

Selected Normal Pediatric Laboratory Values

All laboratory values listed are approximate. Consult your local laboratory for guidelines as to normal values for the specific testing procedures used.

NORMAL VALUES: BLOOD

Albumin (S)¹			Ammonia (P)¹		
Newborn:	2.6–3.6 g/dL		Newborns:	<50 mmol/L	
1–3 years:	3.4–4.2 g/dL		Thereafter:	0–35 mmol/L	
4–6 years:	3.5–5.2 g/dL		Base Excess (B)¹		
7–9 years:	3.7–5.6 g/dL		Newborn:	–10 to –2 mmol/L	
10–19 years:	3.7–5.6 g/dL		Infant:	–7 to –1 mmol/L	
Aldolase (S)¹			Child:	–4 to +2 mmol/L	
10–24 months:	3.4–11.8 U/L		Thereafter:	–3 to +3 mmol/L	
2–7 years:	1.2–8.8 U/L		Bicarbonate, Actual (P)²		
Adults:	1.7–4.9 U/L		Calculated from pH and PaCO ₂		
Aldosterone (S)¹			Newborns:	17.2–23.6 mmol/L	
6–9 years:	1–24 ng/dL		2 months–2 years:	19–24 mmol/L	
10–11 years:	2–15 ng/dL		Children:	18–25 mmol/L	
12–14 years:	1–22 ng/dL		Adult males:	20.1–28.9 mmol/L	
15–17 years:	1–32 ng/dL		Adult females:	18.4–28.8 mmol/L	
Alkaline Phosphatase (S)²			Bilirubin, Conjugated (S)¹		
Values in IU/L at 37°C (98.6°F) using <i>p</i> -nitrophenol phosphate buffered with AMP (kinetic).					
Age	Males	Females	Neonates:	<10 µmol/L	
Newborns (1–3 days)	95–368	95–368	Neonate:	<2 µmol/L	
2–24 months	115–460	115–460	Preterm (1–6 days):	<10 µmol/L	
2–5 years	115–391	115–391	Bleeding Time (Simplat)²		
6–7 years	115–460	115–460	2–9 min.		
8–9 years	115–345	115–345	Blood Volume²		
10–11 years	115–336	115–437	Premature infants: 98 mL/kg		
12–13 years	127–403	92–336	At 1 year:	86 mL/kg (range, 69–112 mL/kg)	
14–15 years	79–446	78–212	Older children:	70 mL/kg (range, 51–86 mL/kg)	
16–18 years	58–331	35–124	Calcium (S)²		
Adults	41–137	39–118	Premature infants (first week):	3.5–4.5 mEq/L (1.7–2.3 mmol/L)	
α₁Antitrypsin (S)¹			Full-term infants (first week):	4.0–5.0 mEq/L (2.0–2.5 mmol/L)	
Newborn:	143–440 mg/dL		Thereafter:	4.4–5.3 mEq/L (2.2–2.7 mmol/L)	
1–3 years:	147–244 mg/dL		Carbon Dioxide, Partial Pressure (PCO₂) (B)¹		
4–9 years:	160–245 mg/dL		Newborn:	27–40 mmHg	(3.6–5.5 kPa)
10–13 years:	166–267 mg/dL		Infant:	27–41 mmHg	(3.6–5.5 kPa)
14–19 years:	152–317 mg/dL		Children:	32–48 mmHg	(4.3–6.4 kPa)
Note: Modified from:			Carbon Dioxide, Total (P)¹		
¹ Soldin, S.J., Brugnara, C., & Hicks, J.M. (1999). <i>Pediatric reference ranges</i> (3rd ed.). Washington, DC: AACC Press.			Cord blood:	13–29 mmol/L	
² Hay, W.W., Hayward, A.R., Levin, M.J., Sondheimer, J.M. (2000). <i>Current pediatric diagnosis and treatment</i> (15th ed.). New York: Lange Medical Books/McGraw Hill.			<1 year:	17–31 mmol/L	
			Adults:	24–30 mmol/L	

Chloride (S, P)¹

<1 year:	96–111 mg/dL
1–17 years:	102–112 mg/dL
Adults:	100–108 mg/dL

Cholesterol, High-Density Lipoprotein (S)¹

1–9 years:	35–82 mg/dL	(0.91–2.12 mmol/L)
10–13 years:	36–84 mg/dL	(0.93–2.17 mmol/L)
14–19 years:	35–65 mg/dL	(0.91–1.68 mmol/L)

Cholesterol, Low-Density Lipoprotein (S)¹

5–9 years:	63–140 mg/dL	(1.63–3.63 mmol/L)
10–14 years:	64–136 mg/dL	(1.66–3.52 mmol/L)
15–19 years:	59–137 mg/dL	(1.53–3.55 mmol/L)

Cholesterol, Total (S, P)¹

1–3 years:	44–181 mg/dL	(1.15–4.70 mmol/L)
4–6 years:	108–187 mg/dL	(2.80–4.80 mmol/L)
7–9 years:	112–247 mg/dL	(2.90–6.40 mmol/L)
10–13 years:	125–244 mg/dL	(3.25–6.30 mmol/L)
14–19 years:	106–224 mg/dL	(2.75–5.80 mmol/L)

Complement (S)²

C3:	96–195 mg/dL
C4:	15–20 mg/dL

Creatine Kinase (S, P)²

Newborns (1–3 days):	40–474 IU/L at 37°C (98.6°F)
Adult males:	30–210 IU/L at 37°C (98°F)
Adult females:	20–128 IU/L at 37°C (98.6°F)

Creatine (S, P)²

Values in mg/dL (μmol/L)

Age	Males	Females
1–3 days ^a	0.2–1.0 (17.7–88.4)	0.2–1.0 (17.7–88.4)
1 year	0.2–0.6 (17.7–53.0)	0.2–0.5 (17.7–44.2)
2–3 years	0.2–0.7 (17.7–61.9)	0.3–0.6 (26.5–53.0)
4–7 years	0.2–0.8 (17.7–70.7)	0.2–0.7 (17.7–61.9)
8–10 years	0.3–0.9 (26.5–79.6)	0.3–0.8 (26.5–70.7)
11–12 years	0.3–1.0 (26.5–88.4)	0.3–0.9 (26.5–79.6)
13–17 years	0.3–1.2 (26.5–106.1)	0.3–1.1 (26.5–97.2)
18–20 years	0.5–1.3 (44.2–115.0)	0.3–1.1 (26.5–97.2)

^a Values may be higher in premature newborns.**Creatinine Clearance²**

Values show great variability and depend on specificity of analytical methods used.

Newborns (1 day):	5–50 mL/min/1.73 m ² (mean, 18 mL/min/1.73 m ²)
Newborns (6 days):	15–90 mL/min/1.73 m ² (mean, 36 mL/min/1.73 m ²)
Adult males:	85–125 mL/min/1.73 m ²
Adult females:	75–115 mL/min/1.73 m ²

C-Reactive Protein (S)¹

Cord blood:	10–350 μg/L
Adult:	68–8,200 μg/L

Fasting Insulin Level³

1.8–24.6 mU/L

Fibrinogen (P)²

200–500 mg/dL (5.9–14.7 μmol/L)

Galactose (S, P)²

1.1–2.1 mg/dL (0.06–0.12 mmol/L)

Galactose 1-Phosphate (RBC)

Normal: 1 mg/dL of packed erythrocyte lysate; slightly higher in cord blood
 Infants with congenital galactosemia on a milk-free diet: <2 mg/dL
 Infants with congenital galactosemia taking milk: 9–20 mg/dL

Galactose 1-Phosphate Uridyl Transferase (RBC)²

Normal:	308–475 mIU/g of hemoglobin
Heterozygous for Duarte variant:	225–308 mIU/g of hemoglobin
Homozygous for Duarte variant:	142–225 mIU/g of hemoglobin
Heterozygous for congenital galactosemia:	142–225 mIU/g of hemoglobin
Homozygous for congenital galactosemia:	<8 mIU/g of hemoglobin

Glucose (S, P)²

Premature infants:	20–80 mg/dL (1.11–4.44 mmol/L)
Full-term infants:	30–100 mg/dL (1.67–5.56 mmol/L)
Children and adults (fasting):	60–105 mg/dL (3.33–5.88 mmol/L)

Glucose 6-Phosphate Dehydrogenase (RBC)²

150–215 units/dL

Glucose Tolerance Test Results in Serum ^{a2}

TIME	GLUCOSE		INSULIN	
	mg/dL	mmol/L	μU/mL	pmol/L
Fasting	59–96	3.11–5.33	5–40	36–287
30 min	91–185	5.05–10.27	36–110	258–789
60 min	66–164	3.66–9.10	22–124	158–890
90 min	68–148	3.77–8.22	17–105	122–753
2 hr	66–122	3.66–6.77	6–84	43–603
3 hr	47–99	2.61–5.49	2–46	14–330
4 hr	61–93	3.39–5.16	3–32	21–230
5 hr	63–86	3.50–4.77	5–37	36–265

^aNormal levels based on results in 13 normal children given glucose, 1.75 g/kg orally in one dose, after 2 weeks on a high-carbohydrate diet.**Glycosylated Hemoglobin (Hemoglobin A_{1c}) (B)¹**

Normal:	4–7% of total hemoglobin
Diabetic patients in good control of their condition:	8–10%
Diabetic patients in poor control:	8–18%
Pregnant Women:	5%–8%

Values tend to vary with testing technique.

^aNote: These values reflect total Hemoglobin A_{1c} levels. When Hemoglobin A_{1c} is computed, values are usually 2–4% lower.

Growth Hormone (S)²

After infancy (fasting specimen): 0–5 ng/mL

In response to natural and artificial provocation (e.g., sleep, arginine, insulin, hypoglycemia): >8 ng/mL

During the newborn period (fasting specimen): GH levels are high (15–40 ng/mL) and responses to provocation variable

Hematocrit (B)¹

Age	Males (%)	Females (%)
Newborns	43.4–56.1	37.4–55.9
6 months–2 years	30.9–37.0	31.2–37.2
2–6 years	31.7–37.7	32.0–37.1
6–12 years	32.7–39.3	33.0–39.6
12–18 years	34.8–43.9	34.0–40.7
>18 years	33.4–46.2	33.0–41.0

Hemoglobin (B)¹

Age	Males (g/dL)	Females (g/dL)
Newborns	14.7–18.6	12.7–18.3
6 months–2 years	10.3–12.4	10.4–12.4
2–6 years	10.5–12.7	10.7–12.7
6–12 years	11.0–13.3	10.9–13.3
12–18 years	11.5–14.8	11.2–13.6
>18 years	10.9–15.7	10.7–13.5

Hemoglobin A_{1C}

See Glycosylated Hemoglobin.

Hemoglobin Electrophoresis (B)²

A ₁ hemoglobin:	96%–98.5% of total hemoglobin
A ₂ hemoglobin:	1.5%–4% of total hemoglobin

Hemoglobin, Fetal (B)²

At birth:	50%–85% of total hemoglobin
At 1 year:	<15% of total hemoglobin
Up to 2 years:	≤5% of total hemoglobin
Thereafter:	<2% of total hemoglobin

Immunoglobulins (S)¹

Age	IgG (mg/dL)	IgA (mg/dL)	IgM (mg/dL)
1–30 days	221–1031	1–19	12–117
1–6 months	195–794	1–59	9–212
7–12 months	184–974	9–107	4–216
1–3 years	507–1407	18–171	63–298
4–6 years	571–1550	47–231	64–298
7–9 years	589–1717	41–252	49–270
10–12 years	705–1871	61–269	58–340
13–15 years	709–1907	42–304	57–361
16–18 years	632–2108	89–322	59–360

Immunoglobulin D (S)¹

Newborn:	0 mg/dL
Thereafter:	0–8 mg/dL

Immunoglobulin E (S, P)¹

0–12 months	<1 KIU/L
1–3 years	<90 KIU/L
4–10 years	<193 KIU/L
11–18 years	<398 KIU/L

Iron (S, P)²

Newborns:	20–157 µg/dL (3.6–28.1 µmol/L)
6 weeks–3 years:	20–115 µg/dL (3.6–20.6 µmol/L)
3–9 years:	20–141 µg/dL (3.6–25.2 µmol/L)
9–14 years:	21–151 µg/dL (3.8–27 µmol/L)
14–16 years:	20–181 µg/dL (3.6–32.4 µmol/L)
Adults:	44–196 µg/dL (7.2–31.3 µmol/L)

Iron-Binding Capacity (S, P)²

Newborns:	59–175 µg/dL (10.6–31.3 µmol/L)
Children and adults:	275–458 µg/dL (45–72 µmol/L)

Lactate Dehydrogenase (LDH) (S, P)²

Values using lactate substrate (kinetic).

1–3 days:	40–348 IU/L at 37°C (98.6°F)
1 month–5 years:	150–360 IU/L at 37°C (98.6°F)
5–8 years:	150–300 IU/L at 37°C (98.6°F)
8–12 years:	130–300 IU/L at 37°C (98.6°F)
12–14 years:	130–280 IU/L at 37°C (98.6°F)
14–16 years:	130–230 IU/L at 37°C (98.6°F)
Adult males:	70–178 IU/L at 37°C (98.6°F)
Adult females:	42–166 IU/L at 37°C (98.6°F)

Lead (B)¹

0–15 years	<10 µg/dL (<0.48 µmol/L)
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Magnesium (P)¹

Values in mg/dL (mmol/L)

Age	Males	Females
1–30 days	1.7–2.4 (0.70–0.99)	1.7–2.5 (0.70–1.03)
31–365 days	1.6–2.5 (0.66–1.03)	1.9–2.4 (0.78–0.99)
1–3 years	1.7–2.4 (0.70–0.99)	1.7–2.4 (0.70–0.99)
4–9 years	1.7–2.4 (0.70–0.99)	1.6–2.3 (0.66–0.95)
10–15 years	1.6–2.2 (0.66–0.91)	1.6–2.2 (0.66–0.91)
16–18 years	1.5–2.2 (0.62–0.91)	1.5–2.2 (0.62–0.91)

Osmolality (S)¹

Birth–1 month:	275–305 mOsm/kg
Adults:	282–300 mOsm/kg

Oxygen, Partial Pressure (PO₂) (B)¹

Birth:	8–24 mmHg	1.1–3.2 kPa
>1 hour:	55–80 mmHg	7.3–10.6 kPa
>1 day:	83–108 mmHg	11.0–14.4 kPa

Oxygen Saturation (B)¹

Newborns:	85%–90%
Thereafter:	95%–99%

Partial Thromboplastin Time (P)²

Children: 42–54 sec

PH (B)¹

0–6 months 7.18–7.50
6–12 months 7.27–7.49

Phenylalanine (S, P)²

0.7–3.5 mg/dL (0.04–0.21 mmol/L)

Phosphorus, Inorganic (S, P)²

Newborns: 5.0–7.8 mg/dL (1.61–2.52 mmol/L)
1 year: 3.8–6.2 mg/dL (1.23–2.0 mmol/L)
10 years: 3.6–5.6 mg/dL (1.16–1.81 mmol/L)
Adults: 3.1–5.1 mg/dL (1.0–1.65 mmol/L)

Platelet Count (RBC)¹

Value $\times 10^3/\mu\text{L}$. ($\mu\text{L} = \text{mm}^3$)

Age	Males	Females
Newborns	164–351	234–346
1–2 months	275–567	295–615
2–6 months	275–566	288–598
6 months–2 years	219–452	229–465
2–6 years	204–405	204–402
6–12 years	194–364	183–369
12–18 years	165–332	185–335
>18 years	143–320	171–326

Potassium (S, P)²

Premature infants: 4.5–7.2 mmol/L
Full-term infants: 3.7–5.2 mmol/L
Children: 3.5–5.8 mmol/L
Adults: 3.5–5.5 mmol/L

Proteins in Serum^{a2}

Age	Total Protein	α_1 -Globulin	α_2 -Globulin
At birth	4.6–7.0	0.1–0.3	0.2–0.3
3 months	4.5–6.5	0.1–0.3	0.3–0.7
1 year	5.4–7.5	0.1–0.3	0.5–1.1
>4 years	5.9–8.0	0.1–0.3	0.4–0.8

Age	β -Globulin	λ -Globulin
At birth	0.3–0.6	0.6–1.2
3 months	0.3–0.7	0.2–0.7
1 year	0.4–1.0	0.2–0.9
>4 years	0.5–1.0	0.4–1.3

^aValues are for cellulose acetate electrophoresis and are in g/dL. SI conversion factor: g/dL $\times 10 = \text{g/L}$.

Prothrombin Time (P)²

Children: 11–15 sec

Protoporphyrin, “Free” (FEP, ZPP) (B)²

Values for free erythrocyte protoporphyrin (FEP) and zinc protoporphyrin (ZPP) are 1.2–2.7 $\mu\text{g/g}$ of hemoglobin.

Red Blood Cell Count (B)¹

Values $\times 10^6/\mu\text{L}$. ($\mu\text{L} = \text{mm}^3$)

Age	Males	Females
Newborns–6 months	4.2–5.5	3.4–5.4
6 months–2 years	4.1–5.0	4.1–4.9
2–12 years	4.0–4.9	4.0–4.9
12–18 years	4.2–5.3	4.0–4.9
>18 years	3.8–5.4	3.8–4.8

Sedimentation Rate (Micro) (B)²

<2 years: 1–5 mm/hr
>2 years: 1–8 mm/hr

Sodium (P)¹

Newborns: 133–146 mmol/L
Children and adults: 135–148 mmol/L

Thrombin Time (P)²

Children: 12–16 sec

Thyroid-stimulating Hormone (TSH) (P, S)¹

Values in mU/L.

Age	Males	Females
1–30 days	0.52–16.00	0.72–13.10
1 month–5 years	0.55–7.10	0.46–8.10
6–18 years	0.37–6.00	0.36–5.80

Thyroxine (T4) (S, P)¹

Values in $\mu\text{g/dL}$ (nmol/L).

Age	Males	Females
1–30 days	5.9–21.5 (76–276)	6.3–21.5 (81–276)
1–12 months	6.4–13.9 (82–179)	4.9–13.7 (63–176)
1–3 years	7.0–13.1 (90–169)	7.1–14.1 (91–180)
4–6 years	6.1–12.6 (79–162)	7.2–14.0 (93–180)
7–12 years	6.7–13.4 (86–172)	6.1–12.1 (79–156)
13–15 years	4.8–11.5 (62–148)	5.8–11.2 (75–144)
16–18 years	5.9–11.5 (76–148)	5.2–13.2 (67–170)

Throxine, "Free" (Free T4) (S, P)¹

Newborns:	0.80–2.78 ng/dL (10–36 pmol/L)
1–12 months:	0.76–2.00 ng/dL (10–26 pmol/L)
1–5 years:	0.90–1.72 ng/dL (12–22 pmol/L)
6–10 years:	0.81–1.68 ng/dL (10–22 pmol/L)
11–15 years:	0.79–1.57 ng/dL (10–20 pmol/L)
16–18 years:	0.83–1.53 ng/dL (11–20 pmol/L)

Thyroxine-binding Globulin (TBG) (P)¹

1–12 months:	16.2–32.9 mg/L
1–3 years:	16.4–33.8 mg/L
4–6 years:	16.6–30.8 mg/L
7–12 years:	15.0–29.2 mg/L
13–18 years:	13.4–28.7 mg/L

Triglycerides (S)¹

Values in mg/dL (mmol/L)

Age	Males	Females
1–3 years	27–125 (0.31–1.41)	27–125 (0.31–1.41)
4–6 years	32–116 (0.36–1.31)	32–116 (0.36–1.31)
7–9 years	28–129 (0.32–1.46)	28–129 (0.32–1.46)
10–11 years	24–137 (0.27–1.55)	39–140 (0.44–1.58)
12–13 years	24–145 (0.27–1.64)	37–130 (0.42–1.47)
14–15 years	34–165 (0.38–1.86)	38–135 (0.43–1.52)
16–19 years	34–140 (0.38–1.58)	37–140 (0.42–1.58)

Triiodothyronine (T3) (S, P)¹

1–30 days	15–210 ng/dL
1–12 months	50–275 ng/dL
1–5 years	80–258 ng/dL
6–10 years	96–232 ng/dL
11–15 years	73–211 ng/dL
16–18 years	69–201 ng/dL

Urea Clearance²

Premature infants:	3.5–17.3 mL/min/1.73 m ²
Newborns:	8.7–33 mL/min/1.73 m ²
2–12 months:	40–95 mL/min/1.73 m ²
=2 years:	>52 mL/min/1.73 m ²

Urea Nitrogen (P)¹

1–3 years	5–17 mg/dL (1.8–6.0 mmol/L)
4–13 years	7–17 mg/dL (2.5–6.0 mmol/L)
14–19 years	8–21 mg/dL (2.9–7.5 mmol/L)

Uric Acid (S, P)²

Males:	
0–14 years:	2–7 mg/dL (119–416 μmol/L)
>14 years:	3–8 mg/dL (178–476 μmol/L)

Females:	
All ages:	2–7 mg/dL (119–416 μmol/L)

White Blood Cell Count (B)¹Values × 10³/μmL. (μL = mm³)

Age	Males	Females
Newborns	6.8–13.3	8.0–14.3
6 months–2 years	6.2–14.5	6.4–15.0
2–6 years	5.3–11.5	5.3–11.5
6–12 years	4.5–10.5	4.7–10.3
12–18 years	4.5–10.0	4.8–10.1
>18 years	4.4–10.2	4.9–10.0

NORMAL VALUES: URINE**Addis Count²**

Red cells (12-hr specimen):	<1 million
White cells (12-hr specimen):	<2 million
Casts (12-hr specimen):	<10,000
Protein (12-hr specimen):	<55 mg

Albumin²

First month:	1–100 mg/L
Second month:	0.2–34 mg/L
2–12 months:	0.5–19 mg/L

Ammonia²

2–12 months:	4–20 mEq/min/m ²
1–16 years:	6–16 mEq/min/m ²

Calcium²

4–12 years:	4–8 mEq/L (2–4 mmol/L)
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Catecholamines (Norepinephrine, Epinephrine)²

Values in μg/24 hr (nmol/24 hr).

AGE	TOTAL CATE- CHOLAMINES	NOREPI- NEPHRINE	EPINEPHRINE
<1 year	20	5.4–15.9 (32–94)	0.1–4.3 (0.5–23.5)
1–5 years	40	8.1–30.8 (48–182)	0.8–9.1 (4.4–49.7)
6–15 years	80	19.0–71.1 (112–421)	1.3–10.5 (7.1–57.3)
>15 years	100	34.4–87.0 (203–514)	3.5–13.2 (19.1–72.1)

Chloride²

Infants:	1.7–8.5 mmol/24 hr
Children:	17–34 mmol/24 hr
Adults:	140–240 mmol/24 hr

Corticosteroids (17-Hydroxycorticosteroids)¹

0–2 years:	2–4 mg/24 hr (5.5–11 mmol)
2–6 years:	3–6 mg/24 hr (8.3–16.6 mmol)
6–10 years:	6–8 mg/24 hr (16.6–22.1 mmol)
10–14 years:	8–10 mg/24 hr (22.1–27.6 mmol)

Creatine²

18–58 mg/L (1.37–4.42 mmol/L)

Creatinine²

Newborns:	7–10 mg/kg/24 hr
Children:	20–30 mg/kg/24 hr
Adult males:	21–26 mg/kg/24 hr
Adult females:	16–22 mg/kg/24 hr

Growth Hormone¹

2.2–13.3 years (Tanner 1):	0.4–6.3 ng/24 hr (0.9–12.3 ng/g creatinine)
10.3–14.6 years (Tanner 2):	0.8–12.0 ng/24 hr (1.0–14.1 ng/g creatinine)
11.5–15.3 years (Tanner 3):	1.7–20.4 ng/24 hr (1.9–17.0 ng/g creatinine)
12.7–17.1 years (Tanner 4):	1.5–18.2 ng/24 hr (1.3–14.4 ng/g creatinine)
13.5–19.9 years (Tanner 5):	1.2–14.5 ng/24 hr (0.8–11.0 ng/g creatinine)

Homovanillic Acid²

Children:	3–16 µg/mg of creatinine
Adults:	2–4 µg/mg of creatinine

Mucopolysaccharides²

Acid mucopolysaccharide screen should yield negative results. Positive results after dialysis of the urine should be followed up with a thin-layer chromatogram for evaluation of the acid mucopolysaccharide excretion pattern.

Osmolality²

Infants:	50–600 mosm/L
Older children:	50–1400 mosm/L

Phosphorus, Tubular Reabsorption

78%–97%.

Porphyrins²

δ-Aminolevulinic acid:	0–7 mg/24 hr (0–53.4 µmol/24 hr)
Porphobilinogen:	0–2 mg/24 hr (0–8.8 µmol/24 hr)
Coproporphyrin:	0–160 mg/24 hr (0–244 µmol/24 hr)
Uroporphyrin:	0–26 mg/24 hr (0–31 µmol/24 hr)

Potassium²

26–123 mmol/L

Sodium²

Infants: 0.3–3.5 mmol/24 hr (6–10 mmol/m²)
Children and adults: 5.6–17 mmol/24 hr

Specific Gravity

1.010–1.030

Urobilinogen²

<3 mg/24 hr (<5.1 µmol/24 hr)

Vanillylmandelic Acid (VMA)²

Because of the difficulty in obtaining an accurately timed 24-hour collection, values based on microgram per milligram of creatinine are the most reliable indications of VMA excretion in young children.

1–12 months:	1–35 µg/mg of creatinine (31–135 mg/kg/24 hr)
1–2 years:	1–30 µg/mg of creatinine
2–5 years:	1–15 µg/mg of creatinine
5–10 years:	1–14 µg/mg of creatinine
10–15 years:	1–10 µg/mg of creatinine (1–7 mg/24 hr; 5–35 mmol/24hr)
Adults:	1–7 µg/mg of creatinine (1–7 mg/24 hr; 5–35 mmol/24 hr)

NORMAL VALUES: FECES

Fat, Total²

2–6 months:	0.3–1.3 g/d
6 months–1 year:	<4 g/d
Children:	<3 g/d
Adolescents:	<5 g/d
Adults:	<7 g/d

NORMAL VALUES: SWEAT

Electrolytes²

Normal:	<40 mmol/L for both sodium and chloride.
Patients with cystic fibrosis:	>60 mmol/L for both sodium and chloride.

NORMAL VALUES: CEREBROSPINAL FLUID

Protein¹

Newborns:	40–120 mg/dL
<1 month:	20–80 mg/dL
>1 month:	15–45 mg/dL

Glucose¹

All ages: 60%–80% of blood glucose