Is the data quality of current theatre information systems satisfactory to monitor individual surgeons' activity?

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Objective. To compare data collection in two theatre log systems to assess usefulness for monitoring an individual surgeon's activity.

Design. A retrospective study of a handwritten theatre logbook and a computerised data collection system (Galaxy).

Setting. Gynaecology theatres in a district general hospital in the UK.

Sample. All abdominal hysterectomies over a consecutive 12-month period.

Results. 299 abdominal hysterectomies were recorded in the handwritten log and 298 were recorded on the Galaxy system. Four cases were identified in the handwritten log that did not appear in the Galaxy system, and 3 cases appeared in the Galaxy system that did not appear in the handwritten log. In 2 cases there was a major discrepancy between recordings of the operation undertaken. In 47 cases (16%) a different primary surgeon was recorded.

Conclusion. Retrospective collection of cases from both the computerised theatre log and the handwritten log have multiple inaccuracies limiting their usefulness to monitor an individual surgeon's activity as an individual logbook.

Monitoring of surgical activities is becoming increasingly important both for trainees and established surgeons. Moreover, with the advent of increasing structured training, individual accountability and revalidation, it is becoming important for doctors at all levels to keep a personal logbook of experience and outcomes. Indeed it is mandatory that all anaesthetic and general surgical trainees in the UK keep a logbook.[1] Independent central monitoring of surgical activity could provide this essential information and spare the surgeons the time-consuming task of collecting their own logs. The key to the usefulness of these data, however, is accurate data entry and retrieval.

Each operating theatre in the UK maintains a log of all surgical procedures, traditionally a handwritten log but increasingly now maintained on a computerised system. A computerised system (Galaxy; Sanderson's Ltd, UK) was introduced into gynaecology theatres at Royal Cornwall Hospitals in January 2000 in parallel with the paper logs. The opportunity was taken to compare the reliability of the paper log versus the computer log of a common gynaecological procedure, abdominal hysterectomy, for monitoring individual surgeons' activities.

Sample

All abdominal hysterectomies performed between 28 January 2000 and 27 January 2001 in a district general hospital, Royal Cornwall Hospitals, Truro, UK.

Methods

Data entry in the Galaxy system is principally done by nursing staff and operating department assistants at timed stages from arrival in theatre through to return to the ward. In the handwritten log, data entry is a two-step process. The nurse who checks the patient into theatre is responsible for writing their demographic details in the book, and the principal scrub nurse is responsible for filling in the details of the operation performed, primary surgeon, assistant and anaesthetist at the end of the operation. An in-house error checking process is in place whereby a printout of all cases recorded in Galaxy is compared with the hand-written

log of each theatre. Details checked are date, patient name and hospital number.

A list of all abdominal hysterectomies (total, subtotal with or without salpingo-oophorectomy) performed during the study period was requested from the information technology department. A single operator (LV) compared this with the handwritten log. Details checked were date of procedure, operation, patient's hospital number and primary surgeon. Where discrepancies existed the patient's notes were reviewed.

Results

Reference to the patients' records confirmed that 299 abdominal hysterectomies were performed during the study period. The paper logs failed to identify 3 cases, and of the cases identified the wrong surgeon was recorded in 8 cases (3%). The Galaxy system recorded all hysterectomies but falsely identified 2 other procedures as hysterectomies and attributed the incorrect surgeon in 47 cases (16%).

Conclusion

This study would suggest caution in using current central paper or computer records to monitor individual surgeons' performance. The main discrepancy was primary surgeon, and this was less accurate in the computer system than the handwritten log. This is the key information for monitoring individuals. Moreover, there was a small discrepancy between actual operation performed as recorded by the two systems. This study chose a very common operation;

when recording more complex operations a wider margin of error may be expected. It would appear that for an individual surgeon's logbook neither collection of cases retrospectively from the handwritten theatre log nor the computerised log provides an accurate record. It is probably wise for each individual to keep their own prospective logbook to ensure accuracy or to become more directly involved in the central records of information that relates to them personally.

Discussion

Logbooks are playing an increasingly important role for trainees because although they may not directly assess competence, with appropriate validation they can be used as an objective measure of clinical exposure and experience.[2]

While systems that could potentially be used for individual logbooks of training already exist, this study has proved that there are problems with accuracy of data entry, particularly with regard to primary surgeon and actual operation performed. The Royal Colleges regard the supervision of training as one of their most important duties[3] and accurate prospective data from such logbooks would help identify unsatisfactory training posts. It therefore appears necessary for each individual to keep their own individual logbook of training, and the challenge is to develop a centralised system that is both easy to use and accurate.

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2. Hammond E, McIndoe A. The anaesthetic logbook. *Anaesthesia* 2001; **56:** 587-588.
3. Galasko C, Mackay C. Unsupervised surgical training. Logbooks are essential for assessing progress. *BMJ* 1997; **315:** 1306-1307.