The *S*pecial Non-Invasive *A*dvances in *F*etal and Neonatal *E*valuation Network

Supporting the health of pregnant women and their babies

The *S*pecial Non-Invasive *A*dvances in *F*etal and Neonatal *E*valuation Network (***SAFE***) is a Network of Excellence established under the European Commission Sixth Framework Programme. We aim to implement routine non-invasive prenatal diagnosis (NIPD) and cost effective neonatal screening. **SAFE** began in 2004, has 50 partners from 19 countries and will run for 5 years. SAFE brings together experts from many disciplines, molecular biology, medical genetics, bioinformatics, socioeconomics and ethical studies, to achieve intellectual and practical integration in order to facilitate the timely and efficient introduction of new non-invasive prenatal diagnostic tests and neonatal screening within and beyond the European Community.

Reducing the risk of prenatal testing

NIPD for fetal sex determination in women at high risk of a sex-linked genetic disorder or congenital adrenal hyperplasia (CAH) has proved effective and has reduced the invasive testing rate by nearly 50%. These women come from high risk families, often with an affected child or history of therapeutic pregnancy loss, and are desperate to avoid the risks of invasive testing in pregnancies that are particularly precious. As NIPD can be offered from 5-6 weeks', it also has potential to reduce the need for steroid treatment in pregnancies at risk of CAH.

SAFE has promoted the introduction of these tests by developing the standards required for routine implementation by running workshops, as well as exchanging samples and expertise between laboratories in Europe. Non-invasive fetal sexing is now offered as part of the National genetics service in some countries thanks to SAFE funding.

SAFE is charged not just with facilitating widespread implementation of these exciting new tests, but also doing it in an ethically sound way. There is obvious potential for abuse of tests permitting easy and early fetal sexing. SAFE has addressed this in a workshop which has been published –'Policies and practices of sex-selection: anticipating the impact of early non-invasive testing' (Prenatal Diagnosis 2006, 26:7). Further research by our ethics workpackage will determine how women receive information regarding prenatal screening and diagnosis, and what factors impinge on their decisions in Europe and beyond in India, China and Israel. This work will facilitate the development of appropriate informed choice for families in these countries, not just for fetal sexing but for other genetic tests.

NIPD for fetal Rhesus (Rh) D status is now widely used in many parts of Europe in women who have had a previous pregnancy affected with Rhesus disease and, if trials in all pregnant women successful, it could result in significant savings in the use of anti-D and a reduction in hospital visits for women. SAFE's socio-economic work package is evaluating the economic costs and benefits of this strategy.

The future

SAFE's next 3 years will be dedicated to developing this technology for application in the diagnosis of other genetic conditions, such as cystic fibrosis, β-thalassaemia and hopefully Down's syndrome.

The impact of this work is likely to change obstetric care and the way we deliver prenatal diagnosis and screening. We are already at a stage where health care providers need to be aware of the developments and make provision for speedy introduction of these tests to the advantage of all pregnant women as well as families at increased genetic risk.

For more information visit: www.safenoe.org
Or email us at: safeproject@warwick.ac.uk