MaterniT® 21 PLUS

Your patients deserve more, so you should expect more from an NIPT

Now with GENOME-Flex™, a new NIPT high risk pathway[1]

Integrated GENETICS
LabCorp Specialty Testing Group

MaterniT® 21 PLUS

When your current NIPT is not enough, use MaterniT 21 PLUS, a clinically complete NIPT solution.[2-5]

Time, experience and confidence are valuable resources in any practice. MaterniT 21 PLUS performs in key areas that ensure your time is spent wisely, delivering fast, reliable, and effective prenatal screening results.

Integrated Genetics has run over 1 million non-invasive prenatal tests (NIPT) since pioneering the technology in 2011, including more than 30,000 twins and more than 50,000 genome-wide tests[6]; the depth of experience you should expect from an NIPT.

Now offering more screening options and flexibility than other NIPTs[2-5], including **GENOME-Flex – a new NIPT high risk pathway –** MaterniT 21 PLUS will deliver more value to your practice, and more service to your patients.

Each of the new features is designed to deliver a tangible positive benefit to you and your patients, while improving the service levels you should expect from an NIPT laboratory.

MATERNIT 21 PLUS - NEW FEATURES	
GENOME-Flex: a new NIPT high risk pathway	Rapidly re-sequence previously run MaterniT 21 PLUS samples using MaterniT GENOME when late stage anomalies are suspected, now you have options if a second NIPT is required
Rapid results, earlier in pregnancy	3-5 day turnaround time*, drawn as early as 9 weeks gestational age[7], saves time to effectively manage pregnancies, especially important in high risk pregnancies
Clear results with PPV and FF	Positive Predictive Value (PPV), Fetal Fraction (FF), Positive/Negative reporting. Reduce time spent interpreting complicated patient reports (EMR and online interface ordering and reporting available)
Low non-reportable results and fewer patient redraws	0.9%[8] overall, 2.4% in patients that weigh 200-225 lbs[9]
Customizable screening options and capabilities	More than any other NIPT[2-5]: CORE TEST - Trisomy 13, 18, 21 OPTIONAL - sex chromosome aneuploidy, microdeletions, and fetal sex | Singleton, twins, multiple gestations | IVF/egg donor | Drawn as early as 9 weeks gestational age

*From when sample is received at our lab

SERVICES	
1900 Patient Service Centers	Convenient specimen draw sites nationwide for your patients
>400 managed care plans	Extensive in-network coverage and expanded financial services to increase patient access
>140 genetic counselors on staff, plus online videos and resources	Largest national commercial network of genetic counselors to help inform and support patients
More published clinical content for your ongoing education	Ask a sales representative or go online to access resources
Patient Engagement Program	The right customer service experience for your patients. The right genetic testing experience for your practice

SOCIETY GUIDELINES Professional societies like ACOG, ACMG, and SMFM recognize NIPT as a screening option for all pregnant women

MaterniT 21 PLUS offers additional screening options not available with other NIPTs[2-5]

Providing flexible options and clinical pathways that support the unique needs of your practice

	MaterniT® GENOME	MaterniT® 21 Plus	Other NIPTs**
Trisomy 13, 18, 21	✓	✓	✓
Fetal sex	✓*	✓*	✓
Sex chromosome aneuploidies	✓	✓*	✓
Microdeletions	✓	✓*	✓
Trisomy 16, 22	✓	✓*	
GENOME-Flex high risk pathway	✓	✓	
Genome-wide with subchromosomal CNVs	✓		

*Optional feature. **Panorama® Prenatal Screen[2] by Natera, Prelude™ Prenatal Screen[3] by Counsyl, Innatal™ Prenatal Screen[4] by Progenity, Harmony® Prenatal Test[5] by Roche

We have over 30 years experience in the field of genetics

CORE TEST	ESTIMATED LIVE BIRTHS AFFECTED
Fetal sex (optional)	N/A
Trisomy 21 (Down syndrome)	1 in 800[22]
Trisomy 18 (Edwards syndrome)	1 in 5,000[23]
Trisomy 13 (Patau syndrome)	1 in 16,000[24]
SEX CHROMOSOME ANEUPLOIDIES* (SCA)	
45,X (Turner syndrome)*	1 in 2,500 (girls)[25]
47,XXY (Klinefelter syndrome)*	1 in 500 to 1,000 (boys)[26]
47,XXX (Triple X syndrome)*	1 in 1,000 (girls)[27]
47,XYY (XYY syndrome)*	1 in 1,000 (boys)[28]
ENHANCED SEQUENCING SERIES* (ESS) Clinically relevant microdeletions and trisomy	
22q (DiGeorge syndrome)*	1 in 4,000[29]
5p (Cri-du-chat syndrome)*	1 in 20,000 to 50,000[30]
1p36 deletion syndrome*	1 in 5,000 to 10,000[31]
15q (Prader-Willi syndrome)*	1 in 10,000 to 30,000[32]
15q (Angelman syndrome)*	1 in 12,000 to 20,000[33]
11q (Jacobsen syndrome)*	1 in 100,000[34]
8q (Langer-Giedion syndrome)*	Rare[35]
4p (Wolf-Hirschhorn syndrome)*	1 in 50,000[36]
Trisomy 16*	Rare (almost all cases result in miscarriage)[37]
Trisomy 22*	Rare (almost all cases result in miscarriage)[38]

** Reported as an additional finding; you may opt in to order this information.*

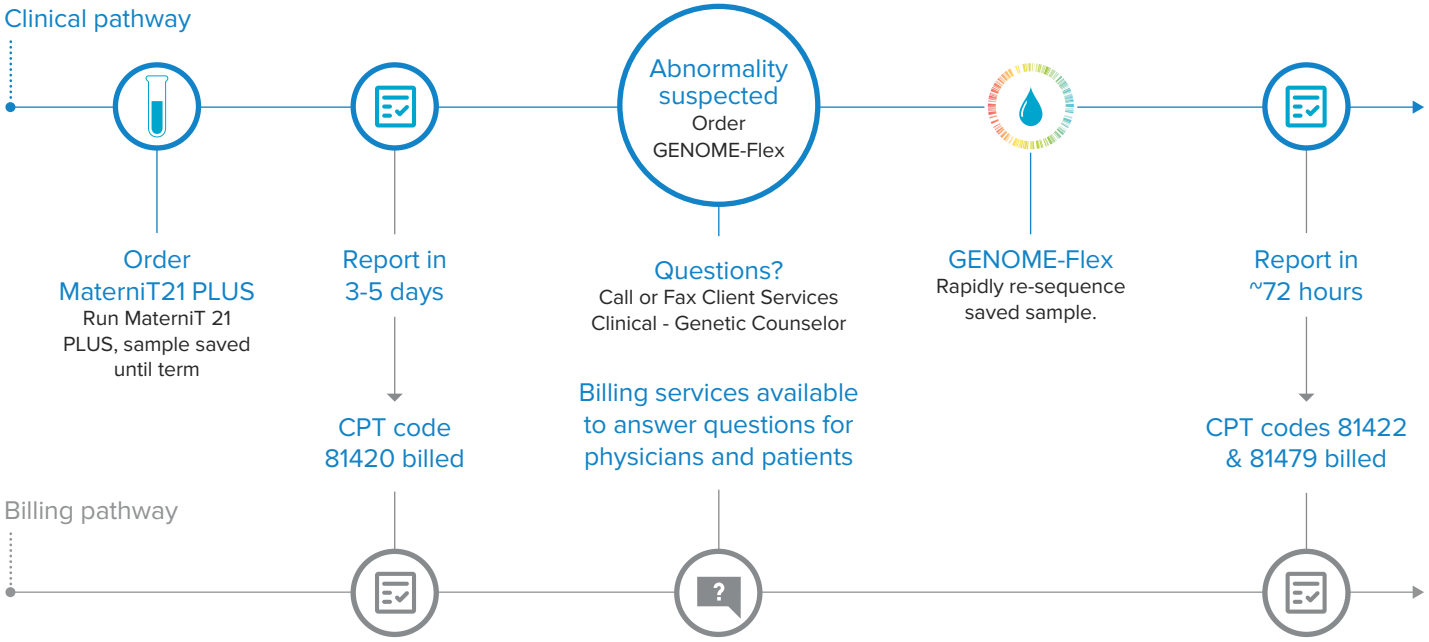
No redraw*,
results in ~72 hours[7]

MaterniT 21 PLUS is the only NIPT to offer GENOME-Flex, a new NIPT high risk pathway[1]

Once an NIPT test has been run and billed to insurance, future screening options for the MFM or obstetrician become limited should anomalies be suspected later in pregnancy.

A confirmatory diagnostic procedure may be recommended according to clinical practice and society guidelines, but this option may not be desired by the patient. MaterniT 21 PLUS provides a new alternative, a pathway to rapidly re-sequence previously run MaterniT 21 PLUS samples using the deeper sequencing power of MaterniT GENOME. Often no redraw is required*, results available in approximately 72 hours, and a different insurance billing path is followed (as shown below) saving considerable time by eliminating new appointments and waiting for test results as shown below.

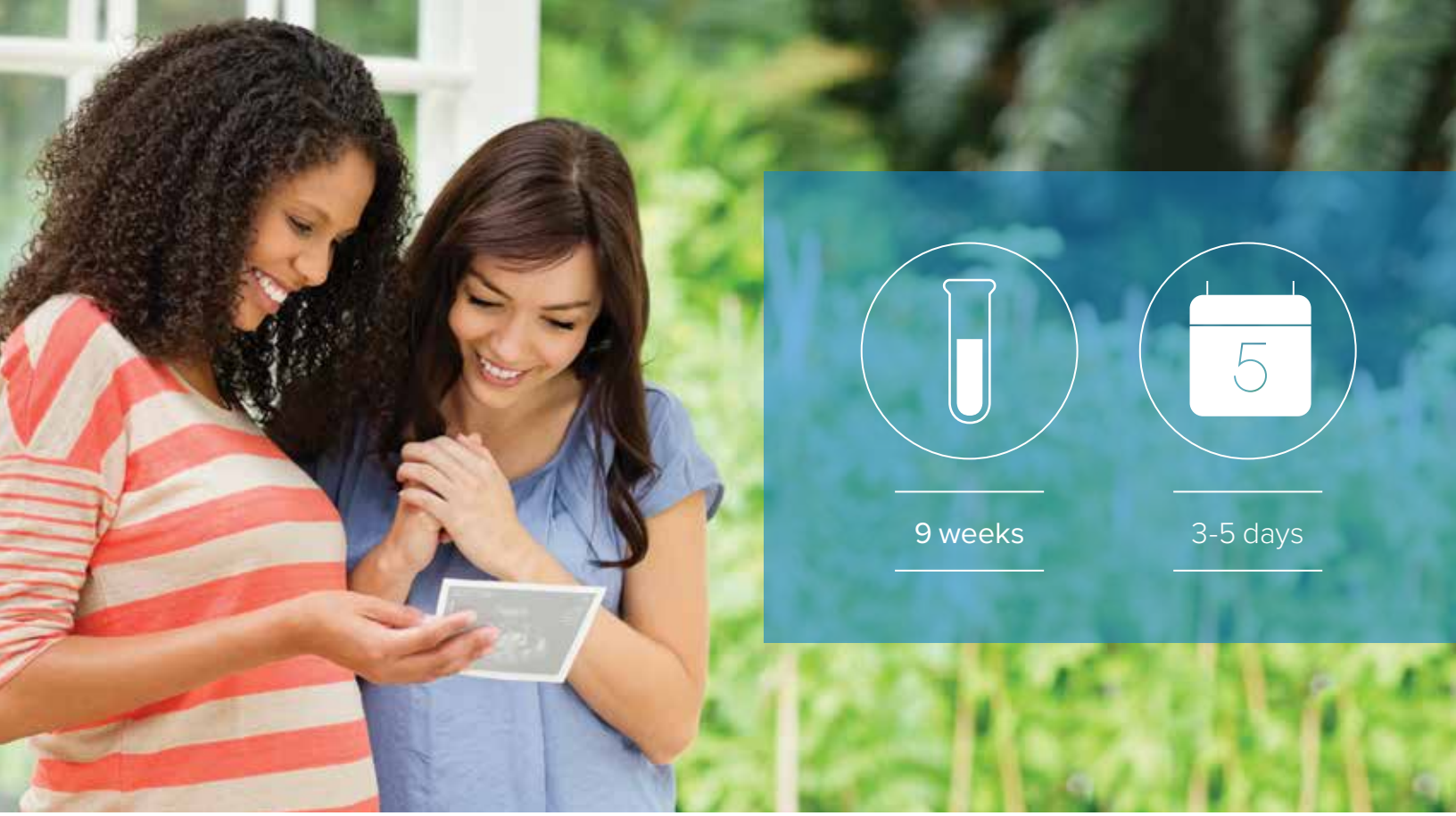
MaterniT 21 PLUS will deliver many advantages to your practice, but most importantly it will give you back time.



*In the rare case the initial MaterniT 21 PLUS specimen was used in its entirety during the initial test, a specimen redraw may be required.

GENOME-Flex features

Specimen handling	Ordering GENOME-Flex	Rapid results
• MaterniT 21 PLUS specimen is saved until term • Saved specimen can be re-sequenced during the pregnancy, eliminating time for a redraw	• Can be ordered by the referring obstetrician or the MFM, regardless of who ordered the initial MaterniT 21 PLUS test – for maximum flexibility • Order by phone, fax, or online interface	• Results provided back to referring obstetrician, MFM, or both – in approximately 72 hours

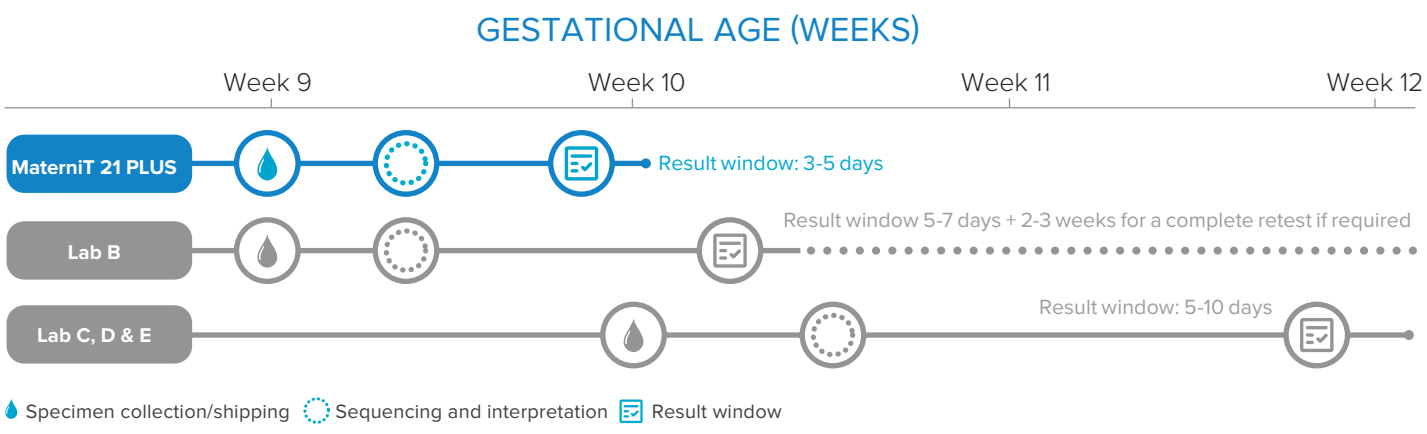


MaterniT 21 PLUS will deliver highly reliable test results earlier in pregnancy than other NIPTs[3,5,10,11]

A low non-reportable rate combined with rapid results in 3-5 calendar days*[7] may provide valuable information earlier in pregnancy when critical pregnancy management decisions need to be made. This can be especially important in high risk pregnancies, and when drawing early at 9 weeks' gestational age.

Test failures and patient redraws add unnecessary cost and time, and may create anxiety for patients and healthcare providers if decisions are pushed later into pregnancy. MaterniT 21 PLUS has a very low 0.9%[8] published non-reportable rate for trisomies 13, 18, 21, and a low 2.08% non-reportable rate on samples drawn at 9 weeks[12], five times lower than the 10.7% non-reportable rate published by another lab.[13]

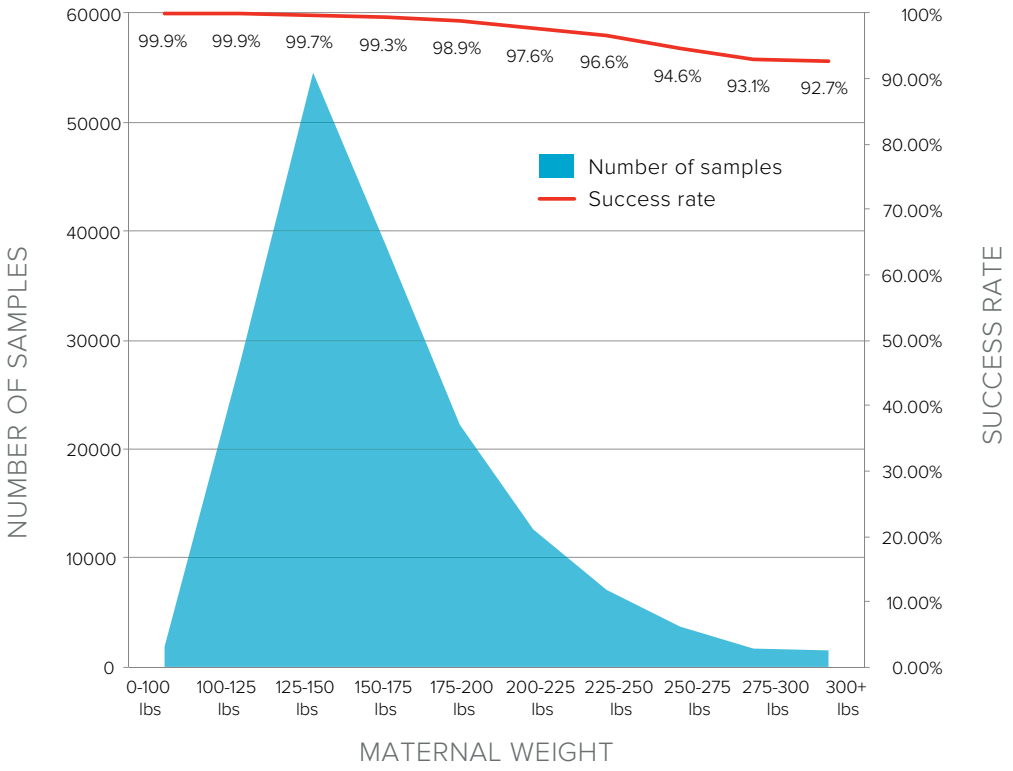
Rapid results, low failure rates. When time is critical, your choice is MaterniT 21 PLUS.



*Once sample is received at our lab in San Diego

97.6% success rate at 200-225 lbs

MaterniT 21 PLUS offers a very high success rate, especially in patients with higher maternal weight



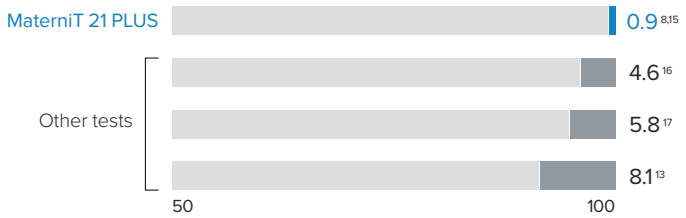
A failed NIPT test result may lead to unnecessary patient redraws and/or diagnostic procedures, an issue often compounded by increased maternal weight. MaterniT 21 PLUS has a very high success rate in patients with elevated maternal weight:

- 97.6% in patients that weigh between 200-225 lbs[9]
- 92.7% in patients that weigh 300+ lbs[9]

Some NIPTs have a success rate as low as 72.5% (27.5% corresponding failure rate) in patients weighing over 200 lbs.[14]

Highly reliable, extensively validated, the performance you should expect from the pioneer of NIPT

The MaterniT 21 PLUS test offers very low published and commercial non-reportable rates for trisomies 13, 18, and 21.



The MaterniT 21 PLUS test has been validated in clinical studies that tested samples from more than 2,100 pregnant women. The table below shows values for aneuploid samples in patients across four clinical studies, and accuracy for fetal sex within an additional publication.

POSITIVE RESULTS	SENSITIVITY	SPECIFICITY
210 of 212 - trisomy 21[8,15]	99.1%	99.9%
59 of 59 - trisomy 18[15]	> 99.9%	99.6%
11 of 12 - trisomy 13[15]	91.7%	99.7%
8 of 8 multiple gestations: 7 of trisomy 21 | 1 of trisomy 13[18]	> 99.9% detection rate	
Fetal sex[19]	99.4% accuracy	
25 of 26 combined sex chromosome aneuploidies[20]	96.2%	99.7%

In a high-risk group, MaterniT 21 PLUS showed a positive predictive value greater than 97.9% for trisomy 21.[21]

Genetics is complex; understanding pricing options doesn't need to be

We work directly with your patients to make our pricing options transparent

With our new *Patient Engagement Program*, your choice of a genetic testing partner is clear

New cost estimator plus rapid, proactive support from our expert *Every Mom Pledge* team

Patient responsibility was $0 for over 74% of patients[39]

New program provides $299 price for MaterniT® 21 PLUS, informaSeq® and Inheritest® NGS for qualifying patients

Send your patients to **integratedgenetics.com/transparency** or call **844.799.3243**

Toll-free (within the US)
877.821.7266

www.integratedgenetics.com

Outside US: 858.202.9000
Fax: 858.202.9108

Domestic inquiries:
askSQNMCS@labcorp.com

International inquiries:
sqnm-internationalupdates@labcorp.com

MaterniT NIPT physician hotline:
877.635.7105 (within the US)

Sequenom Laboratories
3595 John Hopkins Court
San Diego, CA 92121

View short videos on genetic testing:
www.integratedgenetics.com/videos

Integrated GENETICS
LabCorp Specialty Testing Group

Test name	Test no.	Fetal sex opt-out
MaterniT 21 PLUS	451927	451951
MaterniT 21 PLUS + SCA*	451934	452112
MaterniT 21 PLUS + ESS**	451931	452136
MaterniT 21 PLUS + ESS + SCA	451937	452122
GENOME-Flex (Add On)	452104	n/a
GENOME-Flex (Add On) Redraw	452114	n/a
MaterniT GENOME	451941	452106

* Sex chromosome aneuploidies ** Enhanced sequencing series *

1 x 10 mL cell-free
DNA Strecktube

REFERENCES

1. Illumina. https://www.illumina.com/clinical/illumina_clinical_laboratory/verifi-prenatal-tests.html. Accessed August 15, 2018.
2. Natera. https://www.natera.com/panorama-test/clinical-information. Accessed August 15, 2018.
3. Counsyl. https://www.counsyl.com/services/prelude/clinical-info. Accessed August 15, 2018.
4. Progenity. https://progenity.com/tests/innatal. Accessed August 15, 2018.
5. Harmony. http://www.harmonytestusa.com/healthcare-professionals/providing-harmony. Accessed August 15, 2018.
6. Internal data
7. Internal data
8. Palomaki GE, Deciu C, Lambert-Messerlian GM, et al. DNA sequencing of maternal plasma to detect Down syndrome: An international clinical validation study. *Genet Med.* 2011;13(11):913-920.
9. Wardrop J, McCullough R, Boomer T, et al. Maternal weight – impact on noninvasive prenatal testing (NIPT). Clinical poster presented at ACMG annual meeting, Florida 2016.
10. Natera. https://www.natera.com/panorama-test. Accessed August 3, 2018.
11. Progenity. https://progenity.com/tests/innatal#practice. Accessed August 3, 2018.
12. Internal data
13. Pergament E, Cuckle H, Phil D, et al. Single-nucleotide polymorphism-based noninvasive prenatal screening in a high-risk and low-risk cohort. *Obstet Gynecol.* 2014 August; 124(2 0 1): 210–218.
14. Dar P, Curnow KJ, Gross SJ, et al. Clinical experience and follow-up with large scale single-nucleotide polymorphism-based noninvasive prenatal aneuploidy testing. *Am J Obstet Gynecol.* 2014 Nov; 211(5); 527.e1-527.e17.
15. Palomaki GE, Deciu C, Kloza EM, et al. DNA sequencing of maternal plasma reliably identifies trisomy 18 and trisomy 13, as well as Down syndrome: An international collaborative study. *Genet Med.* 2012;14(3):296-305.
16. Norton ME, Brar H, Weiss J, et al. Non-invasive chromosomal evaluation (NICE) study: results of a multicenter, prospective, study for detection of fetal trisomy 21 and trisomy 18. *Am J Obstet Gynecol.* 2012 Aug;207(2):137.e1-8.
17. Bianchi DW, Platt LD, Goldberg JD, et al. Genome-wide fetal aneuploidy detection by maternal plasma DNA sequencing. *Obstet Gynecol.* 2012 May;119(5):890-901.
18. Canick JA, Kloza EM, Lambert-Messerlian GM, et al. DNA sequencing of maternal plasma to identify Down syndrome and other trisomies in multiple gestations. *Prenat Diagn.* 2012 Aug;32(8):730-4.
19. Mazloom, A, Oeth P, Wang T, et al. Accuracy of noninvasive prenatal sex determination using massively parallel sequencing in samples from a large clinical validation study. Poster presented at American Society of Human Genetics annual meeting; 2012 Nov 6-10; San Francisco, CA.
20. Mazloom AR, Džakula Ž, Oeth P. et al. Noninvasive prenatal detection of sex chromosomal aneuploidies by sequencing circulating cell-free DNA from maternal plasma. *Prenat Diagn.* 2013 Jun;33(6):591-7.
21. Porreco RP, Garite TJ, Maurel K, et al. Noninvasive prenatal screening for fetal trisomies 21, 18, 13 and the common sex chromosome aneuploidies from maternal blood using massively parallel genomic sequencing of DNA. *Am J Obstet Gynecol.* 2014 Oct;211(4):365.e1-128.
22. Genetics Home Reference. 2012, Jun. Down syndrome. https://ghr.nlm.nih.gov/condition/downsyndrome#statistics. Accessed April 27, 2016.
23. Genetics Home Reference. 2012, Mar. Trisomy 18. https://ghr.nlm.nih.gov/condition/trisomy-18#statistics. Accessed April 27, 2016.
24. Genetics Home Reference. 2013, Nov. Trisomy 13. https://ghr.nlm.nih.gov/condition/trisomy-13#statistics. Accessed April 27, 2016.
25. Genetics Home Reference. 2012, Jan. Turner syndrome. https://ghr.nlm.nih.gov/condition/turner-syndrome. Accessed April 27, 2016.
26. Genetics Home Reference. 2013, Jan. Klinefelter syndrome. https://ghr.nlm.nih.gov/condition/klinefelter-syndrome. Accessed April 27, 2016.
27. Genetics Home Reference. 2014, Jun. Triple X syndrome. https://ghr.nlm.nih.gov/condition/triple-x-syndrome. Accessed April 27, 2016.
28. Genetics Home Reference. 2009, Jan. 47,XYY syndrome. https://ghr.nlm.nih.gov/condition/47xyy-syndrome. Accessed April 27, 2016.
29. Genetics Home Reference. 2013, Jul. 22. q11.2 deletion syndrome. https://ghr.nlm.nih.gov/condition/22q112-deletion-syndrome. Accessed April 27, 2016.
30. Genetics Home Reference. 2014, Feb. Cri-du-chat syndrome. https://ghr.nlm.nih.gov/condition/cri-du-chat-syndrome. Accessed April 27, 2016.
31. Genetics Home Reference. 2014, Jan. 1d36 deletion syndrome. https://ghr.nlm.nih.gov/condition/1p36-deletion-syndrome. Accessed April 27, 2016.
32. Genetics Home Reference. 2014, Jun. Prader-Willi syndrome. https://ghr.nlm.nih.gov/condition/prader-willi-syndrome. Accessed April 27, 2016.
33. Genetics Home Reference. 2015, May. Angelman syndrome. https://ghr.nlm.nih.gov/condition/angelman-syndrome. Accessed April 27, 2016.
34. Genetics Home Reference. 2015, Sep. Jacobsen syndrome. https://ghr.nlm.nih.gov/condition/jacobsen-syndrome. Accessed April 27, 2016.
35. Genetics Home Reference. 2009, Feb. Langer-Giedion syndrome. https://ghr.nlm.nih.gov/condition/trichorhinophalangeal-syndrome-type-ii. Accessed August 15, 2018.
36. Genetics Home Reference. 2012, Apr. Wolf-Hirschhorn syndrome. https://ghr.nlm.nih.gov/condition/wolf-hirschhorn-syndrome. Accessed April 27, 2016.
37. Disorders of Chromosome 16 Foundation. A brief (and basic) overview of Chromosome 16 disorders. 2011. http://www.trisomy16.org/about/what_are_doc16.html. Accessed April 27, 2016.
38. Heinrich T, Nanda I, Rehn M, et al. Live-born Trisomy 22: Patient report and review. *Mol Syndromol.* 2013 Jan; 3(6): 262–269.
39. Internal data

 | rep-1035-v5-1019 | L17259-1019-5