

### Paediatric reference intervals in Haemostasis testing

Some components of the haemostatic system are influenced by hormonal and other factors and change during childhood, not reaching adult values until late teenage years.

Other components are at adult levels, or even above adult levels from birth.

Interpreting the results of haemostatic testing must always be done in the light of the clinical setting and the result alone must not be the only consideration when results are reviewed and reported.

Some parameters may show a wide 'normal' range, especially in the first few months of life, and there is the possibility of factor deficiencies being missed without careful consideration of the results and clinical picture.

The establishment of local paediatric haemostatic reference intervals is difficult for a number of reasons, not least being the access to number of suitable samples required and ethical considerations. It has been accepted practice in Haemostasis to use published data for reference intervals.

Werfen have published results from a large international study which determined the paediatric normal ranges for a wide range of Haemostasis tests using their instruments and reagents.

Test	Units	15 days - 4 weeks		1 - 5 months		6 - 11 months		1 - 5 yrs		6 - 10 years		11 - 17 years	
		Range	Range	Range	Range	Range	Range	Range	Range	Range	Range		
PT	secs	9.5	12.6	9.7	12.8	9.8	13.0	9.9	13.4	10.0	14.6	10.0	14.4
APTT	secs	27.6	45.6	24.8	40.7	25.1	39.2	24.0	39.2	26.9	38.7	24.6	38.4
Fib C	g/L	1.43	4.02	1.50	3.76	1.57	3.60	1.88	4.13	1.89	4.75	1.77	4.20
DD	ng/mL	445	1200	90	878	133	844	88	780	60	567	69	580
FII	IU/dL	44.8	74.3	46.7	110.6	73.9	117.2	49.4	130.0	68.4	132.0	47.6	119.2
FV	IU/dL	69.0	123.7	59.5	147.0	59.0	159.8	73.2	188.1	82.0	140.6	61.7	124.8
FVII	IU/dL	55.0	108.0	43.0	141.1	55.2	128.9	47.8	124.2	55.0	135.4	55.4	133.1
FVIII	IU/dL	65.2	153.4	50.3	187.3	53.4	132.2	59.0	167.0	60.6	154.4	42.8	154.6
FIX	IU/dL	30.0	77.0	29.0	105.1	50.5	106.8	52.6	128.9	55.3	156.0	60.2	138.4
FX	IU/dL	66.0	92.0	67.5	122.2	75.8	134.4	59.7	152.8	71.3	161.5	64.0	130.5
FXI	IU/dL	32.9	75.0	27.6	126.4	60.9	125.6	58.0	154.0	31.8	154.0	55.4	139.4
FXII	IU/dL	25.0	81.0	38.0	136.6	48.0	156.1	50.0	174.4	49.4	153.5	49.4	153.5
FXIII	IU/dL	78.4	100.0	55.3	133.2	51.1	136.8	49.7	137.2	53.5	142.4	64.4	133.1
VWF:Ag	IU/dL	46.0	219.5	35.5	217.0	48.4	199.4	41.0	185.7	44.8	141.1	55.6	123.4
VWF:RCo	IU/dL	87.8	121.5	33.2	154.1	37.1	118.6	40.8	131.8	42.1	162.6	45.0	139.1
AT-III	IU/mL	32.8	62.8	29.0	120.0	63.0	121.8	60.5	128.3	64.2	136.4	69.1	135.9
PCF	IU/mL	27.2	48.0	22.8	95.0	46.6	150.9	59.1	147.5	45.9	153.5	72.3	155.1
FPS	IU/mL	61.0	108.0	48.0	126.5	63.0	138.9	53.0	134.9	61.5	141.7	61.4	130.7
Plasminogen	U/mL	41.0	82.7	37.6	109.6	49.3	126.4	59.6	178.0	52.4	158.1	58.1	130.6

**Reference:** Toulon P, et al. Age dependency for coagulation parameters in pediatric populations: results of a multicenter study aimed at defining the age-specific reference ranges. *Thromb Haem.* 2016 Mar 17;116(1).