Management of primary breast cancer

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This paper describes research evidence on the management of primary breast cancer, defined as tumours of less than 5 cm diameter with no evidence of distant spread or metastases. It is based on *Effective Health Care*, Vol 2, No 6, which summarises analyses carried out for cancer guidance published by the United Kingdom Department of Health.^{1 2} The aim of the guidance was to identify characteristics of care which are associated with improved outcomes for patients.

Background

Breast cancer causes 13 000 deaths a year in England and Wales. It is the leading cause of death in women aged 35 to 54 and the most common cause of cancer death among women.³ There are wide variations in management and in survival rates between areas and providers within the United Kingdom.^{4 11}

Diagnosis of primary breast cancer

There is strong evidence for the value of the combination of clinical examination, mammography, and fine needle aspiration cytology — known as triple assessment — to diagnose cancer in women with breast lesions. A review of 15 follow up studies^{12 27} showed that triple assessment is consistently more sensitive than any single test alone, capable of picking up 95% to 100% of cancers when at least one component is positive. When all three tests give the same result (whether positive or negative) the probability that the diagnosis is correct is about 99%. Triple assessment can normally be carried out in a single clinic visit, thus minimising time to definitive diagnosis.

The accuracy of triple assessment depends on the skills of those who carry out the procedures and assess the results. The quality of fine needle aspiration cytology, in particular, is highly operator dependent and some clinicians are likely to need training in this area.^{13 18 27}

Triple assessment can release resources by reducing the proportion of women who need surgical biopsy and the inclusion of fine needle aspiration cytology has been shown to be cost effective.^{11 12 14 20 28-32}

Management of primary breast cancer

SURGERY

For most women with early breast cancer, surgical options include breast conserving surgery (wide local excision or lumpectomy) and mastectomy. Randomised controlled trials have not shown any effect on life expectancy of type of surgery.^{33 34} Local rates of recurrence tend to be

lower, the more tissue is removed. Against this potential advantage of more extensive surgery, however, the impact of disfigurement on the woman, her personal relations, and, in the case of surgical clearance of the axilla, iatrogenic arm problems, must be balanced.³⁵

The option of breast conserving surgery (with adjuvant radiotherapy to reduce local recurrence) is suitable for women with relatively small and localised tumours. It is important that the margins of the tissue removed during surgery should be free from cancer, as local recurrence is more likely when cancer cells from tumour margins are left behind after surgery.³⁶ Pathology reports which give sufficient detail to allow the rate of clear margins to be recorded are therefore essential for monitoring the quality of surgery.

Breast reconstruction after mastectomy removes dress problems associated with prostheses and may improve women's attitudes to their bodies.^{37 43} Retrospective studies suggest that women who have breast conserving surgery report a better body image and greater satisfaction than those who undergo mastectomy and immediate reconstruction,^{44 47} but the evidence for better general psychological and social adjustment after breast conserving surgery is equivocal.^{48 50} Studies of women's reactions to different types of surgery are, however, generally of poor quality and the results may not be suitable for generalisation.

RADIOTHERAPY

Adjuvant radiotherapy after surgery reduces local recurrence rates to less than one third of those found in comparable women who have not had radiotherapy.^{33 34 51 53} However, a systematic overview of randomised controlled trials involving a total of 17 000 women showed no difference in overall survival; in those who had radiotherapy, a slight reduction in deaths from breast cancer was counterbalanced by an increase in deaths from cardiac related disease.³⁴ Comparison of mortalities in more recent trials with earlier studies indicates that the benefits in terms of lower mortality from breast cancer may have increased, whereas adverse effects seem to have been reduced, possibly due to a reduction in the doses used.³⁴

Although serious adverse effects seem to be uncommon, complications such as severe neuropathy, subcutaneous fibrosis, bone necrosis, and arm oedema can occur, particularly in women exposed to high dose regimens.^{55 56}

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HORMONE THERAPY

Tamoxifen can improve survival and reduce recurrence rates in most groups of breast cancer patients. A systematic review conducted by the Early Breast Cancer Trialists' Collaborative Group, which included data from almost 30 000 women in 40 randomised controlled trials, showed that tamoxifen treatment for one year or more was associated with highly significant absolute improvements in 10-year recurrence free survival.⁵⁷ This benefit is greatest in women over 50 with axillary node involvement (table 1¹).

Table 1 Effects of tamoxifen treatment; percentage of women remaining alive and free from recurrence after 10 years (all ages)⁵⁷

Axillary node status	Treated	Untreated
Node positive	41.9	33.1
Node negative	68.1	63.1

Overall, the use of tamoxifen reduced the average annual odds of death by 17% (odds ratio (OR) 0.83; 95% confidence interval (95% CI) 0.79 to 0.87) and the average annual rate of recurrence by 25% (OR 0.75; 95% CI 0.72 to 0.78). There is no evidence that tamoxifen is effective for premenopausal women with oestrogen receptor negative tumours.⁵⁸

The effects of treatment were considerably greater in trials lasting two to five years than in shorter term trials. However, on current evidence, the use of tamoxifen for more than five years does not seem to be justified.⁵⁹ Tamoxifen treatment is associated with an increase in endometrial cancer, which may be counter balanced by a decreased incidence of cancer in the other breast.

The effects of ovarian ablation have been studied in over 3000 women.⁵⁷ After 15 years, 53% of women treated at less than 50 years old remained alive and free from recurrence, compared with 42% of controls, but there seems to be no benefit for women over 50. Ovarian ablation did not significantly affect non-breast cancer mortality over the period of follow up, but it causes sudden onset of menopause, for which women are unlikely to be offered hormone replacement therapy.

CHEMOTHERAPY

The effectiveness of polychemotherapy (usually CMF - cyclophosphamide, methotrexate, and 5-fluorouracil), was assessed in 18 400 women enrolled in randomised controlled trials. After 10 years, 44% of treated women were alive and free from recurrence, compared with 35.6% of control women, with greater benefits among younger women. There was no apparent effect of chemotherapy on non-cancer related deaths.⁵⁷ A recent meta-analysis based on data from 3920 patients in nine randomised controlled trials suggests that adding chemotherapy to tamoxifen in postmenopausal women does not significantly improve survival, and that the adverse effects of chemotherapy on quality of

life may outweigh any potential benefit from the delay in recurrence.⁶⁰

A review of five randomised controlled trials showed that acupuncture or acupressure is effective for reducing nausea and vomiting associated with chemotherapy.⁶¹

COST EFFECTIVENESS OF SYSTEMIC TREATMENT

Analyses based on data from the United States consistently show that systemic treatment for early breast cancer can be highly cost effective, although a range of results have been reported.⁶²⁻⁶⁶ Estimates of the cost per quality adjusted life year (QALY) of treatment with tamoxifen range from \$12 000 in node negative oestrogen receptor positive premenopausal women to \$4000 in node positive premenopausal women (1991 \$US).^{64 65} As the cost of tamoxifen in the United Kingdom is considerably less than in the United States, these figures are likely to underestimate its cost effectiveness in the United Kingdom.

The costs per QALY for adjuvant chemotherapy have been variously estimated at \$1000-5000 for premenopausal node positive women, ranging up to \$36 000-50 000 for post-menopausal node negative women (1991 and 1993 \$US).⁶³⁻⁶⁶

Information and communication

The most common complaints made by cancer patients are about poor communication and inadequate information. Some doctors have poor communication skills and a few behave in a way that may be perceived as insensitive, even callous.⁶⁷

Because issues around breast cancer may produce intense emotional reactions, information has to be given in a clear and sensitive way. Focus groups of patients show that they want information in both verbal and written forms, about their cancer, treatment options, the likelihood of treatment success, and possible side effects.⁶⁷ Patients who are given more complete information show greater satisfaction without any increase in anxiety.⁶⁸

Communication difficulties are associated with anxiety, depression, anger, and confusion,⁶⁹ particularly when the news of the cancer diagnosis is given for the first time, after which some patients may fail to take in information.⁶⁷ Studies of consultations suggest that cancer patients and their doctors may disagree about the adequacy of information given.⁷⁰⁻⁷⁷ Patients often think that they are not given sufficient information, whereas doctors tend to overestimate the amount of information that they give.^{68 78} Some doctors are not convinced of the value of giving full information to patients⁷⁵⁻⁷⁷ and some perform the difficult task of telling bad news in a routine manner.⁷⁷

Patients are likely to get more complete information when it is given in a structured way. They find audiotapes of their consultation and information booklets about treatment helpful.⁷⁹⁻⁸⁵ The fact that they want to be properly informed does not, however, mean that they necessarily want to be responsible for the

final treatment decisions.⁸⁶ Women vary in the degree to which they want to take an active role in decision making.⁶⁹⁻⁹⁴

Table 2 shows the studies that explore the effects of choice between mastectomy and breast conserving surgery. Benefits may

include reduced depression and anxiety⁹⁵⁻⁹⁶ and a higher level of life satisfaction.⁹⁷ One study suggested that offering a choice could cause distress⁹⁸ and other studies reported that 15%-37% of women found the process of making a choice problematic.⁹⁵⁻⁹⁷

Table 2 Effects of choice between breast conserving surgery (BCS) and mastectomy (MST)

Author, year, country	Aim of study	Patient groups	% Able to choose	% Choosing BCS	Outcomes assessed	Results	Grade
Street <i>et al</i> 1995 ¹⁰⁵ USA	To assess the effects of two methods of preconsultation education	Interactive video disk (n=30) Information brochure (n=30)	100 100	76 58	Active role in consultation, type of surgery chosen	Preconsultation education well received and thought to enhance involvement in decision making, no difference between the two techniques	I
Fallofield <i>et al</i> 1994 ⁹⁵ UK	To determine the impact of offering women a choice about surgery in early breast cancer	Patients treated by: (a) surgeons favouring MST (n=30) (b) surgeons favouring BCS (n=121) (c) surgeons offering choice (n=118)	— — 53	— — 69	Anxiety and depression at 3, 6, 12, and 36 months, fear of recurrence, attitude to disease and treatment, type of surgery chosen	At 3 years between 1/4 and 1/5 patients were anxious and depressed irrespective of their role in treatment decision, women treated by surgeons who offered choice were less depressed than those treated by surgeons favouring MST, 42% of patients were pleased they had been allowed to choose; 13% unable to decide; 37% said they had difficulties	IIA
Levy <i>et al</i> 1989 ⁹⁸ USA	To assess emotional distress sequelae as a function of choice of surgical treatment	A group of patients participating in a study examining behavioural predictors of recurrence of disease (n=98)	—	70	Emotional distress, social support, anxiety and depression, functional status	When choices played a major part, BCS patients were psychologically worse off at 3 months follow up, the assumption that women are psychologically better off opting for BCS should be re-examined	IIA
Pozo <i>et al</i> 1992 ¹⁰⁰ USA	To assess, at one year follow up, the psychosocial impact of offering choice between BCS and MST	A group of private patients seen at a tertiary care institution in the process of deciding between BCS and MST (n=63)	61	41	Emotional distress, overall quality of life, life satisfaction, marital satisfaction, perceived social support, type of surgery chosen	Choice of surgical procedure predicted higher levels of life satisfaction at 3 months, BCS patients reported higher sexual adjustment at 6-12 months after surgery	IIA
Cotton <i>et al</i> 1991 ¹⁰³ UK	To assess how often patients opt for BCS when they are offered the choice	Group not eligible for BCS (n=72) Group not eligible for BCS (n=91)	— 100	— 45	Type of surgery chosen	Even when offered a choice, many women (50%) opt for more radical procedures, younger women more likely to prefer BCS	IIB
Hughes 1993 ⁹⁹ USA	To assess: (a) the relation between amount and type of information regarding treatment and type of surgery (b) the relation between a patient's choice of treatment and her ability to recall salient information	A group of patients in the process of deciding between BCS and MST (n=71)	100	65	Amount and nature of information, recall of specific pieces of information, overall quality of life and functional status	Treatment choice was unrelated to the amount of information conveyed to the patients at their clinic visit, quality of life and functional status did not differ between those opting for BCS or MST	IIB
Leinster <i>et al</i> 1989 ¹⁰¹ UK	To assess the usefulness of an informal decision analysis tool to help women make the best subjective decision	Women seen at surgical department, University of Liverpool (n=43)	42	48	Satisfaction with the choice made, type of surgery chosen, occurrence of depression and anxiety	No difference in psychological adaptation between groups identified by treatment chosen, patients thought that they had been able to choose the treatment they wanted	IIB
Morris and Royle 1988 ⁹⁶ UK	To prospectively record psychological variables in patients (and their husbands) to ascertain the effects on adjustment of being offered a choice	Group with central lesion: no choice (n=10) Group offered choice (n=20)	— 100	— 65	Anxiety and depression, social and working activities, marital relations, type of surgery chosen	At 6 months follow up patients offered a choice had lower (not significant) levels of anxiety and depression, and reported better adjustment with respect to work and attitudes toward the future	IIB
Wilson <i>et al</i> 1988 ⁹⁷ UK	To determine whether, given the choice, patients would prefer BCS or MST	Patients seen at Newcastle General Hospital 1979-87 (n=153)	100	35	Type of surgery chosen, difficulties experienced in making the choice (subgroup of 28 patients)	Common reasons for choosing mastectomy included employment, hope of more rapid recovery, fear of radiotherapy, of 28 (28%) patients interviewed 2 years after surgery, 24 said it was not difficult to choose, 4 had problems with the choice	IIC
Wolberg <i>et al</i> 1987 ¹⁰² USA	To find the proportion of patients who, given the choice, opt for BCS, and to assess the psychological factors that predict preference	A series of consecutive patients seen at the Department of Surgery, University of Wisconsin (n=206)	53	49	Psychological correlates of choice, type of surgery chosen	No demographic variable was associated with choice, women choosing BCS valued their physical appearance more highly and were less anxious and depressed	IIA
Ward <i>et al</i> 1989 ¹⁰⁴ USA	To assess: (a) which factors patients consider when deciding between MST and BCS (b) to what extent patients participate in treatment decision (c) what sources of information they use	A group who meet the surgical criteria for choice between MST and BCS (n=22)	100	50	Factors women value when deciding between MST and BCS, perceived participation, sources of information	Desire for body integrity and fear of radiotherapy were the two main reasons for preferring BCS and MST, respectively, 91% said that they had participated as much as they desired, 50% said they want the decision to be fully their own, the remaining 50% said they want to share it mostly with doctors	IIIC

Psychosocial support

Cancer patients need general emotional support and some also require practical help — for example, with caring for children or other dependants or holding down a job. Doctors and nurses often fail to recognise patients' practical and emotional needs.^{106–110}

PSYCHOSOCIAL AND PSYCHOTHERAPEUTIC INTERVENTIONS

Thirteen studies which assessed the effects of a range of interventions were identified^{111–125} (table 3) and also two critical reviews of the literature.^{126 127} These studies show that psychotherapeutic, counselling and educational interventions can improve quality of life and may possibly improve immune function and increase life expectancy in cancer patients. Interventions involved group or individual treatment, and usually included exploration of anxieties, expression of feelings about illness, and related problems. Many attempted to replace undesirable ways of thinking or behaving with alternatives.

Cognitive or behavioural interventions can also be effective for helping patients to cope with symptoms and side effects of cancer treatment.^{128–149}

Therapeutic interventions were given by a range of people, including nurses, psychologists, and psychiatrists. In general, interventions that focused on past problems, as in the psychoanalytical model, were not found to be effective, whereas those which dealt with the patient's current problems were more likely to be helpful.

A more definitive statement about the impact of psychosocial interventions is not possible because of the quality of the studies, which are often small and poorly controlled. The multiplicity of types of intervention and outcomes used make comparisons between studies difficult. However, when considered in conjunction with evidence that informal social support from partners, friends, and relatives is associated with better outcomes,^{150–158} this research highlights the importance of psychosocial issues for breast cancer patients.

Follow up after primary treatment

Routine hospital follow up of patients who have completed primary treatment (involving some combination of hospital physician visits, bone scans, sonograms, chest radiograms, and laboratory tests) is currently standard practice.¹⁵⁹

The effectiveness of different follow up strategies was assessed in two well conducted Italian randomised controlled trials^{160 161} and a British randomised controlled trial comparing follow ups based in general practice with those based in hospital.¹⁶² In the Italian studies, no difference was found in five year survival (OR 1.03; 95% CI 0.82 to 1.30) or health related quality of life between patients allocated to intensive surveillance or to a control regimen in which patients were seen as often by doctors, but tests were performed only when patients reported problems. All women received a yearly mammogram.

The British randomised controlled trial found that patients followed up by their general practitioners experience the same duration and quality of life as those cared for by specialist clinics, and that follow up by the general practitioner is acceptable to both patients and practitioners. Most recurrences are symptomatic and are usually detected first by patients themselves.¹⁶²

Economic evaluations of different strategies in the Italian healthcare system found that the cost of intensive follow up was three to five times greater than for minimalist follow up.¹⁶³ Studies in the United States also suggest that considerable savings could be achieved by less intensive follow up.^{66 164 165} In England and Wales, where a smaller proportion of specialists carry out intensive testing,¹⁵⁹ the savings may be less, but the reduction in the number of specialist outpatient visits could allow the time saved to be used for activities which are more likely to benefit patients.

Although routine follow up may not be beneficial, each woman should have a contact number for her breast care nurse and be able to access care rapidly when required. This has been shown in a study in Scotland to lead to better quality of life and lower levels of psychological and physical morbidity than either routine care or support from a local voluntary agency.¹¹²

The breast care team

SPECIALISATION

The complexity and multifaceted nature of management of breast cancer requires the involvement of a range of different types of specialist, working together in a co-ordinated team. Specialisation of team members has been defined in terms of qualifications, experience, and time devoted to the management of breast cancer.¹ Studies in this area are, in general, retrospective and observational, and thus susceptible to bias. Nevertheless, considered together, they point to the likely improvement in effectiveness associated with specialist treatment by multidisciplinary teams.^{7 9 166–183}

There is fairly strong evidence that specialist providers are more likely to provide good quality and up to date surgical care.^{7 9 166–174} However, many of these studies used process measures of dubious validity to indicate quality of care — such as the probability of breast conserving surgery. Specialisation was usually defined in terms of the teaching status or size of the hospital, not the composition of the breast care team.

An observational study in Scotland found that women treated by surgeons regarded as breast cancer specialists had an 8% better chance of survival at 10 years. After adjustment for age, socioeconomic status, and cancer stage, the reduction in risk of death was 16% (95% CI 6% to 25%).⁷

A meta-analysis of this and other observational studies shows that specialisation (however defined) is consistently associated with improved survival in breast cancer patients.² Overall, the reduction in five year mortality associated with specialist care was

Table 3 Effectiveness of psychosocial or psychotherapeutic counselling or support

Author, year	Patients n (% with breast cancer)	Follow up		Content of interventions, type of provider, and patient	Results	Grade
		Duration	Lost to follow up			
Speigel <i>et al</i> 1989 ¹¹¹ , 1983 ¹¹⁵ , 1981 ¹¹⁶	86 (100)	10 y	0	Psychiatrist, social worker, and an ex-patient led 90 minute sessions of group psychotherapy, once a week for one year. Control group received usual care. Metastatic breast cancer patients	10 years: the intervention increased survival by 18 months. The effect was apparent from the 8th month of treatment. 12 months: the intervention group used less psychotropic drugs and analgesics. Anxiety and depression decreased, and other psychological measures improved. Mood improvement was directly correlated with reduction in duration of pain. Thought that control of pain was improved	IB
	58 (100)	12 months	48		The group supported by the nurse had significantly better general health, less insomnia, psychological symptoms, social dysfunction, and somatic symptoms	IB
McArdle <i>et al</i> 1996 ¹¹²	272 (100)	1 y	3	Psychological and informative support was given for one year to patients by a specialised nurse (since before surgery), or voluntary organisation (after surgery) or nurse + voluntary organisation, or staff with routine approach and booklet	Multivariate analysis showed that the experimental intervention was a significant predictor of improvement of psychological symptoms and coping strategies, together with stressful life events, age, marital status, and social support	IB
Burton <i>et al</i> 1995 ¹¹³	215 (100)	1 y	15	Preoperative interview, preoperative interview + psychotherapeutic intervention (30 min), preoperative interview + talk (30 min). Consultant surgeon trained in client centred counselling. Women awaiting mastectomy	At 8 months follow up differences between groups were significant for depression, anxiety, and control. The group with the nurse's intervention had more benefit. Physical health was the most significant covariate	IB
Edgar <i>et al</i> 1992 ¹¹⁴	205 (48)	1 y	35	Relaxation training and problem solving techniques in two different phases of illness (just after diagnosis and some months later). Nurse, various cancer type patients at different moments of the disease	At 3 months follow up the experimental group showed less depression, better adjustment to disease, and more working activity; but at 1 year follow up the difference disappeared. No difference for anxiety	IB
Watson <i>et al</i> 1988 ¹¹⁷	20 (100)	1 y	30	Psychosocial support and information group held by a specialist nurse for one year. Specialist nurse, not further specified. Breast cancer patients just after diagnosis	Adjustment to disease was worse in the control group. Emotional distress increased in the control group and decreased in treated patients	IB
Mock <i>et al</i> 1994 ¹¹⁸	14 (100)	1 month	0	Physical exercise (10-45 minutes 4-5 times a week) and psychological support group (90 minutes every two weeks). Oncology clinical specialist nurse specifically trained. Patients in chemotherapy (stage I and II). Breast cancer patients	Number of lymphocytes and survival increased in the 3 experimental groups. Survival was 14.9 months in the psychotherapy group, 14.1 in chemotherapy, 22.4 in the group with both treatments	IC
Grossarth-Maticek and Eysenck 1989 ¹¹⁹	100 (100)	3 y	0	Patients randomised to psychotherapy (behavioural, creative, depth), only chemotherapy, both chemotherapy and psychotherapy, or none. Provider not specified. Late stage patients in chemotherapy	Behavioural strategy group improved psychological adjustment to illness	IC
Telch and Telch 1986 ¹²⁰	41 (40)	6 weeks	0	Six 90 minute sessions once a week of behavioural strategies or psychological support group. Social worker, psychologist. Various cancer patients	The experimental group experienced a faster decrease of anxiety, depression, and hostility, improved general quality of life. Return to work was also slightly more frequent in treated patients	IIB
Gordon <i>et al</i> 1980 ¹²²	308 (32)	12 months	36	Six month group with educational and emotional counselling and "environmental manipulation". Psychologist, social worker, and nurse, not further specified. Cancer patients, any stage	The specific intervention was not effective. However, 89% of women in experimental group with psychiatric problems were recognised by the specialist nurse, versus 22% among controls. 3% in the intervention group had moderately severe anxiety and 4% depression, versus 21% and 20% in the control group at 12-18 months. Adjustment to illness and working activity improved. No differences in the functioning of arm, but pain lower in experimental group	IIC
Maguire <i>et al</i> 1983 ¹²¹	152 (100)	18 months	0	Physical rehabilitation of the arm, expression of feelings about the scar and body image, encouragement to return to work. Specialist nurse, not further specified. Radical mastectomy patients	No effect was found in the group receiving the enriched intervention, compared with routine care	IIC
Houts <i>et al</i> 1986 ¹²³	32 (?)	3 months	20	Routine supporting intervention reinforced by 3 phone calls, before and after the surgical intervention, aiming at improving the coping strategies of the patients. Social worker who had had breast cancer. Newly diagnosed cancer patients	The differences between the two groups did not reach significance. Some improvement in self esteem and depression in the intervention group	IIC
Youssef 1984 ¹²⁴	18 (100)	2 months	0	18 sessions of group therapy lasting 1 hour every other day held for 6 weeks by a psychiatric nurse. Intervention based on crisis and self concept theory. Psychiatric nurse, not further specified, with the investigator. Breast cancer patients admitted to hospital for treatment	After adjustment for interval between diagnosis and entrance to the programme, no significant effect was found on survival at 90 months, but survival was longer in the treated group until 70 months	IIB
Morgenstern <i>et al</i> 1984 ¹²⁵	120 (100)	6 y	45	Psychotherapy groups were held for 90 minutes once a week. Provider not specified.		

Studies ordered by (a) grade, (b) duration of follow up, (c) number of patients.

18% (95% CI 12% to 23%). This estimate should, however, be treated with caution because it is derived from studies which are susceptible to bias, due, for example, to inadequate adjustment for differences in case mix.

Specialist nurses can also contribute to improved outcomes for patients, in particular by reducing anxiety and depression and helping patients to participate in choices about treatment.^{70 74 117 121 122 144 184-200} Oncology nurses can improve the use of chemotherapy resources, especially when they share some responsibilities with doctors.^{201 202}

VOLUME OF PATIENT THROUGHPUT

Very low patient throughput tends to be associated with poorer management and long term outcomes, but the precise threshold below which this effect occurs is unclear. Improved outcomes with higher numbers may be a consequence of better surgical^{171 178 183} and non-surgical¹¹ care, and may also be linked with more accurate diagnoses.^{180 181}

In a Yorkshire study, women managed by surgeons who treated more than 30 new breast cancer patients a year were found to have lower five year mortalities.⁶ However, there is no evidence that the association between higher patient throughput and better quality of care holds for larger volumes. For example, a study comparing hospitals with 100 and 200 patients a year showed no difference in outcomes.¹⁷⁸

Conclusions

There seems to be scope for improving outcomes in breast cancer through changes in the organisation of services. This would involve the establishment of specialist breast care teams and one stop diagnostic clinics.

The breast care team should work within written guidelines promoting the use of treatments, the effectiveness of which has been shown by research.²⁰³ The team should ensure that good verbal and written information is given to patients and key personnel should have training in communication skills.¹

Reducing routine and intensive follow up is likely to release resources without compromising outcomes, allowing specialists to concentrate on patients who are more likely to benefit from their attention.

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