Garcia Laboratory Calculated Results

Equations used in patient laboratory reports

Garcia Laboratory uses the following equations to calculate results from measured laboratory values and patient information. Calculated results are reported when the required inputs are available and applicable reporting criteria are met.

Chemistry and estimated kidney function

Calculated result	Equation	Variables and units
Estimated GFR MDRD	186 × SCr^−1.154 × age^−0.203 Multiply by 0.742 for female patients. Multiply by 1.212 for African American patients.	SCr = serum creatinine in mg/dL; age in years. Result: mL/min/1.73 m²; whole number.
Albumin globulin ratio	Albumin ÷ globulin	Both concentrations in g/dL. Result: ratio; one decimal.
Calculated VLDL cholesterol	Triglycerides ÷ 5	Triglycerides in mg/dL. Result: mg/dL; whole number.
Calculated LDL cholesterol	Total cholesterol − HDL cholesterol − (triglycerides ÷ 5)	All concentrations in mg/dL. Result: mg/dL; whole number.
Cholesterol HDL ratio	Total cholesterol ÷ HDL cholesterol	Both concentrations in mg/dL. Result: ratio; one decimal.
BUN creatinine ratio	Blood urea nitrogen ÷ serum creatinine	Both concentrations in mg/dL. Result: ratio; one decimal.
Mean plasma glucose MPG	35.6 × HbA1c − 77.3	HbA1c in %. Result: mg/dL; whole number.
Estimated average glucose eAG	28.7 × HbA1c − 46.7	HbA1c in %. Result: mg/dL; whole number.

Calculated LDL and VLDL cholesterol are not reported using these equations when triglycerides are 400 mg/dL or greater. MPG and eAG use different equations and may produce different estimates from the same HbA1c result.

Timed urine calculations

Calculated result	Equation	Variables and units
Urine flow rate	Urine volume ÷ collection time	Volume in mL; time in minutes. Result: mL/min. A 24 hour collection is 1,440 minutes.
Body surface area BSA	0.20247 × height^0.725 × weight^0.425	Height in meters; weight in kg. Result: m².
Creatinine clearance	(Urine creatinine × urine flow × 1.73) ÷ (serum creatinine × BSA)	Urine and serum creatinine in matching units. Result: mL/min/1.73 m².
24 hour urine creatinine	Urine creatinine × 24 hour urine volume ÷ 100	Creatinine in mg/dL; volume in mL. Result: mg/24 hours.

Hematology and coagulation

Calculated result	Equation	Variables and units
Mean corpuscular hemoglobin MCH	(Hemoglobin ÷ RBC count) × 10	Hemoglobin in g/dL; RBC in 10^6/µL. Result: pg.
Mean corpuscular hemoglobin concentration MCHC	(Hemoglobin ÷ hematocrit) × 100	Hemoglobin in g/dL; hematocrit in %. Result: g/dL.
Mean corpuscular volume MCV recalculation	(Hematocrit ÷ RBC count) × 10	Hematocrit in %; RBC in 10^6/µL. Result: fL.
International normalized ratio INR	(Patient PT ÷ mean normal PT)^ISI	PT values in seconds. ISI is the international sensitivity index for the reagent and instrument.

CD4 and CD8 lymphocyte testing

Calculated result	Equation	Variables and units
Absolute CD4 and CD8 counts	(Target cell events ÷ bead events) × (beads per tube ÷ blood volume)	Blood volume in µL; bead count is lot specific. Result: cells/µL.
CD4 and CD8 percentages	(Target lymphocyte events ÷ total lymphocyte events) × 100	Software applies lymphocyte gating and purity correction. Result: %.

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