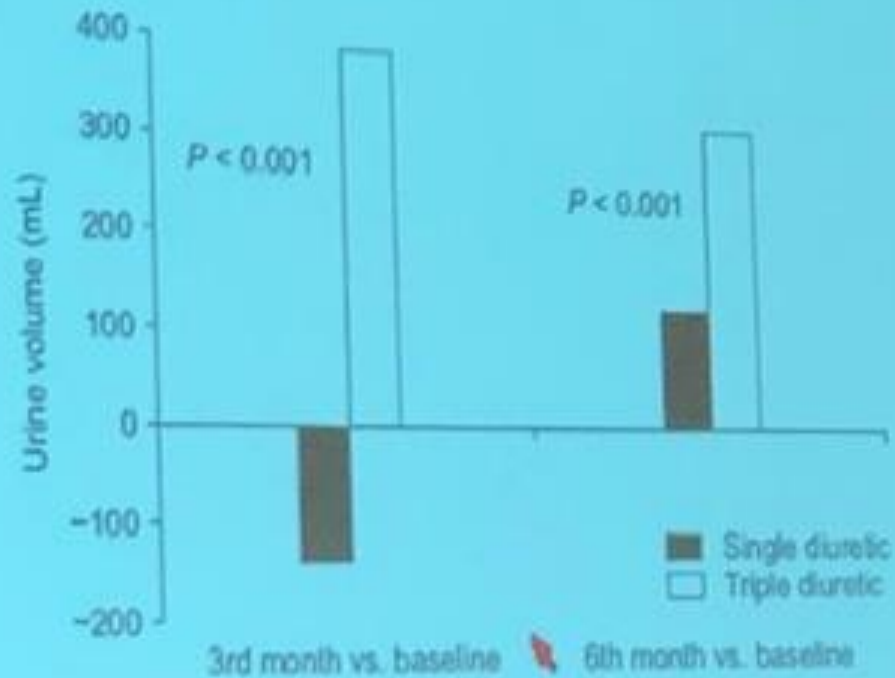


EARLY USE OF DIURETICS



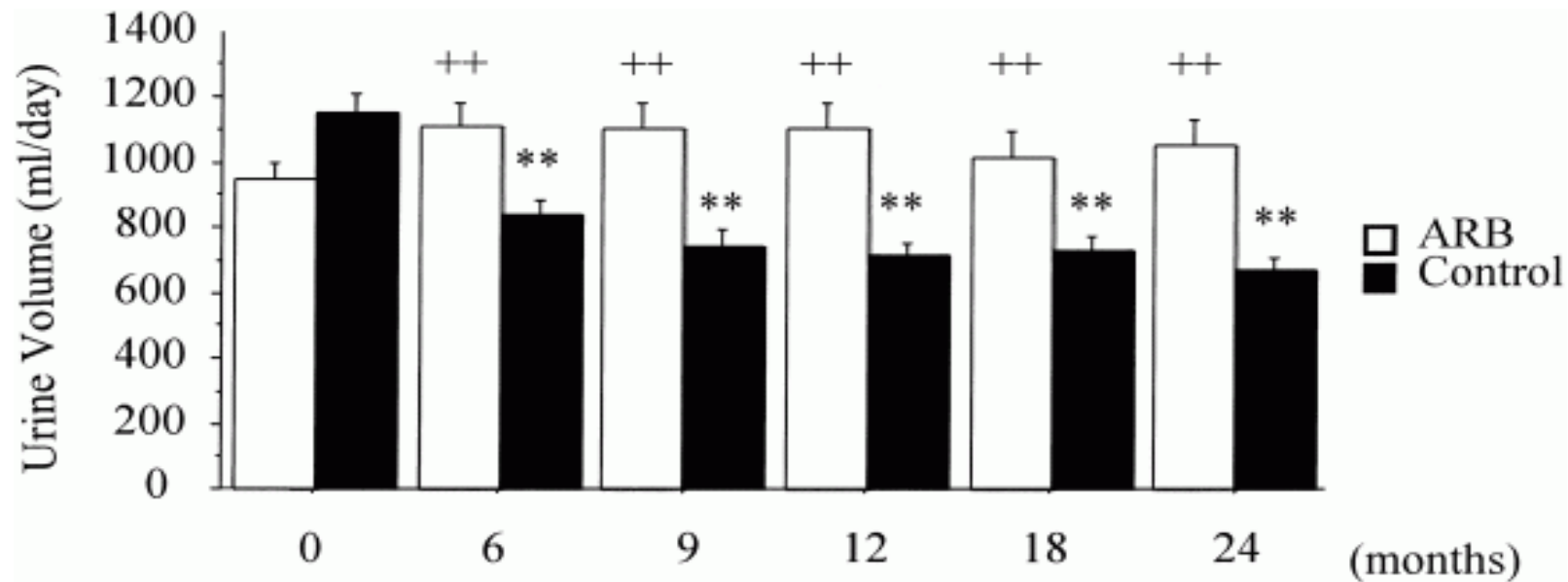
Combination Diuretics Can Further Maximize Fluid Removal

51 CAPD patients at a single center in Thailand randomized:
Group 1: furosemide 1,000 mg/day, hydrochlorothiazide 100 mg/day, and spironolactone 50 mg/day
Group 2: furosemide 1,000 mg/day plus placebo for 6 months.



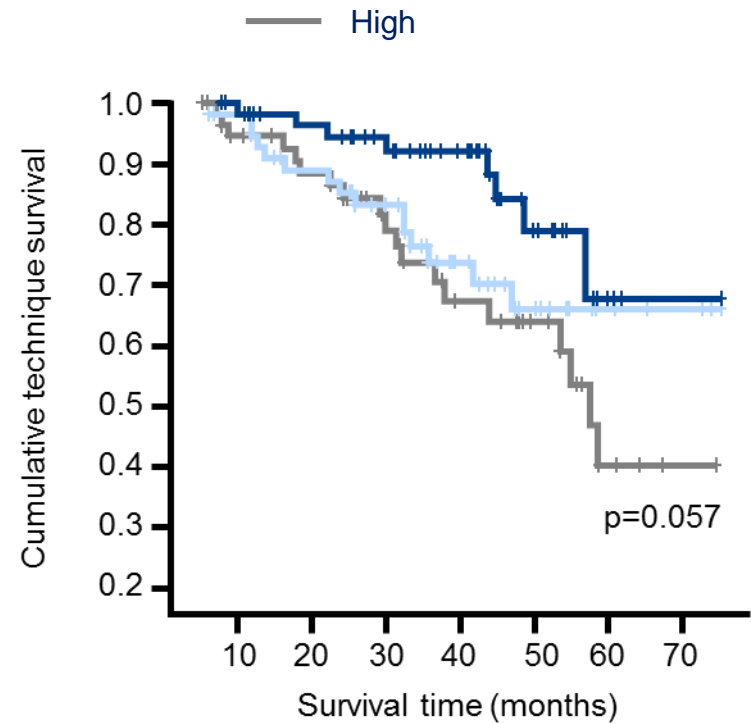
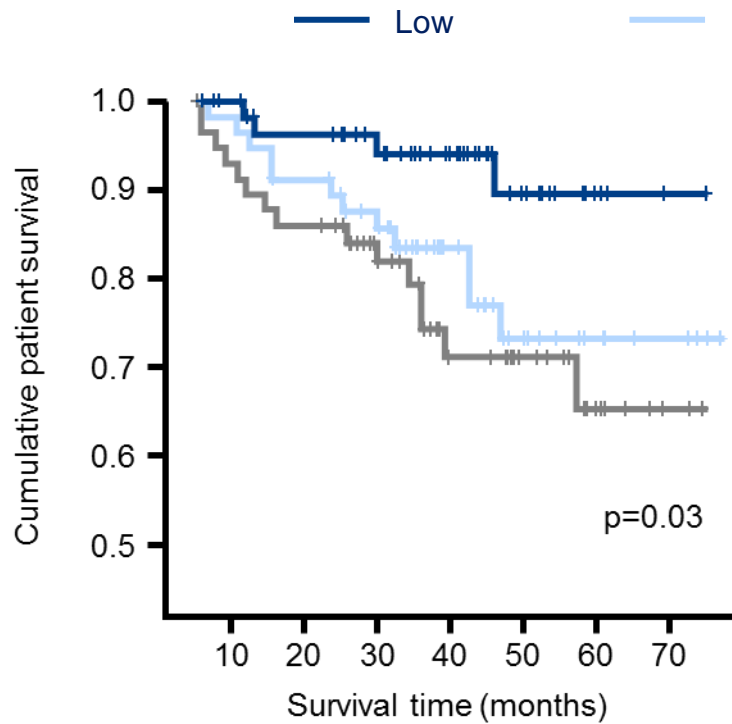
No difference in sodium removal

USE OF ANGIOTENSIN RECEPTOR BLOCKER



Suzuki et al, Am J Kidney Dis 43:1056-1064, 2004

LOW GLUCOSE PD THERAPY



Prospective cohort study of incident PD patients
(N=202; 2001–2008)



POTENTIAL BENEFITS OF BIOCOMPATIBLE SOLUTIONS

- ▶ May improve the preservation of peritoneal cell function^{1,2}
- ▶ Increases serum bicarbonate levels and blood pH compared to a pure lactate-buffered solution³
- ▶ Enhances patient comfort by reducing pain on infusion⁴
- ▶ May be associated with improved patient survival compared with conventional, lactate-buffered, short-dwell glucose solution⁵

¹Mackenzie RK, et al. *J AM Soc Nephrol* 1998;9:1499–506

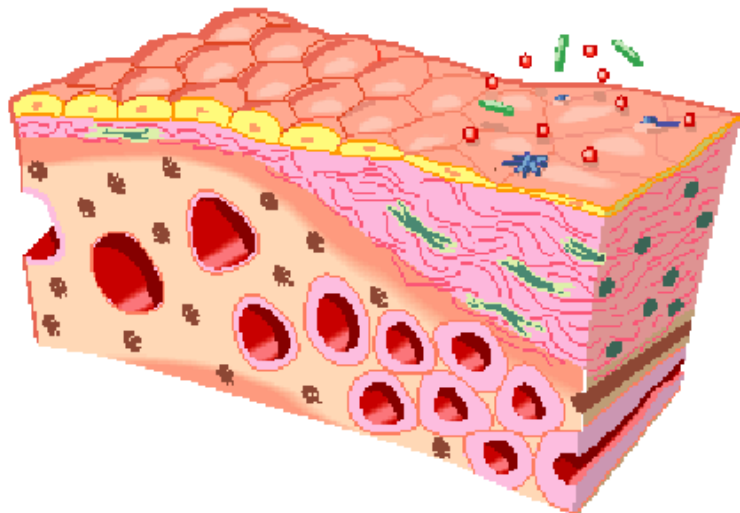
²Fusshoeller A, et al. *Nephrol Dial Trans* 2004;19:2101–6

³Otte K, et al. *Perit Dial Int* 2003;23:138–45

⁴Mactier RA, et al. *Kidney Int* 1998;53:1061–7

⁵Han SH, et al. *Am J Kid Dis* 2009;54:711–20

IMPROVING THE QUALITY OF PD CARE



Changes to the peritoneal membrane over time

Newer solutions may preserve the membrane functionality for longer by:

- Reducing glucose exposure
- Reducing GDP
- Improving pH
- Enhancing local host defense
- Improving prevention and management of peritonitis

CONCLUSIONS

The success of a dialysis programme

A high utilization rate

Excellent patient and technique survival

Reduced complication rates

Good quality of life



Abstract
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Registration
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Invited
Speakers

Scientific
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