Expert Teams – Home Dialysis

Case-Based Learning & Mentorship

Thursday, December 16, 2021

Facilitator: Kelly M. Mayo, ESRD National Coordinating Center



Meeting Logistics

- Call is being recorded and will be posted to www.esrdncc.org
- Lines will be open for all high performing organizations
 - Please stay on mute unless you are speaking
 - Do not place the call on "hold"
- Everyone is encouraged to use the video and chat features



Meeting Guidelines



INTRODUCE YOURSELF BEFORE SPEAKING



KEEP PATIENT-SPECIFIC INFORMATION CONFIDENTIAL



BE WILLING TO SHARE SUCCESSES AND DIFFICULTIES



BE OPEN TO FEEDBACK



ASK THE DIFFICULT QUESTIONS



RESPECT OTHERS



USE "...AND" STATEMENTS



KEEP TO TIME LIMITS



Introductions

- Meeting Focus Home Dialysis
- Guest Expert
 - Sijie Zheng, MD, PhD, Kaiser Permanente Oakland Medical Center (CA)
- Case Study Presenter
 - Alix Dee Singh, RN, DaVita (CA)
- High Performing Organizations
- ESRD Networks
- Centers for Medicare & Medicaid Services (CMS)



Questions to Run On



How Might We ...

- Collaborate with other healthcare providers and stakeholders to increase the number of patients that start dialysis at home?
- Educate differently to increase patient transition to a home modality?
- Utilize telemedicine more effectively to provide patients with access to a home modality?



Presentation by Guest Expert



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ESRD NCC

- Sijie Zheng, MD, PhD
- The Permanente Medical Group
- Kaiser Permanente Oakland **Medical Center**
- Oakland, CA



Case

- 95 y.o. male with HTN, HFpEF, DM, CAD, PPM, CKD 5 previously decided no dialysis after witnessed his sister on ICHD: "not have a quality of life".
- Recent hospitalization for acute CHF, got IV Lasix, discharged home.
- eGFR of 10-12 ml/min
- He talked with his family, and they wanted him to do dialysis.
- He now wants to proceed with dialysis.
- He was under the care of a nephrologist, changed insurance.
- Good appetite, no uremic symptoms, electrolytes stable,
- Feeling tired, not able to enjoy the things he used to
- On exam: 1+ edema, no crackles on lung exam
- Still makes a lot of urine
- Lives with his grand daughter, she takes good care of him.



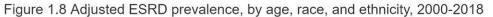
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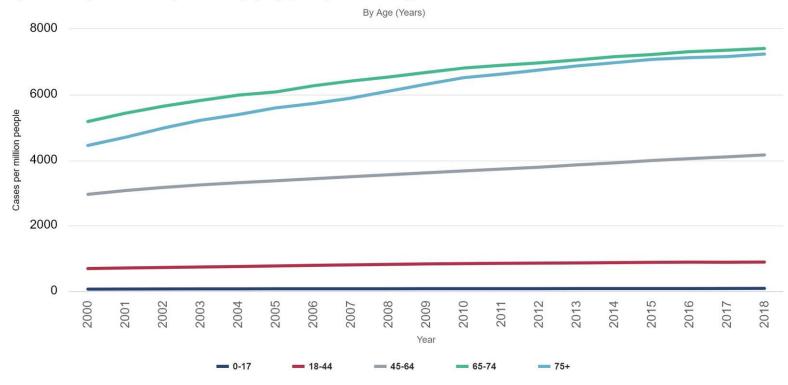
What are you going to do?

- Start ICHD with a central venous catheter immediately
- Start ICHD after AVF/AVG placement/Maturation
- High dose diuretics, not recommending dialysis
- Discuss goal of care with him and family,
- Refer to hospice
- Start PD
- Start HHD



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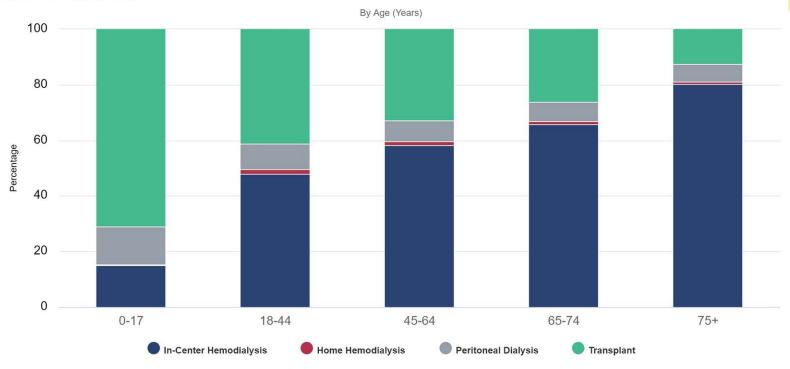


Data Source: 2020 United States Renal Data System Annual Data Report



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Figure 1.14 Distribution of modality among prevalent ESRD patients, by age, race, ethnicity, sex, and primary cause of ESRD, 2018



Data Source: 2020 United States Renal Data System Annual Data Report



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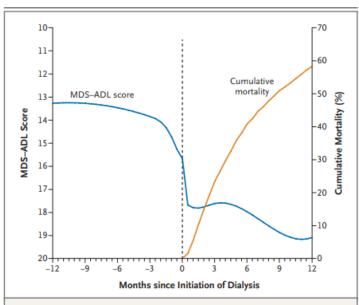


Figure 3. Smoothed Trajectory of Functional Status before and after the Initiation of Dialysis and Cumulative Mortality Rate.

The dashed vertical line indicates the initiation of dialysis in a hypothetical 75-year-old nursing home resident. MDS-ADL denotes Minimum Data Set-Activities of Daily Living. The numbers on the MDS-ADL axis run from highest to lowest.

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Functional Status of Elderly Adults before and after Initiation of Dialysis

Manjula Kurella Tamura, M.D., M.P.H., Kenneth E. Covinsky, M.D., M.P.H., Glenn M. Chertow, M.D., M.P.H., Kristine Yaffe, M.D., C. Seth Landefeld, M.D., and Charles E. McCulloch, Ph.D.

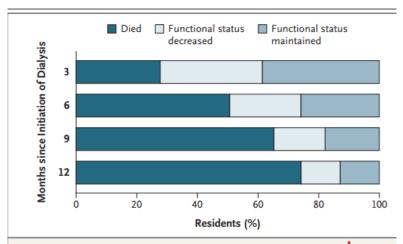


Figure 2. Change in Functional Status after Initiation of Dialysis.

Data were missing for 549 nursing home residents at 3 months, 696 residents at 6 months, 823 residents at 9 months, and 787 residents at 12 months from the full analytic cohort of 3702 residents.

NEJM 361;16 October 15, 2009

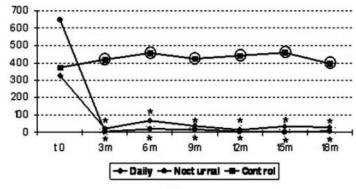
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Recovery Time after Dialysis

Table 4. Time to recover (minutes) responses shown for daily/nocturnal HD patients and control HD patients at time 0 and at 3-mo intervals thereafter^a

	Minutes to Recover from Dialysis						
	0	3 Mo	6 Mo	9 Mo	12 Mo	15 Mo	18 Mo
Daily HD	327.0 ± 203.2	22.0 ± 30.4^{b}	67.0 ± 128.2 ^b	36.7 ± 57.7^{b}	16.0 ± 24.9^{b}	34.0 ± 32.0^{b}	29.8 ± 44.1 ^b
11	10	10	10	9	10	10	10
Nocturnal	647.5 ± 584.4	5.0 ± 17.3^{b}	20.0 ± 36.9^{b}	16.7 ± 33.9^{b}	4.3 ± 11.3	2.1 ± 5.7	7.5 ± 15.0
n	12	12	12	9	7	7	4
Control	375.0 ± 460.9	419.8 ± 14.7	459.8 ± 512.8	423.3 ± 399.0	442.1 ± 428.2	459.0 ± 466.5	396.9 ± 394.9^{b}
n	22	22	22	21	19	19	13

^aData are mean \pm SD. *n* varies because of open enrollment of the study and availability of collected data at a given time point.



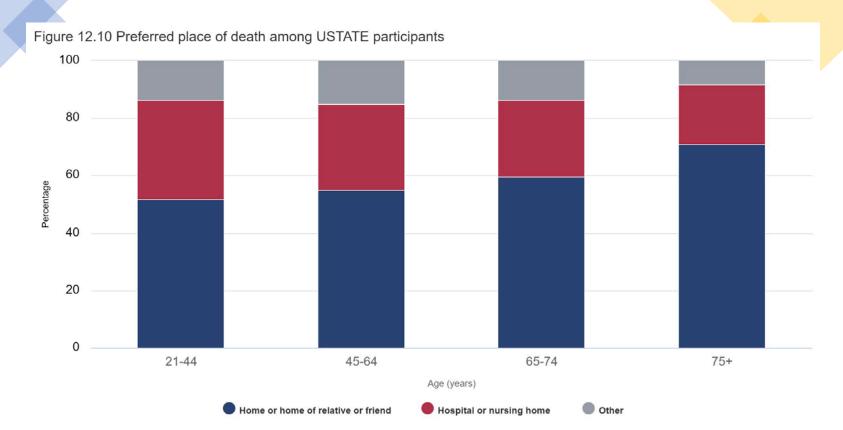
* Different from Baseline @ p < 0.05 \bigcirc Between-group difference @ p < 0.05

Clin J Am Soc Nephrol 1: 952–959, 2006. doi: 10.2215/CJN.00040106



^bP < 0.05 versus baseline.

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Data Source: 2020 United States Renal Data System Annual Data Report



Case

- Refer to renal replacement therapy option class:
- Conservative management without dialysis
- Transplant
- PD
- HHD
- ICHD
- After the option class, he and his grand- daughter have chosen PD



Case

- They prefer PD for the following reasons:
 - Less fluctuation of BP compare with ICHD
 - Less exposure to COVID and other communicable disease
 - Less travel to and from ICHD clinic
 - More flexible schedule
 - GREAT FAMILY SUPPORT!



Case Study

- Seen by a surgeon who recommended PD catheter placement by IR
- He started to have decreased appetite 6 weeks later.
- PD catheter placed by IR under conscious sedation
- Waited 2 weeks for wound to heal
- Started PD training with his grand-daughter,
- PD nurse told me the PD dialysate stays in the peritoneal space for a long time
- CAPD: 2 exchanges, 2L. dwell, 4hr each. last fill of 2L. 1.5%
- Adjusting well, no major issue



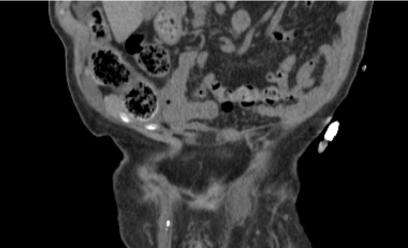
Case Study Part 2

- Two weeks later, he presented to ER with penile and scrotal edema.
- Advised him to hold PD for 2 days: edema resolved
- CT abdomen and Pelvic with dialysate shown:
- "Small-to-moderate peritoneal dialysate throughout the abdomen and pelvis. Focal fluid collection within the left inguinal canal. Small bilateral hydroceles. Edematous penis."
- "after the nurse placed fluid in my belly, my penis swells up"



Case





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What are you going to do next?

- Switch to HD via PC
- Ask surgeon to ligate the patent processus vaginalis
- Switch to CCPD at night, supine and leave day dry



Case

- He was started with one dwell of 1L. icodextran at night, keep day dry
- No penile/scrotal swelling
- Increase to 1.5L. Icodextran
- No penile/scrotal swelling
- Switched to CCPD: 3 cycles, 1L. 1.5%, 8hr
- Tolerated well
- Increase to 3 cycles, 1.5L, 8hr; then 3 cycles, 2L, 8hr
- Appetite improved, feeling a lot better,
- Driving and coming to clinic by himself now
- No edema on exam
- Kt/v pending



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Incremental PD

- 1. that the initial PD prescription be less than "full dose";
- 2. that the initial prescribed peritoneal clearance be less than the individualized clearance goal, but that the combination of peritoneal plus renal clearance does achieve that target; and
- 3. that there be an intention to increase the peritoneal clearance as required when residual renal clearance declines.



Guidelines

Incremental peritoneal dialysis

Peter G Blake¹, Jie Dong^{2,3,4,5} and Simon J Davies⁶

Peritoneal Dialysis International 2020, Vol. 40(3) 320-36
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Incremental PD

Table 1. Strategies of PD prescription and their characteristics.

Strategy	Era	Kt/V approach	Intention	Typical CAPD prescription	Typical APD prescription
Classic CAPD and APD	1977-1997 Still used	Not used	Keep patient well	4 × 2 L daily	$4 \times 2 L$ cycled $+ 2 L$ day dwell
Full-dose PD	Since 1997	Achieve Kt/V target using full-dose PD from start	Increase PD clearance if target not reached	4 \times 2 L daily	4 × 2 L cycled + 2 L day dwell (often with icodextrin)
Incremental PD	Since 1997	Achieve Kt/V target but start with low-dose PD and use residual renal function	Increase PD clearance to reach target as renal function declines	3 × 1.5–2 L for 4–7 days a week	4–5 × 2 L cycled + day dry, five to seven nights a week
Low-dose PD	Since 1977	Not used	No plan to raise PD dose due to financial constraints	3 × 2 L	Not usually available
Palliative PD	Recent	Not used	Symptom relief and minimize treatment burden	3 × 1.5 L daily, number of days as needed	5 × 1.5 L, three to five nights weekly
Urgent start PD	Since 2007	Not initially used	Immediate start but avoid leaks	2 × 1 L supine over 10–12 h	7–9 × I–I.5 L cycled supine over I0–I2 h
PD initiated for volume overload	Since 2010	Not initially relevant	Correcting fluid overload	I-2 icodextrin dwells daily	4–5 Cycles over 8 h
Goal-directed high-quality PD	2020 going forward	Individualized goal clearance based on well-being and circumstances	Adjust PD dose to reach goal clearance	3–4 × 2 L daily	4–5 $ imes$ 2 L cycled \pm day dwell

Table 2. Typical incremental PD prescriptions.

CAPD	APD
3 × 2 L daily 2 × 2 L daily (single or both icodextrin)	APD with no day dwell APD five nights a week
$I \times 2$ L icodextrin long dwell daily 4×1.5 L daily CAPD 4–6 days a week	APD three nights a week APD with 1.5 L dwell volumes APD for 6 h each night

PD: peritoneal dialysis; APD: automated peritoneal dialysis; CAPD: continuous ambulatory peritoneal dialysis.

PD: peritoneal dialysis; APD: automated peritoneal dialysis; CAPD: continuous ambulatory peritoneal dialysis.

High-quality Goal-directed PD

- PD should be prescribed using shared decision-making between the person doing PD and the care team. The aim is to establish realistic care goals that (1) maintain quality of life for the person doing PD as much as possible by enabling them to meet their life goals, (2) minimize symptoms and treatment burden while (3) ensuring high-quality care is provided
- The PD prescription should take into account the local country resources, the wishes and lifestyle considerations of people needing treatment, including those of their families/caregivers', especially if providing assistance in their care.



Guidelines

International Society for Peritoneal Dialysis practice recommendations: Prescribing high-quality goal-directed peritoneal dialysis

Peritoneal Dialysis International
2020, Vol. 40(3) 244–25
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DOI: 10.1177/0894686081 9895364
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Edwina A Brown¹ ©, Peter G Blake², Neil Boudville³, Simon Davies^{4,5}, Javier de Arteaga⁶, Jie Dong⁷, Fred Finkelstein⁸, Marjorie Foo⁹, Helen Hurst¹⁰, David W Johnson¹¹, Mark Johnson¹², Adrian Liew¹³, Thyago Moraes¹⁴ ©, Jeff Perl¹⁵, Rukshana Shroff¹⁶, Isaac Teitelbaum¹⁷ ©, Angela Yee-Moon Wang¹⁸ © and Bradley Warady¹⁹



High-quality Goal-directed PD

- 3. A number of assessments should be used to help ensure the delivery of high-quality PD care.
- a. Patient reported outcome measuresfeeling of well-being.
- b. Fluid status......Urine output and fluid removed by dialysis both contribute to maintaining good fluid status.
- c. Nutrition status
- d. Removal of toxins. This can be estimated using a calculation called Kt/V urea and/or creatinine clearance. Both are measures of the amount of dialysis delivered. There is no high-quality evidence regarding the need or benefit associated with the achievement of a specific target value for these measures.
- 4. The amount of kidney function............Management should focus on preserving this as long as possible.
- 5. For some people who require dialysis and who are old, frail or have a poor prognosis, there may be and use lityer of the large of



Thank you!





Q&As – 5 Minutes



Case Study #1

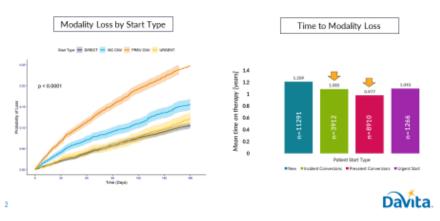


ICHD to PD Conversion Playbook Overview

Alix Dee Singh, RN
Home Director of Clinical Services
DaVita



Conversions Lead to Higher Loss Rate







Clinical Conversion Playbook Objective

Revolutionary - First to develop conversion process with Rx and training schedule

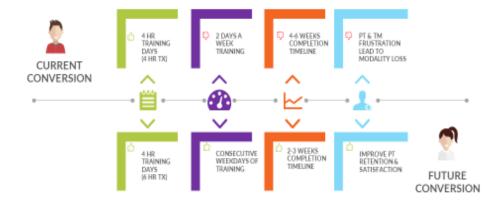


3

* A modality decision is ultimately between a partient and their nephrologist



ICHD to PD Conversion Process Comparison







An overview of the critical clinical components necessary to help appropriate patients successfully transition from ICHD to PD.

This tool is NOT intended to replace the clinician's medical judgement. Not all patients are the same. Use this tool as a guide, not a decision maker



CONVERSION PATIENTS SHOULD FOLLOW A CLEAR PROCESS

Explore the playbook in order by selecting #1 or choose from any of the topics below.

1. MODALITY EDUCATION	2. IDT ASSESSMENT	3. CATHETER PLACEMENT	4. POST OP	5. PATIENT TRAINING	6. POST TRAINING SUPPORT
All Patients should be educated following CMS requireme nts and DVA BDPs Who is responsible: All TMs How: MATCH-D and DVA resources Target Audienc e	Pt meets with MD & PDRN for examinatio n and further education IDT meets to develop conversion plan RKF (Residual Kidney Function)-request 24 hour urine per MD	Designated TM contacts surgeon's office per MD order PDRN provides pre/post op instruction s	Follow all P&P related to PDC post op care. Considerations for post op interaction s: Review and sign Consen t Develo p a training schedul e per MD order	• Training schedules are individualiz ed for RKF, Fluid, Solute clearance, Psychosocial, & learning needs. • Patient begins PD training*	At-home treatments begin after completion of training HRM /DCC initiated Patient visits clinic for refresher education
	eting criteria on 2728 /sis Catheter Care So	, ,	e lab	er care per order, placed to the care per order to	
ICHD, Home	ICHD, Home	ICHD, Home	ICHD, Home	Home	Home





MODALITY EDUCATION CONSIDERATIONS

Incident Patients: Completed within 3 weeks on ICHD

Prevalent Patients:

- ✓ Annual and per CMS Guidelines
- ✓ On Demand for any patient with the below considerations

LIFESTYLE	MEDICAL	PSYCHOSOCIAL		
 Life Goals (self and family) * No RKF may impact burden of therapy - Set realistic expectations. Transportation Issues Prefer to treat at Home Interested in Transplant Working Student Children at home 	 Has RKF Frequent Hospitalizations Exhausted access sites Cardiac concerns (Heart Failure, Intra/Interdialytic Hypo/ Hypertension) High Acuity (Trach, Home Bound) High Interdialytic weight gains Cramping r/t ICHD tx 	 Intolerance to ICHD Fear (needle, claustrophobia) Anxiety (social, general) CVC removal refusal Tx Non-adherence Identified via SW intervention (distress therm, depression screen, burden of therapy) 		





IDT ASSESSMENT

Proactive Identification of Challenges + Action Planning for Resolution= Smoother Conversion...

- ✓ MD notified of MATCH-D results
- ✓ PDRN provides additional patient education and completes modality specific assessment (remember to gain understanding of the patients preferences and Life Goals).
- ✓ If patient desires to begin PD & MD provides order, designate TM to proceed with contacting the surgeon.
- √ 24hr Urine Collection (urine urea nitrogen, plasma urea nitrogen, 24hr Urine Volume)requires MD order.
- ✓ IDT (ICRN, PDRN, MSW, RD) develop conversion plan ICHD→PD. *Recommend completing a home visit to gain knowledge for conversion planning. Remember the patient's life goals.

TEAMMATE (TM) EXPECTATIONS (ROLES AND RESPONSIBILITIES)

- Every clinical ICHD TM completes training related to modality education and is well versed in modality options.
- Every clinic has a process and resources for providing DaVita Modality Education.
- The ROD is responsible for holding teams accountable to the process. Each facility should have a TM identified to oversee the process.
- IDT Teams (ICHD TM, Nephrologist, Home TM) reviews all ICHD patients during weekly Core Team Meeting for clinical appropriateness of a Home Modality (refer back to Step 1 in this playbook).
- Document Care Activity in Clinical Management Tool (CMT).

PATIENT EXPECTATIONS

- Patients choosing PD should have a clear understanding of their role related to:
 - o Surgical: Day of surgery and follow up appointments.
 - o PDC exit site care: acute and chronic
 - Training Schedule (customized for: RKF, fluid & solute removal requirements, psychosocial needs).
 - o Daily Treatment Schedule
 - * Min RKF <250mL/day may impact burden of therapy Set realistic expectations (including probable day time fill volume, work, family, life goals).

Main Menu

- o Monthly wellness appointments
- Monthly supply order requirements
- Diet Restrictions

For patients not meeting criteria on 2728 and requiring post-operative catheter care, please refer to the Pre-Peritoneal Dialysis Catheter Care Services Policy





PATIENT TRAINING

Training schedules are individualized by the nephrologist for RKF, Fluid, Solute clearance, Psychosocial, & learning needs.

- Training schedules should include consecutive days of PD treatment and may require ICHD treatment support.
- Training schedules can vary...just remember <u>ISPD 2016 A Syllabus for Teaching PD to Patients and Caregivers</u>, "...training sessions should be held on consecutive days whenever possible to facilitate immersion of course learning. Every attempt will be made to limit interruptions (of training) to no more than 2 days."

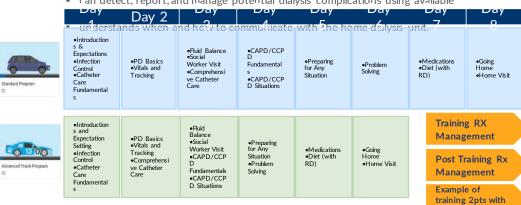
WELCOME HOME 2.0 INITIAL TRAINING

Two sample learning tracks allow provide RNs to determine appropriate suggested typical pace for each patient (though pace may extend longer for some patients and should be set at the discretion of the supervising RN)

· The minimum objectives to be met are the following

The patient and/or caregiver:

- is able to safely perform PD procedures using aseptic technique for connection;
- recognizes contamination and verbalizes appropriate action;
- identifies modification of fluid balance and its relationship to hypertension/hypotension;
- can detect, report, and manage potential dialysis complications using available



Figueiredo AE, Bemardini J, Bowes E, et al. A Syllabus for Teaching Peritoneal Dialysis to Patients and Caregivers. Perit Dial Int. 2016;36(6):592-605. doi:10.3747/pdi.2015.00277



1 RN

Clinical ICHD to PD Conversion Playbook

TRAINING PRESCRIPTION MANAGEMENT

Considerations to ensure safe and efficient training per neph order

	<u> </u>				
SCHEDULE	RKF	LEARNING IN VENTORY	FILL VOLUME	FLUID MANAGEMENT	
 What schedule supports the patient and clinics needs the best (consider burden of therapy for patient- both treatment and training)? What is best for the care partner? Consider travel and geographic challenges. 	How can RKF contribute to the design of the training schedule and/or ICHD backup to meet the patients volume and clearance needs? *24hr Urine Collection (urine urea nitrogen, plasma urea nitrogen, 24hr Urine Volume) *requires MD order.	 How does the patient learn best? What environmen tal conditions must be met to ensure learning? Learning Style Assessment ISPD: Teaching PD Adult Learning 	BSA < 1.7= 2 Liters BSA 1.7-2.0= 2.5 Liters BSA >2= 3 Liters • KDOQI	Daily fluid assessment Fluid Wise Management RECOMMENDATION S TO MINIMIZE THE USE OF HIGH DEXTROSE PD SOLUTION • Dietary interventions for sodium allowance of 2,000 mg per day7 and fluid allowance of 1,000 mL per day + urine output • In patients with residual urine volume of at least 200 mL per day, high-dose diuretics (furosemide 160 mg to 400 mg daily)	

Training Prescription Options (Patients with urine output >500mL/24hr)

Training Prescription Options (Anuric/Oliguric Patients)



Clinical ICHD to PD Conversion Playbook

TRAINING PRESCRIPTION MANAGEMENT

Anuric/Oliguric Patient Options to consider

OPTION	PD RX	ICHD SCHEDULE	ESTIMATED TRAINING TIME
1	M-T-TH-Fri Fill Volume per BSA 2 Exchanges with Dwell Times >120min	ICHD W-S	2-3 weeks of training
2	Use PD Prescription Calculator to determine Training PD Rx PD Prescription Calculator Option 2 requirements: Training Dwell Times >60min Minimum exchanges per training day must be ≥ 4. 5-6 training days per week.	0-1 PRN ICHD treatments based on IDT assessment and Physician Order. Provide dietary/fluid restriction education as needed	2 weeks of training
3	M-W-F (consider for ICHD pt= >5kg interdialytic weight gain) Fill Volume per BSA	T-TH-S	3-6 weeks of training (not optimal)
4	T-T-S (consider for ICHD pt= >5kg interdialytic weight gain) Fill Volume per BSA	M-W-F	3-6 weeks of training (not optimal)
5	T-TH (consider for ICHD pt= >5kg interdialytic weight gain) Fill Volume per BSA	M-W-F	4-6 weeks of training (not optimal)

Consider monitoring clinical response 5-7 days after 1st training day via collection of Chem panel (mthly composite 0021).

Calculation from Teitelbaum I. Crafting the Prescription for Patients Starting Peritoneal Dialysis. Clin J Am Soc Nephrol. 2018;13(3):483-485.

Calculation Example

Example of 4 exchanges

Fluid Wise Management

Fluid Assessment





TRAINING PRESCRIPTION MANAGEMENT

Patients With Urine >500mL/day options to consider

	The office scoring, any options to cons		
OPTION	PD RX	ICHD SCHEDULE	ESTIMATED TRAINING TIME
1	Use PD Prescription Calculator to determine Training PD Rx PD Prescription Calculator Option 1 Requirements: Training Dwell Times >60min Provide dietary/fluid restriction education 5 training days per week.	0-1 PRN ICHD treatments based on IDT assessment and Physician Order. Provide dietary/fluid restriction education as needed	2 weeks of training
2	M-T-TH-Fri (consider for ICHD pt= >5kg interdialytic weight gain) Fill Volume per BSA 2 Exchanges with Dwell Times >120min	ICHD W-S	2-4 weeks of training
3	T-TH (consider for ICHD pt= >5kg interdialytic weight gain) Fill Volume per BSA	ICHD M-W-F	4-6 weeks (not optimal)

Calculation from Teitelbaum I. Crafting the Prescription for Patients Starting Peritoneal Dialysis. Clin J Am Soc Nephrol. 2018;13(3):483-485.

UPD ATED RECOMMENDATIONS TO MINIMIZE THE USE OF HIGH DEXTROSE PD SOLUTION

- Dietary interventions for sodium allowance of 2,000 mg per day and fluid allowance of 1,000 mL per day + urine output
- In patients with residual urine volume of at least 200 mL per day, high-dose diuretics (furosemide 160 mg to 400 mg daily)
- OCMO Memo

Calculation Example

Example of 4 exchanges

Fluid Wise Management

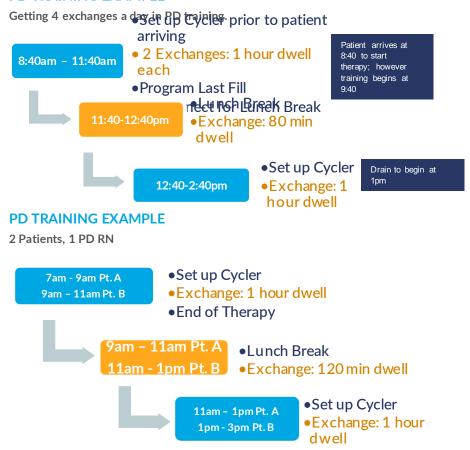
Fluid Assessment

Main Menu



Clinical ICHD to PD Conversion Playbook

PD TRAINING EXAMPLE







Thank you





Q&As – 5 Minutes



Questions to Run On -- Revisited



How Might We ...

- Collaborate with other healthcare providers and stakeholders to increase the number of patients that start dialysis at home?
- Educate differently to increase patient transition to a home modality?
- Utilize telemedicine more effectively to provide patients with access to a home modality?



Recap & Next Steps

- Top take-aways
- I like, I wish, I will
- Additional pathways for learning
- Event evaluation https://www.surveymonkey.com/r/6TPFLWT



Social Media









ESRD NCC | End Stage Renal Disease National Coordinating Center (NCC)

Thank You

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