method of cataract surgery (309 general practitioners), followed by extracapsular extraction (301). Forty seven general practitioners were familiar with phacoemulsification, 26 were unaware of any of the methods used, and 43 were familiar with all three methods. Only 69 general practitioners expressed a preference for which method was used. The intracapsular technique was often preferred, and few of those expressing a preference chose phacoemulsification (table). When referring patients with cataracts, only 32 general practitioners said that their choice of consultant was influenced by the surgical method they used.

*Methods of cataract surgery preferred by general practitioners*

| Preferred method | No of general practitioners (n=367) |
|---|---|
| None | 298 |
| Intracapsular extraction | 29 |
| Extracapsular extraction | 27 |
| Phacoemulsification | 10 |
| Phacoemulsification or extracapsular extraction | 3 |

### Comment

As general practitioners can now choose their provider, quality of outcome assumes a greater importance. Many who responded to our questionnaire commented that they did not consider it necessary to have such detailed knowledge of specialised surgery. This would be so if all types of cataract extraction were equal, but we know this not to be true. We found that intracapsular cataract extraction was best known, not surprisingly as it has been available the longest. Although general practitioners were equally aware of extracapsular surgery, however, few expressed a preference for which method was used, which suggests insufficient knowledge to distinguish between the two. This is further reinforced by the high proportion who preferred intracapsular surgery, implying an inadequate appreciation of the advantages of modern methods.

We used cataract surgery as an example of a commonly performed specialist procedure (seventh most frequently performed operation in 1989-90).[5] However, all specialties are undergoing change, and hopefully these changes will have distinct advantages and benefits for the patient. Furthermore, a new variable has now been introduced into the decision making process: that of cost. Hospital referral patterns are influenced by waiting times, which may well be influenced by cost. In the internal market in health care purchasers must understand the clinical advantages and disadvantages of various procedures when choosing treatment for their patients; if they do not the quality of patient care will not even enter the equation.


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# Accidental ingestion of methadone by children in Merseyside


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The potential for accidental ingestion of methadone by children was highlighted in America in the 1970s.[1-5] We studied children presenting to Merseyside hospitals after ingesting methadone to identify possible preventive measures and management.

### Patients, methods, and results

We obtained information on the circumstances, timing, dose, family history, clinical details, and outcome for all children who had accidentally ingested methadone syrup in the Mersey region during November 1989 to March 1993. There were 44 episodes in 42 children; the number increased from nine in 1990, 13 in 1991, to 18 in 1992. The average age of the children was 34 (range 11-84) months; 29 were boys.

In 30 cases the type of methadone container was known: 22 were screwtop bottles, three were cups, two were open lemonade bottles, one was cotton wool in a bottle top, and only two were child resistant containers.

In 32 cases the methadone had been prescribed for a parent. In the remainder it was prescribed for the parent's partner or relative. The estimated volume ingested ranged from a lick to 200 ml.

Most ingestions were during the day; only two occurred between midnight and 9 am. The average delay between ingestion and arrival at hospital was 1 hour 35 minutes (range 15 minutes to 12 hours).

Two children died, both before arrival at hospital and after considerable delay. Of the survivors, 21 were drowsy, 10 had respiratory depression, 17 had pinpoint pupils, four were hypotensive and two had convulsions. Seventeen were asymtomatic.

Twenty children were given a bolus of naloxone, 14 of whom also had a naxolone infusion. Twenty two received ipecacuanha. Six needed no treatment. Thirty nine children were admitted, two were sent home, and one was taken home against medical advice. Twenty nine were in hospital for 24 hours, one for 24-48 hours, and six for three or more days (three for social reasons and three for chest infections). All three with chest infections had depressed levels of consciousness and respiration.

### Comment

The number of accidental methadone ingestions by children doubled from 1990 to 1992. The Liverpool Drug Dependency Unit was established in 1989 with about 400 adults receiving methadone. In 1993 there were 800 patients, who were responsible for 500 children between them. Over half of Liverpool's family doctors prescribe methadone. In November 1992, 2739 prescriptions were issue for a total of 14831 of methadone syrup in Liverpool (family health services authority, personal communication).

Methadone is a long acting opiate (half life 25 hours) and is readily absorbed orally. It is given as a sweet green liquid containing the equivalent of 1 mg of morphine per ml. There is no legal requirement that it be dispensed in child resistant containers. Liverpool family health services authority has funded the supply of such containers, and we recommend that this be done nationally. At present methadone is attractive in colour and taste; changing to a bitter tasting liquid would stop children taking large amounts.

Three reasons may account for the delay in seeking help. Firstly, methadone users may not realise the

danger of the drug to children. Secondly, they may not know that there is an antidote, and, thirdly, parents may fear professional accusations of poor parenting. Methadone users must be made aware of its dangers. Liverpool Drug Dependency Unit has designed posters with suitable warnings and advice.

All children suspected to have ingested methadone should be admitted to hospital. An emetic should be given only if the child is alert. Children with symptoms should receive a bolus of intravenous naloxone followed by an infusion at a rate determined by clinical criteria. Respiratory support may be needed. If a child has taken large volumes the stomach should be emptied by lavage while the airway is protected.

Emetic should not be given before the child reaches hospital because of the risk of aspiration. Intramuscular naloxone can be given safely by paramedics or general practitioners: 400 μg for a child under 5 years and 800 μg for an older child.


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# Use of coughing test to diagnose peritonitis


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The test for rebound tenderness is advocated for diagnosing general or localised irritation of the peritoneum, but the diagnostic accuracy and patients' acceptance of the test have been questioned.[1,2] Other methods for identifying peritonitis include asking patients to cough and percussion of the abdomen. We routinely ask patients to cough and have evaluated this coughing test for diagnosing peritonitis.

## Subjects, methods, and results

One hundred and fifty consecutive patients (70 male, 80 female; range 4-95 years, median 46) who were admitted for emergency treatment with abdominal pain were examined in a prospective study. The patients were asked to cough, and if they showed signs of pain—namely, flinching, grimacing, or moving their hands towards their abdomen—a positive result was recorded. If a patient was examined more than once only the result of the first examination was taken into account. Equivocal results were regarded as negative to increase specificity.

We assessed the accuracy of the coughing test in detecting peritonitis by comparing the results with the final diagnosis, using the same diagnostic categories as Liddington and Thomson.[2] Seven of the 150 patients were excluded from the analysis because their diagnoses did not easily fall into one of the specified categories. The table shows the results in the remaining 143 patients.

The diagnostic value of the coughing tests was highly significant when tested for the odds ratio (13·1 (95% confidence interval 5·8 to 28·9) $P<0·001$) and with the $\chi^2$ analysis with Yates's correction ($\chi^2=43·3$, $df=1$, $P<0·001$). Sensitivity and specificity were 0·78 and 0·79 respectively, and the positive predictive value for peritonitis was 76%.

*Results of coughing test compared with final diagnoses in 143 patients admitted with abdominal pain. Values are numbers of patients*

| | Positive test result | Negative test result |
|---|---|---|
| Patients with peritonitis: | | |
| Appendicitis | 24 | 2 |
| Cholecystitis | 6 | 7 |
| Perforated viscus | 5 | 0 |
| Diverticulitis | 3 | 3 |
| Haemoperitineum | 1 | 0 |
| Infarcted bowel | 2 | 1 |
| Acute pancreatitis | 5 | 0 |
| Large bowel obstruction | 2 | 0 |
| Incarcerated para-umbilical hernia | 1 | 2 |
| Ruptured ectopic pregnancy | 2 | 0 |
| Total | 51 | 15 |
| Patients with no peritonitis: | | |
| Non-specific abdominal pain | 12 | 38 |
| Gastroenteritis | 2 | 3 |
| Ureteric colic | 1 | 7 |
| Biliary colic | 1 | 1 |
| Small bowel obstruction | 0 | 4 |
| Chronic pancreatitis | 0 | 1 |
| Urinary tract infection | 0 | 4 |
| Constipation | 0 | 3 |
| Total | 16 | 61 |

## Comment

The test for rebound tenderness has been advocated as the most sensitive and reliable test for peritonitis.[3] It requires touching a patient's abdomen, however, and the expectation of sudden pain may raise anxiety and result in voluntary guarding, leading to a false positive result. The coughing test can be performed from the end of a bed and is less likely to lead patients to expect pain.

False positive and false negative results may occur because of the assumption that the various conditions that can cause peritonism always do so, and vice versa. We chose a classification of conditions that would allow us to compare our results with the published data.[2] The positive predictive value and odds ratio of the coughing test in this study (76%, 13·1) compare favourably with those for the test for rebound tenderness reported by Liddington and Thomson (49%, 4·2).[2] Dixon *et al* reported an odds ratio of only 1·42 for pain aggravated by coughing, but this was only for diagnosing appendicitis.[4]

The coughing test is simple, kinder to patients than the test for rebound tenderness, and less open to spurious demonstration of pain. We advocate that it is used to assess acute abdominal pain.


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