visualised by the bladder and abdominal wall, which is especially advanta-
geous in obese patients. The vaginal probe can be manoeuvred in several 
planes and circumferentially around the cervix for the optimal visualisation 
of adnexal structures in the focal zone.

Finally, tenderness can be assessed with the probe under direct vision. It is 
possible to distinguish tubal from ovarian tenderness, and pelvic 
abdominal pain would have lumped together as "adnexal tenderness." Bimanual 
examination with its attendant risks of rupturing an ectopic pregnancy can 
be avoided.

In conclusion, transvaginal ultrasound offers distinct advantages over 
transabdominal scanning and may even render vaginal examination unnecessary.

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2 Norman RJ, Reddi K, Patel F, Kemp M, Joubert SM. Sensitive urine tests and human chorionic 
3 Turner-Treich IE, Romem S. Transvaginal ultrasonic study of the fallopian tube. Obstet 

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Shoe manufacture and possible hazards to reproduction

After our initial report on the risk of perinatal death associated with 
leatherwork1 McDonald and McDonald reported similar results from 
Montreal.2 We have now reviewed the past and subsequent obstetric 
histories of our initial study population.

Methods and results

The reanalysis was carried out in two parts. Firstly, we analysed the obstetric 
histories of the women studied before they were included in the initial study. The 
four groups were: leatherworkers who had suffered perinatal death, 
leatherworkers who had delivered live babies, other social class III (manual) women 
who had suffered perinatal death, and other social class III (manual) women who 
had delivered live babies. Secondly, in conjunction with the Health and Safety 
Executive, an employment nursing adviser interviewed all the leatherworkers, 
using a questionnaire designed to collect a complete occupational history together 
with details of any further pregnancies since their inclusion in the initial perinatal 
mortality survey. At the interview no particular emphasis was placed on either 
the obstetric history—that is, perinatal deaths or live births—or any particular 
occupation. In the main perinatal survey there was a 100% response, and in the 
subsequent interview the response rate was 28 of 34 (82%) in the perinatal death 
group and 14 of 18 (78%) in the live birth group. Almost all non-responders were 
those who had moved out of the area.

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Previous obstetric histories in women leatherworkers and other social class III working women

<table>
<thead>
<tr>
<th></th>
<th>Other social class III</th>
<th>Leatherworkers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>manual workers</td>
<td></td>
</tr>
<tr>
<td>Perinatal</td>
<td>Live</td>
<td></td>
</tr>
<tr>
<td>No of women in study</td>
<td>87</td>
<td>93</td>
</tr>
<tr>
<td>No (%) with history of any pregnancy</td>
<td>34 (39)</td>
<td>37 (40)</td>
</tr>
<tr>
<td>No of previous pregnancies:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alive and well</td>
<td>39</td>
<td>43</td>
</tr>
<tr>
<td>Involuntary loss*</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>Terminations</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
<td>70</td>
</tr>
<tr>
<td>No of previous pregnancies per woman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No of previous pregnancies ever pregnant</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Involuntary loss % of all previous pregnancies</td>
<td>1.9</td>
<td>1.9</td>
</tr>
</tbody>
</table>

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The table shows that in leatherworkers who had suffered previous perinatal 
deaths only 29% had a history of previous pregnancy compared with 39% or 40% in 
all other groups. The 36 perinatal deaths in our previous report occurred in 34 
pregnancies.1 The total number of "alive and well" pregnancies per woman was 
also much lower in the leatherworkers who had suffered previous perinatal 
Deaths than in the other groups (tables). In these analyses the denominator 
used was the total number of women who had live births or deaths in the initial 
study. Non-responders in the subsequent interview were assumed in the analyses to have had no exposure to solvents or anaerobic infections.

Involuntary loss (perinatal deaths) was recorded incidence of prostatic death 
group and 50% in the live birth group. Similarly, work in the closing room of 
leatherwork factories, where solvents and gases are mainly used, was carried 
out by 71% of the perinatal death group and 61% of the live birth group.

In the group who had had previous perinatal deaths 16 women had had a 
further 25 pregnancies, giving a rate of 1-6 pregnancies per woman pregnant. In 
the group who had had live births nine women had had a further 10 pregnancies, 
with an incidence of prostatic deaths in 1-1 pregnancies per woman pregnant. There were no subsequent pregnancies that had led to a death or an abnormal baby in the live birth group, whereas there had been three deaths and one living birth with major congenital 
malformation in the perinatal death group.

Comment

Though the numbers in this reanalysis and resurvey are small, the findings 
from both the previous and subsequent obstetric histories seem to support 
the view that women in the boot and shoe industry may have been exposed to 
a fetotoxic agent.

We thank Dr R Randall for his advice on this work and Mrs Pamela Marshall 
for interviewing. The perinatal study is funded by the Leicester Health 
Authority.

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Anaerobes and carcinoma of the prostate

Anaerobic bacteria are present in healthy people on all mucosal surfaces 
and can be isolated from the urine and periurethral region. Anaerobes may 
be associated with pyelonephritis, urethritis, renal abscess, prostatitis, and 
septicemia.1 Carcinomas of the bronchus, colon, and uterus are associated with 
an aerobic infections. The recorded incidence of prostatic carcinoma in 
men aged over 50 is between 14 and 46%.2 We tested the hypothesis that 
an aerobes are associated with prostatic carcinoma.

Patients, methods, and results

Prostatic tissue was obtained from 33 unselected patients after transurethral 
or retropubic prostatectomy. Specimens were processed within 30 minutes or stored 
at 4°C for up to 20 hours. Tissue (1 g) was washed1 and then minced with a sterile 
technique before being rolled on to heated blood agar plates (5% horse blood) and 
blood agar plates with neomycin (25 mg/l). Heated blood agar plates were 
incubated at 37°C in 10% carbon dioxide, and blood agar plates with neomycin 
were incubated at 37°C anaerobically. The tissue was then transferred into 80 ml 
F test tubes. Anaerobes were incubated in an anaerobic atmosphere, in 
Lab M plates, and seven days' incubation at 37°C on to the two types of plates. Anaerobic 
bacteria were identified by the methods of Holdeman et al.3 Routine sections 
were classified by an independent observer as adenocarcinoma or malignant 
lesions. Clinical information, including age, whether preoperative anti-
biotics had been given, and presence or absence of a catheter, was obtained 
retrospectively from hospital case notes.

Histological examination showed that nine of the 33 samples of prostatic tissue 
contained foci of carcinoma; the remaining 24 showed only benign prostatic 
hyperplasia. Six of the nine malignant specimens and none of the 24 benign 
specimens grew anaerobes (χ² = 19.56, p<0.001); in all six cases the specimens 

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2 McDonald AD, McDonald JC. Outcome of pregnancy in leatherworkers. Br Med J 1986;292:
979-81.

(accepted 27 October 1987)