

CALCULATIONS

Adjusted Calcium (mg/dL)	
Calculation	Total Calcium + 0.8 x (4.0-Albumin)
Included In	Adjusted Calcium Phosphorus Product Comprehensive Metabolic Panel Comprehensive Metabolic Panel w/Phosphorus
Note	Calculation provided only when Albumin is <4.0 g/dL

Adjusted Calcium Phosphorus Product (mg²/dL²)	
Calculation	(Total Calcium (mg/dL) + 0.8 x (4.0-Albumin (g/dL))) x Phosphorus
Included In	Adjusted Calcium Phosphorus Product Comprehensive Metabolic Panel w/Phosphorus
Note	Calculation provided only when Albumin is <4.0 g/dL

A/G Ratio	
Calculation	Albumin/Globulin
Included In	Comprehensive Metabolic Panel Comprehensive Metabolic Panel w/Phosphorus

Anion Gap (mEq/L)	
Calculation	Sodium – (Chloride + CO ₂)
Included In	Basic Metabolic Panel Comprehensive Metabolic Panel Comprehensive Metabolic Panel w/ Phosphorus Electrolytes Renal Function Panel

Calcium Phosphorus Product (mg²/dL²)	
Calculation	Total Calcium x Phosphorus
Included In	Calcium Phosphorus Product Adjusted Calcium Phosphorus Product Comprehensive Metabolic Panel w/Phosphorus

eGFR (mL/min/1.73 m²)	
Calculation	$175 \times (\text{Scr})^{-1.154} \times (\text{age})^{-0.203} \times (0.742 \text{ if female}) \times (1.210 \text{ if African American})$
Included In	eGFR (CKD, Non Dialysis)
Note	Estimated GFR (eGFR) using IDMS-Traceable Modification of Diet in Renal Disease (MDRD)

Globulin (g/dL)	
Calculation	Total Protein–Albumin
Included In	Comprehensive Metabolic Panel Comprehensive Metabolic Panel w/Phosphorus

Hemoglobin x 3 (g/dL)	
Calculation	Hemoglobin x 3
Included In	Complete Blood Count (CBC) & Differential Complete Blood Count (CBC) & Differential w/Reticulocytes Hemoglobin Hemoglobin & Hematocrit (H&H) Hemogram (Complete Blood Count w/o Differential)

CALCULATIONS

Iron Status w/Iron & Transferrin	
Total Iron Binding Capacity (TIBC) (µg/dL)	
Calculation	Transferrin x 1.4
% Transferrin Saturation	
Calculation	(Iron/(Transferrin x 1.4)) x 100

Lipid Panel	
Cholesterol/HDL Ratio	
Calculation	Cholesterol/HDL
Included In	Lipid Panel (Coronary Risk Profile)
Low Density Lipoprotein (mg/dL)	
Calculation	Cholesterol – (Very Low Density Lipoprotein + HDL)
Included In	Lipid Panel (Coronary Risk Profile)
Very Low Density Lipoprotein (mg/dL)	
Calculation	Triglycerides/5
Included In	Lipid Panel (Coronary Risk Profile)
Note	Only provided if Triglycerides are <400 mg/dL

Prothrombin Time (Protime): INR	
Calculation	(PT Ratio) ^{ISI} PT Ratio = (Patient PT/Mean Normal PT) ^{ISI} Mean Normal PT = Geometric Mean ISI = International Sensitivity Index
Included In	Prothrombin Time (PT)

% Recirculation	
Calculation	(Systemic BUN – Arterial BUN)/(Systemic BUN – Venous BUN) x 100
Included In	Recirculation Study

HEMODIALYSIS CALCULATIONS	
Kt/V Equilibrated (eqKt/V)	
Calculation	$(0.924 \times \ln Kt/V) - ((0.395 \times \ln Kt/V) / (\text{Min} / 60)) + 0.056$
Included In	Kt/V Standard, URR Kt/V Standard, Natural Log, URR
Note	Leygoldt Formula For patient dialyzing 2 or 4-6 times per week For Kt/V Standard calculation purposes only, not reported

Kt/V Jindal	
Calculation	$(0.04 \times ((\text{Pre BUN} - \text{Post BUN}) / \text{Pre BUN} \times 100) - 1.2)$
Included In	Kt/V Jindal (Not K/DOQI Recommended)
Note	Jindal Formula The HD Adequacy Work Group feels this formula should not be used to measure delivered dose of Hemodialysis. (K/DOQI Clinical Practice Guidelines for Hemodialysis Adequacy: Update 2000, Guideline 2)

CALCULATIONS

Kt/V Natural Log (lnKt/V)	
Calculation	$(-\ln((\text{Post BUN}/\text{Pre BUN}) - (0.008 \times \text{Treatment Time in mins}/60)) + ((4 - (3.5 \times (\text{Post BUN}/\text{Pre BUN})) \times (\text{Pre WT} - \text{Post WT})/\text{Post WT}))$
Included In	Kt/V Natural Log, URR Kt/V Natural Log, URR, nPNA Kt/V Standard, Natural Log, URR
Note	Daugirdas II Formula The K/DOQI recommendations are: Prescribed dose of hemodialysis: Kt/V of 1.3 Delivered dose of hemodialysis: Kt/V >1.2

Kt/V Standard (stdKt/V)	
Calculation	$(168 \times (1 - \exp(-\text{eqKt}/V)) / (\text{Min}/60)) / ((1 - \exp(-\text{eqKt}/V)) / \text{eqKt}/V + (168/\text{Number of Treatment}/(\text{Min}/60)) - 1)$
Included In	Kt/V Standard, URR Kt/V Standard, Natural Log, URR
Note	Leypoldt Formula For patient dialyzing 2 or 4-6 times per week

nPNA, Hemodialysis	
Calculation	<ol style="list-style-type: none"> 1. Treatment #1: Beginning of week PNA (PCR) = $\text{Pre BUN} / (36.3 + 5.48 \times \text{Kt}/V \text{ Natural Log} + 53.5 / \text{Kt}/V \text{ Natural Log}) + 0.168$ 2. Treatment #2: Midweek PNA (PCR) = $\text{Pre BUN} / (25.8 + 1.15 \times \text{Kt}/V \text{ Natural Log} + 56.4 / \text{Kt}/V \text{ Natural Log}) + 0.168$ 3. Treatment #3: End of week PNA (PCR) = $\text{Pre BUN} / (16.3 + 4.3 \times \text{Kt}/V \text{ Natural Log} + 56.6 / \text{Kt}/V \text{ Natural Log}) + 0.168$
Included In	Kt/V Natural Log, URR, nPNA
Note	nPNA calculation is only applicable to patients on thrice-weekly dialysis without significant residual function. nPNA calculated from Kt/V without formal kinetic modeling according to Depner T and Daugirdas J: JASN 1996;7:780-785.

Urea Reduction Ratio (%)	
Calculation	$(1 - (\text{Post BUN}/\text{Pre BUN})) \times 100$
Included In	Kt/V Jindal (Not K/DOQI Recommended) Kt/V Natural Log, URR Kt/V Natural Log, URR, nPNA Kt/V Standard, Natural Log, URR Kt/V Standard, URR Urea Reduction Ratio w/Pre and Post BUN

Ultrafiltration Rate (UFR) (mL/kg/hr)	
Calculation	$((\text{pre-weight} - \text{post-weight}) \times 1000) / (\text{delivered time in mins}/60) / \text{post-weight in kg}$
Included In	Kt/V Natural Log, URR Kt/V Natural Log, URR, nPNA Kt/V Standard, Natural Log, URR Kt/V Standard, URR

CALCULATIONS

PD ADEQUACY CALCULATIONS	
Weekly Total Kt/V	
Calculation	Weekly Residual Kt/V + Weekly Dialysate Kt/V

Weekly Residual Kt/V	
Calculation	$((\text{Urine Urea Nitrogen/BUN}) \times (\text{Urine Volume (mL)/Urine Collection Time (min)}) \times 10.08) / \text{VSA}$
Note	Calculated if urine sample provided

Weekly Dialysate Kt/V	
Calculation	$((\text{Dialysate Urea Nitrogen/BUN}) \times (24 \text{ hour Dialysate Drain Volume (mL)/1000}) \times 7) / \text{VSA}$

Weekly Total Creatinine Clearance (Liters/week/1.73 m ²)	
Calculation	Weekly Residual GFR + Weekly Dialysate Creatinine Clearance

Weekly Residual GFR (Liters/week/1.73 m ²)	
Calculation	Arithmetic Mean of Weekly Urea Clearance and Weekly Creatinine Clearance $((\text{Urine Urea Nitrogen/BUN}) \times (\text{Urine Volume (mL)/Urine Collection Time (min)}) \times 10.08) + (\text{Urine Creatinine/Plasma Creatinine} \times \text{Urine Volume (mL)/Urine Collection Time (min)}) \times 10.08) / 2 \times 1.73 / \text{BSA}$

Weekly Dialysate Creatinine Clearance (Liters/week/1.73 m ²)	
Calculation	$(\text{Dialysate Corrected Creatinine/Plasma Creatinine}) \times (24 \text{ hour Dialysate Drain Volume (mL)/1000}) \times 7 \times 1.73 / \text{BSA}$

Corrected Creatinine, 24 Hour (mg/dL)	
Calculation	$\text{Creatinine at 24 Hour Dwell} - (\text{Glucose at 24 Hour Dwell} \times 0.00010386)$

nPNA, Peritoneal Dialysis (g/kg/day)	
Calculation	$(10.76 \times ((0.69 \times \text{UNA}) + 1.46)) / (\text{VSA}/0.58)$

Protein Nitrogen Appearance (PNA) (g/day)	
Calculation	$10.76 \times ((0.69 \times \text{UNA}) + 1.46)$

UNA (g/day)	
Calculation	$(24 \text{ Hour Drain Volume (mL)} \times 24 \text{ Hour Urea Dialysate}) / 100000 + (\text{Urine Volume (mL)} \times \text{Urine Urea Nitrogen}) / 100000 \times (1440 / \text{Total Urine Collection Time (min)})$
Note	For PNA calculation purposes only, not reported

Body Surface Area (BSA)	
Calculation	Adult (≥ 16 years) uses DuBois and DuBois formula $\text{BSA (m}^2\text{)} = 0.007184 \times \text{Wt}^{0.425} \times \text{Ht}^{0.725}$ Pediatric (< 16 years) uses Haycock formula $\text{BSA (m}^2\text{)} = 0.024265 \times \text{Wt}^{0.5378} \times \text{Ht}^{0.3964}$ where weight (Wt) is in kilograms and height (Ht) is in centimeters

Volume (V) from Surface Area (Liters)	
Calculation	Adult (≥ 16 years) uses Hume and Weyers formula Male: $V = -14.012934 + 0.296785 \times \text{Wt} + 0.194786 \times \text{Ht}$ Female: $V = -35.270121 + 0.183809 \times \text{Wt} + 0.344547 \times \text{Ht}$ Pediatric (< 16 years) uses Friis-Hansen formula

CALCULATIONS

	$V = 0.135 \times Wt^{0.666} \times Ht^{0.535}$ where weight (Wt) is in kilograms and height (Ht) is in centimeters
Included In	PD Adequacy Residual Urea Clearance (KrU)

Peritoneal Equilibration Test (PET) Fast	
Corrected Creatinine, 4 Hour (mg/dL)	
Calculation	Creatinine at 4 Hour Dwell – (Glucose at 4 Hour Dwell x 0.00010386)

Corrected Creatinine D/P, 4 Hour	
Calculation	Corrected Creatinine at 4 Hour Dwell/Plasma Creatinine at 2 Hour Dwell

Peritoneal Equilibration Test (PET) Standard	
Corrected Creatinine, 0 Hour, 2 Hour, 4 Hour (mg/dL)	
Calculation	Creatinine at 0 or 2 or 4 Hour Dwell – (Glucose at 0 or 2 or 4 Hour Dwell x 0.00010386)

Corrected Creatinine D/P, 0 Hour	
Calculation	Corrected Creatinine at 0 Hour Dwell/Plasma Creatinine at 2 Hour Dwell

Corrected Creatinine D/P, 2 Hour	
Calculation	Corrected Creatinine at 2 Hour Dwell/Plasma Creatinine at 2 Hour Dwell

Corrected Creatinine D/P, 4 Hour	
Calculation	Corrected Creatinine at 4 Hour Dwell/Plasma Creatinine at 2 Hour Dwell

Glucose D/D0, 2 Hour	
Calculation	Glucose at 2 Hour Dwell/Glucose at 0 Hour Dwell

Glucose D/D0, 4 Hour	
Calculation	Glucose at 4 Hour Dwell/Glucose at 0 Hour Dwell

Urea D/P, 0 Hour	
Calculation	Urea at 0 Hour Dwell/Urea at 2 Hour Dwell

Urea D/P, 2 Hour	
Calculation	Urea at 2 Hour Dwell/Urea at 2 Hour Dwell

Urea D/P, 4 Hour	
Calculation	Urea at 4 Hour Dwell/Urea at 2 Hour Dwell

Fluid, 24-Hour Dwell	
Corrected Creatinine, 24 Hour (mg/dL)	
Calculation	Creatinine at 24 Hour Dwell – (Glucose at 24 Hour Dwell x 0.00010386)

Fluid, Overnight Dwell	
Corrected Creatinine, Overnight (mg/dL)	
Calculation	Creatinine Overnight Dwell – (Glucose Overnight Dwell x 0.00010386)

CALCULATIONS

Creatinine Clearance, Urine (Residual Renal Creatinine Clearance)	
Calculation	$(\text{Urine Creatinine/Blood Creatinine}) \times (\text{Urine Volume (mL)}/\text{Urine Collection Time (min)}) \times (1.73/\text{BSA})$
Included In	Urine Creatinine Clearance

Body Surface Area (BSA)	
Calculation	<p>Adult (≥ 16 years) uses DuBois and DuBois formula $\text{BSA (m}^2\text{)} = 0.007184 \times \text{Wt}^{0.425} \times \text{Ht}^{0.725}$ </p> <p>Pediatric (< 16 years) uses Haycock formula $\text{BSA (m}^2\text{)} = 0.024265 \times \text{Wt}^{0.5378} \times \text{Ht}^{0.3964}$ </p> <p>where weight (Wt) is in kilograms and height (Ht) is in centimeters</p>

Residual Urea Clearance, KrU – for Hemodialysis only	
KrU (mL/min)	
Calculation	$(\text{Urine Urea Nitrogen} \times \text{Urine Volume (mL)}) / (\text{Blood BUN} \times 0.9 \times \text{Total Urine Collection Time (min)})$

Kt/V Residual	
Calculation	$(\text{Urine Urea Nitrogen}/\text{Blood BUN}) \times (\text{Urine Volume (mL)}/\text{Urine Collection Time (min)}) \times (10.08/\text{VSA})$

Volume from Surface Area (Liters)	
Calculation	<p>Adult (≥ 16 years) uses Hume and Weyers formula Male: $V = -14.012934 + 0.296785 \times \text{Wt} + 0.194786 \times \text{Ht}$ Female: $V = -35.270121 + 0.183809 \times \text{Wt} + 0.344547 \times \text{Ht}$ </p> <p>Pediatric (< 16 years) uses Friis-Hansen formula $V = 0.135 \times \text{Wt}^{0.666} \times \text{Ht}^{0.535}$ </p> <p>where weight (Wt) is in kilograms and height (Ht) is in centimeters</p>
Included In	PD Adequacy Residual Urea Clearance (KrU)

Urine Creatinine, 24 Hour (mg/24 hour)	
Calculation	$(\text{Urine Creatinine}/100) \times \text{Total Urine Volume in mL}$
Included In	24 Hour Urine Creatinine

Urine Urea Nitrogen, 24 Hour (g/24 hour)	
Calculation	$((\text{Urine Urea Nitrogen in mg/dL}/100) \times \text{Total Urine Volume in mL}) / 1000$
Included In	24 Hour Urine Urea Nitrogen