

TRENDS IN STATE/POPULATION-BASED SCREENING FOR NEURAL TUBE DEFECTS (NTDs), SOUTH AUSTRALIA 1986-2004

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OBJECTIVE: To review changes in the utilization and effectiveness of state/population-based antenatal screening for NTDs in South Australia (population 1.54 million) from 1986-2004 (average of 19,029 births per year, 611 total NTDs).

STUDY DESIGN: Trends in utilization of antenatal screening and detection rates for NTDs in South Australia 1986-2004 were assessed in a retrospective observational population-based study. Data on maternal serum alpha-feto protein (MSAFP) screening were obtained from the only two laboratories in the State that offer MSAFP screening for NTDs (the South Australian Maternal Serum Antenatal Screening (SAMSAS) Program and a private laboratory), and on all births and terminations of pregnancy with NTDs from the South Australian Birth Defects Register and the Pregnancy Outcome Unit of the South Australian Department of Health. We evaluated trends in utilization of screening and rates of antenatal detection using chi-square tests for trend.

RESULTS: Utilization of MSAFP screening increased from 73.9% of confinements in 1986 to 88.5% in 1991 and then decreased significantly to 37.6% in 2004, ($p < 0.0001$), while the utilization of antenatal ultrasound remained over 92% during this period. The decrease in MSAFP screening coincided with the introduction of first trimester combined Down syndrome screening in South Australia in 2000. There was a significant increase in the rate of antenatal detection of NTDs from 76.3% in 1986 to 95.2% in 2004 ($p < 0.0001$) and the sensitivity of screening also increased significantly from 85.8% in 1986-1991 to 95.1% in 1999-2004 ($p = 0.001$).

CONCLUSION: Despite a significant decrease in the utilization of MSAFP screening, the population-based detection of NTDs and screening sensitivity has increased significantly in South Australia. This suggests an improved sensitivity and clinician confidence in second trimester ultrasound for the detection of NTDs.