ARUP LABORATORIES

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Positive Predictive Value of a High-Risk Noninvasive Prenatal Screening Result for Various Increased Pretest Risk Levels and for Various Gestational Ages and Maternal Ages

PPV for Trisomy 21, 18, and 13 at Increased Risk Levels[a,b]

	PPV (%)		
Pretest Risk	**Trisomy 21**	**Trisomy 18**	**Trisomy 13**
1/5	98.9	99.4	99.1
2/3	99.9	99.9	99.9
1/10	97.6	98.6	97.9
1/15	96.3	97.8	96.8
1/25	93.9	96.3	94.6
1/50	88.2	92.7	89.5
1/75	83.2	89.4	84.9
1/100	78.7	86.3	80.8
1/150	71.1	80.8	73.7
1/200	64.8	75.9	67.7
1/250	59.5	71.5	62.6
1/500	42.3	55.6	45.5

[a]Data are not sufficient to calculate sensitivity, specificity, PPV, and NPV for every condition.

[b]PPV are calculated based on sensitivity and specificity[1] as incidence x sensitivity / {[incidence x sensitivity] + [(1-incidence) x (1-specificity)]}. The PPV is greatly affected by an individual's pretest risk for each of the screened conditions, which varies based on gestational age and maternal age.

NPV, negative predictive value; PPV, positive predictive value

PPV for Trisomy 21, 18, and 13 at Various Gestational Ages and Maternal Ages[a,b]

	Maternal Age at EDD					
	20 yrs	**25 yrs**	**30 yrs**	**35 yrs**	**40 yrs**	**44 yrs**
Gestational Age	**PPV (%) for Trisomy 21**					
10 wks	27.2	29.7	38.9	61.6	85.7	95.1
12 wks	25.6	27.9	37.0	59.6	84.5	94.8
14 wks	24.3	26.7	35.5	58.0	83.8	94.3
16 wks	23.4	25.7	34.3	56.8	83.0	94.1
20 wks	22.1	24.2	32.6	54.9	81.9	93.6
30 wks	20.9	23.0	31.1	53.1	80.8	93.1

PPV for Trisomy 21, 18, and 13 at Various Gestational Ages and Maternal Ages[a,b]

	Maternal Age at EDD					
	20 yrs	25 yrs	30 yrs	35 yrs	40 yrs	44 yrs
Gestational Age	PPV (%) for Trisomy 18					
10 wks	23.9	26.2	34.9	57.4	83.3	94.1
12 wks	20.1	22.1	30.1	51.9	80.0	92.7
14 wks	17.2	19.0	26.2	47.1	76.7	91.4
16 wks	14.8	16.4	22.9	42.8	73.4	89.8
20 wks	11.3	12.6	17.9	35.4	66.9	86.6
30 wks	6.2	6.9	10.1	22.0	51.0	76.8
	PPV (%) for Trisomy 13					
10 wks	6.2	6.9	10.1	22.0	51.0	76.8
12 wks	5.1	5.7	8.3	18.6	45.8	72.9
14 wks	4.3	4.8	7.0	16.0	41.3	69.1
16 wks	3.6	4.1	6.1	13.9	37.4	65.6
20 wks	2.8	3.1	4.6	10.9	31.0	58.9
30 wks	1.6	1.8	2.7	6.4	20.2	44.6

[a]Data are not sufficient to calculate sensitivity, specificity, PPV, and NPV for every condition.

[b]PPV ranges are calculated based on sensitivity and specificity[1] and the prevalence[2,3] in a low-risk group (20 years of age, 30 weeks gestational age) through the prevalence[2,3] in a high-risk group (44 years of age, 10 weeks gestation). PPV is greatly affected by an individual's pretest risks for each of the screened conditions, which varies based on gestational age and maternal age.

EDD, estimated date of delivery

For more details about noninvasive prenatal testing (NIPT) and a description of the spectrum of prenatal genetic testing, please refer to the ARUP Consult Prenatal Testing for Chromosomal Abnormalities and Neural Tube Defects topic. For more information about maternal serum screening, refer to ARUP's First and Second Trimester Screening Options.

References

1. Borth H, Teubert A, Glaubitz R, et al. Analysis of cell-free DNA in a consecutive series of 13,607 routine cases for the detection of fetal chromosomal aneuploidies in a single center in Germany. *Arch Gynecol Obstet.* 2021;303(6):1407-1414.
2. Snijders RJ, Sebire NJ, Nicolaides KH. Maternal age and gestational age-specific risk for chromosomal defects. *Fetal Diagn Ther.* 1995;10(6):356-367.
3. Snijders RJ, Sundberg K, Holzgreve W, et al. Maternal age- and gestation-specific risk for trisomy 21. *Ultrasound Obstet Gynecol.* 1999;13(3):167-170.