



rates in this study were estimated at 24.7% for fathers and 2.1% for mothers, which is similar to findings in other smoking surveys in southern Africa.^{1,4} The consistency of responses between male and female students with regard to their parents' smoking patterns illustrates the robustness of this methodology in estimating adult smoking rates in areas where resources are limited.

This is the first description of smoking prevalence among Swaziland's schoolchildren, their teachers and their parents. It is interesting that the number of cigarettes smoked among schoolchildren is similar to that smoked among teachers. Tobacco prevalence rates now need to be monitored over time (say every 5 years) to measure the effectiveness of anti-tobacco measures. It is recommended that for adults, questions on smoking habits be included in the next census survey for verification. Smoking habits of children would be difficult to record in a household census, so this method provides a cheap alternative.

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SCREENING FOR SMALL-FOR-GESTATIONAL-AGE NEWBORNS USING SERIAL SYMPHYSIS-FUNDAL MEASUREMENTS

To the Editor: Placental insufficiency is responsible for 11% of intra-uterine deaths at Tygerberg Hospital.¹ Accurate screening for poor fetal growth and well-timed delivery may prevent many of these deaths. However, it would be too expensive for a busy obstetric unit in a developing country to screen all patients antenatally by ultrasound for poor fetal growth. Other cost-effective methods of detecting poor fetal growth, such as symphysis pubis-fundus (SF) measurements, therefore have to be investigated.

SF measurement is part of the routine antenatal care at Tygerberg Hospital. The growth curve for the local population is used.² Measurements are done from 20 weeks' gestational age and are plotted on the SF growth chart. A diagnosis of poor fetal growth is made when two subsequent measurements are below the 10th centile or three independent values fall below this line, when a plateau of three measurements is reached, or when a value is lower than the penultimate value. Duration of pregnancy is calculated by the date of the last menstrual period, clinical estimation in early pregnancy or ultrasound. Records of consecutive patients who delivered between 1 January and 15 May 1995 were examined the day after delivery. Newborns with birth weights below the 10th centile for the specific gestational age were regarded as small for gestational age.

We studied 1 086 patients, of whom 893 had both normal SF measurements and appropriately grown infants (Table I). SF measurements were abnormal in 107 patients (10%). One hundred and forty-three infants (13%) were small for gestational age. The sensitivity of the test was 40%, the specificity 95% and the positive predictive value 53%. The odds ratio was 11.8 (95% confidence interval 7.5 - 18.8).

Table I. Weights for gestational age

| SF measurement | Birth weight | | Total |
|----------------|--------------------|--------------------|--------------|
| | Below 10th centile | Above 10th centile | |
| Abnormal | 57 (40%) | 50 (5%) | 107 (10%) |
| Normal | 86 (60%) | 893 (95%) | 979 (90%) |
| | 143 (100%) | 943 (100%) | 1 086 (100%) |

Sensitivity 57/143 = 40%; specificity 893/943 = 95%; positive predictive value 57/107 = 53%; negative predictive value, 893/979 = 91%; odds ratio $\frac{57 \times 893}{50 \times 86} = 11.8$ (95% confidence intervals 7.5 - 18.8); $P < 0.0000001$.

There were 6 intra-uterine deaths. One was due to a severe congenital abnormality where the pregnancy was terminated at 32 weeks' gestation. The SF measurement was above the 90th centile due to polyhydramnios, but the fetus weighed below

1. World Health Organisation. *Tobacco or Health - A Global Overview*. Geneva: World Health Organization, 1997.
2. Chapman S, Yach D, Saloojee Y, Simpson D. All Africa Conference on Tobacco Control. *BMJ* 1994; **308**: 189-191.
3. SAS Institute. *SAS Users Guide. Statistics*. V6. 03. Cary, NC: SAS Institute, 1992.
4. Reddy P, Meyer-Weitz A, Yach D. Smoking status, knowledge of health effects and attitudes towards tobacco control in South Africa. *S Afr Med J* 1996; **86**: 1389-1393.



the 10th centile. One intra-uterine death was due to a cord accident at 30 weeks. The SF measurement was abnormal, but the fetus was not small for gestational age. Two intra-uterine deaths were due to abruptio placentae at 35 and 34 weeks' gestation. One of these patients had pre-eclampsia. In both cases the SF measurements were normal but the infants were small for gestational age. In the remaining 2 patients SF measurements were normal and the fetuses were not small for gestational age. In one of these cases the cause of death was uncertain and in the other placental insufficiency could have played a role. Both deaths occurred at 28 weeks' gestation. In 1 case the mother was hypertensive.

The sensitivity of SF measurements was 40% and the odds ratio 11.5. The 3 cases of intra-uterine death in which the SF measurement was normal but the infant small for gestational age were also complicated by polyhydramnios, pre-eclampsia and abruptio placentae. The fact that the poor growth was not identified by the SF measurement was therefore not the only reason for the intra-uterine death. SF measurements are of help in detecting poor fetal growth, and are unlikely to miss the fetus at risk for intra-uterine death in cases in which there are no other complicating factors.

Routine use of SF measurements is recommended for all developing countries, as it improves the chances of diagnosing poor fetal growth clinically.

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1. De Jong G, Pattinson RC, Odendaal HJ. Influence of perinatal care on stillbirths in patients of low socio-economic class. *S Afr Med J* 1988; 74: 53-54.
2. Theron GB, Thompson ML. A centile chart for birthweight for an urban population of the Western Cape. *S Afr Med J* 1995; 85: 1289-1292.

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