

# Integrated Screening using first and second trimester markers

The American College of Obstetricians and Gynecologists recommends that “A strategy that incorporates both first- and second-trimester screening should be offered to women who seek prenatal care in the first trimester.”<sup>1</sup> Integrated Screening (IS) has been demonstrated by several major studies to be the most effective prenatal screening approach available for Down syndrome.<sup>2,3</sup>

## Screening Requirements

### Part 1 (11-13 weeks)

- Complete Part 1 of FBR Integrated Screening test requisition\*
- CRL between 45 and 84 mm
- Nuchal translucency (NT) measured\*\*
- Serum drawn for PAPP-A

### Part 2 (15-21 weeks)

- Complete Part 2 of FBR Integrated Screening test requisition\*
- Serum drawn AFP, uES, hCG, and inhibin

\*Both samples must be sent to FBR.

\*\*NT must be measured by sonographer certified by FMF or MFM/NTQR.

## The most effective method of screening for Down syndrome

Integrated Screening utilizes the best of the first and second trimester markers, resulting in unsurpassed prenatal screening performance for Down syndrome, trisomy 18, and open neural tube defects. It provides the highest detection rate of any screening test at a fixed screen positive rate. Integrated Screening has the lowest screen positive rate for Down syndrome, which means less anxiety for your patients.

Integrated Screening			
	Down syndrome <sup>3</sup>	Trisomy 18 <sup>4</sup>	Open neural tube defects <sup>5</sup>
Detection Rate*	90%	80%	83%
Screen Positive*	3%	0.5%	3%

\*Actual Down syndrome detection and screen positive rates will depend on maternal and gestational age distribution.

Comparing Screening Methods for Down syndrome				
	Quad Marker Screen	First Trimester Screen	Integrated Screen	Serum Integrated Screen
Detection Rate	81%	84%	90%	85%
Screen Positive	5%	5%	3%	3%

## Limitations

- No interpretation is available until after the second trimester sample is analyzed.
- Integrated Screening is dependent upon careful timing of both the first and second trimester serum samples. Both samples must be sent to and analyzed by the same laboratory.
- Integrated Screening requires an NT-certified sonographer to perform the nuchal translucency measurement.



## Serum Integrated Screening

If the NT measurement is not obtainable, Serum Integrated Screening is available. Serum Integrated Screening is the most effective method of screening using serum markers only<sup>3,6</sup>. While Serum Integrated Screening is less effective than a full integrated screen with NT, it has a higher detection rate and lower screen positive rate than a quad marker screen.

## Reimbursement

Most insurers should cover Integrated Screening to the extent that they cover prenatal ultrasound and serum screening procedures. Patients are encouraged to check with their insurance carriers if in doubt.

## Foundation for Blood Research

The Foundation for Blood Research (FBR) has extensive experience with antenatal and integrated screening<sup>4,5,6</sup>. FBR's role as a pioneer of improvements and refinements in prenatal screening for Down syndrome continues with the introduction of Integrated Screening.

## If you would like us to provide Integrated Screening to your patients:

### Part 1

- Fetal CRL must be between 45 and 84 mm as determined by Dartmouth-Hitchcock sonographers.
- If NT cannot be measured accurately, we will take the responsibility of rescheduling the ultrasound or ordering a Serum Integrated Screen.
- The first serum sample is drawn following the NT measurement. You will receive a letter confirming receipt of the first sample along with a lab slip to use for the second serum sample.
- Patients referred because of increased risk, e.g. advanced maternal age or family history, will be offered genetic counseling by Dartmouth-Hitchcock counselors.

### Part 2

- Patients may have their blood drawn at the Dartmouth-Hitchcock sites in Lebanon, Manchester, or Nashua. If blood is drawn elsewhere, that facility will need to make arrangements to have the sample sent to Foundation for Blood Research.
- Results are available in approximately 3-5 days after receipt of the second sample.
- *Screen positive* results will be called to your office and your patient by a Dartmouth-Hitchcock genetic counselor.
- *Screen negative* results will be faxed to your office from FBR. You will need to inform your patients of these results.

## Refer a patient:

If you would like to refer a patient, please call the Physician Connection Line at 866-DHMC DOC (866-346-2362)  
Download referral forms and lab requisition: [www.dhmc.org/goto/referralforms](http://www.dhmc.org/goto/referralforms)

When making a referral, fax a completed referral and lab requisition form to  
Lebanon: (603) 653-3545 | Manchester: (603) 623-7216 | Nashua: (603) 577-3497

<sup>1</sup> ACOG Committee on Practice Bulletins. ACOG Practice Bulletin No. 77: screening for fetal chromosomal abnormalities. *Obstet Gynecol* 2007;109(1):217-27.

<sup>2</sup> Malone FD, Wald NJ, Canick JA, et al. First- and second-trimester evaluation of risk (FASTER) trial: principal results of the NICHD multicenter Down syndrome screening study. *Am J Obstet Gynecol* 2003;189(6):S56.

<sup>3</sup> 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.

<sup>4</sup> Palomaki GE, Neveux LM, Knight GJ, Haddow JE. Maternal serum-integrated screening for trisomy 18 using both first- and second-trimester markers. *Prenat Diagn* 2003;23(3):243-7.

<sup>5</sup> Wald NJ, Cuckle H, Brock JH, Peto R, Polani PE, Woodford FP. Maternal serum-alpha-fetoprotein measurement in antenatal screening for anencephaly and spina bifida in early pregnancy. Report of U.K. collaborative study on alpha-fetoprotein in relation to neural-tube defects. *Lancet* 1977;1(8026):1323-32.

<sup>6</sup> Knight GJ, Palomaki GE, Neveux LM, et al. Integrated serum screening for Down syndrome in primary obstetric practice. *Prenat Diagn* 2005;25(12):1162-7.

*Integrated Test Technology under license from Intema Ltd., UK*



*Prepared in collaboration with the Foundation for Blood Research, Scarborough, Maine*



**DARTMOUTH-HITCHCOCK**

Lebanon | Manchester | Nashua | [www.dartmouth-hitchcock.org](http://www.dartmouth-hitchcock.org)