The left hand graph will be familiar because it appeared in Joan Austoker's article on screening for cervical cancer¹ and has been published elsewhere.^{2,3} The right hand graph has been less publicised but shows the same data, the smoothed age specific death rates for carcinoma of the cervix for England and Wales for 1950-90. Differences arise because the left hand graph uses a logarithmic scale on the vertical axis but the right hand graph uses the more conventional linear scale. The originator chose the logarithmic scale for a particular reason—to show that a previously reported increase in deaths from cervical cancer in young women had levelled off (P Sasieni, personal communication). The logarithmic scale emphasised the changes in death rates in younger women by magnifying that area of the data. Unfortunately, a magnifying glass may distort and mislead.

Joan Austoker states that in 1992 over 95% of deaths due to cervical cancer occurred in women aged 35 and over, but her choice of the graph on the left leaves a different visual impression. It creates the illusion that half of the deaths occurred in women under 35, which cannot have been Austoker's intention. It also conceals the overall decline in death rates. Readers have consciously to resist visual impressions that are at odds with the text. The graph on the right is better, although even this has a vertical axis whose origin is below zero, which gives undue emphasis to deaths in women under 25. These misleading visual impressions may have contributed to the present enthusiasm for cervical screening, particularly for younger women, since it is well known that visual presentation can influence decision making.^{4,5}

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Increase in incidence of invasive cervical cancer

EDITOR,—Commenting on the paper by J Elizabeth Macgregor and colleagues,¹ S M Crawford suggests that changes in the incidence of invasive cervical cancer may be ascribed not only to a screening effect but also to cohort specific changes in incidence, possibly related to different sexual behaviour.² A cohort effect may explain the recently reported rise in the incidence of invasive carcinoma. Macgregor and colleagues also report a rise in preinvasive disease, although they do not provide data on its age distribution.

We recently reviewed the files of the Tuscany cancer registry and of the screening programme for cervical cancer in Florence district. We evaluated the trend over time in the prevalence of cervical intraepithelial neoplasia grade III detected in subjects screened for the first time or in subjects who had not had a Papanicolaou test in the 10 years before screening. We limited our study to this subset of subjects to avoid the confounding effect of previous screening on the incidence of cervical intraepithelial neoplasia grade III.

The table shows the figures for 1975-92 for 10 birth cohorts and eight age groups. Overall, rates

Prevalence of cervical intraepithelial neoplasia grade III detected by screening (per 1000 women screened) in women screened for first time or who had not had Papanicolaou test in previous 10 years, district of Florence, 1975-92. Numbers of cases given in parentheses

Birth cohort	Age group (years)							
	20-4	25-9	30-4	35-9	40-4	45-9	50-4	55-9
1920-4	—	—	—	—	—	—	1.62 (9)	1.67 (14)
1925-9	—	—	—	—	—	1.18 (8)	1.62 (15)	3.00 (14)
1930-4	—	—	—	—	2.50 (19)	1.94 (23)	2.72 (17)	1.88 (7)
1935-9	—	—	—	2.37 (20)	2.24 (31)	2.27 (18)	3.90 (18)	—
1940-4	—	—	1.46 (11)	2.76 (41)	3.75 (28)	3.40 (18)	1.11 (1)	—
1945-9	—	1.13 (9)	1.90 (31)	1.92 (19)	4.29 (26)	6.63 (7)	—	—
1950-4	0.92 (5)	1.71 (23)	3.86 (42)	4.01 (24)	4.05 (4)	—	—	—
1955-9	1.47 (19)	2.23 (27)	4.94 (39)	6.63 (8)	—	—	—	—
1960-4	0.51 (8)	2.51 (29)	3.26 (6)	—	—	—	—	—
1965-9	1.58 (7)	1.07 (3)	—	—	—	—	—	—
P value*	0.70	0.12	<0.01	0.04	0.02	<0.01	0.03	0.57

* χ^2 for trend.

increased steadily within age groups over birth cohorts or calendar periods. In particular, a significant linear trend was evident in all groups between 30 and 55, whereas the trend was not significant between ages 20 and 29 and over 54. The low number of cases expected in the extreme age groups may account for the wide statistical variability. A Poisson regression model was fitted to the data to investigate the effect of age, birth cohort, and calendar period on the prevalence of cervical intraepithelial neoplasia grade III; the model accounting for a birth cohort effect showed the best goodness of fit.

In accordance with data from the Yorkshire Cancer Registry referred to by Crawford,² these data provide further evidence of an increase in the incidence of cervical intraepithelial neoplasia grade III, which seems to be related to the fact that cohorts of women at higher risk are coming through.

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Screening for colorectal cancer

Should include radiology

EDITOR,—Joan Austoker's article on screening for colorectal cancer is speculative, unhelpful, and unrelated to the practicalities of current medical care.¹ She has ignored radiology at patients' peril. I perform 10-15 barium enemas a week in patients referred by hospitals and general practitioners for "neoplasm" who are essentially free of symptoms suggesting serious disease. "Constipation" or an ill defined "change of bowel habit" is added to the request form to justify what might otherwise be regarded as a straightforward screening procedure (and might therefore be rejected by the x ray department).

The finding of important carcinomas is common: I have seen two in the past week alone. Both patients had reached the x ray department and had a barium

enema before sigmoidoscopy. Anecdotally, I expect to see four to six cases a month from this caseload. Two patients seen this year were 46 and 54 years old; the younger had a non-obstructing large caecal lesion.

I deplore the fact that the paper omitted to mention a major modality in colonic screening. Someone who works in a university department of public health and primary care has a responsibility to reflect current medical practice and its diagnostic opportunities.

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1 Austoker J. Screening for colorectal cancer. *BMJ* 1994;309: 382-6. (6 August.)

When patients with breast cancer can be considered to be cured

EDITOR,—In the clinical implications box in their paper on changes in the long term prognosis for breast cancer in a Dutch cancer registry Henk W Nab and colleagues state: "At 19 years after diagnosis patients' survival was similar to that of the general female population, indicating that such patients could effectively be regarded as cured."¹ This time interval is slightly longer than the ones I reported some years ago² after analysing the survival data obtained in a clinical trial carried out at the Istituto dei Tumori di Milan and aiming at comparing radical with Halsted mastectomy.³

Information concerning the following prognostic factors was available on 716 patients: age at diagnosis, number of metastatic axillary nodes, stage (T1, T2, T3a) and site of the primary tumour, and menopausal state. Since the survival curves of the two treatment groups overlapped, the role of the prognostic factors and the curability of the disease were investigated in all the patients. In the first analysis a log-normal regression model was found suitable for fitting to survival; this enabled us to classify patients into three groups with different probabilities of survival at 10 years (>0.70, 0.70-0.40, and <0.40) according to the values of their prognostic factors. In the second analysis the ratio of the mortality in the series of patients to the mortality in the general female population was modelled, with allowance being made for the exponential decay of the hazard function. The results of this analysis suggested that "one can sensibly assess that a breast cancer patient is 'cured' only after a minimum follow-up interval which ranges from 16 to 18 years according to the patient characteristics observed at surgery."²

In our case series overall survival was higher than that reported by Nab and colleagues. Their overall survival after 10 years (35%) is comparable to that observed in our group with the worst

prognosis. With reference to this group, the period for which a patient must survive after surgery in order to be considered cured, on the whole, was similar in the two studies (19 v 18 years).

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Testicular cancer and age at puberty

EDITOR,—The paper by the United Kingdom Testicular Cancer Study Group confirmed that undescended testis is a risk factor for germ cell testicular cancer and showed an increased risk with earlier puberty in white men in Britain.¹ The postulated model to explain this was based on an increased exposure to pituitary gonadotrophins.

We have studied the incidence of testicular cancer in New Zealand. We found that Maoris had a higher incidence of germ cell testicular cancer than their white compatriots and than any other non-white race worldwide. We thought that genetic and hormonal factors were relevant and noted that Maori infants had lower birth weights and that there was a higher incidence of maternal obesity.² These factors support the theory that increased exposure to oestrogen during pregnancy may be linked with an increased risk of germ cell testicular tumours.³ This theory also explains the association with cryptorchidism.

In contrast to the findings of the United Kingdom study group that testicular cancer is associated with earlier puberty, Maori boys start and complete pubertal development later than non-Maori boys.⁴ These findings seem to be discrepant, but puberty in boys cannot be assigned to a precise time and the ages at onset and completion are prone to inaccuracy. Furthermore, the United Kingdom study group used variables more indicative of completion of puberty, whereas our data were based on direct inspection and the Tanner scale of pubertal development.⁵

The contribution of the timing of puberty to the incidence of testicular cancer cannot be straightforward, and genetic factors and exposure to oestrogen could confound these observations.

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Risk of death in meat and non-meat eaters

EDITOR,—Margaret Thorogood and colleagues omit what is arguably the most important summary statistic from the abstract of their paper comparing mortality in vegetarians with that in meat eaters.¹ A comparison of total (all cause) mortality after five years (after the well known "healthy volunteer effect" has had time to wear off) shows a relative risk of 0.99 (95% confidence interval 0.76 to 1.30). Classifying (and comparing) cause of death is more subjective than is reporting the fact of death itself.² Jan P Vandembroucke has remarked on the authors' unusual method of selecting controls.³ Burr and Sweetnam compared similar numbers of vegetarian volunteers with non-vegetarian volunteers invited in a comparable manner and found a death rate ratio (all causes) of 0.96 (0.81 to 1.13), which did not alter appreciably after the exclusion of early deaths (those occurring in the first year).³ Vegetarian volunteers clearly have a low standardised mortality ratio, comparable to that of university teachers and ministers of the church but perhaps no lower than that of similarly health conscious meat eating volunteers.

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Information and choice in decisions about cancer treatment

EDITOR,—We support L J Fallowfield and colleagues' conclusions that patients' "desire for autonomy may be less strong than the need for clear and accurate information" and that patients "have the right to decline the opportunity to participate in decision making."¹ In a study of 165 patients treated for Hodgkin's disease within protocols of the British national lymphoma investigation, with a median interval from diagnosis of eight years, we examined patients' participation in decision making and the provision of information and choice. Of special interest was the impact on patients' views of the success or otherwise of treatment. Successful treatment was defined as complete response with no relapse, while unsuccessful treatment was defined as a failure of initial treatment to result in complete response or a relapse requiring further treatment.

Patients' answers to self administered questionnaires indicated that, although 102 patients thought that all decisions about treatment had been made entirely by their doctor, almost half of these were satisfied with this while the other half were not. A

perception of participation in the decision making process did not necessarily mean that patients thought that they had been given choices with respect to treatment: 41 of the 53 who said that they had participated in decision making perceived that no real choices had been available. Satisfaction with the information given to patients at and around the time of diagnosis was significantly linked to satisfaction with the perceived level of participation in the overall decision making process (table). The success or otherwise of treatment had less influence than expected on the relation between satisfaction with the information given and satisfaction with the degree of participation in decisions (sums of squares test), although numbers are small.

These data, like those reported by Fallowfield and colleagues, imply that patients' overall experience of decision making is more positive if they view the provision of information as adequate but not that their involvement in choices concerning treatment is necessarily desired. Many people may actively seek to relinquish the decision making role to the doctor and should be allowed to do so. Moreover, the outcome of a particular choice of treatment may not have any bearing on patients' satisfaction with information or their level of participation.

Many patients seem not to distinguish clearly between participation, information, and choice. Further research into understanding the complex relation between patients' desire for information, their need to participate, and choice in medical decision making should be a priority.

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Methadone maintenance in general practice

EDITOR,—Philip Wilson and colleagues reported encouraging health gains in drug users receiving methadone maintenance treatment in general practice.¹ We were concerned, however, that their reported cost of £2000 per patient per year may be seen by general practitioners as too high and thus dissuade them from providing a similar service. In fact, the real budgetary cost is less than that reported and should include only counsellor time, drug cost, and some toxicological costs. In support of this, we illustrate how some costs cited by Wilson and colleagues are superfluous.

Primarily, the general practitioner and practice time represents an opportunity cost unless patients are congregated in one or two practices, while the dispensing fees are paid from non-cash limited monies held at government level. This total is set

Relation between satisfaction with information given, participation in decision making, and success or failure of treatment*

	Satisfied with participation in decision making					
	Yes			No		
	Treatment		Total	Treatment		Total
Satisfied with information	Success	Failure		Success	Failure	
Yes	41	26	67†	6	4	10†
No	15	13	28	29	14	43
Total	56	39	95	35	18	53

*Excludes 17 patients who could not remember or did not answer.

†P < 0.001 (χ^2 test).