

# Urgent start PD: Putting the person first

Arsh Jain MD, FRCPC, MSc  
ADC 2019



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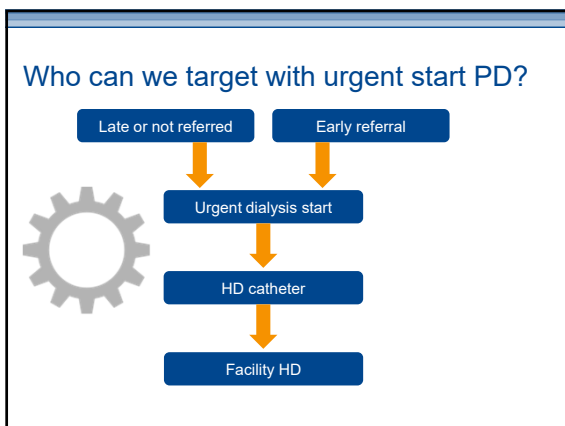
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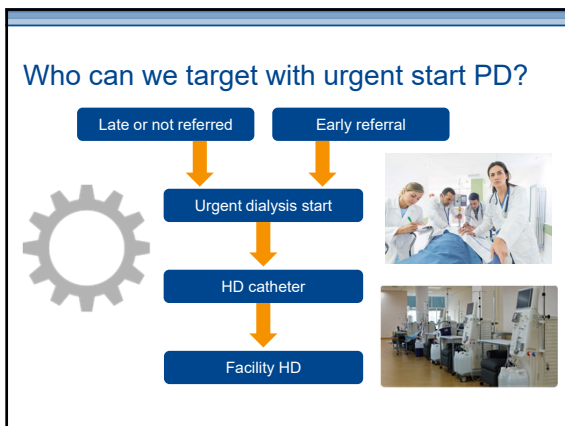
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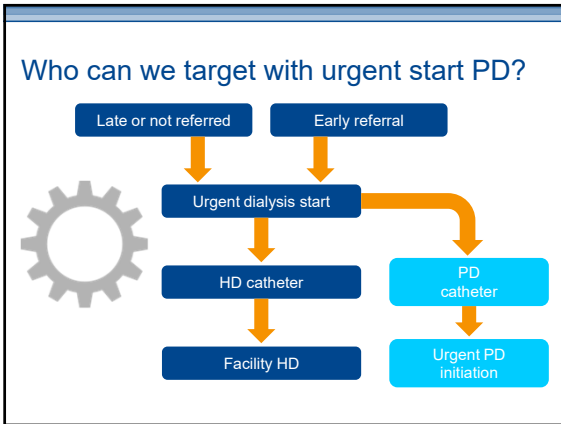
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# PATIENT CHOICE

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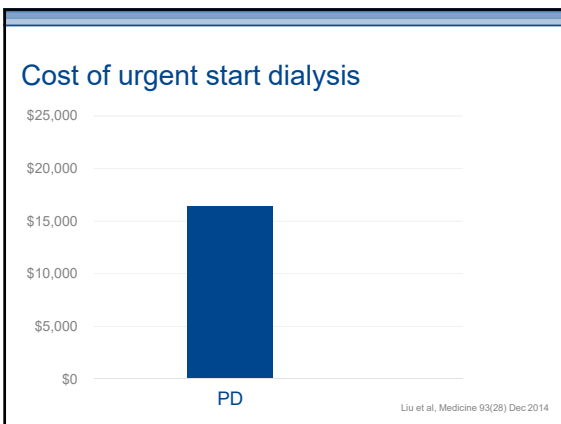
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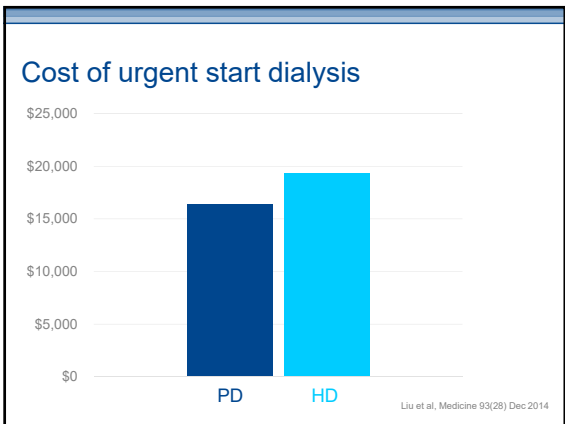
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### PD is better than HD for many reasons...

- Improved Survival
- Less Decline RRF
- Less Catheter Complications
- Less Costly

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Why not just start HD then switch to PD?

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### Why not start HD and then switch to PD?

#### 1. Risks of HD catheter use

- Infection
- Thrombosis
- Mortality

1. Clin J Am Soc Nephrol 1: 1226–1233, 2006

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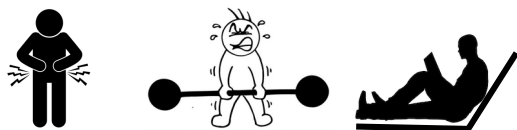
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### Why not start HD and then switch to PD?

#### 2. Limit exposure to facility-based HD

- Patients reluctant to change treatment modality



1. Clin J Am Soc Nephrol 1: 1226–1233, 2006

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### Why not start HD and then switch to PD?

#### 3. HD to PD switch has worse outcomes than PD from the start

- Greater decline in residual kidney function<sup>1</sup>
- Higher rates of:

Technique failure <sup>2,3</sup> AHR 1.3 [1.2–1.5]	Death <sup>3</sup> AHR 1.8 [1.5–2.2]	Peritonitis <sup>4</sup> AHR 1.2 [1.1–1.4]
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1. Kim DJ, et al. Perit Dial Int 2000;20:784–5  
2. Lobbedez T, et al. Clin J Am Soc Nephrol 2012;7:612–8  
3. Nassim SJ, et al. Perit Dial Int 2015;35:297–305  
4. Nassim SJ, et al. Clin J Am Soc Nephrol 2009;4:1195–200

AHR: adjusted hazard ratio

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“It takes too many people to make urgent start PD work”

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- Review the key players
- Cheerleaders
  - Admitting or consulting physician
  - Renal Triage Nurse
  - Interventionalist
  - PD unit

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### Review the key players

- ~~Cheerleaders~~
- ~~Admitting or consulting physician~~
- Renal Triage Nurse
- ~~Interventionalist~~
- ~~PD unit~~

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“We can’t accommodate urgent starts because we don’t have the nursing resources to train patients quickly.”

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**IPD**  
Treatment strategy in patients unable to transition to home immediately

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### Intermittent PD

- IPD offers an incremental strategy before initiating full-dose PD
- PD delivered daily or every other day
- Patients are placed on the cyclor for 8–20hrs
  - Outpatient 8 hours
  - Inpatient 16–20 hours
- Basically, using an NIPD protocol in a monitored daytime setting

IPD: intermittent peritoneal dialysis  
NIPD: nocturnal intermittent peritoneal dialysis

Guest S, et al. Perit Dial Int 2011;32:142-8

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- Basically, using an NIPD protocol in a monitored daytime setting

30% increase in PD

IPD: intermittent peritoneal dialysis  
NIPD: nocturnal intermittent peritoneal dialysis

Malini S et al, Am J Med Sci, August 2018

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But how will I provide adequate dialysis?

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### Potential IPD protocol

- 10–12 L
- 3 x weekly
- IPD
- 8 hours

- 20–24 L
- 50% Tidal
- 3 x weekly
- IPD
- 8 hours

Protocols will differ between dialysis centres; for example, other protocols may utilize 85–90% APD volumes, different weekly schedules or reduced volumes (e.g. 5–10 L)

IPD: intermittent peritoneal dialysis  
APD: automated peritoneal dialysis

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### Urea kinetic modelling in 3 day a week PD

Solution volume	IPD mode	Weekly pKt/V by transport category			
		H	HA	LA	L
10–12 L	Non-Tidal APD	0.5–0.56	0.6–0.65	0.4–0.43	0.39–0.41
20–24 L	50% Tidal APD	0.76–0.84	0.81–0.87	0.59–0.64	0.56–0.60

IPD: intermittent peritoneal dialysis  
H: high; HA: high-average; LA: low-average; L: low  
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Solution volume	IPD mode	Residual GFR (mL/min/1.73m <sup>2</sup> needed to achieve weekly total Kt/V of 1.7)			
		H	HA	LA	L
10–12 L	Non-Tidal APD	6.8–6.5	6.3–6.0	7.6–7.4	7.4–7.3
20–24 L	50% Tidal APD	5.3–4.9	5.1–4.7	6.5–6.2	6.4–6.2

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### Infections

- Seven studies published data on infections<sup>1-7</sup>
- Peritonitis occurred in 2.4–15.4 % and exit site/tunnel ranged between 1.3–11%<sup>1-7</sup>
  - Reported Rates:
    - Ghafari: ESI 1:55 patient months and peritonitis 1:110 patient months<sup>5</sup>
    - Al Katheeri: ESI 1:159 patient months and peritonitis 1:319 patient months
- In three studies, a comparison between patients with unplanned and planned starts to dialysis was made
  - No significant difference was found

1. Song JH, et al. Perit Dial Int 2000;20:194-9  
2. Povlsen JV, et al. Nephrol Dial Transplant 2006;21 (Suppl. 2):356-9; 3. Jo YJ, et al. Perit Dial Int 2007;27:179-83  
4. Yang Y-F, et al. Perit Dial Int 31:2011:551-7  
5. Ghaffari A. Am J Kidney Dis. 2012;59:400-8; 6. Casaretto A, et al. Adv Perit Dial 2012;28:102-5  
7. Koch M, et al. Nephrol Dial Transplant 2012;27:375-80

ESI: exit site infection

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But it really can't be that good...

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### Literature Summary: Catheter Dysfunction

- Seven studies published data on catheter dysfunction<sup>1-7</sup>
- Risk of catheter dysfunction ranged between 2.4–22.1%
  - Povlsen et al showed that total mechanical complications occurred significantly more in urgent start PD than planned PD<sup>3</sup>

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### Literature Summary: Survival

#### PD vs PD

- Povlsen et al<sup>1</sup>
  - Unplanned PD vs planned PD; technique survival at 3 months
  - 86.7% urgent vs 90 % planned
- Song et al<sup>2</sup>
  - Catheter survival at 1 year was about 85%
- Wojtaszek et al
  - Unplanned PD vs planned PD; technique survival at 12 months
  - 97% urgent vs 87% planned

#### PD vs HD

- Lobbidez et al<sup>3</sup>
  - Urgent start HD vs urgent start PD survival at 1 year : 79% HD vs 83% PD
- Koch et al<sup>4</sup>
  - Unplanned or acute PD vs HD mortality at six months: 30.3% for PD and 42.1% for HD
- Jin et al<sup>5</sup>
  - Unplanned or acute PD vs HD survival at 1 year: 92 % for PD and 93% for HD

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5. Jin et al November 2016 Ploce ONE  
6. Wojtaszek et al Jan 2019

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## Conclusion

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You have a choice...



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You have a choice...



- Lower cost
- Better outcomes of PD
- Switching Sucks
- Fears about Urgent Start
  - Personnel, Limited Resources, inadequate dialysis, leaks

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You have a choice...



**PATIENT  
CHOICE**

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Thanks

Arsh Jain MD, FRCPC, MSc  
ADC 2019  
arsh.jain@lhsc.on.ca



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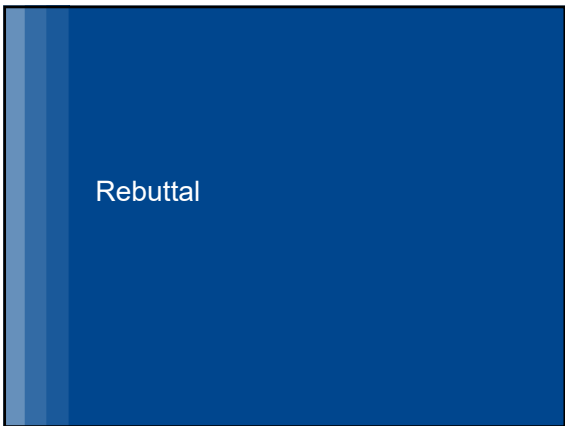
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Canadian PD Speaker Board

Dr Daniel Schwartz  
University of BC, Vancouver  
Fraser Health Renal Program  
Surrey, BC

Dr Alan McMahon  
University of Alberta  
Hospital Edmonton  
University of Alberta

Dr Arsh Jain  
London Health Sciences Centre  
University of Western Ontario

Dr Jeff Poff  
St. Michael's Hospital  
University of Toronto

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PD for the urgent dialysis start

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Are there “indications” for Urgent PD?

Courtesy of Dr A.Jain

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### Case study: Mr AY

- 64 year-old male with diabetes mellitus
- Patient presents with MI, arrests for 2 minutes and receives CPR
- Due to multiple coronary lesions, only RCA could be stented
- ICD inserted
  - He developed a pocket infection with MRSA and the ICD was removed
- Starting to develop acute kidney injury
  
- Presents to hospital in significant volume overload
- CVC inserted
- HD started, he arrests within 2 minutes of starting

What are your options?

MI: myocardial infarction; RCA: right carotid artery  
CVC: central venous catheter ; ICD: implantable cardioverter defibrillator

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### Case study: Mr DS

- 64 year-old male
- Patient has experienced multiple MIs
- Ejection fraction 15–20%
  
- Presents with significant volume overload
  - Shortness of breath on exertion
- Blood pressure 70/50 mmHg

What are your options?

MIs: myocardial infarctions

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### Case study: Mrs CS

- 25 year-old female
- Working full-time in retail sector
- Has 2 children at home
  
- Presents with potassium 6 mEq/L, HCO<sub>3</sub> 11 mmol/L, urea 45 mg/dL, creatinine 1446 umol/L
- Secondary to glomerular nephritis
  
- She lives 2 hours from nearest in-center HD unit
- She will lose guardianship of children if she goes on to in-centre HD

What are your options?

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“The benefits are real.”

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“The benefits are real.”  
*- Daniel Schwartz*

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