Baxter

Nephrologist-Inserted Catheter Demonstrated a Higher Peritoneal Dialysis Utilization Rate and a Shorter Rate of Initiation[1] With Lesser Complications[2]

PD CATHETER INSERTION PROGRAM

A nephrologist-inserted catheter is an antecedent to a higher PD utilization rate and shorter initiation rate[1]

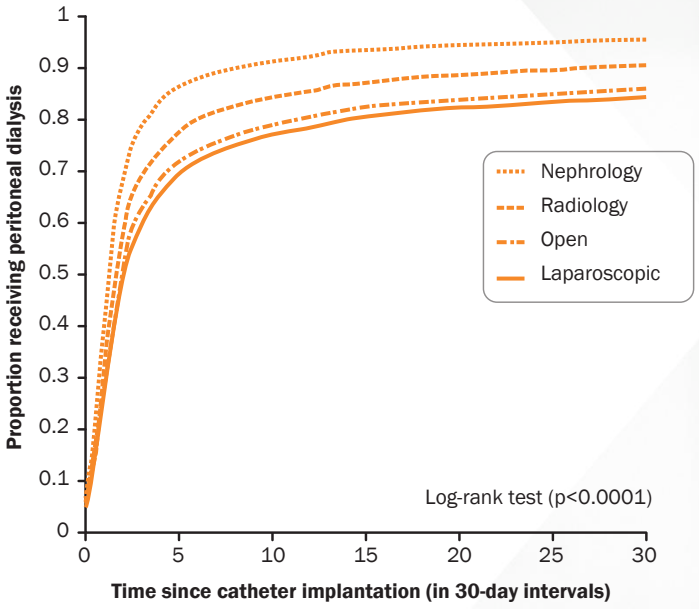
A population-based retrospective cohort study demonstrated that the nephrologist-inserted catheter showed:

- Greater PD utilization (aHR 1.59, 95% CI 1.29–1.95).[1]
- Shorter initiation rate (PD: 27 days) than other insertion operators and insertion methods.[1]

	Radiology-Percutaneous	Nephrology-Percutaneous	Surgical-Laparoscopic	Open-Surgical
Number of PD catheter insertions	350	498	1154	1884
PD utilization (4 weeks)*	279 (80%)	433 (87%)	913 (79%)	1602 (85%)
Median time to PD utilization (days, IQR)	33 (21–54)	**27 (0–56)**	59 (28–137)	39 (20–88)
Adjusted risk of PD utilization (aHR, 95% CI)	1.16 (0.94–1.43)	**1.59 (1.29–1.95)**	0.97 (0.86–1.09)	-

*Patients receiving four consecutive weeks of PD.

A greater proportion of patients received successful PD when nephrologists performed the procedure compared to other implantation methods.[1]



Adapted from: Perl J, *et al.* 2015

Nephrology catheter insertion led to a higher likelihood of PD utilization. This may be related to insertion timing, technique, or greater commitment from nephrologists to the success of PD.[1]

aHR: Adjusted hazard ratio; CI: Confidence interval; IQR: Interquartile range; PD: Peritoneal dialysis.

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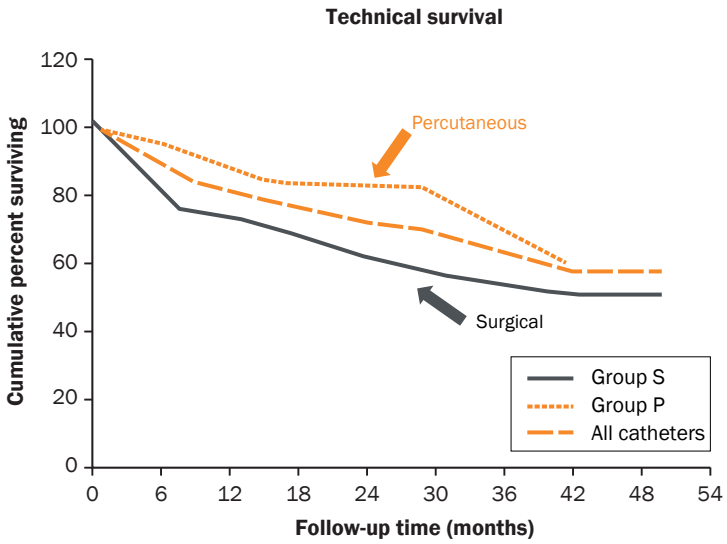
Improved catheter survival rate with nephrologist-led percutaneous catheter insertion[2,3]

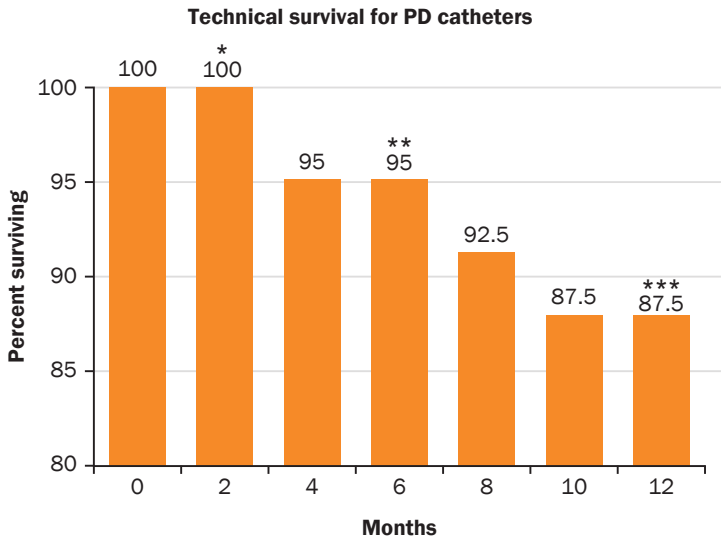
A retrospective study revealed that nephrologist-led percutaneous catheter placement improved catheter survival and provided a safe and reliable access for PD.[3]



Adapted from: Ozener C, *et al.* 2001

One-year and two-year technical survivals were 90% and 82% in group P (percutaneous) and 73% and 60% in group S (surgical) (p=0.0032), respectively.

Data were collected prospectively on all patients with a PD catheter inserted by a nephrologist and evaluated for catheter survival, infections, and mechanical complications.[2]



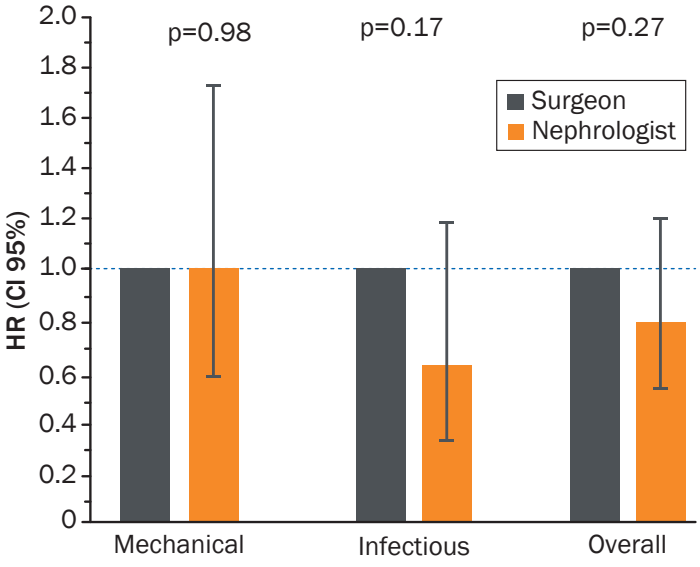
Adapted from: Al-Hwiesh AK. 2014

PD catheter survival of *100%, **95.0%, and ***87.5% at 2, 6, and 12 months respectively.

Nephrologist-led percutaneous insertion has similar risks of infectious and non-infectious complications as surgical insertion[4]

The Brazilian large national multicentric cohort study (Brazilian Peritoneal Dialysis Multicentric Study, BRAZPD) with 736 patients demonstrated that early mechanical and infectious complications following catheter insertion showed no difference in rates, regardless of operator.[4]

Hazard ratios for mechanical, infectious, and overall complications were adjusted for age, body mass index, catheter type, diabetes, and number of procedures performed per center.

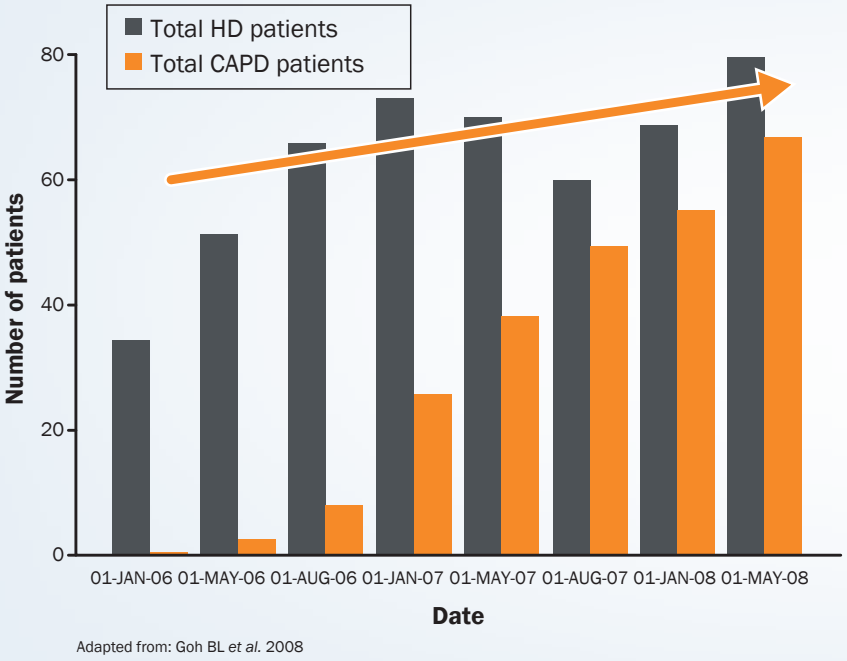


Adapted from: De Moraes TP, *et al.* 2021.

HR: Hazard ratio.

A greater commitment from nephrologists improves patient's confidence and utility of the therapy[5,6]

PD penetration rate when compared with HD in Hospital Serdang after starting integrated care approach to CAPD[5]



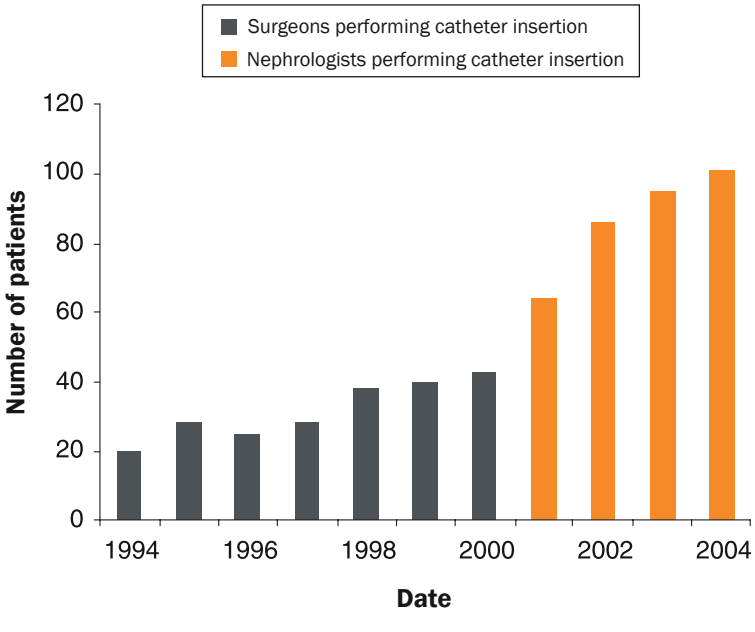
Adapted from: Goh BL *et al.* 2008

HD: Hemodialysis; CAPD: Continuous ambulatory peritoneal dialysis.

- Hospital Serdang achieved a PD penetration rate 4.5 times the national average with nephrologist involvement.
- Attributed to direct involvement of the nephrologists:
  - Improves patients' confidence
  - Allows PD catheters to be placed in a timely manner

A multicenter study analyzed the impact of PD catheter insertion by nephrologists on the PD population at three centers (an academic medical center; a private setting center; and an academic medical center).[6]

Center 1: Number of PD patients **increased from 17% to 32%**



ACADEMIC MEDICAL CENTER

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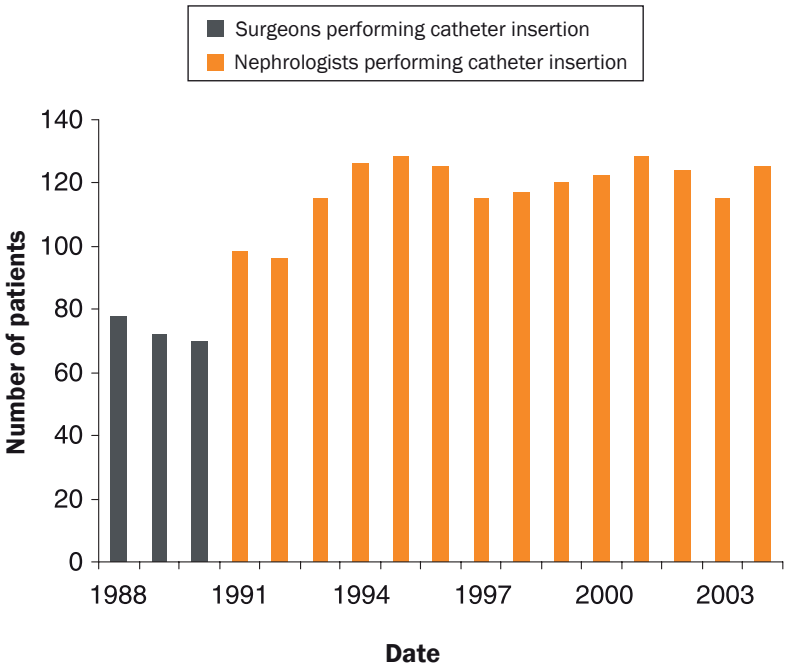
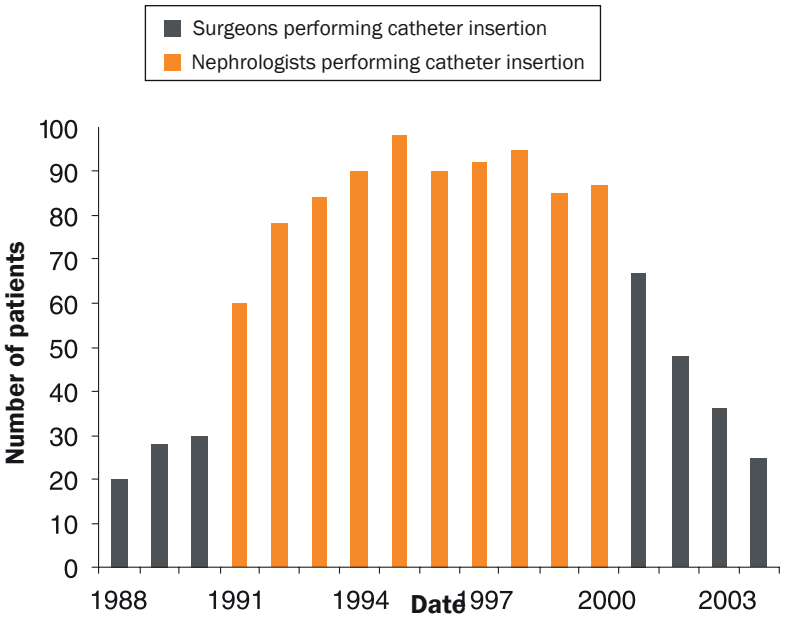
Center 2: Number of PD patients **increased from 19% to 22%**



PRIVATE SETTING

Center 3: Number of PD **patients increased from 18% to 27%.** When program was suspended, patient number **declined to 6%**



ACADEMIC MEDICAL CENTER

Adapted from: Asif A, *et al.* 2008

PD catheter insertion program managed and operated by nephrologists can have a positive impact on PD utilization.[6]

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Summary

Interventional nephrologist-led catheter insertion provides more advantages over surgeon-led catheter insertions.

Interventional nephrologist

- Greater PD utilization with short time needed for initiation
- Longer catheter survival
- Minimally invasive and requires local anesthesia
- Lesser rates of catheter-related infections and exit-site leak
- Continuity of care

Surgeon

- Risks of delays
- Shorter catheter survival
- More dissection and requires general anesthesia
- Higher incidence of complications
- Shorter continuity of care

Data adapted from: Asif *et al.*[7,8], Ash[9–12], and Gadallah *et al.*[13–14]

References: **1.** Perl J, Pierratos A, Kandasamy G, *et al.* Peritoneal dialysis catheter implantation by nephrologists is associated with higher rates of peritoneal dialysis utilization: a population-based study. *Nephrol Dial Transplant.* 2015;30(2):301–309. **2.** Al-Hwiesh AK. Percutaneous peritoneal dialysis catheter insertion by a nephrologist: A new, simple, and safe technique. *Perit Dial Int.* 2014;34(2):204–211. **3.** Ozener C, Bihorac A, Akoglu E. Technical survival of CAPD catheters: Comparison between percutaneous and conventional surgical placement techniques. *Nephrol Dial Transplant.* 2001;16:1893–1899. **4.** De Moraes TP, Campos RP, de Alcântara MT, *et al.* Similar outcomes of catheters implanted by nephrologists and surgeons: Analysis of the Brazilian peritoneal dialysis multicentric study. *Semin Dial.* 2012;25(5):565–568. **5.** Goh BL, Ganeshadeva YM, Chew SE, *et al.* Does peritoneal dialysis catheter insertion by interventional nephrologists enhance peritoneal dialysis penetration? *Semin Dial.* 2008;21(6):561–566. **6.** Asif A, Pflederer TA, Vieira CF, *et al.* Does catheter insertion by nephrologists improve peritoneal dialysis utilization? A multicenter analysis. *Semin Dial.* 2005;18(2):157–160. **7.** Asif A, Byers P, Gadalean F, *et al.* Peritoneal dialysis underutilization: The impact of an interventional nephrology peritoneal dialysis access program. *Semin Dial.* 2003;16:266–271. **8.** Asif A. Peritoneal dialysis access-related procedures by nephrologists. *Semin Dial.* 2004;17(5):398–406. **9.** Ash SR: Chronic peritoneal dialysis catheters: procedures for placement, maintenance and removal. *Semin Nephrol.* 2002;22(3):221–236. **10.** Ash SR: Who should place peritoneal catheters? A nephrologist's view. *Nephrol News Issues.* 1993;7(5):33–34. **11.** Ash SR. Bedside peritoneoscopic peritoneal catheter placement of Tenckhoff and newer peritoneal catheters. *Adv Perit Dial.* 1998;14:75–79. **12.** Ash SR. Is a break-in period necessary following peritoneal catheter insertion? A break-in period is unnecessary. *Semin Dial.* 1992;5:199–201. **13.** Gadallah MF, Ramdeen G, Torres-Rivera C, *et al*: Changing the trend: A prospective study on factors contributing to the growth rate of peritoneal dialysis programs. *Adv Perit Dial.* 2001;17:122–126. **14.** Gadallah MF, Pervez A, El-Shahawy MA, *et al.* Peritoneoscopic versus surgical placement of peritoneal dialysis catheters: A prospective randomized study on outcome. *Am J Kidney Dis.* 1999;33:118–122.

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