



SOUTH AUSTRALIAN MATERNAL SERUM ANTENATAL SCREENING (SAMSAS) PROGRAM

Department of Genetic Medicine
Women's and Children's Hospital, Adelaide

telephone (08) 8161 7285 fax (08) 8161 8085 e-mail cywhs.samsas@cywhs.sa.gov.au website www.wch.sa.gov.au/samsas.html

Update 13

Trends in Maternal Serum Screening and Invasive Prenatal Testing in SA Following Introduction of First Trimester Combined Down syndrome Screening

Two reviews were undertaken in 2006. The first, a review of Down syndrome screening, has been published in the AJOG. The second, a review of screening for neural tube defects, was presented at the 27th Annual Clinical Meeting of the Society of Maternal-Fetal Medicine held in San Francisco, February 2007.

A summary of these reviews is presented below with further details available from our website.

Trends in state/population-based Down syndrome screening and invasive prenatal testing with the introduction of first-trimester combined Down syndrome screening, South Australia, 1995-2005

Muller PR, Cocciolone R, Haan EA, *et al Am J Obstet Gynecol 2007;196:315.e1-315.e7.*

- Utilization of maternal serum Down syndrome screening varied from 69% to 79% of all confinements between 1995 and 2005.
- Utilization of 2nd trimester maternal serum screening decreased from 75% to 25% of all confinements between 1995 and 2005 whilst the utilization of 1st trimester combined screening increased to 49% of all confinements in 2005 after being introduced in September 2000.
- The proportion of confinements undergoing invasive prenatal tests decreased from 9.3% to 7.6% between 1995 and 2005.
- The proportion of confinements ≥ 35 years of age undergoing invasive prenatal tests decreased from 43% to 24.8% between 1995 and 2005.
- The number of invasive prenatal tests to detect one Down syndrome fetus decreased from 86 to 40 between 1995 and 2005.
- The number of invasive prenatal tests to detect one aneuploid fetus decreased from 35 to 15 between 1995 and 2005.
- Despite the significant decrease in invasive prenatal tests, the overall antenatal detection of Down syndrome increased (71.9% in 1995 to 83% in 2005) once utilization of first trimester combined Down syndrome screening reached $> 30\%$ of confinements.

To review changes in the utilization and effectiveness of state/population-based antenatal screening for NTDs in South Australia from 1986 to 2004.

Muller PR; Wilkinson C; Cocciolone R; Haan E; Chan A.

- Utilization of second trimester MSAFP screening showed a significant decrease following the introduction of first trimester combined Down syndrome screening in September 2000. 73.9% of confinements in 1986, a peak of 88.5% in 1991 but decreasing significantly to 37.6% in 2004.
- The detection of NTDs through the state-based screening program (ultrasound and or MSAFP) showed a steady improvement from 76.3% to 95.2% between 1986 and 2004.
- This improvement continued after 2000, despite the decreased utilization of MSAFP screening.
- The improved detection suggests improved sensitivity of routine ultrasound screening for NTDs.
- The decreased utilization of second trimester MSAFP is likely to represent improved clinician confidence in second trimester ultrasound for the detection of NTDs.

In April/May this year you would have received a letter from us outlining proposed changes to maternal serum screening risk assessments for Down syndrome, Trisomy 18 and Neural Tube Defects.

These changes are now complete. MoM adjustments will now be made for ethnicity and pregnancy complications including IVF and age of donor egg, recurrence risk, diabetes (IDDM), smoking and maternal weight as stated on SAMSAS request forms A/3663. Biochemical markers will now be used to assess risks for Down syndrome in twin pregnancies in both 1st and 2nd trimester screens. First trimester combined biochemical and nuchal translucency screening remains the screen of choice for Down syndrome.

These refinements are expected to result in improvement to individual patient management and not impact on performance at a state screening level.



Robert Cocciolone, BAppSc, Med Lab Sc, Head, SAMSAS Program