Illicit drugs are widely used by inner city patients and their use by pregnant women has increased in recent years. The aim of this study was to determine the prevalence of polysubstance abuse among parturients at our institution who received no prenatal care (‘unbooked’) and to determine the accuracy of the Ontrak TesTcup™ assay. We prospectively analysed urine from 50 ‘unbooked’ parturients and found that 26 (52%) tested positive for cocaine. Of these, six patients (23%) were also positive for morphine. All TesTcup™ results were confirmed by the hospital laboratory using alternate chemical methods. When comparing TesTcup™ to the hospital laboratory, there were no false positive or negative results. Given the high frequency of concomitant opioid abuse in cocaine-abusing parturients, anyone suspected of cocaine abuse should be tested for other illicit substances. TesTcup™ is a clinically accurate test that allows the rapid assessment of several drugs of abuse, which may impact on anaesthetic care.
each substance is automatically performed and appears in the lower part of the result panel on the front of the cup. Following this, the various toxicology results can be easily read by the presence or absence of blue bands in the result window, similar to those used in commonly available over-the-counter pregnancy tests. The cost of each TesTcup® is approximately 20.00 US dollars. The anaesthetist performing the assay was blinded to the results of the hospital laboratory. The TesTcup® and hospital test results were compared by kappa analysis.

Of the 50 urine samples analysed by the TesTcup®, 26 (52%) were positive for cocaine, seven (14%) were positive for opioids, four (8%) were positive for amphetamines, four (8%) were positive for THC, and one (2%) was positive for PCP. Of the 26 samples positive for cocaine, six (23%) were also positive for opioids, four (15%) were positive for amphetamines, two (8%) were positive for THC, and one (4%) was positive for PCP (Fig. 1). These results were all confirmed by testing in the hospital laboratory, with no false positive or false negative results (kappa=1). All patients who tested positive for opioids denied opioid use, and 13 of the 26 patients whose samples tested positive for cocaine denied cocaine use. As none of the opioid positive parturients had evidence of needle marks, it is likely that the opioids were combined with other illicit agents and smoked or taken orally.

Comment
Identification of the substance-abusing parturient presents a challenge as denial of such abuse is common and clinical signs of illicit drug use can mimic other diseases such as pre-eclampsia. In our study, 52% of the unregistered parturients who were admitted to the maternity unit tested positive for cocaine, and of these 23% also tested positive for opioids. The majority of parturients who tested positive for illicit drugs denied substance abuse. Our findings are consistent with the results of previous studies that screened either parturients or neonates for illicit substances.

Although knowledge of cocaine abuse in the parturient is vital to the anaesthetist, information regarding opioid abuse is equally important. Parturients requesting analgesia in labour are increasingly likely to receive spinal or epidural opioids. If side effects of this treatment occur, antagonist or agonist-antagonist agents may be administered. In addition, agonist-antagonist agents such as nalbuphine and butorphanol are sometimes administered for analgesia in labour. The administration of these drugs represents a potential hazard for the unidentified opioid-dependent parturient as they can precipitate acute maternal and/or fetal withdrawal syndrome.

Because of the potential obstetric and anaesthetic implications of drug abuse, all parturients considered to be ‘high risk’ should be tested with a method that allows for prompt results. Hospitals with toxicology screening procedures often analyse samples using gas chromatography/mass spectrometry or thin-layer chromatography, and fluorescence polarization immunoassays. While these are extremely accurate methods, results may not be available for more than 24 h, depending on hospital facilities. This is generally too late to be of benefit to the anaesthetist caring for these patients.

We evaluated a rapid and inexpensive screening test that was found to identify illicit substances that had been ingested within the previous 72 h. The TesTcup® has been shown to be an accurate assay and has been utilized by many specialties and in emergency situations. In this study, an anaesthetist without special training in toxicology testing was able to complete the tests in less than 5 min with results identical to those reported by the hospital laboratory. It should be noted, however, that latex agglutination tests do not provide a quantitative analysis. Although a positive result identifies patients who have ingested specific illicit drugs up to 72 h before testing, these tests cannot quantify the amount of drug or identify the time of last ingestion. Rather, the TesTcup® identifies either drug or drug metabolites only if they have reached a predetermined cut-off level. As the half-life of cocaine, is only minutes in duration, benzoylecgonine, a longer acting primary metabolite of cocaine is used for detection of this drug. It is possible that below the cut-off limits, TesTcup® results might be negative despite presence of low levels of drug or drug metabolite. However, at such levels, clinical significance is questionable. When time allows, recognized laboratory testing for drugs of abuse is optimal. However,
when toxicology results are necessary in an emergency situation such as the parturient in active labour, immuno-diagnostic assays such as the TesTcup™ can provide accurate information that can be used by the anaesthetist to provide optimal care.

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References
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