

Are we winning the fight?

At no time in human history, has the potential been greater for translating biological knowledge and technological capability into powerful tools for preventing and treating disease and caring for our people's health. Dramatic progress in the medical and dental science has vastly increased our understanding, which causes the disease and opened up previously unimagined options for treatment and prevention. The burgeoning technology industry has helped to revolutionize the development of new drugs. The mapping of the human genome is almost complete and the fruits of genetic report alone promises to transform medical knowledge and practice beyond our wildest dreams. Before us lie virtually limitless possibilities for preventing and treating the major disease of mankind and enhancing the health of our citizens.

Simultaneously, a new set of challenges threatens our ability to make most of these scientific opportunities into reality. The new study at Tufts Medical School suggests the testing for diseases like Down syndrome is entering a new era dominated by deoxyribonucleic acid (DNA) tests. The research hopes to lower the number of traditional diagnostic procedures, which are much more invasive.

Routine procedure for "trisomy" syndrome testing begins with ultra sounds and blood tests. Though, these tests only can cover the possibility of a problem. One such procedure is amniocentesis, a process which includes the insertion of a needle into the amniotic sac. The alterative called, chronic villus sampling, samples a piece of placenta taken from the mother.

Researchers say the DNA testing method leads to results faster than traditional methods and that these results are more accurate. If the claims are true it will allow mothers to decide on the fate of the pregnancy sooner, leaving more time to contemplate abortion or adoption. Dr. Biadchi of the tufts, Boston remarked on the safety of the DNA testing. She claims it offers a safe and accurate alternative. Numerous companies offer the DNA testing, which can be performed as early as 9 weeks into the pregnancy. The hope is that more women will opt for this test first, lowering the number of risky invasive procedures. The DNA test takes a sample of blood from the mother and tests the DNA coming off the



placenta. This DNA sequence is then compared with the normal chromosome counts for its respective stage of pregnancy. The tests are now targeted at high risk pregnancies. A 35-year-old woman or older woman with unusual blood tests and woman with previous high risk pregnancies are all recommended to undergo the DNA test. The new study for the DNA test, which searches for signs of Down syndrome and related diseases, is hoping to enter a new era where the procedure will be used for the general public. The research published in the New England Journal of Medicine said the false alarm rate for the result are significantly lower that of standard procedure. The importance of prenatal examination for aberrations in chromosome in the body is always emphasized for detection of abnormality in the child.

These newer tests are considered to have 10 times more accurate than conventional tests currently used today. The cell free DNA examination or cell free fetal DNA (cfDNA) test is the name given to this test. The test analyses fetal DNA, which is circulating in the mother's blood.

If implemented this could bring down the number of women suggested for invasive procedures. When unusual results are found early in pregnancy a next step has to be taken.

Approximately, one out of every 800-1100 birth results in an extra chromosome of the twenty first group called trisomy 21 or Down syndrome affecting millions of people in the world. This population has progressed tremendously over recent years to be able to function in the main stream of society.

The demand for dental care in persons with Down syndrome can take place in general dental office with relatively minor adaptations. Although this population has some unique dental care needs, few patients require special facilities in order to receive dental treatment. Adequate dental care for persons with a developmental disability is a major unmet health need today.

Access this article online	
Quick Response Code:	Website: www.contempclindent.org
	DOI: 10.4103/0976-237X.128650

Clinical research is the “neck of the scientific bottle” through which all scientific developments in bio sciences must flow before they can be of real-World benefit to the public. Landmark development in genetics, bio engineering, neuroscience and molecular, dental and structural biology will mean little in practical terms if clinical researches are unable to translate this science into new and effective medical and health practices or will the practices be of maximum benefit to the public.

Without a robust national program a clinical research that enjoys the participation and harnesses the full strength of all components of the health sector, the

impact of revolutionary advances in the biomedical and health sciences on the health of the public will be blunted.

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How to cite this article: Damle SG. Are we winning the fight?. Contemp Clin Dent 2014;5:1-2.