CALCULATIONS

Adjusted Calcium (mg/dL)	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 (mg^2/dL^2)	(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	Albumin/Globulin
Included In	Comprehensive Metabolic Panel Comprehensive Metabolic Panel w/Phosphorus

Anion Gap (mEq/L)	Sodium – (Chloride + CO2)
Included In	Basic Metabolic Panel Comprehensive Metabolic Panel Comprehensive Metabolic Panel w/ Phosphorus Electrolytes Renal Function Panel

Calcium Phosphorus Product (mg^2/dL^2)	Total Calcium x Phosphorus
Included In	Calcium Phosphorus Product Adjusted Calcium Phosphorus Product Comprehensive Metabolic Panel w/Phosphorus

eGFR (mL/min/1.73 m^2)	175 x $(Scr)^{-1.154}$ x $(age)^{-0.203}$ x (0.742 if female) x (1.210 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)	Total Protein–Albumin
Included In	Comprehensive Metabolic Panel Comprehensive Metabolic Panel w/Phosphorus

Hemoglobin x 3 (g/dL)	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)	Transferrin x 1.4

% Transferrin Saturation	(Iron/(Transferrin x 1.4)) x 100

Lipid Panel (Coronary Risk Profile)	
Cholesterol/HDL Ratio	Cholesterol/HDL

Low Density Lipoprotein (mg/dL)	Cholesterol – (Very Low Density Lipoprotein + HDL)

Very Low Density Lipoprotein (mg/dL)	Triglycerides/5
Note	Only provided if Triglyceride is <400 mg/dL

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

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

CALCULATIONS

HEMODIALYSIS CALCULATIONS	
Kt/V Equilibrated (eqKt/V)	(0.924 x lnKt/V) – ((0.395 x lnKt/V) / (Min / 60)) + 0.056
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 For Kt/V Standard calculation purposes only, not reported

Kt/V Jindal	(0.04 x ((Pre BUN – Post BUN) / Pre BUN x 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)

Kt/V Natural Log (lnKt/V)	(-Ln((Post BUN/Pre BUN) - (0.008 x Treatment Time in mins/60)) + ((4-(3.5 x (Post BUN/Pre BUN)) x (Pre WT-Post WT)/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)	(168 x (1-exp(-eqKt/V)) / (Min/60)) / ((1-exp(-eqKt/V)) / eqKt/V + (168/Number of Treatment/(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	1. Treatment #1: Beginning of week PNA (PCR) = Pre BUN /(36.3 + 5.48 x Kt/V Natural Log + 53.5/ Kt/V Natural Log) + 0.168 2. Treatment #2: Midweek PNA (PCR) = Pre BUN /(25.8 + 1.15 x Kt/V Natural Log + 56.4/ Kt/V Natural Log) + 0.168 3. Treatment #3: End of week PNA (PCR) = Pre BUN /(16.3 + 4.3 x Kt/V Natural Log + 56.6/ Kt/V 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 (%)	(1 – (Post BUN/Pre BUN)) x 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)	((pre-weight – post-weight) x 1000)/ (delivered time in mins/60)/ 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	Weekly Residual Kt/V + Weekly Dialysate Kt/V

Weekly Residual Kt/V	((Urine Urea Nitrogen/BUN) x (Urine Volume (mL)/Urine Collection Time (min)) x 10.08) / VSA
Note	Calculated if urine sample provided

Weekly Dialysate Kt/V	((Dialysate Urea Nitrogen/BUN) x (24 hour Dialysate Drain Volume (mL)/1000) x 7) / VSA

Weekly Total CrCl (Liters/week/1.73 m²)	Weekly Residual GFR + Weekly Dialysate Creatinine Clearance

Weekly Residual GFR (Liters/week/1.73 m²)	Arithmetic Mean of Weekly Urea Clearance and Weekly Creatinine Clearance ((Urine Urea Nitrogen/BUN) x (Urine Volume (mL)/Urine Collection Time (min) x 10.08) + (Urine Creatinine/Plasma Creatinine x Urine Volume (mL)/Urine Collection Time (min) x 10.08))/2 x 1.73/BSA

Weekly Dialysate CrCl (Liters/week/1.73 m²)	(Dialysate Corrected Creatinine/Plasma Creatinine) x (24 hour Dialysate Drain Volume (mL)/1000) x 7 x 1.73/BSA

Weekly Residual CrCl (Liters/week/1.73 m²)	(Urine Creatinine/Blood Creatinine) x (Urine Volume (mL)/Urine Collection Time (min)) x (1.73/BSA) x 10.08

Creatinine Clearance (mL/min/1.73m2)	(Urine Creatinine/Blood Creatinine) x (Urine Volume (mL)/Urine Collection Time (min)) x (1.73/BSA)

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

nPNA, Peritoneal Dialysis (g/kg/day)	(10.76 x ((0.69 x UNA) + 1.46)) / (VSA/0.58)

Protein Nitrogen Appearance (PNA) (g/day)	10.76 x ((0.69x UNA) + 1.46)

UNA (g/day)	(24 Hour Drain Volume (mL) x 24 Hour Urea Dialysate)/100000 + (Urine Volume (mL) x Urine Urea Nitrogen)/100000) x (1440/Total Urine Collection Time (min))
Note	For PNA calculation purposes only, not reported

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

Volume (V) from Surface Area (Liters)	Adult (≥16 years) uses Hume and Weyers formula Male: V= -14.012934 + 0.296785 x Wt + 0.194786 x Ht Female: V = -35.270121 + 0.183809 x Wt + 0.344547 x Ht Pediatric (<16 years) uses Friis-Hansen formula V = 0.135 x $Wt^{0.666}$ x $Ht^{0.535}$ where weight (Wt) is in kilograms and height (Ht) is in centimeters

CALCULATIONS

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

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

Peritoneal Equilibration Test (PET) Standard	
Corrected Creatinine, 0 Hour, 2 Hour, 4 Hour (mg/dL)	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	Corrected Creatinine at 0 Hour Dwell/Plasma Creatinine

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

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

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

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

Urea D/P, 0 Hour	Urea at 0 Hour Dwell/Plasma Urea

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

Urea D/P, 4 Hour	Urea at 4 Hour Dwell/Plasma Urea
Peritoneal Equilibration Test (PET) Modified	
Corrected Creatinine, 0 Hour, 1 Hour, 2 Hour, 4 Hour (mg/dL)	Creatinine at 0 or 1 or 2 or 4 Hour Dwell – (Glucose at 0 or 1 or 2 or 4 Hour Dwell x 0.00010386)

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

Sodium D/P, 0 Hour	Sodium at 0 Hour Dwell / Plasma Sodium

Sodium D/P, 1 Hour	Sodium at 1 Hour Dwell / Plasma Sodium

Sodium D/P, 2 Hour	Sodium at 2 Hour Dwell / Plasma Sodium

Sodium D/P, 4 Hour	Sodium at 4 Hour Dwell / Plasma Sodium

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

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

CALCULATIONS

24 Hour Urine Creatinine Clearance (Residual Renal Creatinine Clearance)	
Creatinine Clearance (mL/min/1.73m^2)	(Urine Creatinine/Blood Creatinine) x (Urine Volume (mL)/Urine Collection Time (min)) x (1.73/BSA)

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

Residual Urea Clearance, KrU – for Hemodialysis only	
KrU (mL/min)	(Urine Urea Nitrogen x Urine Volume (mL)) / (Blood BUN x 0.9 x Total Urine Collection Time (min))

Kt/V Residual	(Urine Urea Nitrogen/Blood BUN) x (Urine Volume (mL)/ Urine Collection Time (min)) x (10.08/VSA)

Volume (V) from Surface Area (Liters)	Adult (≥16 years) uses Hume and Weyers formula Male: V= -14.012934 + 0.296785 x Wt + 0.194786 x Ht Female: V = -35.270121 + 0.183809 x Wt + 0.344547 x Ht Pediatric (<16 years) uses Friis-Hansen formula V = 0.135 x Wt$^{0.666}$0.666 x Ht$^{0.535}$ where weight (Wt) is in kilograms and height (Ht) is in centimeters

24 Hour Urine Creatinine	
Urine Creatinine, 24 Hour (mg/24 hr)	((Urine Creatinine in mg/dL x Urine Volume in mL)/100) x (1440 / Total Urine Collection Time in min)

24 Hour Urine Urea Nitrogen	
Urine Urea Nitrogen, 24 Hour (g/24 hr)	((Urine Urea Nitrogen in mg/dL/100) x (Urine Volume in mL/(Total Urine Collection Time in mins/1440)))/1000

24 Hour Urine Total Protein with Creatinine	
Urine Protein, 24 Hour (mg/24 hr)	(Urine Total Protein/100) x ((Urine Volume in mL)/(Total Urine Collection Time in mins/1440))

Urine Total Protein/Creatinine Ratio, 24 Hour (mg/g creat)	((Urine Total Protein/100) x ((Urine Volume in mL)/(Total Urine Collection Time in mins/1440)))/(((Urine Creatinine/100) x (Urine Volume in mL/(Total Urine Collection Time in mins /1440)))/1000)

Urine Creatinine, 24 Hour (g/24 hr)	((Urine Creatinine/100) x (Urine Volume in mL/(Total Urine Collection Time in mins/1440)))/1000

Random Urine Total Protein with Creatinine	
Urine Total Protein/Creatinine Ratio (mg/g creat)	(Total Protein, Random Urine/Creatinine, Random Urine) x 1000

CALCULATIONS

Gotch PD QA	
Corrected Creatinine, PD QA (mg/dL)	(Corrected Creatinine, PD QA – Glucose PD QA x 0.00010386)

Total Protein, PD QA (g/dL)	Total Protein, PD QA / 1000

Gotch PD Exchange 1	
Corrected Creatinine, PD Exchange 1 (mg/dL)	(Corrected Creatinine, PD Exchange 1 – Glucose PD Exchange 1 x 0.00010386)

Total Protein, PD Exchange 1 (g/dL)	Total Protein, PD Exchange 1 / 1000

Gotch PD Exchange 2	
Corrected Creatinine, PD Exchange 2 (mg/dL)	(Corrected Creatinine, PD Exchange 2 – Glucose PD Exchange 2 x 0.00010386)

Total Protein, PD Exchange 2 (g/dL)	Total Protein, PD Exchange 2 / 1000

Gotch PD Exchange 3	
Corrected Creatinine, PD Exchange 3 (mg/dL)	(Corrected Creatinine, PD Exchange 3 – Glucose PD Exchange 3 x 0.00010386)

Total Protein, PD Exchange 3 (g/dL)	Total Protein, PD Exchange 3 / 1000

Gotch PD Exchange 4	
Corrected Creatinine, PD Exchange 4 (mg/dL)	(Corrected Creatinine, PD Exchange 4 – Glucose PD Exchange 4 x 0.00010386)

Total Protein, PD Exchange 4 (g/dL)	Total Protein, PD Exchange 4 / 1000

Gotch PD Exchange 5	
Corrected Creatinine, PD Exchange 5 (mg/dL)	(Corrected Creatinine, PD Exchange 5 – Glucose PD Exchange 5 x 0.00010386)

Total Protein, PD Exchange 5 (g/dL)	Total Protein, PD Exchange 5 / 1000