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978-0-521-88206-4 - Acting in Anaesthesia: Ethnographic Encounters with Patients,
Practitioners and Medical Technologies

Dawn Goodwin

Excerpt

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1 Understanding Anaesthesia: Theory and Practice

After changing into my theatre ‘blues’ I walk down the corridor and check the work allocation – Theatre 1, General Surgery. I begin by checking the anaesthetic machines, both in the anaesthetic room and in theatre. I turn the gases on and disconnect the pipeline supply – the alarms sound. Turn on the cylinders to check the back-up supply – turn them off and reconnect the pipelines. Next, the breathing circuit and ventilator: Any leaks? Leave it functioning but disconnected and wait for the low-pressure alarm, occlude the end and listen for the high-pressure alarm. Check the suction – clean, connected and working? Finally, top up the volatile agents. This work is quiet, constant and regular; there is no need to talk, the familiar routine is comforting first thing in the morning, and the solid and tangible machines are a reassuring presence.

These are some of the general checks. I then need to think about the specifics: Which surgeon, which anaesthetist and what procedures are on the operating list? Mindful of their preferences, I begin to set up for the first ‘case’. Patients are always talked about like this in operating theatres, as ‘cases’ or procedures such as ‘a mastectomy’ or ‘a hip replacement’. It might also be depersonalising, but for me, its utility is as a specific way to think about the morning’s workload, to anticipate the likely requirements of the morning. First on the list is a ‘right hemicolectomy’; an ET tube will be needed to secure the patient’s airway, size 8.5 for a male, a

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size 5 face mask, a size 14 or 16 naso-gastric tube, intravenous cannula – a large grey one, 16 gauge, intravenous fluids and a fluid warmer, the warming blanket to go over the patient's upper half during surgery, flowtron leggings to prevent deep vein thromboses and a diathermy plate to earth the electrical current used to cauterise bleeding vessels. Provided that the anaesthetist doesn't want to do anything 'fancy', he or she will require a combination of drugs: an induction agent, propofol is now almost ubiquitous, but it could be thiopentone if the anaesthetist is conscious of the drug budget; a muscle relaxant, usually atracurium; opiate analgesics, probably fentanyl and morphine; may be a sedative, a little midazolam; and some intravenous antibiotics. If the anticipated surgery is going to be quite extensive, they may also want to do an epidural; I get the 'kit' together just in case.

The anaesthetic room is over-run with a 'kit' such as this – drugs, syringes, needles, cannulae, tubes and connective devices, all in five or six different sizes. Working as a nurse in anaesthetics, you develop an affinity for these devices. There is something satisfying about being able to lay your hand on just the right device for almost every eventuality, and at being adept at assembling the intricate constructions required for invasive monitoring, for example. You develop personal routines, the efficiency of which rely on having the relevant item strategically placed for use.

Working so closely with the anaesthetists is interesting; it is fascinating to learn about management of an unconscious patient both holistically and in terms of the articulated systems of the body: for example, learning how to take care of a patient's airways and respiratory system, understanding the precise combination and volume of gases the respiratory system needs at a given point during anaesthesia and how to provide for this, appreciating the concatenated effects this has on the rest of the body, and following how control for this system passes back and forth between the patient, anaesthetic machine and anaesthetist. Engaging in

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these dynamics in knowing, doing, acting and intervening can be totally absorbing.

It is intriguing how so much can be gleaned from a ‘reading’ and a ‘trace’ on the monitor. As a patient exhales, he or she will expire carbon dioxide; therefore, when controlling a person’s respiratory system measuring the carbon dioxide levels becomes crucial. First of all, do you have a reading? If the monitor is connected and is functioning correctly and there isn’t a carbon dioxide reading, then either the patient isn’t breathing or the breathing tube (the endotracheal tube) is in the wrong place – the oesophagus rather than the trachea. Then there is the ‘reading’ to consider: the ‘normal’ range of measurements, for an adult, is between 4.5 and 6. For measurements outside this range, it is possible to read into those figures an array of potential meanings; for example, is the patient being underventilated (in which case the respiratory rate and volume of gases supplied is insufficient to adequately ventilate the patient)? Is the patient developing septicæmia? The increased metabolic rate which results from the patient becoming overwhelmed by an infection means that an elevated level of carbon dioxide is produced. Or is the reading significant in indicating malignant hyperthermia (a rare inherited metabolic disorder triggered by anaesthetics)? Again, in this, the excessive level of carbon dioxide relates to an increased metabolic rate. Further interpretations can be garnered from the shape of the trace. As the patient exhales, the measurements are displayed on the monitor in the form of a line graph. If the line rises only gradually as the patient exhales, one possible interpretation is that the patient has chronic lung disease, the gradual climb of the carbon dioxide reading corresponding to the rigid ‘non-compliant’ cell’s irregular release of carbon dioxide. In this sense, physical manifestations of an individual’s life testify to the specificity of unconscious bodies. The person’s habits, preferences, perhaps even occupational history connect an unconscious body,

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here and now in the operating theatre, to a life and history elsewhere.

Patients play a curious role in the operating theatres; they arrive as relatively independent individuals, and I meet the person briefly before he or she is anaesthetised. Patients are then rapidly transformed, connected to electronic monitoring, attached to drips and infusions and rendered unconscious, and responsibility for this vulnerable body is redistributed amongst doctors, nurses, technicians, auxiliaries, computerised technology and mundane artefacts. Once anaesthetised, however, patients do not become passive and homogeneous; they continue to exert their particularity in their bodily condition and the interventions he or she requires. A simple example of this is how an extremely nervous patient may require significantly more anaesthetic to induce unconsciousness; more complex examples come in the form of lengthy and intricate medical histories of chronic disease in multiple systems, requiring a vast range of adjuncts and specifications to routine care.

Following surgery, patients gradually reclaim their independence on a piecemeal basis, first breathing, then consciousness, speech and so on; this process may continue long after the patient has been discharged from hospital. As a nurse in Recovery, one can witness this initial re-emergence of the person. For me, working in Recovery also has the advantage of greater autonomy, by working closely with the anaesthetists but not under their direct supervision. The patient is in a state of intense transition, reclaiming their ability to breathe unaided, regaining their protective reflexes, moving quickly from unconsciousness to consciousness, having been cardiovascularly destabilised by surgery and their awareness of pain changing rapidly with their level of consciousness. This short period of instability requires concentrated nursing support: the Recovery nurse must ensure that the patient's blood loss has been controlled and compensated for, their level of consciousness is adequate and not overly affected by the sedative effects of

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pain-relieving drugs and indeed that the measures taken for pain relief are adequate. Then there are the specific complications related to every surgical procedure for which the recovery nurse must be aware and vigilant; vascular surgery, for example, carries an elevated risk of dislodging a fat embolism and incurring a stroke. However, by taking primary responsibility for a patient in this brief period of time, the nurse is in a position to specify the interventions required – an ability denied to the anaesthetic nurse because the anaesthetist is virtually always present and assumes principal responsibility. So in Recovery I can act, I can say ‘this patient requires more pain relief’, I can obtain a prescription and administer it, if I think the prescribed drug inappropriate I can request a different one. In anaesthesia, the anaesthetist decides and administers – I can only assist and suggest, but this rarely causes a problem.

I find it interesting how the distribution of roles and responsibilities has developed in theatres; how the boundaries of one’s practice are formed, maintained, challenged, extended and yet remain both relatively constant and always susceptible to change. How is it that the anaesthetic nurse, in addition to assisting the anaesthetist, also takes responsibility for the diathermy, operating table attachments, the operating lights, pressure-relieving devices, warming aids and additional surgical devices such as insufflators, cameras and screens used during laparoscopic surgery? At least in the hospital where I worked, ‘scrub’ nurses relinquished all claim to these duties. Instead, in addition to their core duty of preparing and accounting for the surgical instruments, they complete the operating theatre register, coordinate the pace of the operating list by sending for the patients and undertake the majority of the theatre cleaning. Sometimes these roles overlap, and there is certainly scope for much greater fluidity here, yet these role divisions, whilst they rarely receive explicit attention, seem curiously constant.

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My work as an anaesthetic and recovery nurse left me wondering about the relationships between these elements I mention: the patients, the anaesthetic machines and the monitoring, the 'kit' and equipment, the team of practitioners and the ways in which work is distributed amongst them. How do these elements intersect with knowledge and with action? How is knowledge generated, by whom and how does this shape actions? And, conversely, what are the limits, the restrictions, those factors that inhibit knowledge production and action? How do these questions relate to such descriptions of practice contained within the prescriptions of 'evidence-based medicine' (EBM)?

An opportunity to pursue and develop these questions came in the form of an invitation to join a team of researchers concerned with understanding the learning processes involved in an anaesthetist's development of expertise.¹ Briefly, the motivation for the research project stemmed from the increasing emphasis, in the training of anaesthetists, on formalised learning – on tutorials, the recall of theories and techniques of anaesthesia and on the demonstration of 'observable and measurable' competencies. This emphasis, however, served to undermine the value of the traditional 'apprenticeship' form of learning. How exactly learning in practice – learning in doing – contributed to the development of anaesthetic expertise remained unarticulated, and its significance continued to be implicitly and practically diminished by policy changes that reduced junior doctors' working hours and the service-delivery elements of their work.²

¹ The research project was entitled 'The problem of expertise in anaesthesia'. It was financed by the NHS North West R & D Fund (project grant number RDO/28/3/05). My colleagues in this project were Dr Andrew Smith, a consultant anaesthetist, Dr Maggie Mort and Dr Catherine Pope, both social scientists.

² The 'New Deal for Junior Doctors' restricted the amount of time 'trainees' spent in hospital, therefore reducing both the training and the service delivery elements of their work (Simpson, 2004). The implementation of the European Working Time Directive, which introduced a 58-hour working week for all hospital employees in August 2004 (<http://www.dh.gov.uk>, 2004), further reduced the working hours of

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Fieldwork Identities and Local Knowledge

The study adopted an ethnographic approach grounded in detailed real-time observation along with a series of in-depth interviews. The emphasis of the observation was to capture the details, particularities and demands of anaesthetic work that tend to be missed in textbook accounts of anaesthesia – for example, the ways in which anaesthetists develop personal routines and practices, and their particular ways of performing a certain technique. The interviews were similarly focussed on practice – sometimes being quite general and exploratory in nature, and sometimes being focussed on a recent period of practice or a specific critical incident. With a remit to observe anaesthetic practice in its various forms and environments, and to discuss the processes by which anaesthetists have developed their styles, it was my responsibility to organise and engage in the fieldwork.

The first hurdle was to secure access to the clinical environment – primarily, the operating theatres. Formal approaches were made to the Department of Anaesthesia, the hospital ethics committee and the theatre management and staff. These formal access negotiations were eased significantly by Dr Smith, a consultant anaesthetist and member of both the department of anaesthesia and the research team. The anaesthetists we approached were unaccustomed to, and sceptical of, the research methods we proposed. Therefore, having a consultant anaesthetist initiate and support both the aims and methods of the research assuaged some fears and countered some scepticism.

However, in spite of having attained departmental and hospital clearance, there was also a more subtle, ongoing process of

junior doctors. In addition, the structure of anaesthetic training programmes moved away from the traditional apprenticeship-style training that incorporates a service delivery element (Ellis, 1995), and became focussed around ‘observable and measurable competencies’ (Royal College of Anaesthetists, 2000).

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negotiating access, on an individual level. Each time I observed in the clinical areas, I had to secure the consent of the individuals concerned. I began with those anaesthetists who looked favourably on the project and who were enthusiastic to share their knowledge and expertise. These tended to be practitioners with whom I had enjoyed working as a nurse, with whom I had an easy rapport, and who were less likely to be concerned by my presence. After a while I began to receive invitations to observe from some anaesthetists who were initially less forthcoming. By this time, the novelty of the project had worn off slightly and the suspected ominous presence of the observer in the anaesthetic room had never materialised, tempered by my familiarity with the environment. It seemed almost as though these anaesthetists were a little affronted they hadn't attracted my research attention through which 'the banal and ordinary activities of the working day' are transformed into 'the mysterious and correspondingly interesting' (Suchman, 2000a: 2).

The clinical side of anaesthesia, that is, life in the operating theatres, was familiar to me; it was my territory. I had a native's knowledge of the environment; I could move about the hospital and its departments relatively unquestioned, unchallenged in my right to be there. What was unfamiliar to me, hidden from view, was the work required of anaesthetists once the operating lists were finished and they left the theatre department. To demystify this aspect of anaesthesia, I negotiated office space in the department of anaesthesia to use as my working base. Office space in 'the department' was enormously beneficial in that I could observe how the department of anaesthesia functioned as a body within the hospital, and how individuals – managers, consultants, secretaries, clinical nurse specialists, anaesthetic trainees – functioned within this. I was able to follow how managerial, bureaucratic and organisational decisions were made, inscribed into documents and presented to 'the department', and also the clinical ramifications of

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these decisions. I was able to observe how the department organises, maintains and polices itself, and how personal narratives of clinical practice were brought back to the department, discussed informally, infused with theories, contrasted with anecdotes and solidified into learning experiences.

Therefore, all these issues shaped the boundaries of my empirical 'field': the growth of the project from concerns about the training of anaesthetists, the relative ease of access, my familiarity with the operating theatres and the strangeness of the anaesthetic department. These early influences and factors gave the study certain characteristics, which I did not wholly appreciate at the time, characteristics that in some ways are contrary to my personal understanding of anaesthetic practice. By locating myself in the anaesthetic department, my focus was both broadened and narrowed. It was broadened in that I became aware of how the practice of anaesthesia was not solely a clinical endeavour; I was introduced to the professional, political, bureaucratic and educational duties that also constitute the work of anaesthesia. It was narrowed in that my focus centred on 'anaesthesia' as the work of anaesthetists. This is somewhat at odds with my experience of anaesthesia as something that is produced in practice by an array of actors such as nurses, operating department practitioners, medical devices and technologies and local routines, and includes but is not reducible to the activities of anaesthetists.

My identity and its legacy, therefore, brought some very particular qualities to the research, and as Peshkin (1985) observes, these qualities will be simultaneously 'enabling and disabling', opening some research possibilities whilst closing others. One such aspect is my local knowledge of the setting. The merits of this are uncertain and have a long history of debate within methodological literatures. As Garfinkel (1972) points out, for 'background expectancies' to become visible, one must

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either be a stranger to the ‘life as usual’ character of everyday scenes or become estranged from them. Potentially, then, my familiarity with anaesthetic practice may blind me to the significance of members’ knowledge. Given that one of the interests of the team project was the development of tacit knowledge, this served as a useful heuristic for thinking about my own. When typing up and elaborating upon my field notes, therefore, I was conscious to include detailed descriptions of the physical settings (even though the layout of the anaesthetic rooms and what each cupboard contained was as familiar to me as my kitchen cupboards at home), and although I would use the nomenclature of anaesthesia in my field note transcripts, I was mindful to add a translation, and where I added my own interpretation of an event I would take care to explain what had informed my interpretation. There was also a practical need for this level of specificity in the transcripts, in that they were to be shared amongst the research team, two members of which were social scientists. In addition to the attention granted to making my local knowledge visible, we also conducted seven joint observation sessions, in which I was accompanied by one of the two social scientists. Perhaps, not surprisingly, these accounts were different, but only insofar as the level of detail I was able to incorporate. Hess (2001: 239) sees this level of ‘near-native competence’ as a marker of good ethnography:

the standard of near-native competence means that good ethnographers are able to understand the content and language of the field – its terminology, theories, findings, methods, and controversies – and they are able to analyse the content competently with respect to social relations, power structures, cultural meanings and history of the field.

This criteria laid out by Hess placed me at an advantage, and in terms of writing field notes and asking questions, I certainly found my familiarity with the abbreviations, terminology, abundance of conditions, drugs and technological devices a