

## FIRST TRIMESTER 'COMBINED' TESTING (NT/PAPP-A/hCG)

### Down Syndrome (DS) Risk Sample Calculations (SURUSS parameters)

Age	Maternal Serum Result (MoM)			Combined DS Risks 1:n 1st trimester (term)	
	NT	PAPP-A	hCG	80 days	87 days
25.5	0.50	0.30	1.50	520 ( 920)	380 ( 670)
25.5	0.70	0.30	0.70	2600 (4500)	3600 (6300)
25.5	0.70	0.30	2.50	130 ( 230)	69 ( 120)
25.5	1.70	0.10	0.70	47 ( 83)	88 ( 150)
25.5	1.70	1.30	2.50	370 ( 640)	140 ( 240)
25.5	1.70	0.30	0.70	150 ( 260)	250 ( 430)
25.5	1.70	1.90	2.50	830 (1500)	280 ( 490)
25.5	2.00	0.30	0.20	250 ( 440)	750 (1300)
25.5	2.00	0.30	1.50	9 ( 16)	7 ( 12)
25.5	2.00	1.90	0.70	2600 (4500)	2200 (3900)
35.5	0.70	0.30	0.70	670 ( 1200)	940 (1600)
35.5	0.70	0.30	2.50	34 ( 60)	18 ( 32)
35.5	0.70	1.30	2.50	1500 ( 2700)	560 ( 980)
35.5	0.70	3.50	2.50	6900 (12000)	2000 (3500)
35.5	1.70	0.30	0.70	39 ( 69)	65 ( 110)
35.5	1.70	1.90	2.50	220 ( 380)	74 ( 130)
35.5	2.00	0.30	0.70	15 ( 26)	22 ( 38)
35.5	2.00	1.90	0.70	680 ( 1200)	590 (1000)
35.5	2.00	1.90	4.20	56 ( 98)	14 ( 25)
35.5	3.00	1.90	0.70	150 ( 260)	100 ( 180)

Morris JK, Mutton DE, Alberman E. Revised estimates of the maternal age specific live birth prevalence of Down's syndrome. J Med Screen 2002;9:2-6.

Wald NJ, Rodeck C, Hackshaw AK, Rudnick A. SURUSS in perspective. BJOG 2004; Vol. 111, pp. 521-531.

Wald NJ, Rodeck C, Hackshaw AK, Walters J, Chitty L, Mackinson AM. First and second trimester antenatal screening for Down's syndrome: the results of the Serum, Urine and Ultrasound Screening Study (SURUSS). J Med Screen 2003;10(2):56-104.

**Medians and Standard Deviations**

Marker	Unaffected		Down Syndrome		Truncation Limits
	Log Median	Log SD	Log Median	Log SD	
NT	0	A	f(x)	0.2313	0.65-2.5
PAPP-A	0	0.2495	g(x)	0.2802	0.2-3
hCG	0	0.195	h(x)	0.2069	0.3-3
	<b>A</b>		$f(x)=0.8554679-0.0064686*(ga \text{ in days})$ $g(x)=-1.1444+0.00965*(ga \text{ in days})$ $h(x)=-0.8662+0.01213*(ga \text{ in days})$		
10 Weeks	0.1732				
11 Weeks	0.1439				
12 Weeks	0.1329				
13 Weeks	0.1329				

**Correlations**

	Unaffected			
	10 Weeks	11 Weeks	12 Weeks	13 Weeks
NT,PAPP-A	-0.0429	-0.0516	-0.0559	-0.0559
NT,hCG	-0.063	-0.0758	-0.0821	-0.0821
PAPP-A,hCG	0.2198	0.2198	0.2198	0.2198
	Down Syndrome			
	All Weeks			
NT,PAPP-A	-0.1506			
NT,hCG	-0.0819			
PAPP-A,hCG	0.2184			

**Maternal Age Risk Equation:**

**Term:**

$$((1))/(1/(1+EXP(7.33-4.211/(1+EXP(-0.2815*((maternal \text{ age}-0.5)-37.23))))))$$

**First Trimester:**

$$((1))/(1/(1+EXP(7.33-4.211/(1+EXP(-0.2815*((maternal \text{ age}-0.5)-37.23))))))/.57$$

**Maternal Age Range**

15-45