Reporting Title: First Trimester Screen | FB

Test Definition: FTS0001
Testing Location: Melville, NY
Reporting Location: Melville, NY

Description:
The first-trimester screen for trisomy 21 and trisomy 18/13 includes free Beta HCG (fbhCG), pregnancy-associated plasma protein A (PAPP-A), alphafetoprotein (AFP), nuchal translucency measurement and nasal bone assessment (optional). Analyte values are compared to median values at a given gestational age and multiple of the median (MoM) results obtained. The MoM results are used in a multivariate algorithm that includes the mother's age to derive risk factors for Down syndrome and trisomy 18/13.

Analytical Method(s):
All assays are performed on a PerkinElmer AutoDELFIA instrument.

Free Beta hCG and PAPP-A are measured using a lab developed dual-analyte dried blood spot solid phase 2-site sandwich fluorometric assay.

AFP is measured using a lab-developed dried blood spot solid phase 2-site sandwich fluorometric assay.

Patient preparations:
Counsel patient on prenatal screening for aneuploidy.

Specimen Requirements:

Container/Tube: Dried Blood Spot Card

Specimen Volume: Minimum: 2 Spots, Preferred: 5 spots

Specimen Stability: Dried blood spots are stable at ambient temperature for 30 days.

Specimen Rejection Criteria: insufficient volume, layering, insufficient drying time

Specimen Collection Instructions

See Dried Blood Specimen Collection Instruction Manual

Additional Information:

1. Indications for Testing: General population screening of pregnant women
2. Special Timing: Draw specimen between 9 weeks 0 days and 13 weeks 6 days. Nuchal translucency and nasal bone should be performed between 11 weeks 1 day and 13 weeks 6 days (CRL: 45-84mm).
3. Gestational age will be determined based on CRL at time of nuchal translucency exam. If CRL not performed, gestational age will be determined by EDC.
4. The ordering physician should ensure that the ultrasound information has been obtained from a sonographer who is credentialed by and participating in an NT/NB quality review program such as NTQR or FMF.

5. If patient is returning at a later date for her ultrasound exam, ultrasound related fields may be left blank. When the patient does return for her ultrasound exam the information may be entered on our portal (https://ntd.ereports.eurofinsus.com).
6. If gestational age at draw is out of range or specimen cannot be analyzed a 'nuchal translucency only' report may be provided
7. If CRL value is out of range or nuchal translucency cannot be obtained a 'biochemistry only' report may be provided.

CPT Codes: 1 x 82105,1 x 84704,1 x 84163

Reference Values:

Down syndrome:
After Screening Risk < Risk of a 35 Year Old at patient's Gestational age are Within Range
After Screening Risk ≥ Risk of a 35 Year Old at patient's Gestational age are Increased Risk
The Risk of a 35 year old varies from 1 in 263 at 9w0d to 1 in 319 at 13w6d
For the reference value, gestational age is determined based on the greater of the Gestational Age at Collection Date and Gestational age at Ultrasound date

Trisomy 18/13

After Screening Risk < 1 in 150 are Within Range
After Screening Risk ≥ 1 in 150 are Increased Risk

An Interpretive Report will be provided.

Supplemental Report:
No

Testing Algorithm:

Follow-up testing:
1. All patients: Second trimester MSAFP and/or ultrasound for open neural tube defects. If MSAFP or other second trimester screening is performed, blood collection must be between 15w0d and 21w6d gestation.
2. Increased Risk Result Patients: Genetic counseling and offer CVS or amniocentesis for diagnostic confirmation or noninvasive prenatal testing (NIPT).

Consents/Authorizations:

Patient signature on patient authorization/assignment on requisition form is required.

Disclaimer:

This test was developed and its performance characteristics determined by Eurofins NTD, LLC. It has not been cleared by the U.S. Food and Drug Administration. The methods and performance characteristics have been reviewed and approved by the New York State Department of Health.

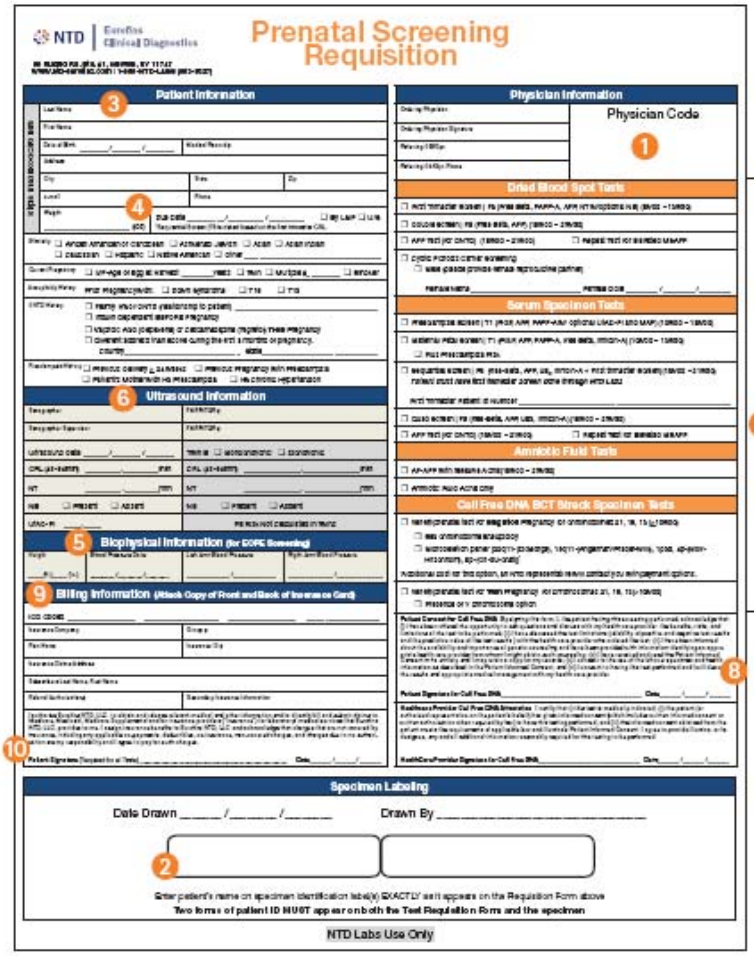
Pursuant to applicable federal and/or state laboratory requirements, Eurofins NTD, LLC. has established and verified theaccuracy and precision of its testing services.

Test Requisition Instructions

NTD | Eurofins Clinical Diagnostics

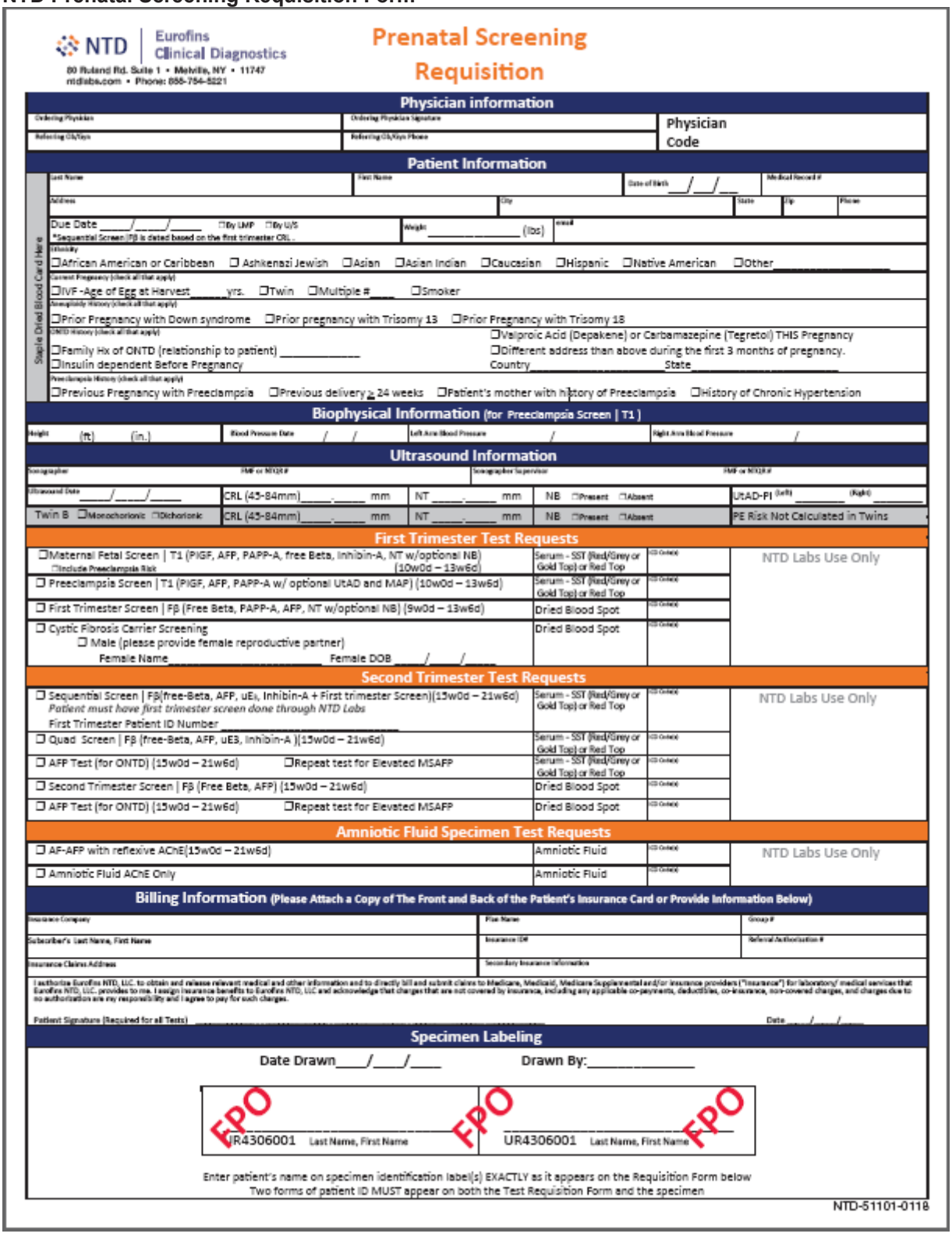
Prenatal Screening Test Requisition Form Instructions

1. **Account Information** – Please enter Ordering Physician name and Referring Ob/Gyn name and phone number, if applicable. A provider signature is required for patients with Medicaid.
2. **Specimen Labels** – Preprinted with the requisition number. Please enter the patient's last and first name EXACTLY as they appear on the requisition form. Affix label(s) to patient specimen(s). Please complete date drawn and drawn-by fields.
3. **Patient Information** – For all tests, please complete patient weight, ethnicity and current pregnancy information. Complete additional patient history as appropriate for test(s) ordered. *Please note, all patient information requested is used to ensure the most accurate risk assessment possible for your patient.*
4. **Gestational Age** – Complete for tests other than First Trimester Screen I Fβ, Sequential Screen I Fβ, PreeclampsiaScreen℠ | T1 or Maternal Fetal Screen℠ | T1 which require CRL (see section 6).
5. **Biophysical Information** – Complete this section for preeclampsia screening only.
6. **Ultrasound Information** - Please provide sonographer and supervisor names and credentialing numbers. Enter all ultrasound information as appropriate for test(s) ordered.
7. **Test Requests** - Tests are ordered by specimen type. Check all tests that apply and provide appropriate ICD codes.
8. **Cell Free DNA** - BOTH the physician and patient signatures are required.
9. **Billing Information** – Provide photocopy of front and back of insurance card or print the information in the required fields.
10. **Patient Signature** - Required for all tests.



Please call 1-888-NTD-LABS (683-5227) for further assistance.

NTD Prenatal Screening Requisition Form



NTD | Eurofins Clinical Diagnostics

80 Roland Rd. Suite 1 • Melville, NY • 11747
ntdlabs.com • Phone: 888-784-5221

Prenatal Screening Requisition

Physician information

Ordering Physician | Ordering Physician Signature | Physician Code
Referring Clk/Kiosk | Referring Clk/Kiosk Phone

Patient Information

Last Name | First Name | Date of Birth ___/___/___ | Medical Record #
Address | City | State | Zip | Phone
Due Date ____/____/____ ☐By LMP ☐By U/S | Weight _____ (lbs) | email
*Sequential Screen | Fß is dated based on the first trimester CRL.

Staple Dried Blood Card Here

Ethnicity
☐African American or Caribbean ☐ Ashkenazi Jewish ☐Asian ☐Asian Indian ☐Caucasian ☐Hispanic ☐Native American ☐Other _____

Current Pregnancy (check all that apply)
☐IVF -Age of Egg at Harvest_____yrs. ☐Twin ☐Multiple #____ ☐Smoker

Aneuploidy History (check all that apply)
☐Prior Pregnancy with Down syndrome ☐Prior pregnancy with Trisomy 13 ☐Prior Pregnancy with Trisomy 18

ONTD History (check all that apply)
☐Family Hx of ONTD (relationship to patient) _____
☐Insulin dependent Before Pregnancy
☐Valproic Acid (Depakene) or Carbamazepine (Tegretol) THIS Pregnancy
☐Different address than above during the first 3 months of pregnancy.
Country_____State_____

Preeclampsia History (check all that apply)
☐Previous Pregnancy with Preeclampsia ☐Previous delivery ≥ 24 weeks ☐Patient's mother with history of Preeclampsia ☐History of Chronic Hypertension

Biophysical Information (for Preeclampsia Screen | T1)

Height (ft) (in.) | Blood Pressure Date ___/___/___ | Left Arm Blood Pressure ___/___ | Right Arm Blood Pressure ___/___

Ultrasound Information

Sonographer | NMP or NT(CP)# | Sonographer Supervisor | NMP or NT(CP)#

Ultrasound Date ____/____/____	CRL (45-84mm)____.____ mm	NT ____.____ mm	NB ☐Present ☐Absent	UtAD-PI (left) _____ (Right) _____
Twin B ☐Monochorionic ☐Dichorionic	CRL (45-84mm)____.____ mm	NT ____.____ mm	NB ☐Present ☐Absent	PE Risk Not Calculated in Twins

First Trimester Test Requests

☐Maternal Fetal Screen | T1 (PlGF, AFP, PAPP-A, free Beta, Inhibin-A, NT w/optional NB) (10w0d – 13w6d) ☐Include Preeclampsia Risk	Serum - SST (Red/Grey or Gold Top) or Red Top	CD Order(s)	NTD Labs Use Only
☐ Preeclampsia Screen | T1 (PlGF, AFP, PAPP-A w/ optional UtAD and MAP) (10w0d – 13w6d)	Serum - SST (Red/Grey or Gold Top) or Red Top	CD Order(s)	
☐ First Trimester Screen | Fß (Free Beta, PAPP-A, AFP, NT w/optional NB) (9w0d – 13w6d)	Dried Blood Spot	CD Order(s)	
☐ Cystic Fibrosis Carrier Screening ☐ Male (please provide female reproductive partner) Female Name_____ Female DOB ____/____/____	Dried Blood Spot	CD Order(s)	

Second Trimester Test Requests

☐ Sequential Screen | Fß(free-Beta, AFP, uE3, Inhibin-A + First trimester Screen)(15w0d – 21w6d) *Patient must have first trimester screen done through NTD Labs* First Trimester Patient ID Number _____	Serum - SST (Red/Grey or Gold Top) or Red Top	CD Order(s)	NTD Labs Use Only
☐ Quad Screen | Fß (free-Beta, AFP, uE3, Inhibin-A)(15w0d – 21w6d)	Serum - SST (Red/Grey or Gold Top) or Red Top	CD Order(s)	
☐ AFP Test (for ONTD) (15w0d – 21w6d) ☐Repeat test for Elevated MSAFP	Serum - SST (Red/Grey or Gold Top) or Red Top	CD Order(s)	
☐ Second Trimester Screen | Fß (Free Beta, AFP) (15w0d – 21w6d)	Dried Blood Spot	CD Order(s)	
☐ AFP Test (for ONTD) (15w0d – 21w6d) ☐Repeat test for Elevated MSAFP	Dried Blood Spot	CD Order(s)	

Amniotic Fluid Specimen Test Requests

☐ AF-AFP with reflexive AChE(15w0d – 21w6d)	Amniotic Fluid	CD Order(s)	NTD Labs Use Only
☐ Amniotic Fluid AChE Only	Amniotic Fluid	CD Order(s)	

Billing Information (Please Attach a Copy of The Front and Back of the Patient's Insurance Card or Provide Information Below)

Insurance Company | Plan Name | Group #
Subscriber's Last Name, First Name | Insurance ID# | Referral Authorization #
Insurance Claims Address | Secondary Insurance Information

I authorize Eurofins NTD, LLC. to obtain and release relevant medical and other information and to directly bill and submit claims to Medicare, Medicaid, Medicare Supplemental and/or insurance providers ("Insurance") for laboratory/ medical services that Eurofins NTD, LLC. provides to me. I assign insurance benefits to Eurofins NTD, LLC and acknowledge that charges that are not covered by insurance, including any applicable co-payments, deductibles, co-insurance, non-covered charges, and charges due to no authorization are my responsibility and I agree to pay for such charges.

Patient Signature (Required for all Tests) _____ Date ____/____/____

Specimen Labeling

Date Drawn____/____/____ Drawn By:_____

FPO UR4306001 Last Name, First Name | FPO UR4306001 Last Name, First Name FPO

Enter patient's name on specimen identification label(s) EXACTLY as it appears on the Requisition Form below
Two forms of patient ID MUST appear on both the Test Requisition Form and the specimen

NTD-51101-0118

EMR Ask at Order Entry (AOE) Questions:

Test ID	Question ID	Description	Type	Required
FIRSTTRIFB	MATWT	Maternal Weight	Plain Text	Yes
FIRSTTRIFB	MWLBSKGS	Units • LBS • KGS	Answer List	Yes
FIRSTTRIFB	ETHNIC	Ethnicity • African American/Caribbean • Asian • Asian Indian • Caucasian • Hispanic • Native American • Other	Answer List	Yes
FIRSTTRIFB	HXCHROM	Previous History of Chromosome Abnormality • None • Trsiomy 21 • Trisomy 18 • Trisomy 13 • Trisomy 21 and 18 • Trisomy 21 and 13 • Trisomy 21, 18, 13	Answer List	Yes
FIRSTTRIFB	IVFAGE	IVF – Age of Egg (Years)	Plain Text	No
FIRSTTRIFB	NOF	Number of Fetuses • 1 • 2 • 3 or more (NT Only)	Answer List	Yes
FIRSTTRIFB	SMOKE	Is Patient Smoker • No • Yes	Answer List	Yes
FIRSTTRIFB	EDD	Due Date	Plain Text	No
FIRSTTRIFB	USDATE	Ultrasound Date	Plain Text	No
FIRSTTRIFB	SONOID	Sonographer Name or FMF/NTQRID	Plain Text	No
FIRSTTRIFB	SSUPER	Sonographer Supervisor (MD) OR FMF/NTQRID	Plain Text	No
FIRSTTRIFB	CRL	CRL	Plain Text	No
FIRSTTRIFB	NT	NT	Plain Text	No
FIRSTTRIFB	NB	Nasal Bone • Absent • Present	Answer List	No
FIRSTTRIFB	CHORION	Twin Type • Monochorionic	Answer List	No

		• Dichorionic		
FIRSTTRIFB	CRLB	CRL-Twin B	Plain Text	No
FIRSTTRIFB	NTB	NT-Twin B	Plain Text	No
FIRSTTRIFB	NBB	Nasal Bone-Twin B • Absent • Present	Answer List	No

EMR Result Codes:

Data Type	Code	LOINC	Name	Contains Result	Comments
CE	RSKTBL		Risk Table	No	Included if disorders are available
ST	DOWNS	59462-2	Down Syndrome	Yes	Risk result information contained in NTEs
ST	T1813	59462-2	Trisomy 18/13	Yes	Risk result information contained in NTEs
ST	DOWNS-B	59462-2	Down Syndrome Twin B	Yes	Displayed for twin B, Risk result information contained in NTEs
ST	T1813-B	59462-2	Trisomy 18/13 Twin B	Yes	Displayed for twin B, Risk result information contained in NTEs
CE	MKRANA		Markers/Analytes	No	Included if any 1T markers are available
CE	1T		1st Trimester	No	
CE	FBHCGV	25373-2	Free Beta hCG	Yes	Measurements contained in NTEs
CE	PAPPA	32046-5	PAPP-A	Yes	Measurements contained in NTEs
CE	AFP	19176-7	AFP	Yes	Measurements contained in NTEs
CE	NTV		NT	Yes	Measurements contained in NTEs
CE	NTVB		NT – Twin B	Yes	Displayed for twin B, Measurements contained in NTEs
ST	NB		Nasal Bone	Yes	
ST	NBB		Nasal Bone – Twin B	Yes	Displayed for twin B
CE	DGD		Demographic Data	Yes	Included if demographic data is available (contained in NTEs)
CE	1TD		1st Trimester Data	Yes	Included if test-specific data is available (contained in NTEs)
CE	REC		Recommendations	Yes	Only displayed if recommendations are available
CE	REC-B		Recommendations Twin B	Yes	Displayed for twin B, Only displayed if recommendations are available
CE	COM	55107-7	Comments	Yes	Only displayed if comments are available
CE	COM-B	55107-7	Comments Twin B	Yes	Displayed for twin B, Only displayed if comments are available
CE	FTR		Footer	Yes	Only displayed if footer is available
CE	FTR-B		Footer Twin B	Yes	Displayed for twin B, Only displayed if

					footer is available
CE	NOT		Notification	Yes	Included for Unsatisfactory Specimens Only
CE	NOT-B		Notification Twin B	Yes	Included for Unsatisfactory Specimens Only, Displayed for twin B

Example Report

NTD Eurofins Clinical Diagnostics 60 Ruland Rd, Suite 1 • Melville, NY • 11747 • (631) 425-0600 • Fax (631) 425-0864 • reporting@ntd-eurofins.com

First Trimester Screen | Fß Report

Physician ID #: 24328
Physician Tel #: (000) 000-0000
OB SPECIALISTS
100 ANYWHERE ST
MELVILLE, NY 11747

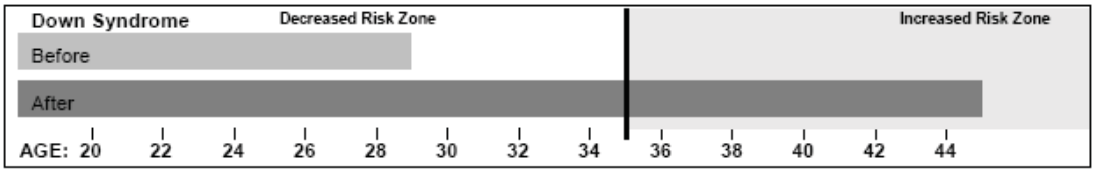
Patient Name: INCRISKT21, FIRSTTRI
Client ID #:
Patient ID #: 9000003
Date of Birth: 01/16/88
Age at EDC: 29
Mat. Weight: 182 lbs
Ethnicity: Hispanic
Prev Chrom Hx: None
Multi. Preg: No
Smoker: No

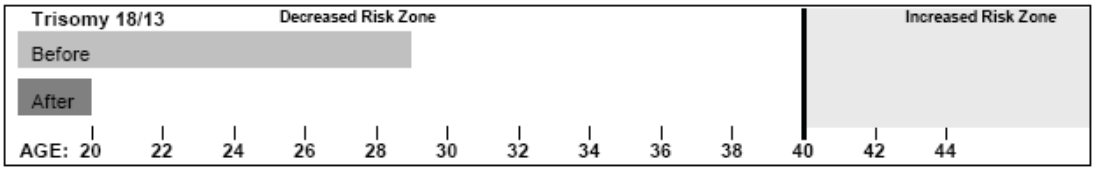
CRL (mm): 56.2
U/S Date: 03/11/17
GA @ U/S: 12w1d
Draw Date: 03/11/17
GA @ Draw: 12w1d
GA by: CRL
Date Received: 03/13/17
Report Date: 03/14/17

Sonographer: SONOPERSON
Sono Supervisor: SONODOCTOR

Marker/Analyte	Value	MoM/Delta	Percentile
Free Beta hCG	108.21 (ng/ml)	1.59 MoM	80
PAPP-A	1.11 (mIU/ml)	0.72 MoM	30
AFP	18.21 (IU/ml)	0.81 MoM	40
NT	2.7 (mm)	+1.23 Delta	95
Nasal Bone	Absent	--	--

Risk Table	Cut-Off	Risk Before Screening	Risk After Screening	Result
Down Syndrome	1 in 302	1 in 704	1 in < 5	INCREASED RISK
Trisomy 18/13	1 in 150	1 in 1,247	1 in 9,447	WITHIN RANGE





Recommendations:

- Genetic counseling and offer CVS or amniocentesis for diagnostic confirmation or noninvasive prenatal testing (NIPT).
- Second trimester MSAFP and/or ultrasound for open neural tube defects. If MSAFP or other second trimester screening is performed, blood collection must be between 03/31/2017 and 05/18/2017.

Comments:

- First trimester AFP results are used only for Down Syndrome risk assessment (not T18/13) and are not intended for open neural tube defect risk assessment.
- Nasal bone results are used only for the Down Syndrome risk calculation but not for Trisomy 18/13.

Jonathan B. Carmichael, Ph.D
Laboratory Director,
Eurofins NTD, LLC

Terrence W. Hallahan, Ph.D
Laboratory Director,
Eurofins NTD, LLC

CAUTION: This test was developed and its performance characteristics determined by Eurofins NTD, LLC. It has not been cleared by the U.S. Food and Drug Administration. The methods and performance characteristics have been reviewed and approved by the New York State Department of Health. The results do not eliminate the possibility that the pregnancy may be associated with birth defects including Down Syndrome, trisomy 18, trisomy 13 or other disorders not detectable by this screening test. The multiple of the median and risk results provided in this report are dependent on the accuracy of the demographic and ultrasound information provided. The ordering physician should ensure that the ultrasoun information has been obtained from a sonographer who is credentialed by and participating in an NT/NB quality review program such as NTQR or FMF. Eurofins NTD, LLC assumes n responsibility for ensuring that the ultrasound information has been obtained by a properly credentialed sonographer, including verification of updates to credentialing status. This repor contains protected healthcare information. The recipient shall not disclose this information unless required to provide appropriate medical care without the permission of the patient. Ar recommendations or comments on specific analytes are provided as a courtesy to the ordering physician and do not constitute medical advice.

This report was generated on: 03/14/2017 04:55:55 PM

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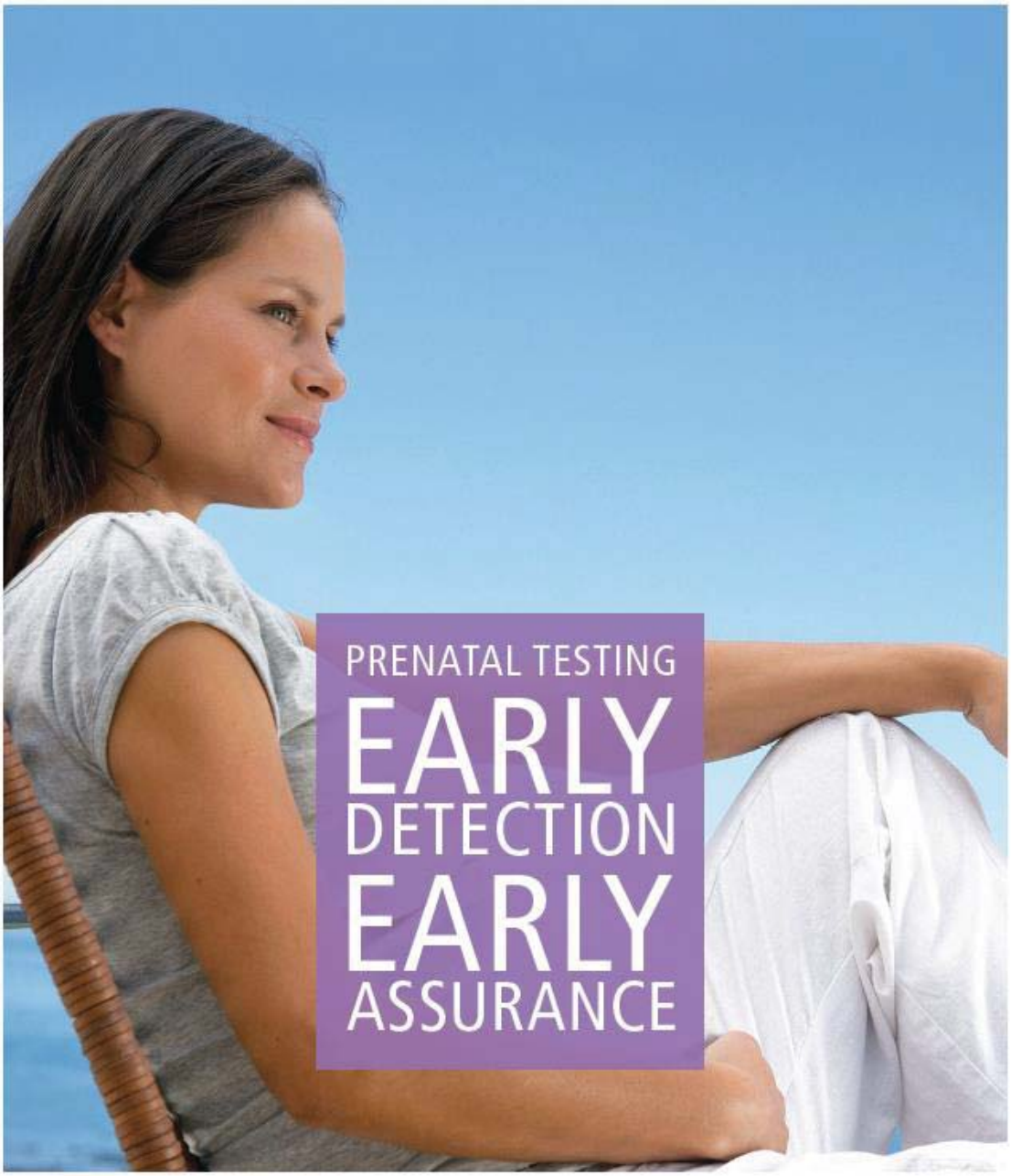
Physician Information Brochure



Prenatal Testing for Aneuploidy and ONTDs

NTD Labs
a Eurofins company

NTD LABS: A LEADER IN PRENATAL TESTING FOR MORE THAN 30 YEARS

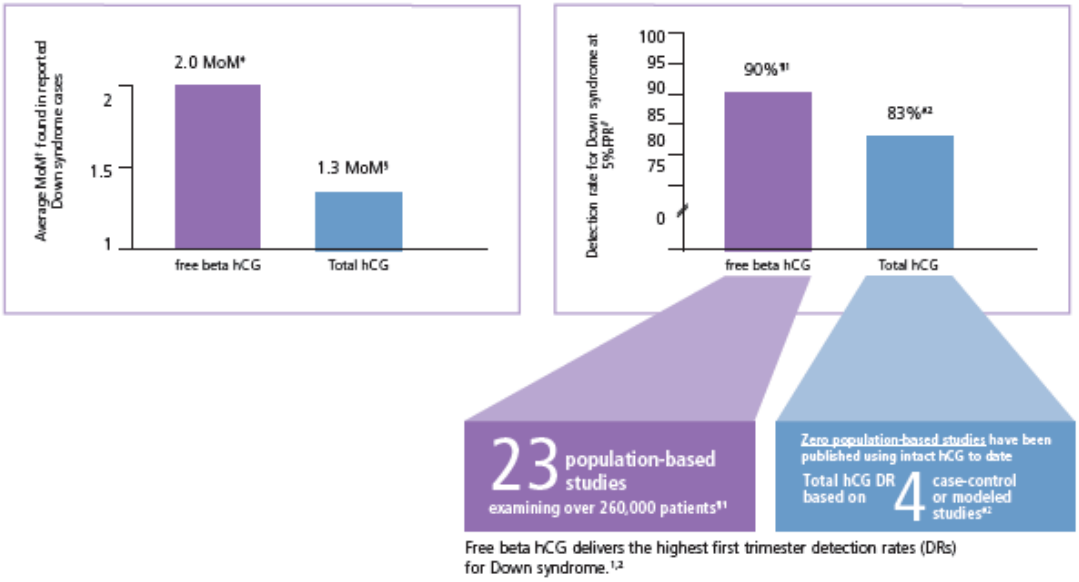
Only NTD Labs offers all of the following:

- The highest detection rate available in a first trimester biochemical screen with the superior free beta hCG protocol[1,2]
- Instant risk assessment (IRA)—provides same day, in-office results as early as 11 weeks, 1 day gestation
- Optional nasal bone assessment to increase first trimester Down syndrome detection rate to 98%[3,4]
- Separate twin reports
- Report flags option available offering more insight into potential adverse pregnancy outcomes, such as:
  - fetal loss
  - preterm birth
  - congenital adrenal hypoplasia
  - low birth weight
  - stillbirth
  - steroid sulfatase deficiency
  - preeclampsia
  - placenta accreta
  - Smith-Lemli-Opitz syndrome
- The first screening test in the U.S. to detect risk of early onset preeclampsia
- Rapid turnaround for screening tests: 1-2 days from sample receipt

Highest detection rate for Down syndrome in a biochemical screen

Scientific evidence demonstrates that free beta hCG* is consistently and significantly elevated in Down syndrome cases.[5] One of the cornerstones of NTD's prenatal screening is the measurement of this important biomarker to provide the most sensitive screening results possible at the earliest point during pregnancy.

Free beta hCG, a subunit of total hCG, is the most accurate biomarker for Down syndrome detection showing significantly higher deviation from normal pregnancy levels in Down syndrome cases, compared with total hCG levels.[5]



Free beta hCG delivers the highest first trimester detection rates (DRs) for Down syndrome.[1,2]

Largest body of evidence

23 population-based studies, including 2 NIH studies, validate free beta hCG as the superior biomarker**

	Author	Journal	Year	No. of Patients	No. of DS Cases	No. Detected	DR	FPR
1	Krantz	*Obstetrics & Gynecology*	2000	5721	33	30	91%	5.0%
2	Tsai	*Journal of Formosan Medical Association*	2001	1506	2	2	100%	4.7%
3	Niemimaa	*European Journal of Human Genetics*	2001	1602	5	4	80%	8.2%
4	Schuchter	*Prenatal Diagnosis*	2002	4939	14	12	86%	5.0%
5	Wapner (BUN Study)	*The New England Journal of Medicine*	2003	8205	61	52	85%	9.4%
6	Borrell	*Prenatal Diagnosis*	2004	2773	8	7	88%	3.3%
7	Stenhouse	*Prenatal Diagnosis*	2004	4989	15	14	93%	5.9%
8	Scott	*Australian and New Zealand Journal of Obstetrics and Gynaecology*	2004	1985	5	5	100%	7.2%
9	Hadlow	*BJOG: An International Journal of Obstetrics and Gynaecology*	2005	10,436	32	29	91%	3.6%
10	Nicolaides	*Ultrasound in Obstetrics and Gynecology*	2005	75,602	325	301	93%	5.2%
11	Wojdemann	*Ultrasound in Obstetrics and Gynecology*	2005	6452	11	10	91%	2.1%
12	Malone (FASTER Study)	*The New England Journal of Medicine*	2005	38,167	117	100	86%	5.6%
13	Perni	*American Journal of Obstetrics & Gynecology*	2006	4600	22	20	91%	5.0%
14	Soergel	*Fetal Diagnosis and Therapy*	2006	2196	8	7	88%	4.0%
15	O'Leary	*Obstetrics & Gynecology*	2006	22,280	60	50	83%	3.7%
16	Kozlowski	*Ultraschall in der Medizin*	2007	3840	26	23	88%	8.0%
17	Leung	*Ultrasound in Obstetrics and Gynecology*	2007	2943	13	13	100%	6.1%
18	Valinen	*American Journal of Obstetrics & Gynecology*	2007	4765	24	21	88%	4.9%
19	Jaques	*BJOG: An International Journal of Obstetrics and Gynaecology*	2007	15,243	60	55	92%	3.6%
20	Has	*Fetal Diagnosis and Therapy*	2008	1801	9	8	89%	3.6%
21	Kirkegaard	*Prenatal Diagnosis*	2008	10,340	97	87	90%	3.8%
22	Lüthgens	*Fetal Diagnosis and Therapy*	2008	19,738	109	96	88%	3.8%
23	Schaelike	*European Journal of Obstetrics & Gynecology and Reproductive Biology*	2009	10,618	59	52	88%	4.9%
Totals and averages[¶1]				260,741	1115	998	90%	5%

ACOG‡‡ recommends prenatal aneuploidy screening be offered to ALL pregnant women, regardless of age[7]

According to the American College of Medical Genetics (ACMG):[8]

- Free beta hCG is a discriminatory Down syndrome screening marker before 11 weeks' gestation, but hCG is not
- Free beta hCG is univariately a more discriminatory Down syndrome screening marker than hCG between 11 and 13 weeks' gestation
- The best time for Down syndrome screening is at 11 completed weeks' gestation, as clinical sensitivity and specificity are reduced by 13 completed weeks' gestation

ACMG Technical Standards & Guidelines for Prenatal Screening, 2009.

The protocol used at NTD Labs is similar to that of the Perni study, with the addition of AFP. The addition of AFP enables our lab to achieve a

~93%[4,6] Detection Rate | 5%[4,6] False Positive

for Down Syndrome

* Human chorionic gonadotropin.
† Multiples of the median.
‡ Average based on an analysis of 19 published studies that included 826 reported Down syndrome cases.
§ Average based on an analysis of 17 published studies that included 463 reported cases.
# False-positive rate.

¶ Calculated by NTD Labs from an average of 23 published studies. Full list of references can be found at http://www.ntdlabs.com/references.
‖ Calculated by NTD Labs from an average of 4 case-control or modeled studies. Full list of references can be found at http://www.ntdlabs.com/references.
** Full list of references can be found at http://www.ntdlabs.com/references.
‡‡ American Congress of Obstetricians and Gynecologists.

NTD Labs is the proven leader in prenatal screening

The pioneering efforts of NTD Labs have resulted in the most sensitive biochemical screening results possible at the earliest point during pregnancy.

Test Name	FirstTrimesterScreen | Fß	with Instant Risk Assessment	with Nasal Bone	SequentialScreen | Fß	QuadScreen | Fß	AfpTest (for ONTDs)
Advantage	High accuracy, early results	Early, instant results in office	The highest available detection rate in the 1st trimester	The highest available detection rate, including the 2nd trimester	For patients who present too late for 1st trimester screening	For all patients who need screening for ONTDs
Down syndrome DR	93%[4,6] (80% for twins[9])	93%[4,6]	96%[2,4] (89% for twins[10])	95%[5] (98% with NB[5])	75%[11]	NA
Down syndrome FPR	5%[4,6] (7% for twins[9])	5%[4,6]	2%[2,4] (5% for twins[10])	5.8%[5] (2.9% with NB[5])	5%[11]	NA
Trisomy 13/18 DR	95%[12]	95%[12]	95%[12]	95%[12]	75% (T18 only)[12]	NA
Trisomy 13/18 FPR	0.3%[12]	0.3%[12]	0.3%[12]	0.3%[12]	0.3% (T18 only)[12]	NA
Spina bifida DR	NA	NA	NA	90%[14]	90%[14]	90%[14]
Anencephaly DR	NA	NA	NA	98%[14]	98%[14]	98%[14]
Markers	free beta hCG, PAPP-A, AFP, NT	free beta hCG, PAPP-A, AFP, NT	free beta hCG, PAPP-A, AFP, NT, nasal bone (NB) absent/present	1. free beta hCG, PAPP-A, AFP, NT, (NB) 2. AFP, free beta hCG, unconjugated estriol, inhibin-A	AFP, free beta hCG, unconjugated estriol, inhibin-A	AFP
Timing	11 weeks, 1 day–13 weeks, 6 days	**blood sample** 9 weeks, 0 days–13 weeks, 6 days **NT scan** 11 weeks, 1 day–13 weeks, 6 days	11 weeks, 1 day–13 weeks, 6 days	11 weeks, 1 day–13 weeks, 6 days and 15 weeks, 0 days–21 weeks, 6 days	15 weeks, 0 days–21 weeks, 6 days	15 weeks, 0 days–21 weeks, 6 days
Diagnostic options	CVS,* amniocentesis	CVS, amniocentesis	CVS, amniocentesis	CVS, amniocentesis	Amniocentesis	Amniocentesis

*Chorionic villus sampling.

Trust the leader in prenatal testing for over 30 years. To learn more, please contact your Genetics Account Executive or call us at 1-888-NTD-LABS (683-5227).

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Pursuant to applicable federal and/or state laboratory requirements, NTD Labs has established and verified the accuracy and precision of its testing services.

NTD-51059-0616 Printed in USA

Patient Information Brochure

What do the results of the FirstTrimesterScreen | Fβ mean?

Negative screen

A negative screen occurs in about 95% of all tests. **This means your baby is at low risk for Down syndrome, trisomy 18, or trisomy 13.** If you get a negative screen, your doctor may decide to stop screening or may continue with more tests in your second trimester for additional verification. A negative screen does not completely eliminate the possibility your baby may have Down syndrome, trisomy 18, or trisomy 13.

Positive screen

A positive screen occurs in about 5% of all tests. **This means your baby is at increased risk for Down syndrome, trisomy 18, or trisomy 13.** When you receive this result in your first trimester, you and your doctor may choose to consider additional testing options such as non-invasive prenatal testing (NIPT), or diagnostic testing options, like chorionic villus sampling (CVS) or amniocentesis.

About Eurofins NTD

For more than 30 years, Eurofins NTD has pioneered the research and development of prenatal screening protocols for open neural tube defects, Down syndrome, trisomy 13 and 18, and early onset preeclampsia screening Today, Eurofins NTD serves universities, medical centers, hospitals, laboratories, obstetricians and maternal fetal medicine specialists worldwide—providing risk assessment services that help healthcare professionals and patients make more informed medical decisions.

Learn more about Maternal Fetal Screen℠ | T1 by visiting **www.ntd-eurofins.com** or contacting us at **1-888-NTD-LABS** (683-5227).

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Why should I have prenatal testing?

According to the American College of Obstetricians and Gynecologists (ACOG), most children in the United States are born healthy. Only 2 or 3 out of 100 newborns have major birth defects. For the majority of babies the cause is unknown. **However, there are certain birth defects that can be tested for prenatally—before a baby is born.** These include Down syndrome, trisomy 18, trisomy 13, and open neural tube defects. The risk of having a baby with a chromosome abnormality, such as Down syndrome, increases with the mother's age. However, **ACOG recommends prenatal testing be offered to all pregnant women, regardless of age.**

The First Trimester Screen FB is a test performed at NTD Labs to show if you are at increased risk of having a baby with Down syndrome, trisomy 18, or trisomy 13.

What is Down syndrome?

Down syndrome, also known as trisomy 21, is the most commonly occurring chromosome abnormality. It is caused by having an extra copy of chromosome 21—for a total of 3 copies instead of the normal 2. **Down syndrome often results in developmental problems and a higher risk of conditions including heart defects, mental retardation, breathing and hearing problems, and childhood leukemia.** The severity of these conditions varies greatly from individual to individual.

What is trisomy 18?

Trisomy 18, or Edwards syndrome, is the second most common trisomy—a condition in which someone has 3 copies of a certain chromosome. It is caused by having an extra copy of chromosome 18—for a total of 3 copies instead of the normal 2. **Trisomy 18 causes developmental problems associated with life-threatening complications in a baby's first months and years.** These may include deformities of the heart, intestines, esophagus, hands, and feet; kidney problems; delayed growth; and mental retardation.

What is trisomy 13?

Trisomy 13, or Patau syndrome, is another well-known chromosome abnormality. It is caused by having an extra copy of chromosome 13—for a total of 3 copies instead of the normal 2. **Trisomy 13 is associated with severe mental and physical problems that cause many infants to die during their first days or weeks of life.** Infants with trisomy 13 often have problems including abnormalities of the heart, brain, or spinal cord; small or poorly developed eyes; extra fingers and/or toes; deformed mouths; and weak muscle tone.

Why is prenatal testing important?

Being tested during pregnancy will allow you to be informed about the health of your baby, before your delivery. The information you receive will be extremely valuable in helping you plan for your baby's birth. You and your doctor will also be able to decide if you need more testing later in your pregnancy. If you learn you will have a baby with one of these birth defects, **you can proactively prepare your family for the future by making important medical and financial decisions about care.**

If I receive a positive screen, what additional tests may I take?

If you are at risk of having a baby with a birth defect your doctor may recommend additional testing.

Non-invasive prenatal testing, or **NIPT**, is a type of screening test that examines fetal DNA which is present in the mother's blood. It is performed after 10 weeks of pregnancy by a blood draw and detects the same type of chromosome abnormalities that are examined by the The First Trimester Screen FB. It can also detect problems with the sex chromosomes (the X and Y chromosomes).

Chorionic villus sampling, or **CVS**, is performed at 10 to 12 weeks of pregnancy. The sample is sent to a lab and the cells are checked for chromosome abnormalities such as Down syndrome, trisomy 18, and trisomy 13. CVS is an invasive diagnostic test and is associated with a small risk of miscarriage.

Another test, known as **amniocentesis**, is performed between 15 and 20 weeks of pregnancy. The cells are checked for chromosome abnormalities such as Down syndrome, trisomy 18, and trisomy 13. Amniocentesis is a diagnostic test. Amniocentesis is an invasive diagnostic test and is associated with a small risk of miscarriage.

Be sure to discuss these additional tests with your doctor to determine which options may be right for you.

How is the FirstTrimesterScreen Fβ performed?

The First Trimester Screen FB is a simple blood test performed on you when a fetus is between 9 weeks and 13 weeks, 6 days of age. Your blood is analyzed for 3 markers normally found in all pregnant women.

The blood test is followed by an ultrasound examination, given when the fetus is between 11 weeks, 1 day and 13 weeks, 6 days of age. The ultrasound confirms your baby's age and measures the amount of fluid behind the baby's neck.

Results of the blood test and the ultrasound are combined to estimate the risk of Down syndrome, trisomy 18, and trisomy 13.

- *96% of Down syndrome cases are detected*
- *95% of trisomy 18 and trisomy 13 cases are detected*

If you are screened for chromosome abnormalities in your first trimester, **you should be sure to be screened for open neural tube defects (ONTDs) in your second trimester.** ONTDs, such as spina bifida, result from improper development of the brain and spinal cord, which may cause an opening to remain along the spine or head after the baby is born.

ONTDs can be detected through a maternal serum alpha-fetoprotein (MSAFP) screening. The maternal serum AFP test is noninvasive. Blood is drawn from the mother's arm and sent to the lab for analysis. High levels of AFP in the blood may indicate that the developing fetus has an ONTD.