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KfH Kuratorium für Dialyse und Nierentransplantation e.V.
Gemeinnützige Körperschaft

# Peritonealdialyse: Aktuelle Publikationen

Berliner Dialyseseminar 2021

Priv.-Doz. Dr. Heike Bruck

**KfH-Nierenzentrum Krefeld**

**Helios Klinikum Krefeld**

**Medizinische Klinik III - Klinik für Nephrologie, Rheumatologie, Diabetologie, Endokrinologie**

Berliner DialyseSeminar

# Darlegung potentieller Interessenskonflikte

Der Inhalt des folgenden Vortrages ist Ergebnis des Bemühens um größtmögliche Objektivität und Unabhängigkeit.

Als Referent versichere ich, dass in Bezug auf den Inhalt des folgenden Vortrags **keine Interessenskonflikte** bestehen, die sich aus einem Beschäftigungsverhältnis, einer Beratertätigkeit oder Zuwendungen für Forschungsvorhaben, Vorträge oder andere Tätigkeiten ergeben.

# Peritonealdialyse: Aktuelle Publikationen

- Steigerung der Heimdialyse/ Peritonealdialyse, assistierte PD
- Qualitätsparameter der Peritonealdialyse
- PD-assoziierte Peritonitis

Original Article

PERITONEAL DIALYSIS INTERNATIONAL

Peritoneal Dialysis International
1–10

DOI: 10.1177/08968608211034988
journals.sagepub.com/home/ptd
SAGE

## Barriers and opportunities to increase PD incidence and prevalence: Lessons from a European Survey

Ulrika Hahn Lundström[1], Alferso C Abrahams[2], Jennifer Allen[3], Karmela Altabas[4], Clémence Béchade[5], Felix Burkhalter[6], Anne-Lorraine Clause[7], Richard W Corbett[8], Gabriele Eden[9], Karlien François[10], Louis de Laforcade[11], Mark Lambie[12], Heike Martin[13], Jernej Pajek[14], Vincenzo Panuccio[15], Silvia Ros-Ruiz[16], Dominik Steubl[17], Almudena Vega[18], Ewa Wojtaszek[19], Ariane Zaloszyc[20], Simon J Davies[21], Wim Van Biesen[22] and Helga Gudmundsdottir[23]

**Survey sent to members of EuroPD and regional societies presenting a case of 48y old woman with unplanned dialysis start in ESRD**

575 respondents

- 33 % start unplanned PD
- 32 % start unplanned HD
- 35 % start unplanned HD with intention to educate on PD later

**Unplanned start of PD was associated with quality of structure of the centres pre-dialysis program**

- Structure of pre-dialysis education program
- Likelihood to provide education on PD to unplanned starters
- Good collaboration with PD access team
- Initiatives to enhance home-based therapies

*„Centres motivated to grow their PD programs seem to find solutions to do so“*

International Journal of Environmental Research and Public Health

MDPI

*Article*

# Early Referral to Nephrological Care and the Uptake of Peritoneal Dialysis. An Analysis of German Claims Data

Isabell Schellartz [1,2,*], Sunita Mettang [3], Arim Shukri [4], Nadine Scholten [2], Holger Pfaff [2] and Thomas Mettang [5]

**Table 1.** Characteristics of HD and PD patients.

| Characteristic | HD | PD | *p*-Value |
|---|---|---|---|
| Female, % | 42 | 43 | 0.695 * |
| Age in years, mean ± stand. dev. | 72 ± 13.2 | 60 ± 15.0 | 0.000 ** |
| Outpatient setting, % | 28 | 51 | 0.000 * |
| Patients with ER, % | 42 | 69 | 0.000 * |
| CCI, mean | 8.0 | 5.5 | 0.000 ** |

* Chi-square test, ** Wilcoxon–Mann–Whitney test, HD: hemodialysis, PD: peritoneal dialysis, stand. dev.: standard deviation, ER: early referral, CCI: Charlson Comorbidity Index.

**Table 2.** Characteristics of patients with ER and LR.

| Characteristic | ER | LR | *p*-Value |
|---|---|---|---|
| Female, % | 40 | 43 | 0.029 * |
| Age, mean ± stand. dev. (median) | 72 ± 13.0 (75) | 71 ± 13.8 (74) | 0.002 ** |
| Outpatient setting, % | 43 | 18 | 0.000 * |
| PD, % | 5.8 | 2.0 | 0.000 * |
| CCI | 8.0 | 7.9 | 0.918 ** |

* Chi-square test, ** Wilcoxon–Mann–Whitney test, stand. dev.: standard deviation, ER: early referral, LR: late referral, PD: peritoneal dialysis, CCI: Charlson Comorbidity Index.

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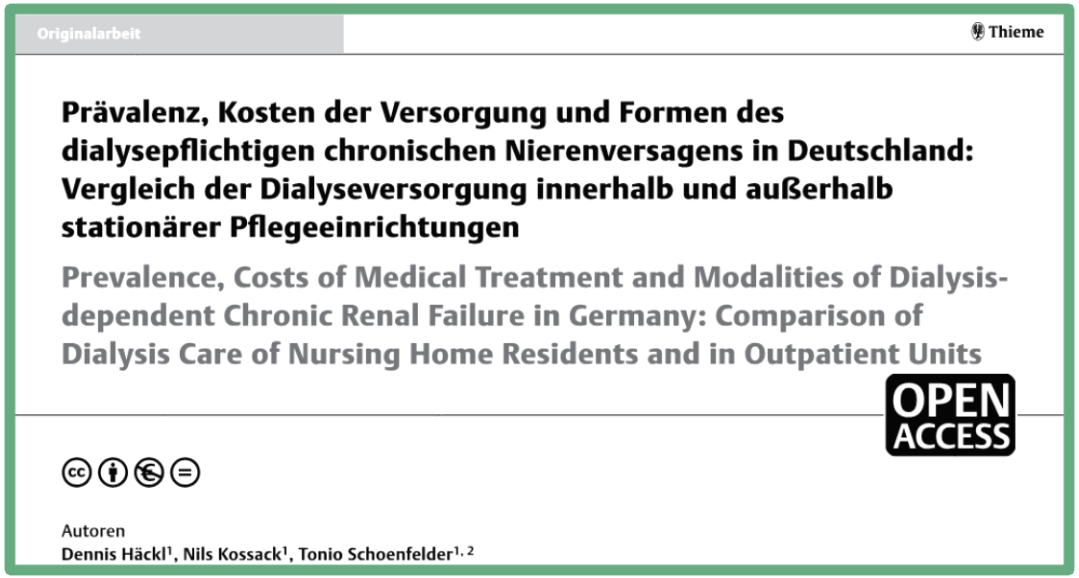
6.7 Mio. DAK and SBK members

34,200 patients with ESRD 2012 - 2016

- 4727 patients included
- 43% „early referral (ER = receiving nephrological care < 6 months before first dialysis)

*„Early referral of patients with CKD to a nephrologist increases PD-uptake“*

Int. J. Environ. Res. Public Health **2021**, 18, 8359



Originalarbeit

Thieme

**Prävalenz, Kosten der Versorgung und Formen des dialysepflichtigen chronischen Nierenversagens in Deutschland: Vergleich der Dialyseversorgung innerhalb und außerhalb stationärer Pflegeeinrichtungen**

Prevalence, Costs of Medical Treatment and Modalities of Dialysis-dependent Chronic Renal Failure in Germany: Comparison of Dialysis Care of Nursing Home Residents and in Outpatient Units

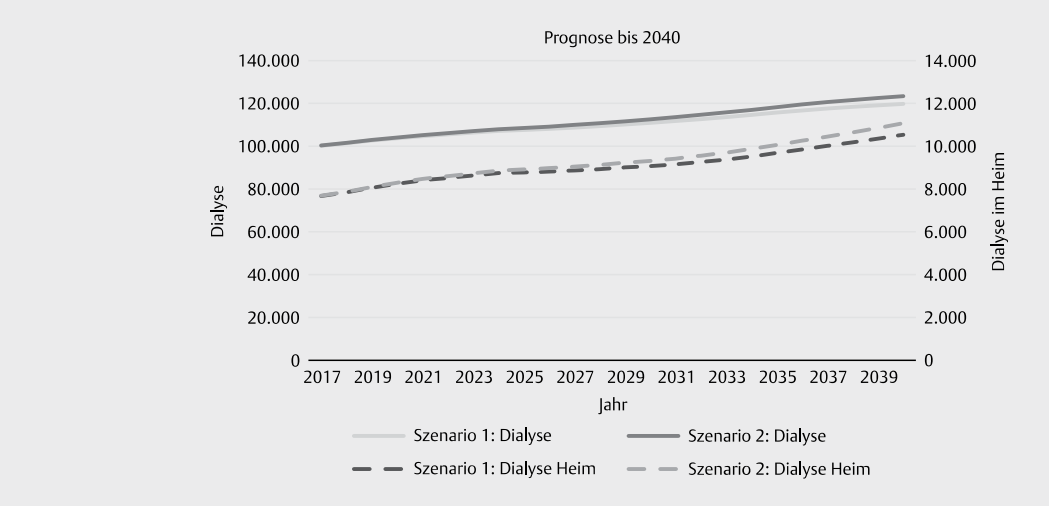
OPEN ACCESS

Autoren
Dennis Häckl[1], Nils Kossack[1], Tonio Schoenfelder[1, 2]

# Bundesweite Erhebung der Prävalenz und Versorgungskosten von Patienten mit dialysepflichtigem Nierenversagen

Routinedatenanalyse WIG2-Forschungsdatenbank

- rund 4,5 Mio. hinsichtlich Alters-, Geschlechts- und Morbiditätsverteilung repräsentative GKV-Versichertenanonyme aus gesamten Bundesgebiet
- Longitudinale Daten (2010 - 2019)
- Dialysepflichtige in 2017 eingeschlossen
- Höchste Dialyse-Prävalenz in Altersgruppe 75-84 J.




▸ **Abb. 3** Prognose der Anzahl dialysepflichtiger Patienten bis 2040.

| Kategorien | Außerhalb von stationären Pflegeeinrichtungen (N = 3578) | In stationären Pflegeeinrichtungen (N = 273) | p-Wert[1] |
|---|---|---|---|
| **Dialyseform[5], % (N)** | | | |
| Hämodialyse | 94,8 % (3391) | 98,9 % (270) | 0,0010 |
| Peritonealdialyse | 7,5 % (270) | 2,2 % (6) | 0,6518 |
| Intermittierende Peritonealdialyse | 1,8 % (65) | 2,2 % (6) | 0,0024 |

Gesundheitswesen 2021; 83: 818–828

ckj OXFORD era edta

*Clinical Kidney Journal*, 2020, vol. 13, no. 6, 1003–1011

doi: 10.1093/ckj/sfaa051
Advance Access Publication Date: 17 May 2020
Original Article

ORIGINAL ARTICLE

## Trends in assisted peritoneal dialysis over the last decade: a cohort study from the French Peritoneal Dialysis Registry

Annabel Boyer [1,2], Antoine Lanot [1,2,3], Mark Lambie [4,5], Sonia Guillouet [1,2,3], Thierry Lobbedez[1,2,3] and Clémence Béchade[1,2,3]

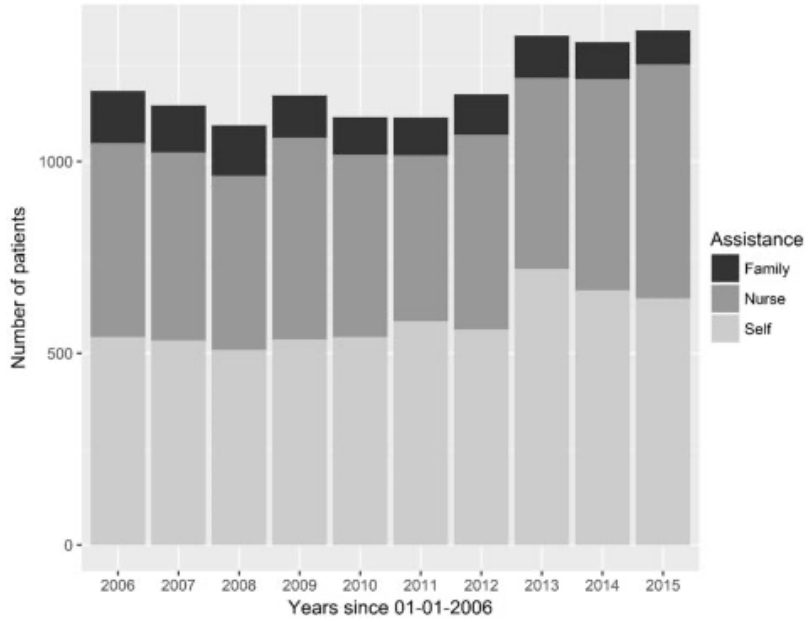



**FIGURE 1:** Number of patients starting PD per year over the study period.

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**Retrospective multicentre study based on French Language Peritoneal Dialysis Registry**

11,987 patients initiated PD 2006 - 2015

6149 (51%) patients on assisted PD

- 5052 (82%) on nurse-assisted PD
- 1097 (18%) on family-assisted PD

Assisted PD rate decreased until 2013 - mainly because of decline in family-assisted PD

**Uptake in nurse-assisted PD observed from 2013 reflects effect of economic incentives**

- e.g. nurse assistance fees are fully covered even if patient resides in a nursing home

# Clinical Research

## Assisted peritoneal dialysis and transfer to hemodialysis: a cause-specific analysis with data from the RDPLF

### Methods

- Propensity matching
- French language peritoneal dialysis registry
- 123 PD units
- Patients older than 18 years starting PD
- 1 January 2006 to 31 December 2015

11 093 incident PD patients
22 352 patient years

- 3330 transfer to HD
  - 1283 inadequate dialysis
  - 524 infection
  - 334 catheter problems
  - 250 social issues
  - 422 other PD issues
  - 481 other non-PD issues
  - 6 encapsulating peritoneal sclerosis
- 4273 deaths
- 2210 transplants

### Results

| | Nurse-assisted PD compared to self PD | Assisted PD compared to self PD |
|---|---|---|
| **Median age** | | |
| Cox n = 4689 vs 5429 | 80 vs. 57 | |
| Propensity matched n = 640 vs. 484 | 75 vs. 73 | |
| **Charlson Comorbidity Index ≥ 5** | | |
| Cox n = 4689 vs 5429 | 44% vs. 19% | |
| Propensity matched n = 640 vs. 484 | 44% vs. 40% | |
| **Risk of death** | | |
| Cox | | 2.49 (2.27–2.74) |
| Propensity matched | | 4.54 (3.98–5.16) |
| **Transfer to HD** | | |
| Cox | | 0.86 (0.78–0.94) |
| Propensity matched | | 0.70 (0.63–0.78) |

### Conclusion

In a large cohort of French patients, nurse assistance was associated with fewer transfers to HD. Death was the primary cause of PD cessation, followed by transfer to HD. There was a higher risk of death among patients receiving assisted PD.

NEPHROLOGY DIALYSIS TRANSPLANTATION

Lanot A., et al. NDT (2020)
@NDTSocial

„Nurse-assisted PD was associated with fewer transfers to HD“

OXFORD UNIVERSITY PRESS

*Nephrol Dial Transplant*, Volume 36, Issue 2, February 2021, Pages 330–339

Nephrol Dial Transplant (2020) 35: 1595–1601
doi: 10.1093/ndt/gfz287
Advance Access publication 17 March 2020

ndt
Nephrology Dialysis Transplantation

# Impact of the implementation of an assisted peritoneal dialysis service on peritoneal dialysis initiation

Annabel Boyer[1,2], Ivonne Solis-Trapala[1], Matthew Tabinor[1,3], Simon J. Davies[1,3] and Mark Lambie[1,3]

[1]Faculty of Medicine and Health Sciences, Keele University, Stoke-on-Trent, UK, [2]Université de Caen Normandie-UFR de Médecine (Medical School), U1086 INSERM, Caen Cedex 5, France and [3]Renal Unit, Royal Stoke University Hospital, University Hospitals of North Midlands NHS Trust, Stoke-on-Trent, UK

**Retrospective, single-centre study from Renal Unit of Royal Stoke University Hospital (UK):**

1576 incident dialysis patients 2002 - 2017

**Introducing assisted PD service since 2011 significantly increased rate of PD initiation - benefitting older patients most.**

This offsets a fall in PD usage over time, which was not explained by changes in transplantation or death.

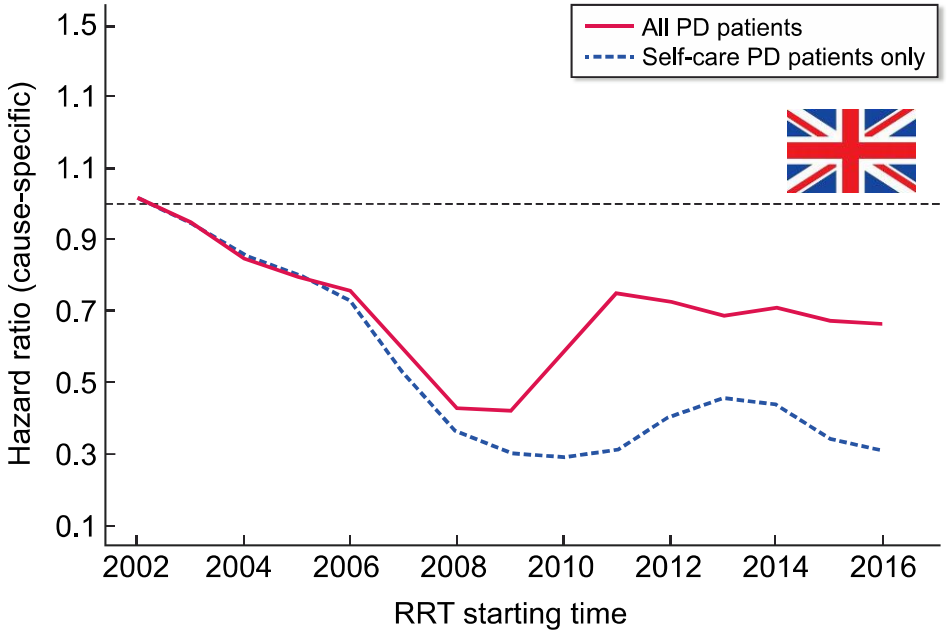


**FIGURE 1:** Effect of assisted PD service on the hazard rate of PD initiation over time. Change in the proportional use of PD over time: lines (solid line: all PD patients; dashed line: self-care PD only) represent the rates of receiving PD at any point during follow-up, by the year that renal replacement was initiated, when compared with 2002 (expressed as an HR). The analysis was adjusted for age, gender, ethnicity and primary renal disease using a Cox model. There is a relative reduction in PD use between 2002 and 2008 that is partially reversed in after the introduction of assisted PD in 2011, at which point PD use stabilized.

Editorial

PERITONEAL DIALYSIS INTERNATIONAL

## Pulling the goalie: What the United States and the world can learn from Canada about growing home dialysis

Peritoneal Dialysis International
2021, Vol. 41(5) 437–440

DOI: 10.1177/08968608211034696
journals.sagepub.com/home/ptd
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Graham Abra[1,2] and Eric D Weinhandl[3,4]

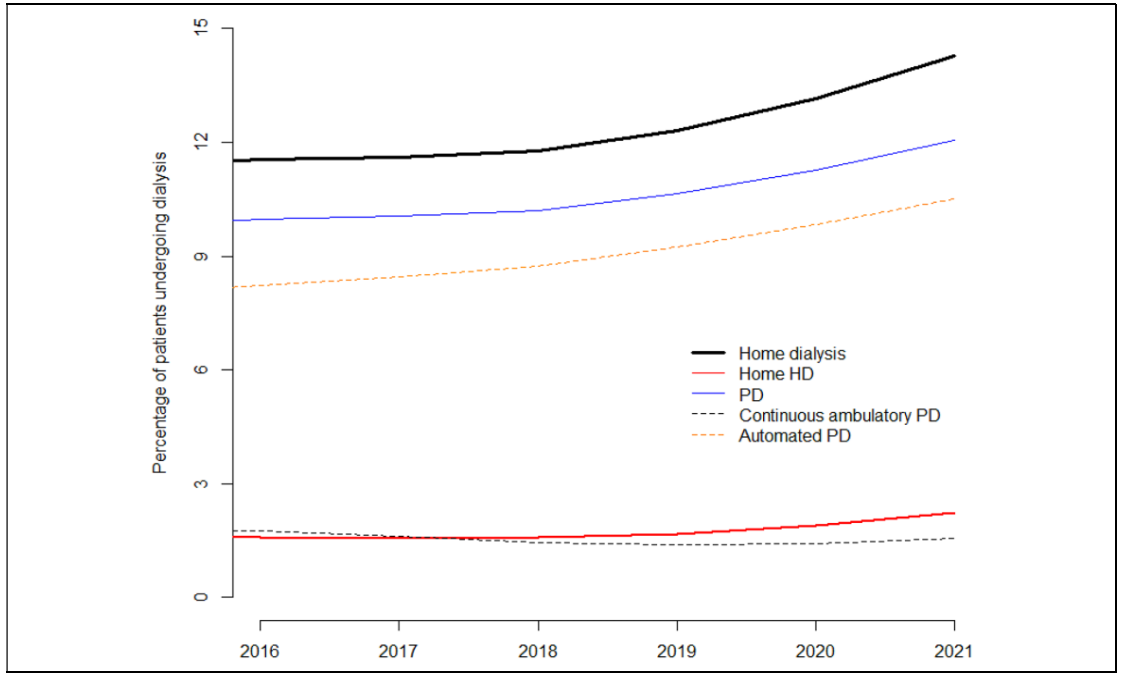


**Figure 1.** Utilisation of home dialysis modalities in the United States, January 2016 to January 2021, according to dialysis facility admission and discharge data in the Centers for Medicare & Medicaid Services End-Stage Quality Reporting System.

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## Home dialysis utilisation in high-income countries

- New Zealand 44%
- Australia 25%
- Canada 25%
- United Kingdom 17%
- USA <15%

Only **local integrated care programs in US**, e.g. Kaiser Permanente Northern California:

**Increase in PD from 15 % of patients with incident ESRD in 2008 to 34 % in 2018**

Pravoverov LV, Zheng S, Parikh R, et al.
Trends associated with large-scale expansion of peritoneal dialysis within an integrated care delivery model.
JAMA Intern Med 2019; 179: 1537–1542.

Review Article

PERITONEAL DIALYSIS INTERNATIONAL

Peritoneal Dialysis International
2021, Vol. 41(5) 441–452
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DOI: 10.1177/08968608211012805
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## Growing home dialysis: The Ontario Renal Network Home Dialysis Initiative 2012–2019

Peter G Blake[1,2,3], Brendan B McCormick[1,4], Leena Taji[1], James KH Jung[1], Jane Ip[1], Joanie Gingras[1], Phil Boll[1,5], Phil McFarlane[1,6,7], Andreas Pierratos[8], Anas Aziz[1], Angie Yeung[1], Monisha Patel[1] and Rebecca Cooper[1]

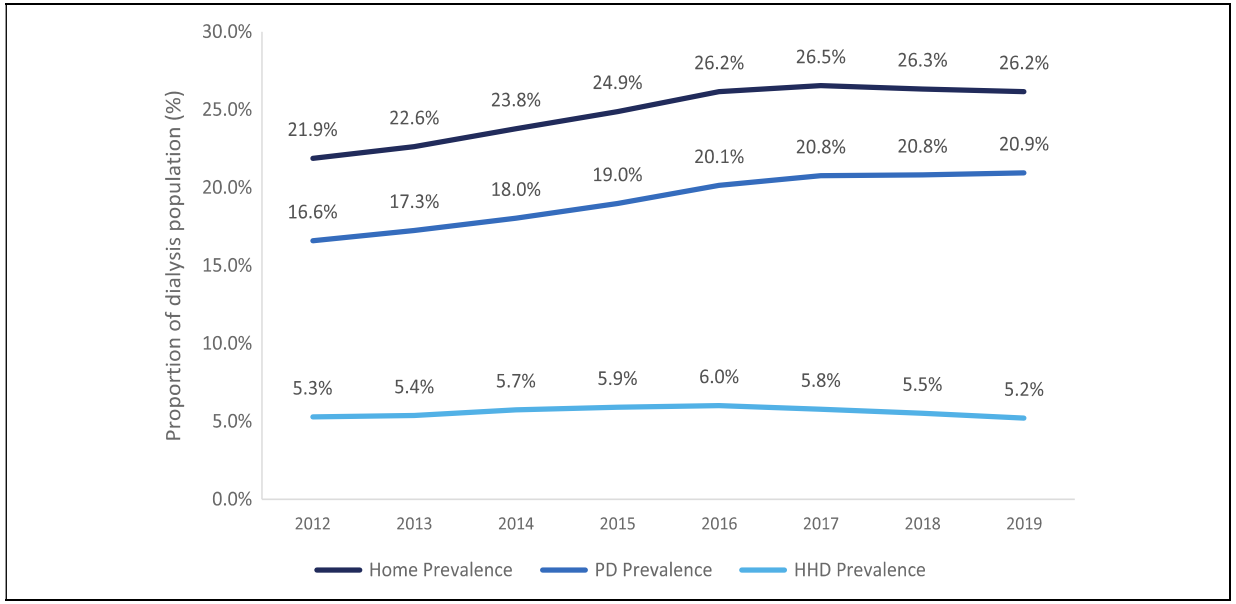


**Figure 2.** Home dialysis prevalent rates in Ontario, 2012–2019 (measured on 30 April, each year).

**Ontario Renal Network Home Dialysis Initiative's specific interventions:**

- Pre-end-stage kidney disease clinics: Education with focus on shared decision-making and home dialysis
- Home dialysis targets: > 40% within 6 months
- Home Dialysis Coordinators
- Financial incentives and penalties since 2015
- PD catheters 'Centres of Practice'
- Assisted PD was funded
- Provide assisted PD in long-term care
- 'Urgent PD Start' (i.e. within 72 h)
- 'New Start' or 'Transition' units where patients recently started on facility-based HD
- Site visits and mentorship
- Analytic reports

# ISPD Guidelines for Peritoneal Dialysis

*Peritoneal Dialysis International*, Vol. 26, pp. 520–522
0896-8608/06 $3.00 + .00


## ISPD GUIDELINES/RECOMMENDATIONS

### GUIDELINE ON TARGETS FOR SOLUTE AND FLUID REMOVAL IN ADULT PATIENTS ON CHRONIC PERITONEAL DIALYSIS

Wai-Kei Lo, Joanne M. Bargman, John Burkart, Raymond T. Krediet, Carol Pollock, Hideki Kawanishi, and Peter G. Blake, for the ISPD Adequacy of Peritoneal Dialysis Working Group

**2006: „Adequate PD“ focussing on small solute clearance**

**2020: More patient-centred holistic view**

*Guidelines*

PERITONEAL DIALYSIS INTERNATIONAL

Peritoneal Dialysis International
2020, Vol. 40(3) 244–253

DOI: 10.1177/0896860819895364
journals.sagepub.com/home/ptd
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## International Society for Peritoneal Dialysis practice recommendations: Prescribing high-quality goal-directed peritoneal dialysis

# Key recommendations ISPD 2020

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The following principles of high-quality PD to adults are the same as for children.

**PD should be prescribed using shared decision-making between patient & care team to establish realistic care goals to**

- **maintain patient quality of life**
- **minimize symptoms and treatment burden**
- **while ensuring high-quality PD**

The PD prescription should take into account

- local country resources,
- wishes and lifestyle considerations of patients & their families/ caregivers (especially for assisted PD)

Amount of residual renal function should be known and preserved for long time.

Peritoneal Dialysis International 2020, 40(3): 244–253

# Key recommendations ISPD 2020

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**Assessments should be used** to help ensure the delivery of high-quality PD care:

- **Patient reported outcome measures (symptoms, life, mental health and social circumstances).**
- Regular assessment of **fluid status (urine and UF)**, including RR and clinical examination.
- Nutrition status including appetite, clinical examination, body weight and blood tests (K, HCO3, P, albumin). Dietary intake of K, P, Na, protein, cabohydrate and fat.
- **Toxins removal (Kt/V & CrCl)** – Taking into account that there is **no high-quality evidence regarding target values**.

**Old, frail or patients with poor prognosis may have quality of life benefit from reduced dialysis prescription to minimize burden of treatment**.

Peritoneal Dialysis International 2020, 40(3): 244–253

# Standardized Outcomes in Nephrology - SONG-PD:

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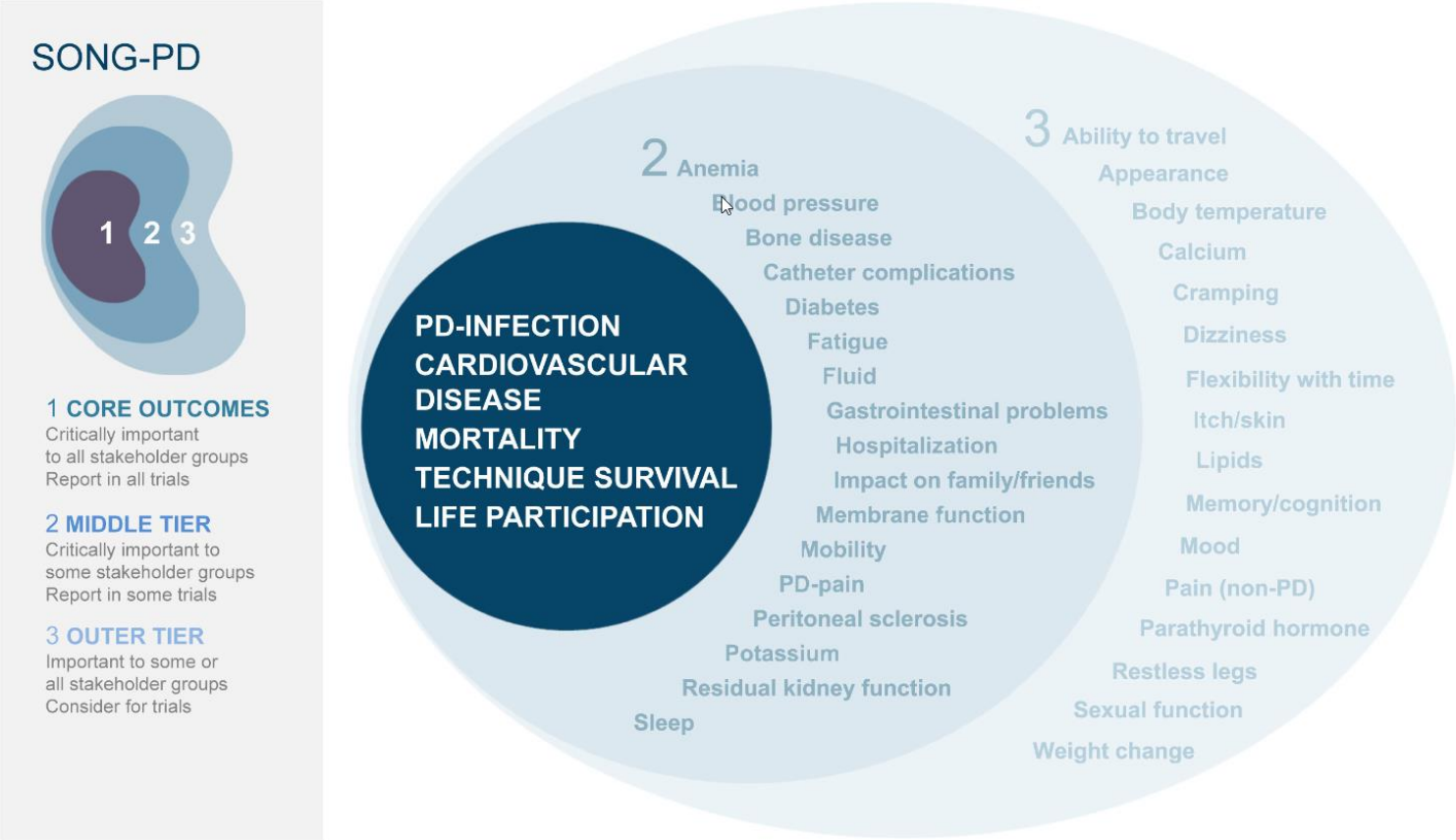
"Whilst PD may offer more autonomy and freedom compared with HD, infection, hospitalisation, symptom burden, and patient/ caregiver burnout and fatigue remain as major challenges to the success of PD"




„Importance of positive wording:
Technique survival <=> PD failure"

Manera et al., Perit Dial Int 2017; 37 (6): 639-647 & Manera et al., Am J Kidney Dis 2020; 75(3): 404-412

Perspective

# Delivering High-Quality Peritoneal Dialysis
## What Really Matters?

*Isaac Teitelbaum*

*CJASN* 15: 1663–1665, 2020. doi: https://doi.org/10.2215/CJN.02930320

**2020 ISPD guidelines de-emphasize the reliance on small solute clearance**

Rather, they focus on the need to take a more holistic view by

1. **focussing on the patient's desires** and **quality of life**
2. **monitoring a variety of biochemical and clinical parameters**

| | |
|---|---|
| Acid-base | Bicarbonate ≥ 24 meq/L |
| Albumin | Albumin (BCG) ≥ 3.8 g/dl |
| Blood pressure | Systolic BP 111 – 159 mmHg |
| Electrolytes | Potassium 4 – 5.4 meq/L<br>Sodium ≥ 135 meq/L |
| Hemoglobin | ≥ 11 g/dl |
| Minerals | Calcium (albumin-corrected) 8.5 – 10.1 mg/dl<br>Magnesium ≥ 1.7 mg/dl<br>Phosphorus ≤ 6.3 mg/dl |
| Volume status | Absence of rales and lower extremity edema |

**Box 1. | Proposed clinical and biochemical targets for high-quality peritoneal dialysis.**

# Peritonitis in Peritonealdialysis

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**ISPD-Guideline: Peritonitis rate < 0,5 episodes per patient-year at risk**

**< 1 peritonitis in 24 month (European Best Practice)**

Peritonitis remains the major complication in PD leading to

- removal of PD-catheter
- peritoneal membrane failure
- technical failure
- transfer to hemodialysis

Around 18% of the infection-related mortality in PD patients is the result of peritonitis.

Although less than 4% of peritonitis episodes result in death,

peritonitis is a “contributing factor” to death in 16% of deaths on PD.

Guidelines ISPD 2010/ ERA-EDTA 2005

Li PK et al., Perit Dial Int. 2010; 30(4):393-423.

Review Article

PERITONEAL DIALYSIS INTERNATIONAL

Peritoneal Dialysis International
1–9

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DOI: 10.1177/0896860821996096
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**A systematic review of peritoneal dialysis-related peritonitis rates over time from national or regional population-based registries and databases**

**Mark R Marshall**[1,2]

Peritonitis rates in 33 of 59 registries not available

**Peritonitis rates decrease**

- Technical improvements / “flush before fill“
- Standardized training of patients and staff
- Improved adherence to evidence-based practice

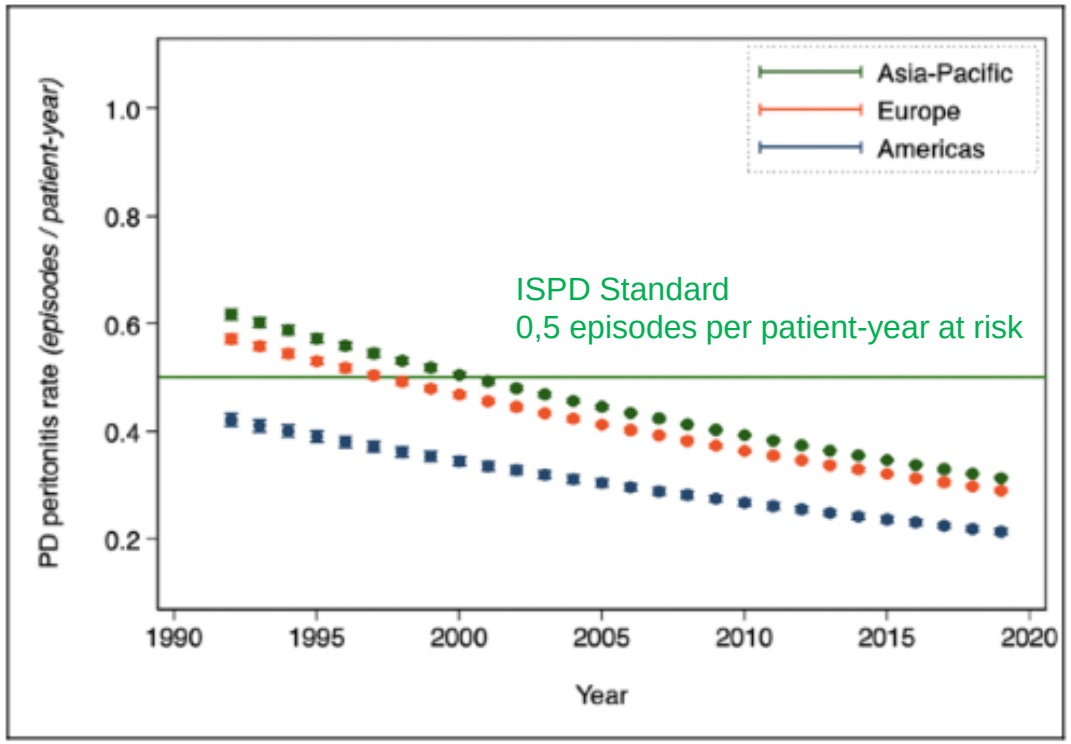



**Figure 3.** Annual mean PD-related peritonitis rates, as obtained by predicted margins from the random-effects Poisson model of aggregated registry data, by the continent in which the country is nested.
PD: peritoneal dialysis.

RESEARCH ARTICLE

PLOS ONE

# Long-term trends in the incidence of peritoneal dialysis-related peritonitis disclose an increasing relevance of streptococcal infections: A longitudinal study

**Joana Eugénio Santos[1☯], Catuxa Rodríguez Magariños[2☯], Leticia García Gago[2☯], Daniela Astudillo Jarrín[2☯], Sonia Pértega[3☯], Ana Rodríguez-Carmona[2☯], Teresa García Falcón[2☯], Miguel Pérez Fontán[2,4☯]***

**1** Centro Hospitalario Espirito Santo, Evora, Portugal, **2** Division of Nephrology, University Hospital A Coruña, A Coruña, Spain, **3** Division of Epidemiology, University Hospital A Coruña, A Coruña, Spain, **4** Health Sciences Faculty, University of A Coruña, A Coruña, Spain

**Table 6. Clinical outcomes.**

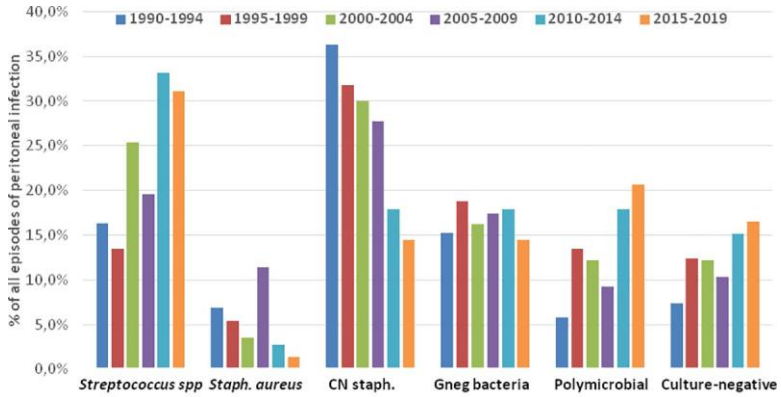
| | Strept. | SAu | CNS | GNB | Poly | Culture-negative | P value |
|---|---|---|---|---|---|---|---|
| Time to remission or catheter removal (days) | 5.7 (3.9) | 5.3 (3.6) | 5.2 (3.5) | 5.1 (4.7) | 4.3 (2.2) | 5.0 (2.9) | 0.033 |
| Catheter removed (%) | 3.0 | **31.6** | **7.0** | **23.1** | **8.1** | 2.3 | 0.0005 |
| Relapse (%) | 10.7 | 8.8 | **17.9** | **19.8** | 9.5 | 7.6 | 0.003 |
| Recurrence (%) | | | | | | | 0.16 |
| Other bacteria | 0.4 | 0 | 2.1 | 4.4 | 0.7 | 1.8 | |
| Yeasts | 2.6 | 3.5 | 2.5 | 2.2 | 2.2 | 0.8 | |
| Main outcomes (%) | | | | | | | 0.0005 |
| PD continued >3 months | 97.0 | **76.9** | 96.1 | **85.2** | 91.9 | 94.0 | |
| Drop-out to Hemodialysis | 0 | **8.8** | 2.8 | **6.6** | 2.2 | 0.8 | |
| PDrP-related death | 3.0 | **12.3** | 1.1 | **8.2** | 5.9 | 5.3 | |
| Treatment failure (%) | 4.7 | **42.1** | 8.4 | **26.9** | **11.1** | 7.5 | 0.0005 |

Figures denote % of cases (categorical variables) or mean (standard deviation)(numerical variables). Comparison by $\chi 2$ distribution and one-way ANOVA. P values denote overall significance. In bold, categories presenting a significant difference with streptococcal infections (Scheffé)

Keys: Strept: Streptococci; SAU: *Staphylococcus aureus*; CNS: Coagulase-negative staphylococci; GNB: Gram negative bacteria (*Enterobacteriaceae* + Nonfermenting Gram negative bacteria); Poly: Polymicrobial

https://doi.org/10.1371/journal.pone.0244283.t006

PLoS One. 2020;15(12): e0244283




| | AAPC | 95% CI | p for trend |
|---|---|---|---|
| All episodes | -2,0 | -3,2/-0,8 | <0,05 |
| *Streptococcus spp* | +1,6 | -0,1/+3,2 | NS |
| *Staphylococcus aureus* | -9,0 | -15,7/-1,7 | <0,05 |
| Coagulase-negative staphylococci | -4,5 | -6,2/-2,7 | <0,05 |
| Gramnegative bacteria | -2,0 | -3,4/-0,6 | <0,05 |
| Polymicrobial | +1,8 | +0,1/+3,5 | <0,05 |
| Culture-negative | +0,5 | -1,5/+2,6 | NS |

**Fig 1. Relative incidence of peritoneal infection by different causative microorganisms during six consecutive 5-year periods (upper), and Average Annual Percent Changes (AAPC) in the absolute rates of incidence during the 30-year study period.**

https://doi.org/10.1371/journal.pone.0244283.g001

„Streptococcal peritonitis shows an increasing relevance, the highest initial inflammatory reactions, but mostly full recovery“
Prophylaxe: Mundhygiene & Maske

Clinical Kidney Journal, 2021, vol. 14, no. 3, 735–738

doi: 10.1093/ckj/sfaa277
Advance Access Publication Date: 11 January 2021
Editorial Comment

EDITORIAL COMMENT

## Longer antibiotic durations for treating peritoneal dialysis-associated peritonitis: helpful or harmful?

Htay Htay [1], Yeoungjee Cho[2,3,4] and David W. Johnson[2,3,4]

[1]Department of Renal Medicine, Singapore General Hospital, Singapore, [2]Centre for Kidney Disease Research, The University of Queensland, Brisbane, QLD, Australia, [3]Translational Research Institute, Brisbane, QLD, Australia and [4]Metro South and Integrated Nephrology and Transplant Services (MINTS), Princess Alexandra Hospital, Brisbane, QLD, Australia

Clinical Kidney Journal, 2021, vol. 14, no. 3, 991–997

doi: 10.1093/ckj/sfaa256
Advance Access Publication Date: 17 January 2021
Original Article

ORIGINAL ARTICLE

## Extended antibiotic therapy for the prevention of relapsing and recurrent peritonitis in peritoneal dialysis patients: a randomized controlled trial

Cheuk-Chun Szeto[1,2,3], Jack Kit-Chung Ng [1,2], Winston Wing-Shing Fung[1,2], Gordon Chun-Kau Chan[1,2], Phyllis Mei-Shan Cheng[1,2,3], Ka-Bik Lai[1,2,3], Wing-Fai Pang[1,2], Kai-Ming Chow[1,2], Chi-Bon Leung[1,2] and Philip Kam-Tao Li[1,2]

Randomized controlled study with 254 patients from Hongkong: ISPD-standard versus 1-week-extended antibiotic therapy

ISPD standard duration of antibiotic therapy:

- 2 weeks: Coagulase-neg Staphylococcus, Streptococcus, culture-negative peritonitis
- 3 weeks: Staph. aureus, Enterococcus species, Pseudomonas species, other Gram-neg, mixed cultures

**No risik reduction for relapsing, recurrent oder repeated peritonitis with prolonged antibiotic therapy**

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# Extended antibiotic therapy for the prevention of relapsing and recurrent peritonitis in peritoneal dialysis patients: a randomized controlled trial

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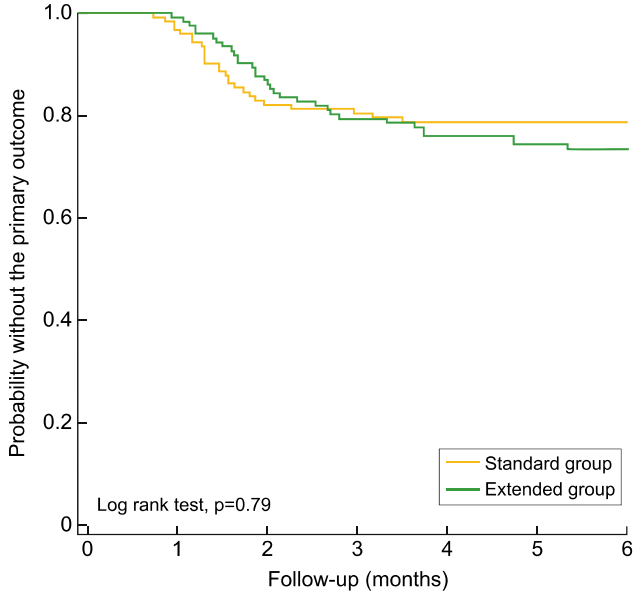


**FIGURE 2:** Kaplan–Meier plot for the probability of being free from the primary outcome. Patient death, diagnosed with fungal or tuberculous peritonitis and catheter removal were treated as censoring events.

**Table 2. Causative organisms of peritonitis episodes**

| | Extended group | | | | Standard group | | | | Excluded |
|---|---|---|---|---|---|---|---|---|---|
| Organism identified | All case | Relapsing | Recurrent[a] | Repeat[b] | All case | Relapsing | Recurrent[a] | Repeat[b] | All case |
| Gram-positive organisms, *n* (%) | 76 (59.8) | | | | 66 (52.0) | | | | 20 (41.7) |
| *Staphylococcus aureus* | 18 | 2 | 0 | 3 | 13 | 1 | 1 | 0 | 8 |
| CNSS | 9 | 2 | 0 | 0 | 13 | 2 | 1 | 0 | 5 |
| *Enterococcus* species | 5 | 1 | 1 | 3 | 2 | 0 | 0 | 1 | 0 |
| *Streptococcus* species | 38 | 1 | 2 | 6 | 30 | 2 | 2 | 3 | 4 |
| Others | 6 | 1 | 0 | 3 | 8 | 1 | 0 | 1 | 3 |
| Gram-negative organisms, *n* (%) | 18 (14.2) | | | | 22 (17.3) | | | | 11 (22.9) |
| *Pseudomonas* species | 3 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 3 |
| Enterobacteriaceae species | 15 | 1 | 2 | 1 | 18 | 2 | 1 | 0 | 8 |
| Mycobacterium[c] | 3 | | | | 0 | | | | 1 |
| Polymicrobial growth | 17 (13.4) | 0 | 0 | 1 | 21 (16.5) | 4 | 3 | 0 | 12 (25.0) |
| Culture negative, *n* (%) | 13 (10.2) | 2 | 1 | 2 | 18 (14.2) | 1 | 0 | 2 | 4 (8.3) |
| Total, *n* | 127 | 11 | 6 | 19 | 127 | 14 | 8 | 7 | 48 |

CNSS, coagulase-negative *Staphylococcus* species.
[a]Cause of the initial peritonitis episode.
[b]Repeat peritonitis within 6 months.
[c]Excluded from the final analysis.

**Table 3. Summary of clinical outcome[a]**

| Outcome | Extended group | Standard group | P-value |
|---|---|---|---|
| Primary outcome, *n* (%) | 36 (28.3) | 29 (22.8) | 0.34 |
| Relapsing episode | 11 (8.7) | 14 (11.0) | 0.53 |
| Recurrent episode | 6 (4.7) | 8 (6.3) | 0.58 |
| Repeat episode in 6 months | 19 (15.0) | 7 (5.5) | 0.013 |
| Secondary outcome, *n* (%) | | | |
| Peritonitis require hospitalization | 39 (30.7) | 36 (28.3) | 0.68 |
| Catheter removal | 5 (3.9) | 5 (3.9) | 0.99 |
| Conversion to long-term HD | 2 (1.6) | 2 (1.6) | 0.99 |
| Death due to peritonitis | 0 | 1 (0.8) | 0.32 |
| Death for all cause | 2 (1.6) | 5 (3.9) | 0.25 |
| Mycobacterium peritonitis[b] | 3 (2.4) | 0 | 0.08 |
| Secondary fungal peritonitis[b,c] | 2 (1.6) | 0 | 0.16 |
| Complete cure | 81 (63.8) | 88 (69.3) | 0.35 |
| Total | 127 | 127 | |

[a]Percentages depict those for the entire intention-to-treat group without exclusion.
[b]Secondary outcomes added *post hoc*.
[c]All patients had catheter removal and were put on temporary hemodialysis.

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【 ORIGINAL ARTICLE 】

**Oral Antibiotics are Effective for Preventing Colonoscopy-associated Peritonitis as a Preemptive Therapy in Patients on Peritoneal Dialysis**

Yasuhiro Suzuki[1,2], Masashi Mizuno[1,2], Hiroshi Kojima[1,2], Yuka Sato[1,2], Hangsoo Kim[1,2], Hiroshi Kinashi[3], Takayuki Katsuno[3], Takuji Ishimoto[2], Shoichi Maruyama[2] and Yasuhiko Ito[3]

Incidence of peritonitis after colonoscopy in PD-patients without antibiotic therapy 6.3-6.6 %

Yip T, Tse KC, Lam MF, et al.
Perit Dial Int 2007; 27: 560- 564

170 PD-patients from Nagoya University Hospital Japan 2010 - 2019

50 colonoscopies

- 49 with oral antibiotic therapy (1 without)
- 1000 mg Amoxicillin plus 400mg Ciprofloxacin and/or 250 mg Metronidazol 1-2 hours before CS

**With oral antibiotic therapy no colonoscopy-associated peritonitis with (n=35) or without (n=15) polypectomy**

- **within 24 hours after CS**
- **within 2 weeks after CS**