

Peritoneal Dialysis Adequacy

Dialysis Adequacy

Definition:

Perform **sufficient dialysis** to rehabilitate and **maintain** the patient at his/her **best** possible condition

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Adequacy Guidelines for Peritoneal Dialysis

KDOQI Guidelines

- Adequacy target for dialysis should include both **solute and fluid** removal.
- The minimum targets for combined **renal** and **peritoneal** clearance is $Kt/V_{\text{urea}} = 1.7$ / week.
- If urine output > 100cc/day, collection should be performed

ISPD Guidelines

- Adequacy should be **interpreted clinically** rather than solute and fluid removal
- For small solute removal, total Kt/V_{urea} not less than 1.7 at any time

How to collect the dialysate and urine sample for the solute clearance test?

Methods of Collecting Dialysate Samples for Adequacy Testing (CAPD)

a. Batch method

1. Collect all drain bags for 24 hours.
2. Weigh or measure dialysate in each bag to determine total volume.
3. Combine all dialysate in one container and mix well.
4. Take sample and send to laboratory for urea & creatinine.

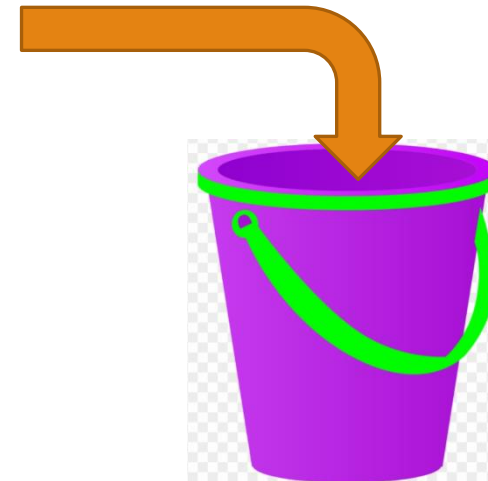
No	Time	Vol in	Vol out	%	Bal
1	0800	2000	2200	1.5	-200
2	1200	2000	2400	2.5	-400
3	1600	2000	2200	1.5	-200
4	2000	2000	1900	2.5	+100
				Tot	-700

Example:

1/7/19



2/7/19



Methods of Collecting Dialysate Samples for Adequacy Testing (CAPD)

b. Aliquot method

- Collect all drain bags for 24 hours.
- Weigh/measure each drain bag.
- Record the total 24-hour volume.
- Take at least 0.1% sample from each bag.
- Combine all samples and mix well.
- Send sample to laboratory for urea & creatinine.

Methods of Collecting Dialysate Samples for Adequacy Testing (APD)

1. To change a new effluent bag prior to start of APD therapy
2. Collect a sample of the dialysate effluent after the entire therapy completes
3. Invert the effluent bag several times before pour into the specimen bottle.
4. If a daytime exchange is performing it must be included in the total collection.
5. To record the ultrafiltration (UF) on the APD record book.



24-hour Urine Collection

- Start 24-hr urine collection in container provided.

Example: From Sunday 0800hrs to Monday 0800hrs.

- Mark the level of urine on the container.
- Pour the urine into the small container provided.
- Discard the balance urine.
- Bring the urine collection to the PD Centre/Lab.

STEP 1



*** DO NOT DISCARD THE PRESERVATIVE/LIQUID in the 5 litre container.**

Collection start date: _____
(0800hrs - 0800hrs)
Submission date: _____

Day 1:
Time awake and 1st urine: _____ (hrs),
TO URINATE IN THE TOILET.


2nd and subsequent urine:
To urinate into the cup, then pour into the 5 litre container. Collect each urine passed strictly.

STEP 2 (A)



Day 2:
Urinate one last time at: _____ (hrs)
on: _____ (date)
(Last urine collected has to be exactly 24 hours from 1st urine.)

STEP 2 (B)




MARK the urine level on the 5 litre container with the arrow sticker.

STEP 3 (A) SHAKE



SHAKE the 5 litre container to mix the urine with the preservatives well.

STEP 3 (B)



After shaking, **POUR** the urine into the small bottles fully.

STEP 4 (A)



Empty the urine balance into toilet bowl.

STEP 3 (B)



Submit 24 hours urine collection sample, the marked 5 litre container with the test forms to the clinical lab on day 2.
Blood test maybe required if ordered by doctor.

Formulas for urea Clearance

Urea Clearance (Kt/V is normalised to the volume of distribution of urea

$$\text{Dialysis Kt/V}_{\text{urea}} = \frac{\text{24-Hr D/P Urea} \times \text{24-Hr Drained Volume (L)} \times 7}{\text{Volume of urea distribution}}$$

$$\text{Renal Kt/V}_{\text{urea}} = \frac{\text{24-Hr U/P Urea} \times \text{24-Hr Urine Volume} \times 7}{\text{Volume of urea distribution}}$$

*D/P = $\frac{\text{Dialysis concentration}}{\text{Plasma concentration}}$

**U/P = $\frac{\text{Urine concentration}}{\text{Plasma concentration}}$

Adequate peritoneal dialysis

Adequate dialysis should be assessed clinically and not only by measurement of solute clearance. A sufficient dose of peritoneal dialysis is that which is associated with:

- Adequate fluid balance
- Blood pressure control
- Preservation of residual renal function
- Absence of malnutrition
- Absence of anemia
- Appropriate control of Ca/PO₄/PTH
- Acid-base and electrolyte balance

- Control of uremic symptoms
 - Weakness & tiredness
 - Weight (muscle) loss
 - Poor appetite
 - Disturbed sleep
 - Nausea

