acute attack[2] and in long term management.[3] Equally, in many patients with airway obstruction related to chronic bronchitis the obstruction may be partly reversible. This can be shown both by an acute response to bronchodilators[4] and by increased circadian variation.[5] These facts have important implications in both treatment and epidemiological studies.

Perhaps the time has come to return to making a diagnosis in the form of a clinical syndrome—for example, "atopic asthma" or "airway obstruction related to cigarette smoking"—and defining the obstruction more precisely but independently. Ventilatory function should be described in terms of (*a*) the best lung function which can be achieved and the method used to achieve it and (*b*) the extent of the variability in function and the method used to demonstrate it. For example, one might describe as an atopic asthmatic a patient whose ventilatory function will return to 90% of normal with corticosteroids and shows a variability of 25% as shown by spontaneous variation of peak expiratory flow rate. This encourages the trial of each method available to achieve as near normal function as possible in every patient. At the same time it gives a realistic background on which to judge the success or failure of long term management.

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SIR,—Dr D A Lee and others (16 April, p 1256) point out the difficulties with studies endeavouring to estimate the prevalence of asthma in childhood and show how careful these studies must be.

They found a prevalence of attacks of wheezing of 11·1% with a ratio of twice as many boys as girls. In most epidemiological surveys this sex ratio is more than one, but not in all.[1] The reasons for this inconsistency in sex ratio are less clear than those for prevalence, which can probably be explained by differences in methodology, as emphasised by Dr Lee and others. The French National Survey, PAARC, looking at the relation between air pollution and chronic respiratory disease, enabled us to look at this point.[2] We examined 1495 boys and 1443 girls aged 6-10 living in seven French towns whose parents were not manual workers. One member of the family (generally the mother) provided an answer to the question: Has your child ever had attacks of asthma? There were 7·7% positive answers for boys and 5% for girls (sex ratio = 1·5, p = 0·01). The prevalences varied according to social class (as already reported in some papers,[3] but not in that of Dr Lee and others) and level of education of the parents (which has not been considered in previous studies). The sex ratio, however, was even more variable.

The table shows that in families where neither parent had obtained the baccalaureat diploma the sex ratio was 2·2. It was close to one when both parents had obtained this degree, but less than one (0·7) in atypical families in which the mothers were better educated than their husbands. When the mother lived alone we found a ratio of 2·8 when the mother did not have the baccalaureat diploma and 0·5 when she did. The lowest sex ratios, 0·7 and 0·5, were not significantly lower than one, but the numbers of children were very small. These differences in sex ratio remained after controlling for the ages of both mothers and children, to which it was also slightly related.

Sex ratio of the cumulative prevalence of asthma according to educational level of the parents. (Number in parentheses = number of children)

	Level of education of mother	
	Without baccalaureat diploma	With baccalaureat diploma
No husband	2·8* (227)	0·5 (94)
Husband without baccalaureat diploma	2·2* (1254)	0·7 (163)
Husband with baccalaureat diploma	1·2 (468)	1·2 (577)

*Significance of sex ratio: p = 0·01.

These results suggest that cultural factors play a role in answers to questions on children's asthma and that that role could be different with respect to sons and daughters. They emphasise the need for studies including both objective measurements, like that of Dr Lee and others, and cultural variables in order to better understand the history of objective and perceived asthma.

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Tuberculosis in unvaccinated children, adolescents, and young adults

SIR,—Last year we had an outbreak of tuberculosis similar to that described by Dr J D Hill and Dr D K Stevenson (7 May, p 1471) but fortunately ours was much smaller.

In February 1982 a two year old white boy was admitted with miliary tuberculosis complicated by severe meningitis. No source case was found despite extensive contact screening. Two months later a 20 year old man, who had had symptoms for nine months, was found to have cavitating disease with a positive smear. He frequented a shoppers' bingo and amusement arcade, where he also worked occasionally. His contacts from the arcade were screened, and a further five cases were found, all of whom were white with no history of BCG vaccination (table). Inquiries revealed that the first patient was taken regularly to the arcade.

Details of patients who were traced as contacts

Age (year)	Sex	Type of tuberculosis	Comments
23	F	Positive smear; cavitating	Symptoms for two months
3	F	Primary	Attended arcade with mother
18	F	Primary	Regular arcade attender
3	M	Primary	Manager's son
18	M	Pleural effusion	Grade 4 tuberculin test on screening. Refused *x* ray; presented four months later

Our district health problems with regard to tuberculosis are similar to those in Bradford. We fully support the view of Dr Hill and Dr Stevenson that an efficient contact tracing service is much more effective than mass *x* ray examination of casual contacts and that discontinuation of the routine BCG vaccination may well be a false economy in the longer term. Tuberculosis, as shown by small outbreaks in this district and others mentioned by Dr Hill and Dr Stevenson, remains a contagious disease in those without immunity.

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SIR,—One particular aspect of the report by Dr J D Hill and Dr D K Stevenson (7 May, p 1471) struck me as curious. They describe 41 cases, of whom six were receiving "prophylactic chemotherapy." These they describe as children with grade 4 reactions on Heaf testing and normal chest radiographs.

In the new procedures of notification,[1] which they quote, the section on chemoprophylaxis is quite clear that "cases of chemoprophylaxis should not be included in notifications of tuberculous disease. . . . They [that is individuals receiving chemoprophylaxis] are reported separately from the cases of tuberculosis."

In the course of a recent survey of tuberculous notifications we found that approximately 3% of all notified cases were in fact individuals being given chemoprophylaxis and could not, therefore, truly be described as patients suffering from tuberculosis.[2] It therefore seems that, despite the efforts of the British Thoracic Association subcommittee report, individuals being given prophylactic chemotherapy are still being counted as cases of tuberculosis. We cannot have it both ways. Either these individuals were suffering from tuberculosis and were therefore receiving treatment not prophylaxis, or they were receiving prophylactic chemotherapy, in which case they were not cases and should not have been reported as such. Until this subtle but important point is appreciated by all physicians treating and notifying tuberculosis, the statistics for tuberculosis will remain inaccurate

with a tendency to be inflated—in the case of this report six out of 41 patients (15%).

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Poor prognosis of acute lymphoblastic leukaemia in non-European children

SIR,—The results of treatment of acute lymphoblastic leukaemia in Asian children living in the United Kingdom (12 March, p 839-41) are similar to those found in Algerian children with acute lymphoblastic leukaemia treated with chemotherapy. As far as modern medicine is concerned communication difficulties exist between doctors and patients' families in developing countries.

From 1978 to 1982 54 children (under 15) were treated in our clinic (32 boys and 22 girls), and their clinical state was assessed on 1 March 1981. Initial treatment included vincristine and prednisone, and adriamycin and cyclophosphamide were added when "poor risk" features—that is two of the following: age under 2 or above 10, organomegaly, white cell count above 30×10^9/l—were present or when the patient failed to achieve a complete remission with vincristine and prednisone. Methotrexate was given intrathecally to prevent (or treat) meningeal relapse. Maintenance treatment during complete remission consisted of 6-mercaptopurine once daily and methotrexate twice a week; pulse therapy with the initial treatment schedule was given monthly during the first six months, every two months during the next six months, and then every six months. This treatment was stopped after two and a half to three years of continuous complete remission.

For the whole group the proportion of patients achieving complete remission was 60% and 75% when the 43 patients surviving the first two weeks were singled out ($p = 0.05$). Life expectancy for the 54 patients was 50% at six months, 30% at two and a half years, and 19% at three years, and was then maintained at this level between three and four and a half years. For the 43 patients surviving the first two weeks the figures were 75, 37, and 23% respectively. Twelve patients in complete remission were lost to follow up: six during the first six months and six afterwards, two of whom had stopped treatment.

The small proportion of patients who achieved complete remission can be attributed to insufficient supportive measures during the induction phase of treatment because of the lack of adequate blood (and platelet) transfusions and antibiotic facilities. This is supported by the difference in proportion who achieved complete remission between the whole group and the group of patients surviving the first 14 days. Once complete remission was achieved, however, in spite of written recalls 12 patients failed to follow the course of maintenance treatment, of whom at least the first six can be assumed to be dead.

As with the Asian families in the United Kingdom families of our patients are insufficiently aware of signs and symptoms of acute lymphoblastic leukaemia and complications of treatment, and moreover they often attach little importance to maintenance treatment. For his parents a patient in complete remission is apparently cured; periodic consultations seem a needless burden for a "healthy" child. In a developing country communication failures on the nature of the disease and the treatment strategy (even when the treatment is free of charge as in Algeria) contribute as much as treatment failures to the poor outcome of acute lymphoblastic leukaemia and could be considered as another "poor risk" factor.

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Carcinoembryonic antigen in detection of asymptomatic disseminated disease in colorectal cancer

SIR,—I would like to indicate a further important conclusion that may be drawn from the data of Mr I G Finlay and Mr C S McArdle (16 April, p 1242) regarding the sites of tumour recurrence after so called "curative" colorectal surgery. This information has important implications for trials of therapy adjuvant to surgery.

Mr Finlay and Mr McArdle studied 39 patients who were considered to be free of metastatic tumour at the time of excisional surgery for colorectal cancer. Of these 39 patients 30 remained disease free, six developed local recurrence alone, two developed disseminated disease in the absence of hepatic metastases, and one developed hepatic metastases alone. The patients all underwent a "curative" resection and were therefore appropriate for adjuvant therapy. Mr Finlay's and Mr McArdle's findings on the sites of recurrence indicate the rarity of hepatic metastases in isolation in this group of patients. The implication of this finding is that adjuvant chemotherapy directed at the liver alone is inappropriate.

The results of postmortem studies on two similar groups of patients suitable for adjuvant therapy confirm that hepatic metastases in isolation are rare.[1 2] These postmortem studies also showed that the commonest form of recurrence is disseminated disease. Among patients with disseminated disease local recurrence is more common than hepatic metastases.

On the basis of these findings adjuvant therapy for colorectal cancer should be systemically effective in order to treat disseminated disease. Treatments aimed at a single site of recurrence, such as radiotherapy for local recurrence or hepatic infusion for liver metastases, should be combined with a systemically active treatment if they are to have the greatest chance of success.

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Effectiveness of pergolide in hyperprolactinaemia

SIR,—Dr S Franks and others (9 April, p 1177) report encouraging results using pergolide in hyperprolactinaemia. In particular, of eight patients unable to take bromocriptine because of side effects four could tolerate long term treatment with pergolide. I have successfully treated two women with pergolide who could not take bromocriptine in a dosage adequate to control their hyperprolactinaemia.

Case 1—A 30 year old woman was originally treated with bromocriptine for hyperprolactinaemic amenorrhoea in 1978, but she discontinued treatment because of side effects. In 1980 she again complained of amenorrhoea, hot flushes, dyspareunia, and bitemporal headaches. Her serum prolactin concentration was 104 μg/l with no radiological evidence of a pituitary tumour. Bromocriptine was restarted and gradually increased to 2·5 mg twice daily, but she could not tolerate this dose for long because of nausea and frontal headaches, and her dyspareunia and loss of libido began to threaten her marriage. In March 1982 she started pergolide 50 μg at night (kindly provided by the Lilly Research Centre), increasing after two months to 100 μg. Her symptoms resolved with no side effects until the dose was further increased to 150 μg, which she had to discontinue because of sickness and severe headache. Her prolactin concentration remained slightly raised (table).

Mean serum prolactin concentrations (μg/l) before and during treatment

	Before treatment	Bromocriptine (mg/day)				Pergolide (μg/day)		
		2·5	3·75	5·0	7·5	50	100	150
Case 1	104		48	51		46	34	
Case 2	308	190		61	37	34	11	15

Case 2—A 19 year old woman presented in 1981 with a one year history of amenorrhoea and galactorrhoea, severe dyspareunia and loss of libido. Her serum prolactin concentration was 308 μg/l and a computed tomogram showed a left sided pituitary adenoma. Bromocriptine was started, but she could not tolerate 2·5 mg three times daily and after a year on variable dosages she remained amenorrhoeic. In July 1982 she started taking pergolide 50 μg at night, increasing after two weeks to 100 μg and after a further six weeks to 150 μg, which she continued to take until trans-sphenoidal adenomectomy in November 1982. Her serum prolactin concentration returned to normal, her dyspareunia resolved, menstruation resumed after three months' treatment, and she experienced no side effects at all.

These cases confirm that pergolide may be a useful alternative where bromocriptine has failed and suggest that the 50 μg dose is at least equivalent to bromocriptine 2·5 mg twice daily in terms of prolactin suppression, supporting the introduction of a 25 μg capsule.

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Gangrenous caecal volvulus after colonoscopy

SIR,—The short report by Dr J R Anderson and others (5 February, p 439) contains some disturbing omissions. No one would dispute the statement that: "Although potentially hazardous, colonoscopy is generally safe with few complications." To ensure that this continues to be so we need to apply strict quality