

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

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

Age	Maternal Serum Result (MoM)			Combined DS Risks 1:n 1st trimester (term)			
	NT	PAPP-A	Free-Beta	80 days		87 days	
25.5	0.50	0.30	1.50	720	(1300)	580	(1000)
25.5	0.70	0.30	0.70	3200	(5700)	3800	(6800)
25.5	0.70	0.30	2.50	260	( 450)	180	( 320)
25.5	1.70	0.10	0.70	100	( 180)	180	( 310)
25.5	1.70	1.30	2.50	560	( 980)	280	( 490)
25.5	1.70	0.30	0.70	270	( 480)	420	( 730)
25.5	1.70	1.90	2.50	1200	(2100)	520	( 910)
25.5	2.00	0.30	0.20	1000	(1800)	2100	(3700)
25.5	2.00	0.30	1.50	16	( 28)	16	( 28)
25.5	2.00	1.90	0.70	3000	(5300)	2000	(3600)
35.5	0.70	0.30	0.70	850	(1500)	1000	(1800)
35.5	0.70	0.30	2.50	68	( 120)	48	( 85)
35.5	0.70	1.30	2.50	2300	(4100)	1000	(1800)
35.5	0.70	3.50	2.50	9600	(17000)	3100	(5500)
35.5	1.70	0.30	0.70	72	( 127)	110	( 190)
35.5	1.70	1.90	2.50	310	( 550)	140	( 240)
35.5	2.00	0.30	0.70	29	( 51)	40	( 70)
35.5	2.00	1.90	0.70	790	(1400)	540	( 940)
35.5	2.00	1.90	4.20	59	( 100)	19	( 33)
35.5	3.00	1.90	0.70	190	( 330)	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
Free-Beta	0	0.2651	h(x)	0.2569	0.3-5
	<b>A</b>		<b>f(x)=0.8554679-0.0064686*(ga in days)</b> <b>g(x)=-1.1444+0.00965*(ga in days)</b> <b>h(x)=-0.3271+0.00768*(ga in days)</b>		
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,Free-Beta	-0.0325	-0.0391	-0.0423	-0.0423
PAPP-A,Free-Beta	0.1395	0.1395	0.1395	0.1395
	Down Syndrome			
	All Weeks			
NT,PAPP-A	-0.1506			
NT,Free-Beta	0.108			
PAPP-A,Free-Beta	-0.0692			

**Maternal Age Risk Equation:**

**Term:**

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

**First Trimester:**

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

**Maternal Age Range**

15-45