

Promoting and Sustaining Home Therapies

The evolution of PD assist

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Hong Kong, September 2017



A case for assisted PD

Jan 11, 2016

The BC renal agency

- The BC Renal Agency is a model unique in Canada and internationally, designed to improve kidney patient quality of life and outcomes, and to support sound fiscal management and system sustainability.

PRA goals

- Promote clinical excellence
- Continuous quality improvement and research to guide practice
- Protocols and guidelines
- Data collection and analysis to drive appropriate funding

Ministry of Health

- Nephrology Benchmark: Prevalance of Home dialysis 30-32%

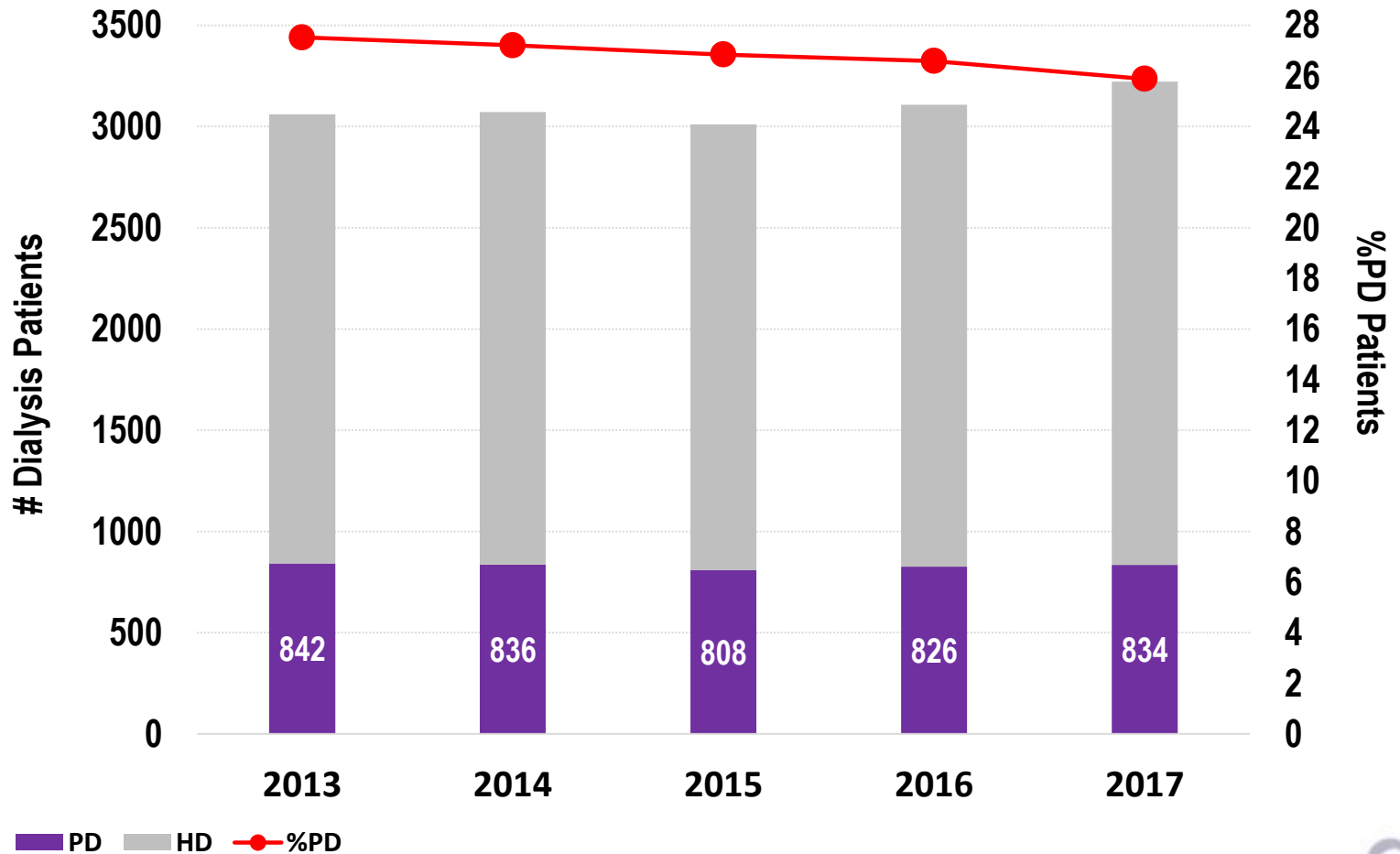
Maintaining PD/HHD

- Intake
- Maintenance
- Attrition

Intake

- “Home first” philosophy
- Home dialysis “open house”
- Dedicated nurse navigator for urgent start HD
- Bedside PD catheter insertion
- Introduction of alternative machines—NxStage®

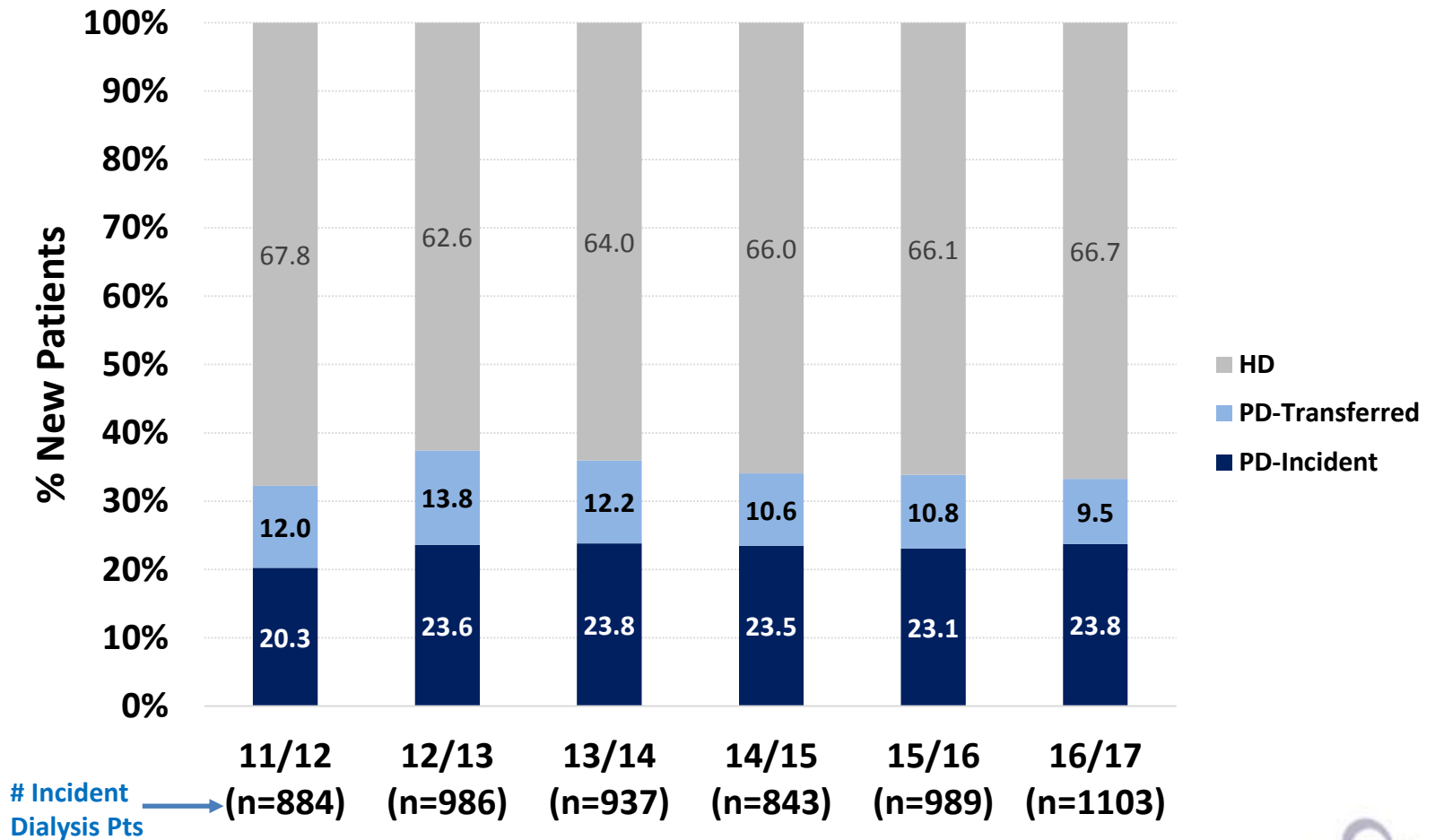
Prevalent PD in BC Over Time



Reported statistics as of March 31 of respective years

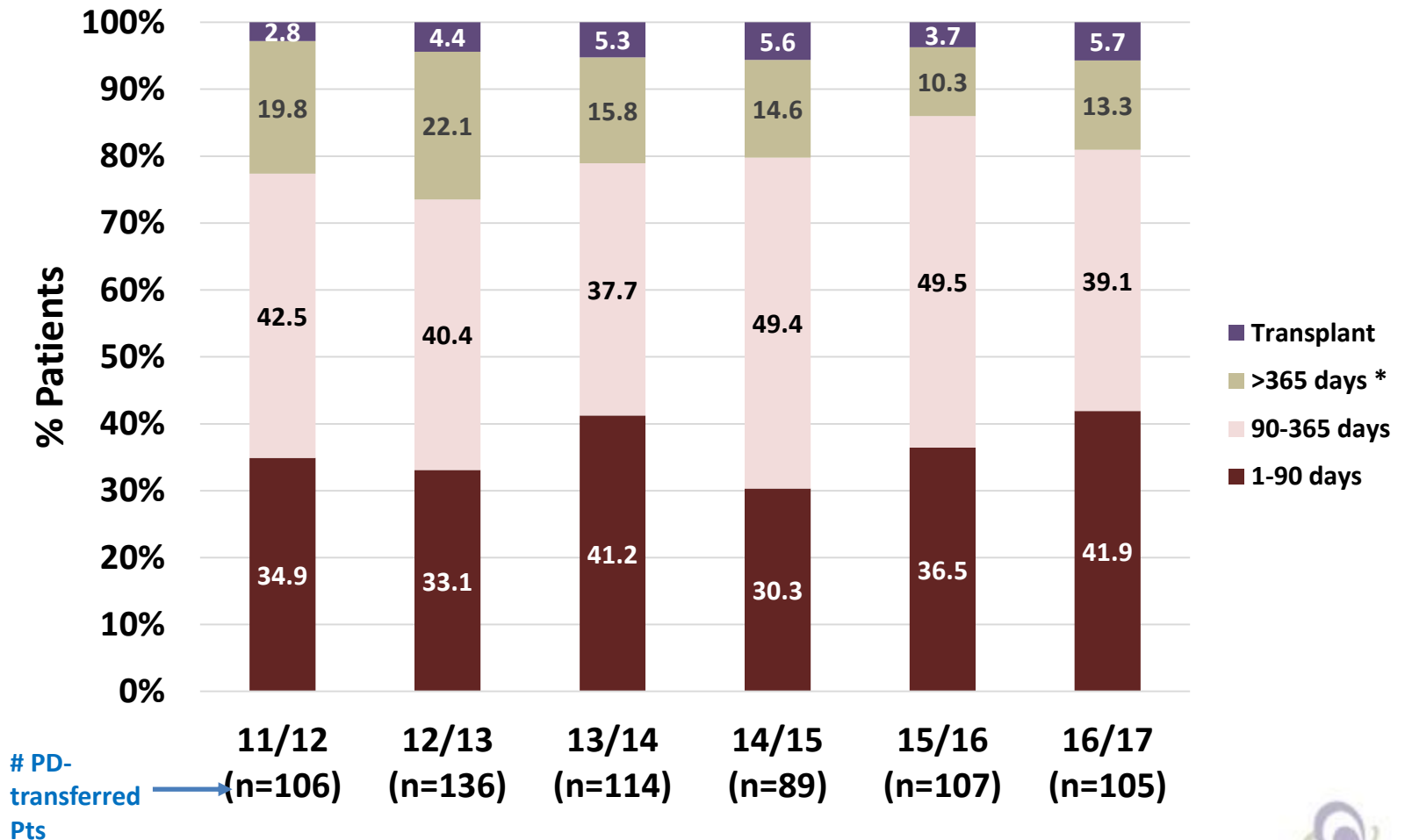
BC PD Intake Over Time

(vs % Incident HD)



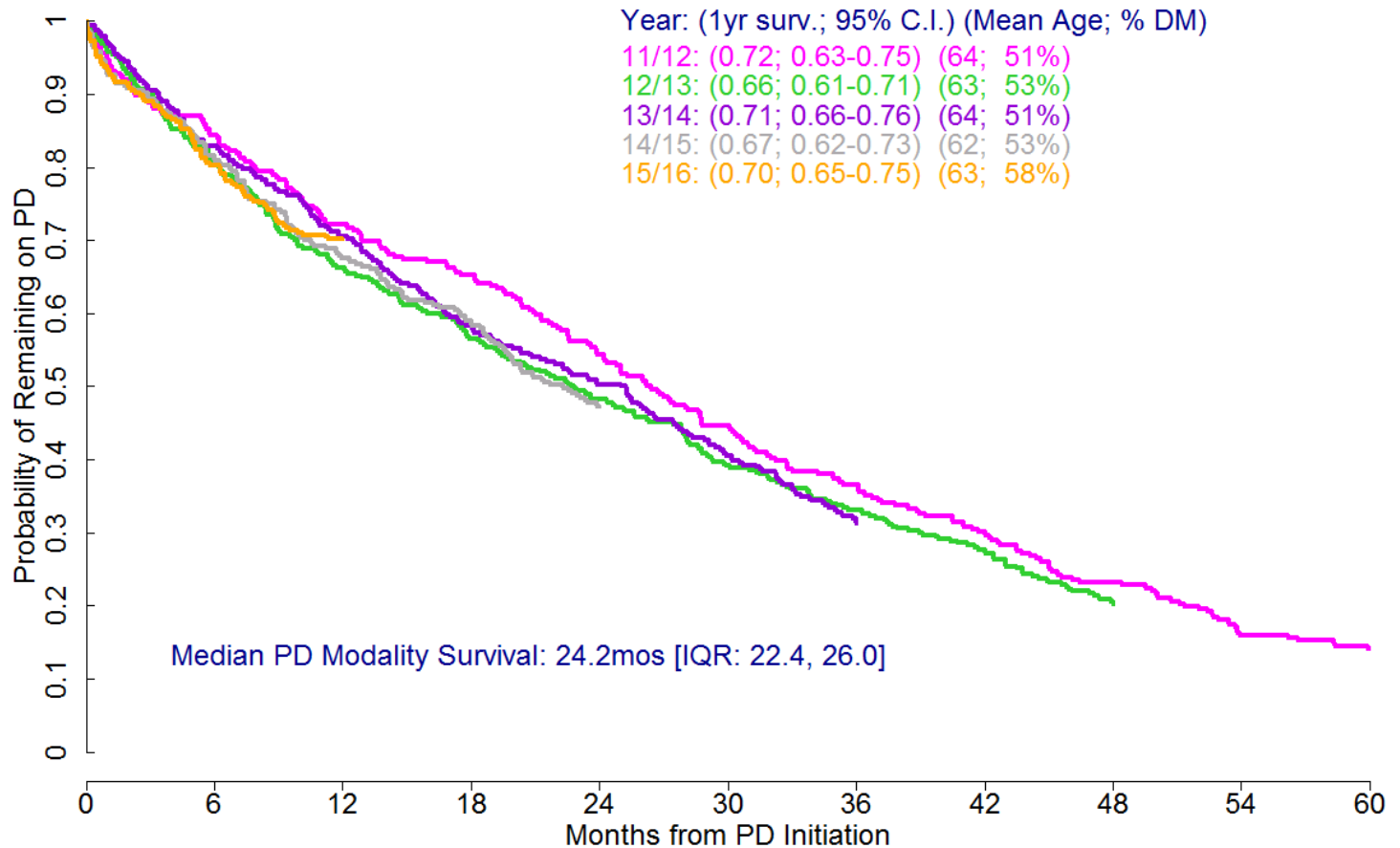
Closer look at PD-Transferred

(days from chronic dialysis initiation)



No differences in PD modality survival by PD initiation year

(All causes of PD attrition were considered)



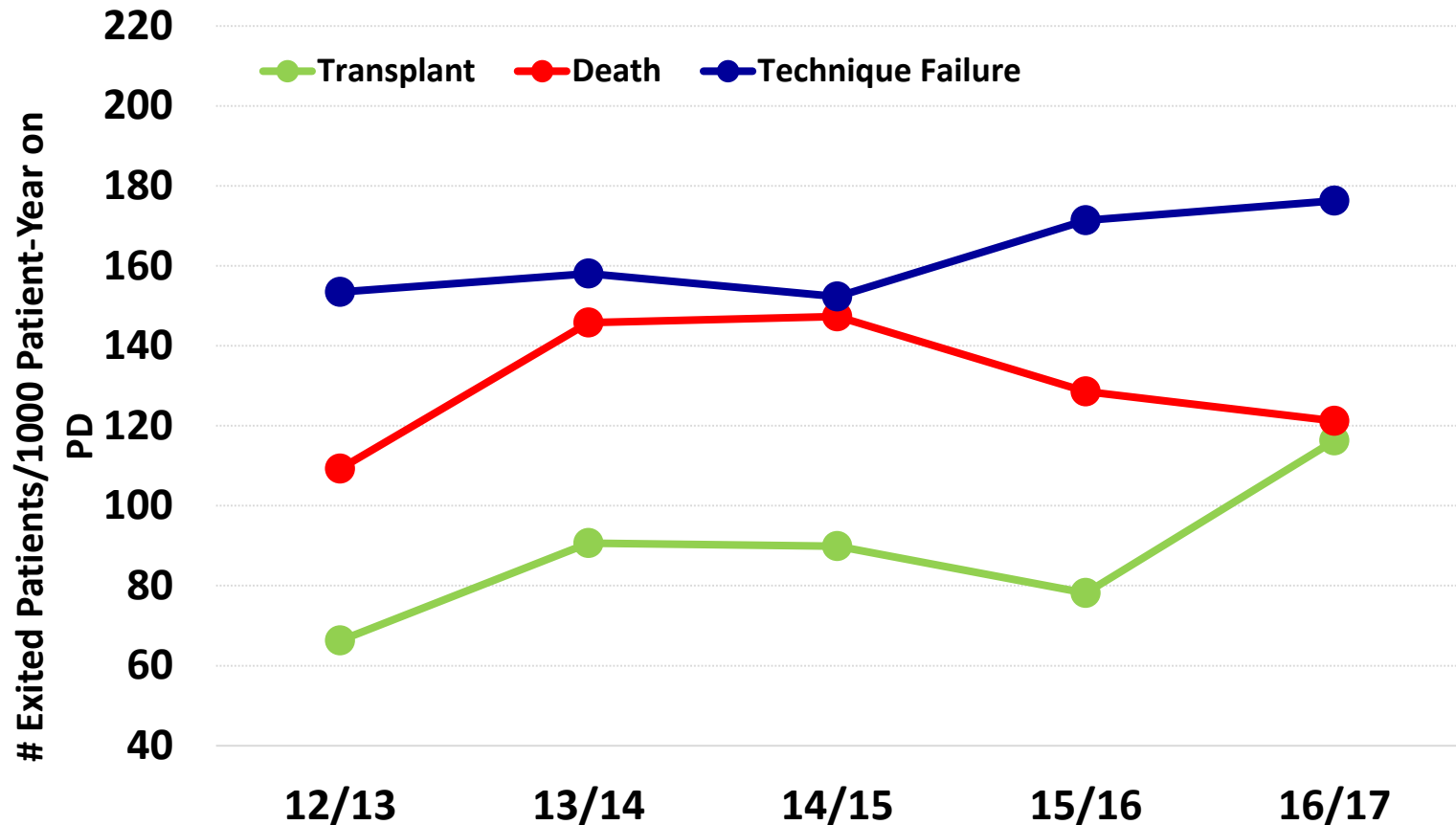
Test for adjusted HR* for Year of PD Initiation: Chi-sq=2.8354, p=0.5857
 *Adjusted for age, gender, diabetes, PD as initial or transferred modality, HA at PD initiation

Attrition

- Avoidance of HD transfer—up to 95% of “temporary transfer” don’t return to PD
 - ? Access to catheter reinsertion
 - “lost from sight”
- Primary nurse model with home visits, retraining
- Respite
- Assistance with manual tasks
 - 85% on cycler PD
- Closer look at PD exits-understand

BC: Cause-Specific Annual PD Attrition Rate

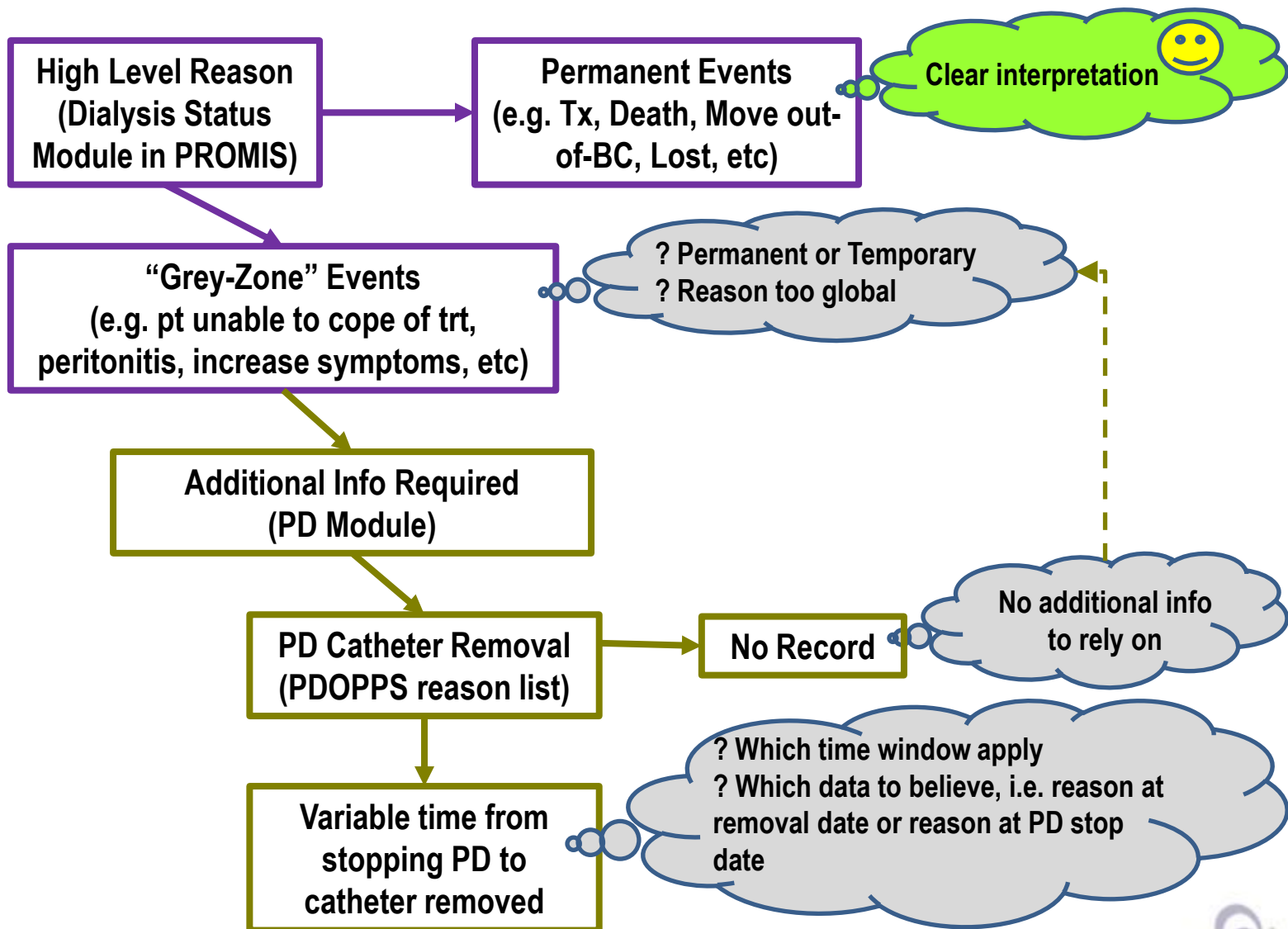
↓ attrition due to death, ↑ attrition due to transplant,
Slight ↑ attrition due technique failure



Death: Included Dialysis Withdrew or Death on PD or Death within 1 mo of transferring to HD

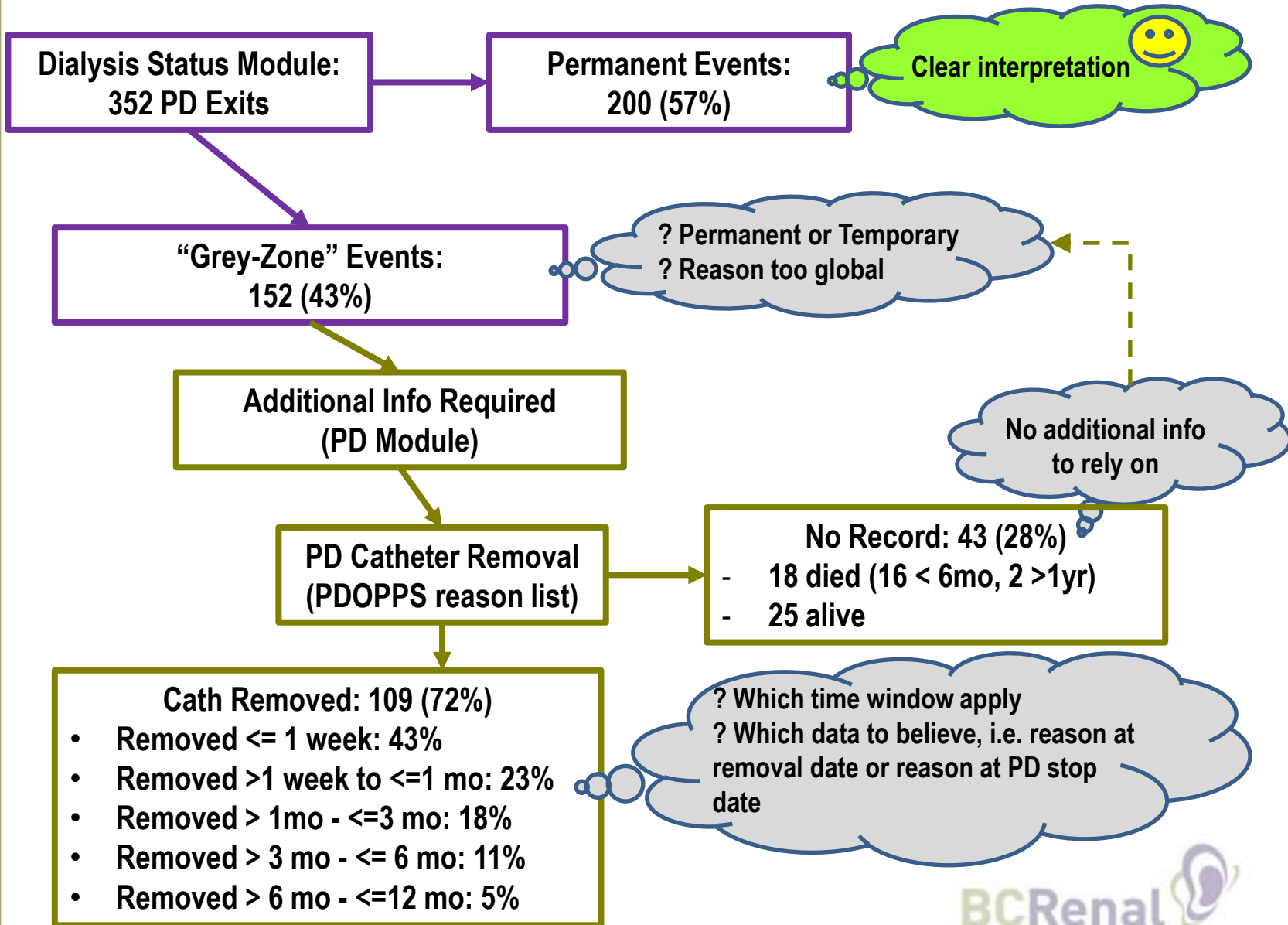
Technique Failure: Included reasons other than Transplant, Death, Move out of Province/Country and Lost-to-Follow-up

Understanding of Data Capture for PD “Technique Failure” Exit Reason



Data Review:

PD Exit due to "Technique Failure" from Oct 2015 to Oct 2016



Insights to “Technique Failure” Bucket

Breakdown of the 152 “Grey-zone” PD Exits	Time Gap: From PD treatment end to Cath removal		
	Any Time Gap	Time Gap <= 6mos	Time Gap <= 3 mos
Reason not specified (aka missing)	38 (25%)	42 (28%)	53 (35%)
Infection-related	27 (18%)	27 (18%)	26 (17%)
Catheter-related problems	8 (5%)	8 (5%)	4 (3%)
Solute/Water clearance	17 (11%)	16 (10.5%)	13 (8.5%)
Abdominal complications	14 (9%)	14 (9%)	13 (8.5%)
Psychosocial	12 (8%)	11 (7%)	11 (7%)
Other – Medical reason	17 (11%)	16 (10.5%)	15 (10%)
Other reasons	12 (8%)	11 (7%)	10 (6%)
Death <=1 mo of PD end	7 (5%)	7 (5%)	7 (5%)

PD assist

Assumptions

- PD assist will contribute positively to the prevalence of home dialysis in B.C.
- PD assist will allow patients to remain on their chosen dialysis modality, at home, as long as medically suitable
- PD assist improves overall care on PD and strengthens the argument for home dialysis
- PD , with PD assist, costs less than HD

Reasons for PDA: a question of options

- There is absolutely no help provided for PD patients as compared to community and in-centre hemodialysis
 - For minor illness/procedures
 - For caregiver burnout or illness
 - For comorbid illness that makes PD tasks difficult but medically there is no problem with continuing PD
- Options for PD patients who are frail or have little social support or ill
 - Transfer to HD—in centre

Current state—without PDA

- Not patient focused
 - Promote home PD but equity is lacking with HD
 - Patient choice limited by non medical reasons
- Costly—HD 2x as costly as PD, not including the costs associated with the transfer
 - Hospitalizations, access, administration

PD to HD

- 90% of “temporary” transfers from PD-HD stay on HD
- 70% of permanent patient transfers from PD-HD are unplanned
- Transition usually associated with long hospital stay
- Approximately 30% of PD patients will need some temp HD in any given year—about half would not need that if assistance at home

Quality of life

- Modality change big impact on Qol
- Many patients hear about technique failure on PD and choose HD—change is difficult
- End of life—most PD patients transfer to HD before dying—exit reason data will give us more info but “social” a big issue
- Being a burden on family

Patient selection: Pilot project

- Standardized form filled out by care team
 - Identified by care team as high risk for PD exit
- Patients in Fraser and Vancouver coastal HA
 - Programs account for over 60% of total PD patients
- Options
 - Continuous
 - Respite

PDA outcomes

- Retention
- Hospitalizations
- Peritonitis
- QOL



PD Assist Pilot

12 month evaluation: Summary

PD Committee Meeting – November 6, 2015



Background of PD Assist Program

- The PD assist (PDA) program was developed as a means to support PD patients who were identified as being at high risk of technique failure with the goal of retaining them on PD
- CCPD patients were identified as 'at risk' by their PD team in the four pilot areas and referred to PDA. Key areas that were targeted were:
 - Patient inability/fatigue related to setup and dismantling of the cyclor machine
 - Care-giver burden related these tasks
- Of note, patients/care-givers had to otherwise be able to perform CCPD related tasks such as troubleshooting and identifying correct dialysate solutions
- Standardized identification criteria were developed to identify these patients
- Enrolment in the program could be either long-term or temporary (respite)

Background of PD Assist Program

- The program uses a once daily visit by trained care givers to assist individuals in the performance of CCPD.
- The care givers are provided by an external health service provider (Nurse Next Door, NND) at no cost to patients
- NND care providers were trained by our staff to be competent in the CCPD related tasks they would be performing
- The scope of the PDA program was only to provide assistance in CCPD related tasks, not other aspects of care that the patients may need/request (unless privately arranged)

General statistics on PDA usage

- Four PD sites in the Lower Mainland were chosen as the pilot centres: St Paul's Hospital, Vancouver General Hospital, Royal Columbian Hospital and Abbotsford Regional Hospital
- From July 18, 2014 to Aug 31, 2015, 64 patients utilized the PD assist program
- 53 patients were permanent and 11 were respite
- Only one patient referred to PDA did not use the program; all other patients referred to PDA went on to be enrolled
- Enrolment of permanent patients into the PDA program was halted Mar 9, 2015

Long-term PDA patients

- As of Sept 1, 2015, of the 53 permanent PDA patients enrolled in the program, 34 remain active and 19 have exited the program.
- Of the exits, 9 died, 5 left PDA but remained on PD and the remaining 5 both left PDA and transferred to hemodialysis
- For the patients who exited PDA, the median number of days on the program was 91 (range 6 to 339 days)
- For the patients who remain on PDA as of Sept, 2015, the median number of days on the program is 341.5 days with a range of 158-410 days

Usage of respite PDA program

- From July 15, 2014 to August 31, 2015, a total of 11 patients utilized the PDA respite program. Two patients used the service twice, so there were a total of 13 respite enrolments
- At the time of this report, 2 remain on the program and the remainder have left PDA; 1 is deceased, 1 transferred to hemodialysis and the other 7 continue to perform PD, independent of the PDA program
- For patients using the PDA respite program, median length of service was 29 days with a range of 1 to 70 days

Baseline characteristics of PDA cohort and comparator groups

Variables	Statistics	PD Assist	PD Assist Eligible but not on PD Assist	Prevalent CCPD b/w July 18 2014 and March 27 2015
Number of Patients	N	53	57	775
Age (in years)	Mean (SD)	74 (11)	72 (10)	64 (14)
	Median (IQR)	76 [69, 82]	72 [67, 79]	65 [55, 74]
	Range	38, 92	49, 89	21, 96
Male	n (%)	32 (60%)	28 (49%)	483 (62%)
Dialysis Vintage (in months)	Median (IQR)	25.1 [9.3, 46.3]	29.4 [12.6, 53.7]	19.2 [6.6, 37.8]
Diabetes	n (%)	34 (64%)	35 (61%)	393 (51%)
Cardiovascular Disease	n (%)	32 (60%)	34 (60%)	377 (49%)

Summary of PDA clinical outcomes

- Intake and exits from the PDA pilot
 - There was high uptake in the initial months of the PDA pilot, followed by a stable, lower intake for the remaining months
 - In the permanent PDA cohort, 9 patients died while on the program. Of the remaining 44, 34 remain on the PDA program and 39 out of those 44 remain on PD
 - 11 patients utilized the respite program; of these, 7 have returned to performing PD independent of PDA and 2 remain on the program
- Retention on PD
 - Unlike the 6 month report where the PDA group had lower technique survival than the comparator groups, the PDA group had a similar 12 month technique survival to the PD eligible patients not on the program
 - When censored for death and transplant, the PDA group had a similar technique survival (87% at one year) to both the PDA eligible and benchmark CCPD population

Being comparable to the benchmark CCPD population represents a good level of technique survival for a population selected to be at high risk of technique failure

Summary of PDA clinical outcomes

- Hospitalizations
 - There was a higher rate of hospitalization seen in the PDA group
 - Part of this difference was accounted for by differences in data capture between the PDA group and comparator groups, but even accounting for that, there were more hospitalizations in the PDA group
- Peritonitis episodes
 - The PDA group had lower rates of peritonitis (0.18 per patient-year) than both the PDA eligible (0.36 per patient-year) and benchmark CCPD population (0.22 per patient year)
 - This is a low rate of peritonitis for an at risk group as evidenced by the fact that rates were substantially lower than the PD eligible group, and even the benchmark general CCPD population
- Quality of life scores
 - This was assessed only for the PDA group. Quality of life scores were not substantially different; there was no improvement but nor was there a decrement
 - There was a low response rate to the quality of life questionnaires which impacted the ability to detect a change over the duration of the PDA pilot

Figure 5.2(a): Transplant and Death-censored PD Technique Survival for PDA Patients

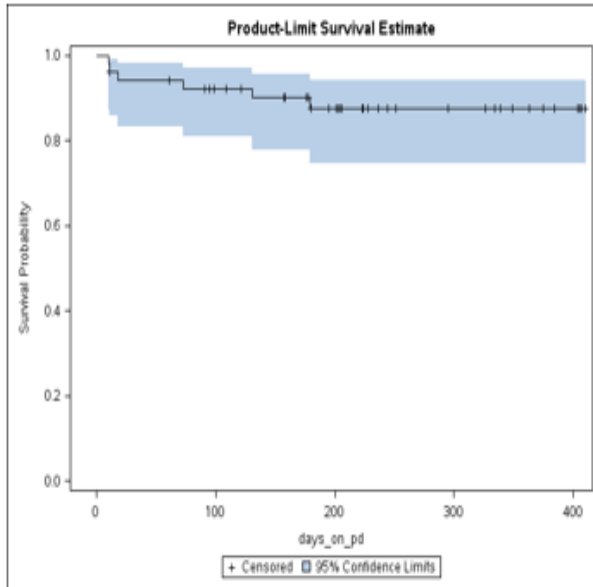


Figure 5.2(b): Transplant and Death-censored PD Technique Survival for PDA Eligible Patients but not on PDA service

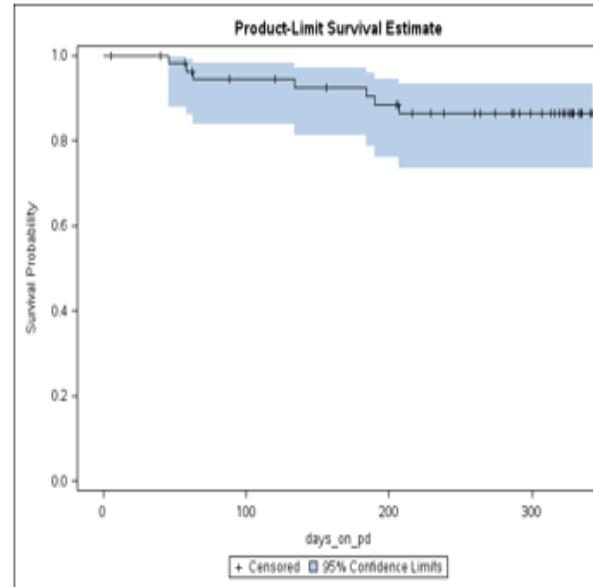
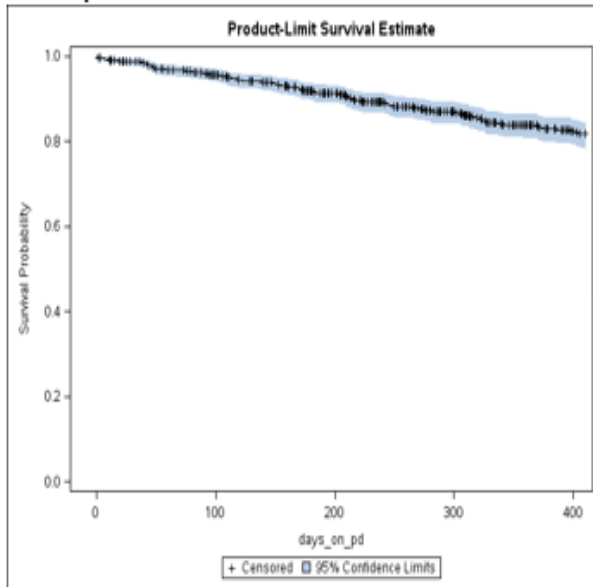


Figure 5.2(c): Transplant and Death-censored CCPD Technique Survival for Prevalent CCPD Patients



Number of deceased patients and patients ended PD because of transplantation by August 31 2015:

- PDA cohort: 0 pt. transplanted, 11 pts died (9 during PDA, 2 after leaving)
- PDA eligible cohort: 2 pts transplanted, 9 pts died
- Prevalent CCPD cohort: 57 pts transplanted, 71 pts died

Respite PDA program

- During the pilot, 11 patients utilized the PDA respite program. Two patients used the service twice, so there were a total of 13 respite enrolments
- At the time of this report, 2 remain on the program and the remainder have left PDA; 1 is deceased, 1 transferred to hemodialysis and the other 7 continue to perform PD, independent of the PDA program
- For patients using the PDA respite program, median length of service was 29 days with a range of 1 to 70 days

Hospitalization rates

- The PDA patients were more likely to be hospitalized than either the PDA eligible or the benchmark CCPD population. (55% of patients versus 35% patients)
- Of note, the way admissions were captured between the groups differed
 - the PDA patients were captured as part of the NND and trial data tracking
 - the other two groups were captured only by registration of inpatient dialysis in PROMIS and as such may have been underestimated
- When the PDA hospital admission data was calculated by the same method as the other two groups, the admission rate fell to 47%

Peritonitis

Summary of peritonitis infection data

Cohort	# Pts	Total Days on PDA/PD	# Peritonitis Episodes	Peritonitis Rate per patient-year on PD
PD Assist Pilot	53	12213	6	0.1794
Eligible for PD Assist but not receiving PDA service	57	14190	14	0.3604
Prevalent CCPD patients between Jul 18 2014 and March 27 2015	775	245206	150	0.2234

Qualitative Review

- Qualitative data was collected in June and July 2015
- Sources
 - Patient and family caregiver respondents: 10 interviews
 - PD program staff: 4 focus groups (1 per program)
 - NND staff: 1 focus group

Analysis of qualitative data

- Thematic content analysis was employed to draw common themes of perceptions around the values, enablers and barriers of the program, as well as required assistance and suggestions for providing dialysis assistance to patients in the home environment.

Qualitative Feedback

- **Patient and family caregiver respondents most valued:**
 - the support and relief of burden from the service
 - the ability to maintain a sense of independence
 - the opportunity to continue with PD in their home environment
 - timely service
 - enhanced self-management
 - psychosocial support with the presence of the helpful, competent and personable caregivers

- **PD program staff highly valued:**
 - the relief of burden that PD Assist brought to the patients, families as well as the programs and the system
 - the services ability to close care gaps by providing a seamless transition from PD training to the home, from hospital to the home, and from home to potential palliative or Long Term Care placement
 - having additional resources in the home to assist with care management
 - Open, frequent and timely communication between all partners
 - Responsiveness and timeliness of referral to service provision
 - Establishment of trust in both care provision and relationship with NND
 - Outsourcing of home care assistance and management

Focus Group suggestions moving forward

While all groups unanimously advocated for the continuation and spread of the pilot efforts, unique suggestions from each group include:

- Patients and families:
 - broadening of service scope to include areas such as housekeeping support
 - consistent staff members for home care assistance
- PD program staff:
 - continual outsourcing of home care assistance
 - broadening of service scope to include exit site care, fluid management and dialysate selection, medication administration and supply ordering
 - basic PD problem solving to assist those with cognitive deficits
- NND staff:
 - scheduling control

Project summary and future directions

- Over the course of this pilot, there was robust enrolment of patients into PDA, both on a long-term and respite basis
- The respite program was very successful in supporting PD patients during a period of difficulty and having them return to perform PD independently after that period was over
- The long term PDA program targeted a group identified as being at high risk of technique failure and over the 12 month pilot these patients had technique survival comparable to their peers and lower rates of peritonitis
- There is a cost associated with delivery of this program

Development of provincial PDA program

Convince the payer

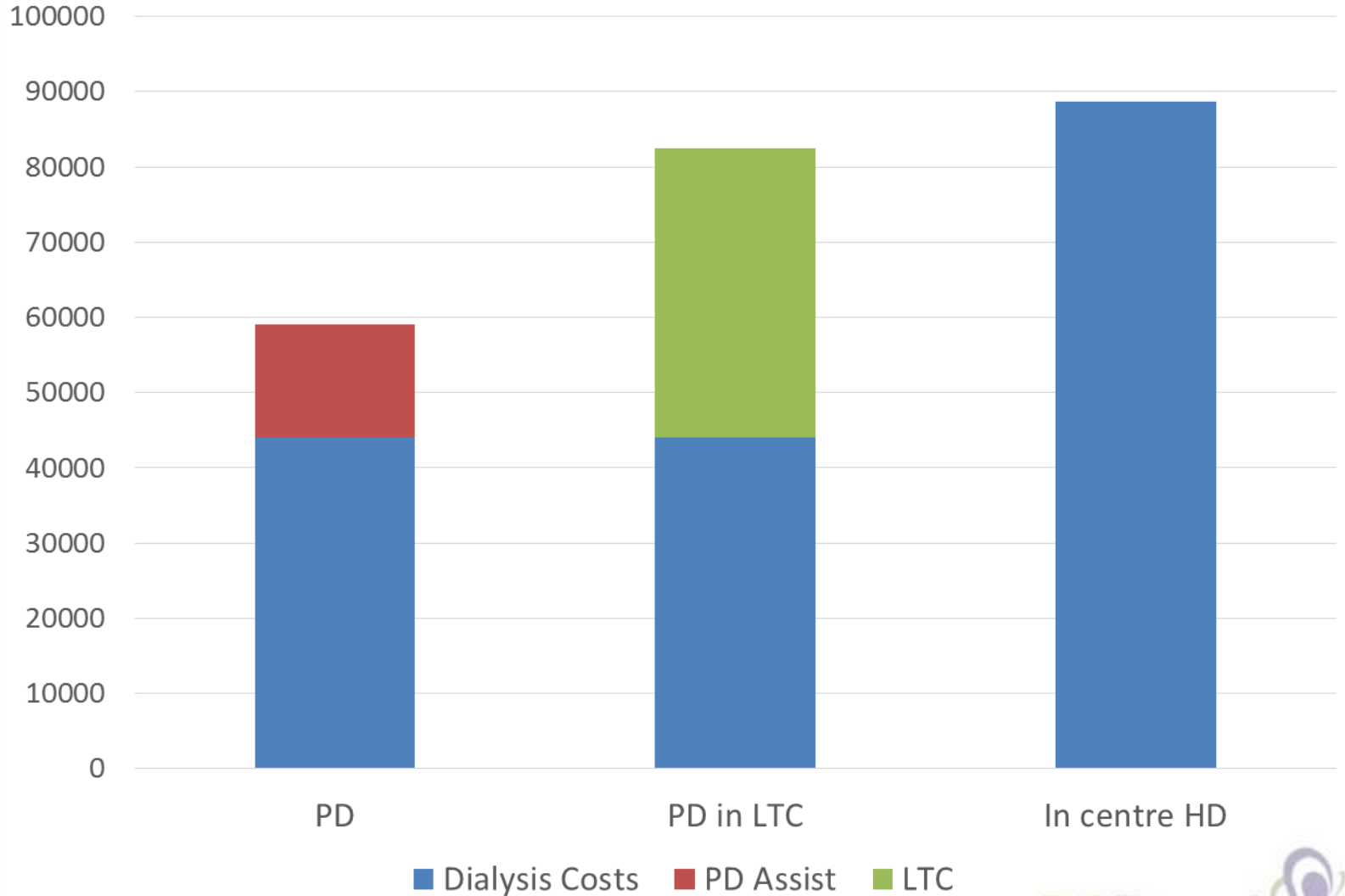
Implementation/maintenance across
large geographical area

The bottom line

Contextualizing costs of PDA

- A program such as PDA is best viewed through a cost minimization lens
 - ESRD patients who wish to have RRT do not have a zero cost option
 - Goal is to provide care that produces best outcomes at lowest cost
- PDA should be compared to other options for patients failing independent PD
 - Traditionally, these are LTC or HD

Cost of Dialysis Modalities - Including Support



■ Dialysis Costs ■ PD Assist ■ LTC

Cost minimization through PDA

- HD is the more common historical default for failing PD patients
- The annual cost avoided for each patient who uses PDA instead of HD would be \$29653
- With the numbers seen in the PDA pilot, if 1 patient year of HD is avoided per 3.4 patient years on PDA, the cost of the program is recouped

PDA Respite

- The PDA respite program has a clearer cost savings
- The median PDA respite use in the pilot costs \$1250 for the duration of the temporary service
- This is approximately the cost of one day admitted in acute care

\$The bottom line...

- We know
 - That PD is less costly than both community and in centre HD
 - That modality transfers cost more in the first year than subsequent years
 - Even short term transfers to HD are costly— what if all 13 respite patients had transferred to HD? How many would have returned to PD?

Implementation of PDA

Challenges

- Wide geographical area
- Languages—English, French, Tagalog, Hindu
 - Cantonese, Mandarin—40% of our PD population
- Competence and coverage in small regions

Implementation Timeline

Key Milestones	2015				2016												2017			
	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M
Develop Business Plan	█	█	█	█												█	█	█	█	
Business plan review/approval: renal exec team				█																
Business plan presentation to PHSA and approval				█	█															
RFP process <ul style="list-style-type: none"> • criteria development • RFP posting • Service provider evaluations and selection 				█	█	█	█	█	█	█	█	█	█	█	█					
Development/implementation on plan (additional form development, evaluation tools, PROMIS etc)				█	█	█	█	█	█											
Development/implementation of communication plan with health authorities				█	█	█	█	█	█											

Implementation Timeline

Key Milestones	2015					2016					2017									
	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M
Training of external contracted service provider																				
Provincial PDA launch(dependent on RFP process timeline)																				
Negotiate contract extension with current health service provider to accommodate RFP timeline																				
Acceptance of new patient referrals from existing pilot programs (FHA/VCA) following contract extension for duration of RFP process																				
PDA launch: FHA/VCA																				
PDA launch: remaining health authorities																				
One year review and evaluation																				

Future

- Detailed analysis of PD exit data—
redesign of data software
- Expansion of services—nursing
“assessments” —weight, bP, dialysate
selection, exit site care...
- Facility based care
 - Nocturnal incentre PD?