consumers questioning our academic mechanistic approach to obstetrics. Surely the emphasis on academic brilliance as opposed to the basic caring and communication skills is making this an unattractive specialty. The need for academic research and the development of subspecialty grade consultants is necessary, but the Royal College of Obstetricians and Gynaecologists should think seriously about the requirements it is demanding for those who wish to keep to general obstetrics and gynaecology with specialist interest. I would like to see the emphasis placed on management decision making and expertise in practical and communication skills.

FRANCES READER

Dalston,
London E8 1AB

Ventilator hazard identified and rectified

SIR,—Sudden failure of a Blease 5000 series ventilator occurred in the operating theatre at Mount Vernon Hospital, Middlesex. The patient who was being ventilated at the time suffered no ill effects because the manual circuit was used as soon as the machine stopped. After this event I discovered that other Blease 5000 series ventilators have suddenly failed. Obviously this is a hazard for patients.

The manufacturers of Blease ventilators are a long established firm with a reputation for the reliability of their equipment. Blease 5000 ventilators used to be fitted with an Edwards oil pump but are currently sold with a Becker or Brey dry pump. The increase in temperature during use of the Becker or Brey equipment is greater than with the Edwards version. Tests in the physics department at Mount Vernon Hospital have shown that the increase in temperature of the mechanism of the Blease ventilators with Becker or Brey dry pumps prolongs the inspiratory phase of ventilation. This can produce end inspiratory stalling if not checked. We are convinced that this was the cause of these cases of sudden failure of Blease ventilators.

A simple mechanical device which limits the length of the inspiratory phase has been developed at Mount Vernon and modified and tested by the ventilator manufacturers. A Blease 5000 ventilator fitted with this device has proved safe and satisfactory in clinical use during the past month. The Department of Health and Social Security has been informed of these events. Technical data are available from the author or from Godfrey Mott at Mount Vernon physics department.

ANNE GRÜNEBERG

Department of Anaesthesia,
Mount Vernon Hospital,
Northwood,
Middlesex

* *We sent a copy of this letter to the manufacturer.—ED, *BMJ*.

SIR,—It is known that the dry compressor now fitted to the Blease 5000 series ventilator has a more pronounced effect on the operation of the ventilator during the time taken for the compressor to reach operating temperature. This effect was discussed with the Department of Health and Social Security as early as 1981 and as a result a label (ST.7694) was

produced warning of this problem. This label has been made available for attachment to all 5000 series ventilators fitted with the new compressor.

The later work carried out by Dr Anne Grüneberg, where a restrictor was incorporated in series with the inspiratory phase tap, reduces the possibility of the machine stalling but, unfortunately, it adversely affects the flexibility of the machine. The modification presents difficulties when it is necessary to set up a specific pressure, frequency, and inspiration to expiration ratio combination. This is why we thought that fitting a label was the most appropriate action.

Should anyone wish to assess the modification suggested by Dr Grüneberg, we could supply a similar restrictor but we feel that a better solution is achieved in the later development of the 5000 series ventilator, the 5300. Here an electronic timer is used in conjunction with a pneumatic valve to limit the inspiratory time to a maximum of three seconds. As this is independent of the other controls of the ventilator, the inherent flexibility of the machine is retained.

J M DUNN
Technical manager

Blease Medical Equipment
Limited,
Chesham,
Bucks HP5 2NX

British Telecom recording 999 calls

SIR,—I wonder if doctors are aware that British Telecom is about to start recording all 999 calls taken at ambulance stations around the country. This is claimed to be for training purposes, but British Telecom states that these recordings may be used where there are complaints about the efficiency of the ambulance service attending calls. This matter was discussed at an Aylesbury Vale District Health Authority meeting in January and members were concerned about several aspects.

In many cases British Telecom is recording conversations on a private line since many calls come from a private house. These calls are often made by people in highly emotional states who may say things which they would not wish to be recorded by persons unknown. Drug addicts and similar patients may not wish their identities to be widely known. Confidentiality is being broken, often at a stressful time in a person's life.

If a complaint may be laid against the ambulance service on the evidence of these tapes, it is only a short step before complaints will be laid against doctors by patients who allege while making a 999 call that the doctor has failed to attend. Most of us in general practice know that in an emergency some patients panic and do not call their own doctor first. They may later allege on the tape's evidence that they called the ambulance because the doctor was not available, even though they may not have called him first. Another facet of this is that a doctor may be called in the night to an emergency, and, although he may make every effort to attend quickly, an impatient relative may call the ambulance before he arrives and allege that he took an inordinate time to attend. Unless the doctor has made a note of the time at which he was called this might cause difficulties in a service committee hearing.

I understand that the Department of Health and Social Security and the British Medical Association were consulted before British

Telecom put forward this proposal. I do not feel that the BMA was fully aware of the consequences and I am sure that this merits fuller discussion, especially between the General Medical Services Committee and British Telecom.

The present position is that the Milton Keynes district ambulance station has already instituted a scheme and the county controller is monitoring it and reporting back to other authorities in Buckinghamshire. My purpose in writing this letter is to warn doctors that they may in future find complaints about emergency calls backed up by recordings obtained from local ambulance headquarters.

I T PATRICK

Aylesbury,
Bucks HP19 3EN

Prescription charges bring hardship

SIR,—Dr Julian Tudor Hart's letter (19 May, p 1534) shows that hardship due to prescription charges is real in a South Wales village with a high rate of unemployment. Approximately half of the respondents said that they were having to spend less on food, delay going to the doctor, or omit a prescribed drug.

The National Association of Patient Participation Groups exists to promote cooperation between health service users and the staff of general practices. At its recent annual meeting in Manchester it passed two resolutions expressing concern about the effects of present policies on health care and specifically about the rising prescription charges. It would be useful if a larger study of the effects of charges were to be set up by an independent research unit.

JOHN HORDER

President of the
National Association of
Patient Participation Groups

Peaslake,
Surrey

Endotracheal cuff pressure

SIR,—Dr R D Seegobin and Dr G L van Hassett (31 March, p 965) have shown for the first time the effect of lateral wall cuff pressure on tracheal mucosal blood flow in man using an endoscopic photographic technique.

They have assumed that the lateral wall pressure exerted by various cuffs is identical to intracuff pressure, but this is not always the case. With large volume, low pressure cuffs cuff pressure against the tracheal mucosa equals intracuff pressure provided there is no tension in the wall of the cuff.¹ Tracheal circumference averages 68.75 mm in men,² and the resting diameter of the Searle Sensiv cuff is 19 mm. The cuff wall is likely to be under tension before effecting a clinical seal and also when intracuff pressure was raised to 50 and 100 cm H₂O. The lateral wall pressure would therefore be less than the intracuff pressure. This is also the reason why the Searle Sensiv tube did not develop random folds of excess cuff material, as seen with other tubes.

The choice of size of tracheal cuff is not based on any scientific criteria. The diameter of a large volume cuff should be at least one and a half times the diameter of the trachea.³ Mackenzie and others and I favour a cuff circumference and diameter at residual volume close to that of the human trachea.⁴ It is therefore not surprising that cuffs of the Portex Profile and Mallinkrodt Hi-Lo developed random folds in excess cuff material. The most interesting finding however,

was that these cuff folds were not obliterated by intracuff pressure up to 100 cm H₂O. The number and size of cuff folds and channels lying against the tracheal mucosa are determined by cuff to trachea circumference ratio, cuff wall thickness, stiffness and compliance of the cuff material, and intracuff pressure. There is a potential danger of aspiration along the folds of excessive cuff material. It is therefore prudent to select a cuff of optimal circumference which will effect a seal before being filled to residual volume and with minimal infoldings of the cuff material at the interface of the cuff and tracheal mucosae.

With large volume, low pressure cuffs resting or exhalation intracuff pressure as low as 1 kPa (10 cm H₂O) can create a sufficient seal for positive pressure ventilation but such low pressures do not necessarily protect against aspiration.^{6,7} The maximum hydrostatic pressure that can be generated by a column of liquid above the cuff is about 21 cm H₂O, provided the density of aspirate remains similar to that of water.⁷ Since the intracuff pressure in a patient breathing spontaneously will respond in the negative direction during the inspiratory phase, it is prudent to maintain intracuff pressure within the range of 25-30 cm H₂O.

I agree with the authors that large volume cuffs should always be inflated with a pressure gauge in line. The method of determining accurately the exact seal point of the cuff in clinical practice is not reliable, therefore, the concept of a fixed intracuff pressure in the range of 25-30 cm H₂O with variable volume to produce an optimal tracheal seal is much more attractive and practical. Finally, I suggest that endoscopic photographic technique using a rigid or flexible fibreoptic bronchoscope may be used to assess the tracheal and laryngeal damage before deciding on tracheostomy on patients needing prolonged mechanical ventilation.

S MEHTA

Department of Anaesthetics,
Victoria Hospital,
Burnley BB10 3HP

¹ Carroll RG, McGinnis GE, Grenvik A. Performance characteristics of tracheal cuffs. *Int Anesthesiol Clin* 1974;12:111-31.

² Mehta S, Myat HM. The cross-sectional shape and circumference of the human trachea. *Ann R Coll Surg Engl* (in press).

³ Lomholt N. A new tracheostomy tube cuff with controlled pressure on the tracheal mucous membrane. *Acta Anaesthesiol Scand* 1981;25:407.

⁴ Mackenzie CF, Shin B, Whitley N, Helrich M. Human tracheal circumference as an indicator of correct tube size. *Anesthesiology* 1980;53:S414.

⁵ Bernhard WN, Cottrell JE, Shivakumar C, Patel K, Yost L, Turndorf H. Adjustment of intracuff pressure to prevent aspiration. *Anesthesiology* 1979;50:363-6.

⁶ Mehta S. Performance of low-pressure cuffs. *Ann R Coll Surg Engl* 1982;64:54-6.

⁷ Mehta S. Safe lateral wall cuff pressure to prevent aspiration. *Ann R Coll Surg Engl* (in press).

Manpower problems in general surgery

SIR,—The profession has been concerned for some time about the imbalance between the output of senior registrars and lecturers (honorary senior registrars) and the number of consultant posts available. Every effort is being made by the surgical royal colleges and other bodies to encourage the Department of Health and Social Security, the regions and districts, and local senior staff to expand the number of posts available to consultants.

One of the difficulties has been trying to obtain accurate statistics of where the manpower problems in general surgery are, so the Specialist Advisory Committee in General Surgery has, in the past year, listed and numbered all the higher surgical trainees (senior registrars and lecturers) in recognised approved training schemes in the United

Kingdom. The trainee keeps the number throughout his training period until he has achieved either a consultant or equivalent position or some other permanent post. The number can then be transferred to another trainee. In this way the profession controls the overall numbers and throughput of trainees.

The Specialist Advisory Committee in General Surgery appreciates the necessary cooperation given by all United Kingdom higher surgical training centres. This has enabled the committee to compile a census of higher surgical trainees as at December 1983 which will be repeated annually and is summarised in the table. The total number

Census of higher surgical trainees at December 1983

	Total No of senior registrars	Accredited*	Time expired†	Over six years as senior registrars
England and Wales	199	95	60	23
Scotland	37	14	9	2
Northern Ireland	10	2	0	0

*Successful completion of a flexible programme of higher surgical training in Specialist Advisory Committee approved scheme.

†More than four years in a scheme as senior registrar or lecturer.

of higher surgical trainees is the National Health Service and honorary senior registrars numbered by the specialist advisory committee and does not include senior registrar posts for overseas trainees or research workers. Honorary senior registrars represent just over a quarter of the total.

Accreditation is usually awarded during the last year of a senior registrar appointment. This is because trainees on entry have been granted a year of retrospective recognition for clinical or research work carried out before starting a higher surgical training scheme. Time expired trainees are fairly evenly distributed throughout the country.

As a result of this survey the Specialist Advisory Committee in General Surgery, whose main function is an educational one, is giving urgent consideration to manpower problems and liaising closely with committees responsible for manpower planning.

NORMAN G ROTHNIE
Chairman

Specialist Advisory Committee
in General Surgery,
Royal Berkshire Hospital,
Reading,
Berks RG1 5AN

Psychiatry and violent offenders

SIR,—I sympathise with Dr Steven Novosel in dealing with his violent patient and the patient's unrealistic expectations about a cure, but I am worried that this type of incident and our profession's response to it can lead to unnecessary nihilism (5 May, p 1381). Few facts can be relayed in a brief letter but Dr Novosel's patient did seem to have several other psychiatric problems, and it is not clear whether any attempt was made to alleviate these.

A psychological cripple of this kind can sometimes be offered the support of a clinic or hospital which can help to steer him away

from some of his problems and reduce the frequency and severity of symptoms. Not even this can be offered if the man is unmotivated, but a referral from a prison doctor to a National Health Service clinic at the end of a sentence is sometimes useful. In Scotland there is the opportunity for a visiting psychiatrist to develop a therapeutic relationship during the stability of the sentence which can be continued after release.

It would be interesting to know what the judge had in mind when he passed sentence. It would help all concerned if an accurate transcript of the salient points of a hearing, especially the judge's remarks, were available early in any convicted person's sentence.

JOHN GUNN
Professor of Forensic
Psychiatry

Institute of Psychiatry,
Denmark Hill,
London SE5 8AF

Names for mycobacteria

SIR,—We do not understand why Dr P A Jenkins considers it "unscientific" to regard *Mycobacterium bovis* as a bovine strain of *M. tuberculosis* (21 April, p 1236). There is a wealth of evidence from antigenic analysis, lipid analysis, and DNA homology that supports our suggestion. We do not agree that the natural resistance of bovine strains to pyrazinamide is a reason for using a separate species name. The use of the same name for isoniazid sensitive and resistant strains elicits neither doubt nor confusion. (All the possible permutations of single and multiple resistance to 12 antituberculous agents would require 4095 new species names.) It is more sensible to list the actual resistance patterns irrespective of how the identity of the organism is reported, particularly as doctors may forget that bovine strains are naturally resistant to pyrazinamide. If our screening tests suggest that a tubercle bacillus might be the bovine variety we include a pyrazinamide sensitivity test in the identification and sensitivity test procedures.

Concerning the other mycobacteria: we prefer not to report the likely identity of an organism. It is more scientific to report that an unidentified mycobacterium has been isolated and then to issue a final report when we know precisely what it is.

Doctors are busy people who have neither the time nor the inclination to study the niceties of the nomenclature of bacteria. As a result there have been several cases where unfamiliar terminology has led to misunderstandings.¹ To quote just one example—on being informed that *M. bovis* had been isolated from his son's enlarged cervical lymph node the father, a surgeon, expressed gratitude that it was not a lymphadenoma but added, "We are lucky it is not even TB."²

C H COLLINS
M D YATES

Public Health Laboratory,
Dulwich Hospital,
London SE22 8QF

J M GRANGE

Department of Microbiology,
Cardiothoracic Institute,
University of London,
London SW3 6HP

¹ Howie J. Warning: plague, not pseudotuberculosis. *Lancet* 1983;iii:855.

² Symmers WStC. Microbes by other names. *Lancet* 1983;iii:1372.