

OREGON HEALTH & SCIENCE UNIVERSITY
 Department of Pathology
 Special Immunology and Coagulation
 Hemostasis & Thrombosis Section

Policy: Published Reference Ranges for Coagulation Tests for Children Less than 6 Months Old**

Purpose: To provide reference range guidelines for pediatric coagulation assays.

A. Reference Values for Coagulation Tests in Healthy Full-Term Infants During the First Six Months of Life.

	Day 1	Day 5	Day 30	Day 90	Day 180
	M (Range)	M (Range)	M (Range)	M (Range)	M (Range)
FII (U/mL)	0.48 (0.26-0.70)	0.63 (0.33-0.93)	0.68 (0.34-1.02)	0.75 (0.45-1.05)	0.88 (0.60-1.16)
FV (U/mL)	0.72 (0.34-1.08)	0.95 (0.45-1.45)	0.98 (0.62-1.34)	0.90 (0.48-1.32)	0.91 (0.55-1.27)
FVII (U/mL)	0.66 (0.28-1.04)	0.89 (0.35-1.43)	0.90 (0.42-1.38)	0.91 (0.39-1.43)	0.87 (0.47-1.27)
FVIII (U/mL)	1.00 (0.50-1.78)*	0.88 (0.50-1.54)*	0.91 (0.50-1.57)*	0.79 (0.50-1.25)*	0.73 (0.50-1.09)
vWF (U/mL)	1.53 (0.50-2.87)	1.40 (0.50-2.54)	1.28 (0.50-2.46)	1.18 (0.50-2.06)	1.07 (0.50-1.97)
FIX (U/mL)	0.53 (0.15-0.91)	0.53 (0.15-0.91)	0.51 (0.21-0.81)	0.67 (0.21-1.13)	0.86 (0.36-1.36)
FX (U/mL)	0.40 (0.12-0.68)	0.49 (0.19-0.79)	0.59 (0.31-0.87)	0.71 (0.35-1.07)	0.78 (0.38-1.18)
FXI (U/mL)	0.38 (0.10-0.66)	0.55 (0.23-0.87)	0.53 (0.27-0.79)	0.69 (0.41-0.97)	0.86 (0.49-1.34)
FXII (U/mL)	0.53 (0.13-0.93)	0.47 (0.11-0.83)	0.49 (0.17-0.81)	0.67 (0.25-1.09)	0.77 (0.39-1.15)
AT (U/mL)	0.63 (0.39-0.87)	0.67 (0.41-0.93)	0.78 (0.48-1.08)	0.97 (0.73-1.21)*	1.04 (0.84-1.24)*
Protein C (U/mL)	0.35 (0.17-0.53)	0.42 (0.20-0.64)	0.43(0.21-0.65)	0.54 (0.28-0.80)	0.59 (0.37-0.81)
Protein S (U/mL)	0.36 (0.12-0.60)	0.50 (0.22-0.78)	0.63 (0.33-0.93)	0.86 (0.54-1.18)*	0.87 (0.55-1.19)*

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B. Reference Values for Coagulation Tests in Healthy Premature Infants (30-36 Weeks Gestation) During the First Six Months of Life.

	Day 1	Day 5	Day 30	Day 90	Day 180
	M (Range)	M (Range)	M (Range)	M (Range)	M (Range)
FII (U/mL)	0.45 (0.20-0.77)	0.57 (0.29-0.85)+	0.57 (0.36-0.95)	0.68 (0.30-1.06)	0.87 (0.51-1.23)
FV (U/mL)	0.88 (0.41-1.44)*+	1.00 (0.46-1.54)*	1.02 (0.48-1.56)*	0.99 (0.59-1.39)	1.02 (0.58-1.46)*
FVII (U/mL)	0.67 (0.21-1.13)	0.84 (0.30-1.38)	0.83 (0.21-1.45)	0.87 (0.31-1.43)	0.99 (0.47-1.51)*
FVIII (U/mL)	1.11 (0.50-2.13)	1.15 (0.53-2.05)*+	1.11 (0.50-1.99)	1.06 (0.58-1.88)*+	0.99 (0.50-1.87)*+
vWF (U/mL)	1.36 (0.78-2.10)	1.33 (0.72-2.19)	1.36 (0.66-2.16)	1.12 (0.75-1.84)*+	0.98 (0.54-1.58)*
FIX (U/mL)	0.35 (0.19-0.65)+	0.42 (0.14-0.74)+	0.44 (0.13-0.80)	0.59 (0.25-0.93)	0.81 (0.50-1.20)
FX (U/mL)	0.41 (0.11-0.71)	0.51 (0.19-0.83)	0.56 (0.20-0.92)	0.67 (0.35-0.99)	0.77 (0.35-1.19)
FXI (U/mL)	0.30 (0.08-0.52)+	0.41 (0.13-0.69)+	0.43 (0.15-0.71)+	0.59 (0.25-0.93)*	0.78 (0.46-1.10)
FXII (U/mL)	0.38 (0.10-0.66)+	0.39 (0.09-0.69)+	0.43 (0.11-0.75)	0.61 (0.15-1.07)	0.82 (0.22-1.42)
AT (U/mL)	0.38 (0.14-0.62)+	0.56 (0.30-0.82)	0.59 (0.37-0.81)+	0.83 (0.45-1.21)+	0.90 (0.52-1.28)+
Protein C (U/mL)	0.28 (0.12-0.44)+	0.31 (0.11-0.51)	0.37 (0.15-0.59)+	0.45 (0.23-0.67)+	0.57 (0.31-0.83)
Protein S (U/mL)	0.26 (0.14-0.38)+	0.37 (0.13-0.61)	0.56 (0.22-0.90)	0.76 (0.40-1.12)+	0.82 (0.44-1.20)

All factors are expressed as units per millilitre (U/mL) where pooled plasma contains 1.0 U/mL. All values are given as a mean (M) followed by the lower and upper boundary encompassing 95% of the population (Range). Between 40 and 96 samples were assayed for each value for the newborn. Some measurements were skewed due to a disproportionate number of high values. The lower limit, which excludes the lower 2.5% of the population, has been given (Range).

*Values that are indistinguishable from those of the adult.

+Values different from those of full-term infants.

VIII = Factor VIII procoagulant; vWF = von Willebrand factor; AT - antithrombin.

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**Ranges and comments above are based on Tables 2-3, 2-4 and 2-6 from: Andrew M, Monagle PT and Booker L, Thromboembolic Complications During Infancy and Childhood, 2000, BC Decker Inc., Hamilton, London. This reference uses functional assays similar to those used at OHSU, and corresponding adult reference ranges for these assays are closely comparable to OHSU's validated adult range.