

Can out-of-hours operating in gynaecology be reduced?

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SUMMARY

Against a background of concerns about future hospital medical staffing and the safety of unsupervised operations at night, this study examines which gynaecological operations now undertaken at night may be safely postponed until the following day. In the first phase of the study, the operations taking place at night in four hospitals were identified. In the second phase a nominal group technique was used to seek the extent of agreement among professionals about the appropriateness of postponing surgery to the following day in certain circumstances. There were considerable variations between hospitals in the volume of work and the grade of staff involved. The panel concluded that most operations now performed at night should not be postponed. This study suggests that there is limited scope for postponing gynaecological operations currently undertaken at night.

INTRODUCTION

During the 1980s two related issues arose with important and potentially conflicting implications for the future pattern of work by hospital doctors in the U.K. *Achieving a Balance* (DHSS, 1986) laid down the basis for a reduction in the number of registrar posts and an increase in the amount of direct patient care provided by consultants. This caused concern that the planned expansion in consultant posts would be inadequate to compensate for the reduction in registrars (Parkhouse

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& O'Brien, 1984; Parkhouse *et al.*, 1987; Hurst & Curson, 1988), and consultants who lose registrars may experience a considerable increase in their out-of-hours workload.

The second issue is the number of hours worked by junior doctors. At night, junior doctors in obstetrics and gynaecology are among the busiest in a hospital (Dowie, 1989). In particular, concern has focused on the safety of patients treated by tired and unsupervised junior doctors. The Confidential Enquiry into Peri-operative Deaths (CEPOD) (Buck *et al.*, 1987) concluded that many operations were undertaken by doctors who were too junior and inexperienced, and a subsequent report (Royal College of Surgeons of England, 1990) states that many operations classified as 'urgent' in CEPOD are better treated during a normal operating list.

This study attempted to develop this idea further, by first identifying which gynaecological operations are undertaken at night, and second by seeking clinicians' views, based on accepted clinical practice, as to which operations could be delayed to the following day.

MATERIALS AND METHODS

The study was performed in two phases. In the first phase, operations commencing outside normal working hours (1700–0900 h) in four hospitals were identified. They included a teaching hospital (A), an inner London (B), an outer London (C) and a rural district general hospital (D).

Data on all operations commencing between 1700 and 0900 h were extracted from the theatre registers or emergency theatre lists during 4 months. Operations which were obviously part of a routine list commencing before 0900 h or continuing after 1700 h were excluded.

Procedures were coded using the Fourth Revision of the Office of Population Censuses and Surveys Classification of Operations and Procedures (OPCS 4). OPCS operation codes were aggregated into categories of procedure that were felt to be clinically meaningful. Names of surgeons were compared with staff lists to identify their grade. In a few cases where the names were of locum staff, theatre sisters were able to help us. We did not obtain details of staff in hospital A where up to 15 different theatres were used on various nights. Searching through all of these registers would have been an enormous task and so a list of emergency operations maintained by nursing staff that did not include the grade of surgeon was used. No data were collected on the outcome of individual patients. The data were entered into a microcomputer using DBase III+ and analysed using the Statistical Package for the Social Sciences (SPSS PC).

The quantitative data collected from the theatre registers were supplemented by interviews with junior staff in the hospitals concerned.

In the second phase a panel of professionals was convened consisting of five consultant gynaecologists, two registrars in gynaecology, and two midwives (because the panel also considered out-of-hours tasks in obstetrics — this is reported elsewhere (McKee *et al.*, 1992)). A nominal group technique described by

Glaser was employed (Glaser, 1980). Between 6 and 8 weeks before the date of the panel each participant was sent a summary of the findings of the descriptive phase and a review of relevant literature accompanied by a first round questionnaire that sought the views of panellists about the safety of postponing operations in various circumstances. The responses to this first round questionnaire were used to generate second round questionnaires for use in the panel meeting. The meeting occupied a half-day. Participants were given lunch and reimbursed for travelling expenses, but there was no other payment.

After an introductory explanation, participants discussed each item on the questionnaire. After the discussion on each question they were asked to rate the appropriateness of postponing surgery on a nine point scale in which one indicated it was never possible to postpone and nine indicated it was always possible to postpone. There was no pressure to produce agreement. At the conclusion of each panel the scores were analysed for the level of consensus and the degree of support for postponing surgery. A record of the discussion was transcribed.

Panellists were asked to base their responses on the existing situation where most operations at night are performed by registrars and senior house officers, and to bear in mind the recommendations of the CEPOD Report. They were also asked to disregard existing resource constraints such as non-availability of theatres the following day, to base their replies on what they believed to be good clinical practice, and to assume that the procedure was being performed for appropriate indications.

Agreement was said to exist if, after discarding one extreme high and one extreme low rating, the remaining seven ratings lay within a single 3-point range. Disagreement was defined as at least one of the remaining seven ratings was a 1–3 and at least one was a 7–9. Other combinations were referred to as partial agreement. The rationale for this scoring system has been described elsewhere (Scott & Black, 1991).

RESULTS

Description of out-of-hours operations

Table 1 shows the amount of out-of-hours operating in the four hospitals. The mean number of operations per night was 1.2, varying from 0.5 in hospital A to 1.9 in hospital B. The ratio of night-time operations (extrapolated to 12 months) to the total number of deaths and discharges also varies from 140 to 296 per thousand. Overall, operating took place on 57% of nights in the four hospitals, though this varied from 34% of nights in hospital A to 74% of nights in hospital B.

The principle procedures undertaken at night are shown in Table 2. Evacuation of retained products of conception (ERPC) is the single most frequent procedure, accounting for 74% of out-of-hours operations. The next most frequent procedures are laparoscopic or open management of suspected ectopic pregnancy (15%), followed by drainage of perineal abscesses (6%). There is only slight variation between hospitals in these proportions.

Table 1. Out-of-hours operations performed in the four study hospitals.

Hospital	Deaths & discharges/year (1986)	Estimated night time operations in 12 months	Mean no. of operations/night	No. of nights on which there were procedures					Ratio of night operations in 12 months per 1000 deaths & discharges
				0	1	2	3	4†	
A	2065	183	0.5	81	24	14	3		89
B	5986	690	1.9	31	28	15	29	19	115
C	4575	342	0.9	58	33	18	9	4	75
D	3668	492	1.3	40	34	28	13	7	134
Average			1.2	52	30	19	13	7	

Table 2. Number of gynaecological operations performed between 5 p.m. and 9 a.m. over 4 months (% of total).

Procedure	Hospital			Total
	A	B	C	
ERPC/D&C	42 (68)	159 (69)	96 (85)	422 (74)
Laparoscopy	5 (8)	24 (10)	3 (3)	48 (8)
Ops on fallopian tubes/ovary	6 (10)	14 (6)	3 (3)	39 (7)
Drainage of Bartholin's abscess	4 (7)	14 (6)	5 (4)	25 (4)
Drainage of vulval abscess	1 (1)	5 (2)	4 (4)	14 (2)
Laparotomy	0	4 (2)	2 (2)	6 (1)
Other	3 (5)	10 (4)	1 (1)	15 (3)
Total	61 (100)	230 (100)	114 (100)	569 (100)

Sources: theatre registers.

The starting times of operations are shown in Fig. 1. Over three quarters of operations commence before midnight. The percentages of all night-time operations that began after midnight were as follows: hospital A — 80%; hospital B — 23%; hospital C — 12%; and hospital D — 4%.

The percentage of operations carried out by each grade of surgeon also varied between hospitals (Table 3), with a much higher proportion being performed by senior house officers in hospital D. A possible explanation is that obstetrics and gynaecology are on two sites in this district but covered by one registrar.

Panel recommendations

The conclusions of the panel about postponing surgery are summarized in Table 4. The main reasons for these views became clear during the panel discussion. The key points were as follows.

ERPC should always take place without delay if there is continuing bleeding or if products are visible at the os. It is rarely necessary after midnight in other cases. Such patients could be sent home to attend, having fasted, the following morning. However this policy is dependent on access by junior staff to an ultrasound scanner. If a patient is in any pain she should be treated without delay. Although occasional dilatation and curettages are done at night for dysfunctional uterine bleeding, this is rarely appropriate.

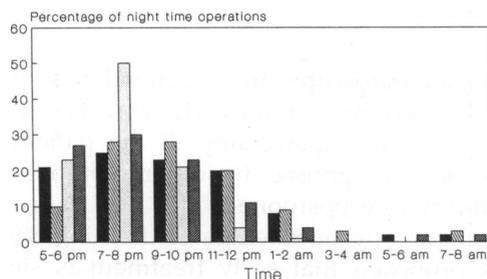


Fig. 1. Percentage of night-time operations started in each 2-h period. ■, hospital A; ▨, hospital B; □, hospital C; and ■, hospital D.

Table 3. Percentage of operations carried out by each grade of surgeon.

Hospital	SHO	Registrar	Senior registrar	Consultant
B	27	71		2
C	40	48	10	2
D	75	24		1
Overall	43	50	5	2

Data were not available in hospital A.

Table 4. Panel ratings of appropriateness of postponing gynaecological operations.

Procedure and indications	Before midnight	After midnight
ERPC/D&C		
(a) Incomplete abortion, haemorrhage ceased no products visible at os	PA 1	A 8
(b) As (a) but continuing haemorrhage	A 1	A 1
(c) As (a), but products visible at os	A 1	A 1
(d) Diagnostic D&C	A 8.5	A 8.5
Laparoscopy: Suspected ectopic pregnancy,	A 1	A 1
Laparotomy		
(a) Suspected ectopic pregnancy (no preceding laparoscopy)	A 1	A 1
(b) Abdominal pain, not shocked (Suspected gynaecological problem other than ectopic pregnancy)	A 7	A 8
(c) Abdominal pain, shocked	A 1	A 1
Drainage of Bartholin's abscess		
(a) Pain uncontrollable with analgesia	A 1	A 1
(b) Pain controlled with analgesia	D	D

A — agreement 1-can never be postponed
PA — partial agreement 9-can always be postponed
D-disagreement

If a patient undergoes a laparoscopy under general anaesthetic it is appropriate to proceed directly to laparotomy if indicated. However some laparotomies are carried out without a preceding laparoscopy. If the patient is shocked or if an ectopic pregnancy has been diagnosed by other methods, such as ultrasound scanning, surgery should not be postponed.

Opinions varied about the appropriateness of draining Bartholin's abscesses at night. Some panellists proposed that early treatment is simple and convenient and an elective incision is preferable to rupture. Others argued that this can delay other, more important, tasks.

Finally, the panel discussed when consultant involvement is required at night. While not a comprehensive list, they identified the control of bleeding following a hysterectomy, and definitive treatment in cases where cancer is found unexpectedly at an emergency laparotomy.

DISCUSSION

This study represents a first step towards clarifying the issue of which operations may be safely postponed, and thus helps to explore ways in which out-of-hours gynaecological workload might be altered. The reasons for night-time operating are complex, for example there may be a lack of availability of staff or theatres

during the day. An example of the latter is the relatively high volume of night-time surgery in hospital B which may be due to the day time gynaecology theatre lists being held in another hospital in the district. The other key factor determining differences in night-time operating is variation in clinical opinions as to its appropriateness. For example, one study that sought improved diagnosis of incomplete or missed abortion using ultrasound examination, aimed to permit most patients seen at night to be sent home and to return the following day for evacuation if required (Bigrigg & Read, 1991), whereas a similar study sought to enable surgery to be performed as soon as possible (Byrne *et al.*, 1991).

Consensus development offers an approach to the development of local guidelines by which widespread involvement in decision-making can be achieved, and in which agreement and disagreement can be identified. It is important to recognize however, that the existence of a consensus does not in itself mean the view is correct. There is a danger that the nominal group process will arrive at collective ignorance rather than wisdom. As such it is not a replacement for rigorous scientific reviews of published literature, but rather a means of determining how much support a given clinical guideline is likely to receive locally. It also serves to identify areas of disagreement that the participants might be encouraged to explore through further research. For example, in the present study it was not possible to obtain full agreement about postponing an ERPC for incomplete abortion from before midnight where there is no further bleeding, even though some units do so.

Can the number of operations performed at night be reduced? Information was not available on the indications for surgery for each patient in the first part of the study, thus precluding calculation of the number of operations that could be postponed. Our best estimate is that up to 12% of operations could be postponed, including many of those taking place after midnight. The principle condition that would be affected by a postponement of night-time surgery is evacuation of retained products of conception. This can be implemented by a policy in which accident and emergency staff assume a greater role in the management of bleeding in early pregnancy. This can reduce referrals to gynaecologists by 50% (Gilling-Smith *et al.*, 1988).

In conclusion, there is a need for night-time operations in gynaecology. However some of the operations currently carried out at night could be postponed.

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