

## Early and locally advanced breast cancer: diagnosis and management

**Supplement 2: NGA staff, Glossary, Abbreviations, and Equalities considerations**

*NICE guideline TBC*

*Supplement*

*January 2018*

*Draft for Consultation*

*These supplementary materials were developed by the National Guideline Alliance, hosted by the Royal College of Obstetricians and Gynaecologists*



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ISBN:

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# 1 Glossary

Term	Definition
Abstract	Summary of a study, which may be published alone or as an introduction to a full scientific paper.
Acupuncture	A technique of inserting and manipulating fine needles into specific points on the body with the aim of relieving pain and for therapeutic purposes
Adjuvant therapy	Treatment given after surgery, generally designed to remove any microscopic traces of tumour which may have been left behind
Ameliorate	To make or become better, more bearable or more satisfactory
Amenorrhoea	Absence of regular periods
Anaesthesia	Loss of pain sensation as intentionally induced by drugs or medication.
Antidepressants	Drugs that work by affecting the levels of one or more chemicals within the brain to help lift mood
Area under the curve (AUC)	Summary measure of the accuracy of a diagnostic test.
Areola complex	The coloured area of skin around the nipple
Arm (of a clinical study)	Subsection of individuals within a study who receive one particular intervention, for example placebo arm.
Aromatase inhibitors	Drugs that reduce the blood levels of oestrogen in postmenopausal women by blocking aromatase, a key enzyme which helps to form oestrogen from other steroids
Association	Statistical relationship between 2 or more events, characteristics or other variables. The relationship may or may not be causal.
Attrition bias	Systematic differences between comparison groups for withdrawal or exclusion of participants from a study.
Augmentation	Cosmetic surgery to increase the size of the breast
Axilla	The armpit
Axillary lymph node dissection/axillary node sampling	Surgery to remove some, or all of, the lymph nodes with surrounding fat from the armpit. It can be done either at the same time as breast surgery or as a separate operation.
Baseline	The initial set of measurements at the beginning of a study (after run-in period where applicable) with which subsequent results are compared.
Bias	Influences on a study that can make the results look better or worse than they really are. Bias can occur by chance, deliberately or as a result of systematic errors in the design and execution of a study. It can also occur at different stages in the research process, for example during the collection, analysis, interpretation, publication or review of research data. For examples see Confounding factor, Performance bias, Publication bias Selection bias.
Bilateral breast cancer	Cancer that occurs in both breasts
Biopsy	Removal of a sample of tissue from the body to assist in diagnosis of a disease
Bisphosphonates	A group of drugs used to treat or prevent osteoporosis and to treat the bone pain caused by some types of cancer
Blinding	The practice of keeping the investigators or subjects of a study ignorant of the group to which a subject has been assigned. For example, a clinical trial in which the participating patients or their doctors are unaware of whether they (the patients) are taking the experimental drug or a placebo (dummy treatment). The purpose of 'blinding' or 'masking'

Term	Definition
	is to protect against bias. See also double-blind study and single-blind study.
Bone mineral density	A term for the amount of calcium present in bone. Bone mineral density measurement is used to identify people at risk of osteoporosis, fracture and treatment related morbidity. It is measured by dual energy X-ray absorptiometry (DEXA). Measurements are most commonly made over the lumbar spine and over the upper part of the hip or femoral neck.
Boost dose	An additional dose (boost) of radiotherapy given to just the part of the breast where the cancer was identified before surgical removal
BRCA1 and BRCA2	Inherited altered genes that increase the risk of breast cancer
Breast conserving surgery	Surgery in which the cancer is removed, together with a margin of normal breast tissue. The whole breast is not removed.
Breast density	Density of breast tissue, usually referring to mammographic appearance
Breast reconstruction	The formation of a breast shape after a total mastectomy, using a synthetic implant or tissue from the woman's body
Breast stroma	The supportive framework of the breast composed of connective tissue of fat and fibrous material
Carcinoma	Cancer of the lining tissue that covers all the body organs
Case series	Report of a number of cases of a given disease, usually covering the course of the disease and the response to treatment. There is no comparison (control) group of patients.
Case-control study	A study to find out the cause(s) of a disease or condition. This is done by comparing a group of patients who have the disease or condition (cases) with a group of people who do not have it (controls) but who are otherwise as similar as possible (in characteristics thought to be unrelated to the causes of the disease or condition). This means the researcher can look for aspects of their lives that differ to see if they may cause the condition. Such studies are retrospective because they look back in time from the outcome to the possible causes of a disease or condition.
Cellulitis	An acute spreading bacterial infection below the surface of the skin characterised by warmth, redness, pain and swelling
cGy	A unit of radiation; equal to one hundredth of a gray
Chemotherapy	The use of medication (drugs) that are toxic to cancer cells, given with the aim of killing the cells or preventing or slowing their growth.
Chest wall radiotherapy	Radiotherapy to the chest wall after mastectomy
Clinical effectiveness	How well a specific test or treatment works when used in the 'real world' (for example when used by a doctor with a patient at home), rather than in a carefully controlled clinical trial. Trials that assess clinical effectiveness are sometimes called management trials. Clinical effectiveness is not the same as efficacy.
Clinical efficacy	The extent to which an intervention is active when studied under controlled research conditions.
Clinical examination / assessment	Examination by a healthcare professional, by touch, of breast tissue and the lymph glands under arms and in the neck
Clinician	A healthcare professional who provides patient care. For example a doctor, nurse or physiotherapist.
Cochrane Review	The Cochrane Library consists of a regularly updated collection of evidence-based medicine databases including the Cochrane Database of Systematic Reviews (reviews of RCTs prepared by the Cochrane Collaboration).

Term	Definition
Cognitive behaviour therapy	Type of therapy usually based in talking and practicing specific types of voluntary activity
Cohort	A group of people sharing some common characteristic (e.g. patients with the same disease), followed up in a research study for a specified period of time.
Cohort study	A study with 2 or more groups of people – cohorts – with similar characteristics. One group receives a treatment, is exposed to a risk factor or has a particular symptom and the other group does not. The study follows their progress over time and records what happens.
Comorbidities	The presence of more than one disease or health condition in an individual at a given time
Comparative group	The group in the study who do not receive the treatment/procedure or who receive the norm treatment. This group is used to measure against the treatment/procedure being investigated.
Compression garment	Items of clothing which provide mild compression in order to increase the flow of blood to and from specific muscle groups
Computerised tomography	A diagnostic imaging technique that uses X-rays in conjunction with a special computer to produce a detailed picture of a cross section of the body
Concealment of allocation	The process used to ensure that the person deciding to enter a participant into an RCT does not know the comparison group into which that individual will be allocated. This is distinct from blinding and is aimed at preventing selection bias. Some attempts at concealing allocation are more prone to manipulation than others and the method of allocation concealment is used as an assessment of the quality of a trial.
Confidence interval (CI)	<p>There is always some uncertainty in research. This is because a small group of patients is studied to predict the effects of a treatment on the wider population. The confidence interval is a way of expressing how certain we are about the findings from a study, using statistics. It gives a range of results that is likely to include the 'true' value for the population. The CI is usually stated as '95% CI', which means that the range of values has a 95 in 100 chance of including the 'true' value. For example, a study may state that "based on our sample findings, we are 95% certain that the 'true' population blood pressure is not higher than 150 and not lower than 110". In such a case the 95% CI would be 110 to 150.</p> <p>A wide confidence interval indicates a lack of certainty about the true effect of the test or treatment – often because a small group of patients has been studied. A narrow confidence interval indicates a more precise estimate (for example if a large number of patients have been studied).</p>
Confounding factor	Something that influences a study and can result in misleading findings if it is not understood or appropriately dealt with. For example, a study of heart disease may look at a group of people who exercise regularly and a group who do not exercise. If the ages of the people in the 2 groups are different, then any difference in heart disease rates between the 2 groups could be because of age rather than exercise. Therefore age is a confounding factor.
Continuous outcome	Data with a potentially infinite number of possible values within a given range. Height, weight and blood pressure are examples of continuous variables.
Contraindicated	A situation in which a medication or treatment should not be administered
Contralateral breast cancer	Cancer in the opposite breast

Term	Definition
Control group	A group of people in a study who do not receive the treatment or test being studied. Instead, they may receive the standard treatment (sometimes called 'usual care') or a dummy treatment (placebo). The results for the control group are compared with those for a group receiving the treatment being tested. The aim is to check for any differences. Ideally, the people in the control group should be as similar as possible to those in the treatment group, to make it as easy as possible to detect any effects due to the treatment.
Core biopsy	The removal of a tissue sample with a needle for laboratory examination. This test uses a slightly larger needle than the one used for fine needle aspiration (a few mm thick) and is done under local anaesthetic
Cosmesis	Body beauty or self-image
Cost–benefit analysis (CBA)	Cost-benefit analysis is one of the tools used to carry out an economic evaluation. The costs and benefits are measured using the same monetary units (for example UK pounds) to see whether the benefits exceed the costs.
Cost–consequence analysis (CCA)	Cost-consequence analysis is one of the tools used to carry out an economic evaluation. This compares the costs (such as treatment and hospital care) with the consequences (such as health outcomes) of a test or treatment with a suitable alternative. Unlike cost–benefit analysis or cost-effectiveness analysis, it does not attempt to summarise outcomes in a single measure (such as the quality adjusted life year) or in financial terms. Instead, outcomes are shown in their natural units (some of which may be monetary) and it is left to decision-makers to determine whether, overall, the treatment is worth carrying out.
Cost-effectiveness analysis (CEA)	Cost-effectiveness analysis is one of the tools used to carry out an economic evaluation. The benefits are expressed in non-monetary terms related to health, such as symptom-free days, heart attacks avoided, deaths avoided or life years gained (that is, the number of years by which life is extended as a result of the intervention).
Cost-effectiveness model	An explicit mathematical framework which is used to represent clinical decision problems and incorporate evidence from a variety of sources in order to estimate the costs and health outcomes.
Cost-minimisation analysis (CMA)	Cost-minimisation analysis is a type of economic evaluation which can be used when the alternatives being compared have equivalent clinical effectiveness. The costs of alternatives are compared in order to determine which is the cheapest.
Cost–utility analysis (CUA)	Cost–utility analysis is one of the tools used to carry out an economic evaluation. The benefits are assessed in terms of both quality and duration of life, and expressed as quality adjusted life years (QALYs). See also Utility.
Counselling	Counselling takes place when a counsellor sees a client in a confidential setting to explore a difficulty the client is having, or distress they may be experiencing
Credible interval (CrI)	The Bayesian equivalent of a confidence interval.
Cross-over study design	A study comparing two or more interventions in which the participants, upon completion of the course of one treatment, are switched to another. A problem with this study design is that the effects of the first treatment may carry over into the period when the second is given. Therefore a crossover study should include an adequate 'wash-out' period, which means allowing sufficient time between stopping one treatment and starting another so that the first treatment has time to wash out of the patient's system.

Term	Definition
Cross-sectional study	The observation of a defined set of people at a single point in time or time period – a snapshot. (This type of study contrasts with a longitudinal study, which follows a set of people over a period of time.)
Cytonuclear	Pertaining to the relationship between the nucleus of the cell and the cytoplasm
Decision analysis	An explicit quantitative approach to decision-making under uncertainty, based on evidence from research. This evidence is translated into probabilities, and then into diagrams or decision trees which direct the clinician through a succession of possible scenarios, actions and outcomes.
Diagnostic study	A study to assess the effectiveness of a test or measurement in terms of its ability to accurately detect or exclude a specific disease.
Dichotomous outcomes	Outcome that can take one of 2 possible values, such as dead/alive, smoker/non-smoker, present/not present (also called binary data).
Discounting	Costs and perhaps benefits incurred today have a higher value than costs and benefits occurring in the future. Discounting health benefits reflects individual preference for benefits to be experienced in the present rather than the future. Discounting costs reflects individual preference for costs to be experienced in the future rather than the present.
Dominance	A health economics term. When comparing tests or treatments, an option that is both less effective and costs more is said to be 'dominated' by the alternative.
Double-blind study	A study in which neither the subject (patient) nor the observer investigator/ clinician) is aware of which treatment or intervention the subject is receiving. The purpose of blinding is to protect against bias.
Drop-out	A participant who withdraws from a trial before the end.
Dual energy x-ray absorptiometry (DEXA)	An imaging technique for quantifying bone mineral density
Ductal carcinoma in situ (DCIS)	The commonest form of pre-invasive breast cancer, which is confined to normal breast structures and has not infiltrated into the supporting breast tissue and thus cannot have spread to other sites in the body
ECOG Scale of Performance Status	Developed by the Eastern Cooperative Oncology Group (ECOG), this describes ability to self-care, daily activity and physical ability in grades from 0 (fully active, able to carry on all pre-disease performance without restriction) to 5 (dead).
Economic evaluation	An economic evaluation is used to assess the cost effectiveness of healthcare interventions (that is, to compare the costs and benefits of a healthcare intervention to assess whether it is worth doing). The aim of an economic evaluation is to maximise the level of benefits – health effects – relative to the resources available. It should be used to inform and support the decision-making process; it is not supposed to replace the judgement of healthcare professionals. There are several types of economic evaluation: cost–benefit analysis, cost–consequence analysis, cost-effectiveness analysis, cost-minimisation analysis and cost–utility analysis. They use similar methods to define and evaluate costs, but differ in the way they estimate the benefits of a particular drug, programme or intervention.
Effect (as in effect measure, treatment effect, estimate of effect, effect size)	A measure that shows the magnitude of the outcome in 1 group compared with that in a control group. For example, if the absolute risk reduction is shown to be 5% and it is the outcome of interest, the effect size is 5%. The effect size is usually tested, using statistics, to find out how likely it is that the effect is a result of the treatment and has not just happened by chance.

Term	Definition
Effectiveness	How beneficial a test or treatment is under usual or everyday conditions.
Effectiveness reviews	Evaluation of how beneficial a test or treatment is under everyday conditions.
Efficacy	How beneficial a test, treatment or public health intervention is under ideal conditions (for example in a laboratory).
Endocrine	Having to do with glandular tissues that secrete hormones directly into the blood stream
Endocrine therapy	Treatment of cancer by removing and/or blocking the effects of hormones which stimulate the growth of cancer cells
Epidemiological study	The study of a disease within a population, defining its incidence and prevalence and examining the roles of external influences (for example infection, diet) and interventions.
EQ-5D (EuroQol 5 dimensions)	A standardised instrument used to measure health-related quality of life. It provides a single index value for health status.
Evidence	Information on which a decision or guidance is based. Evidence is obtained from a range of sources including RCTs, observational studies, expert opinion (of clinical professionals or patients).
Evidence based	The process of systematically finding, appraising and using research findings as the basis for clinical decisions.
Evidence table	A table summarising the results of a collection of studies which, taken together, represent the evidence supporting a particular recommendation or series of recommendations in a guideline.
Excision	The act of surgically removing or 'cutting out' tissue from the body
Exclusion criteria (clinical study)	Criteria that define who is not eligible to participate in a clinical study.
Exclusion criteria (literature review)	Explicit standards used to decide which studies should be excluded from consideration as potential sources of evidence.
Extended dominance	If Option A is both more clinically effective than Option B and has a lower cost per unit of effect when both are compared with a do-nothing alternative, then Option A is said to have extended dominance over Option B. Option A is therefore more cost effective and should be preferred, other things remaining equal.
Extrapolation	An assumption that the results of studies of a specific population will also hold true for another population with similar characteristics.
False negative	A diagnostic test result that incorrectly indicates that an individual does not have the disease of interest, when they do actually have it.
False positive	A diagnostic test result that incorrectly indicates that an individual has the disease of interest, when they actually do not have it.
Femoral neck	The flattened pyramidal process of bone, connecting the femoral head with the femoral shaft.
Fibroglandular	The breast is composed of fat and fibroglandular tissue. Fibroglandular tissue is the denser of the two and makes up the supporting structure of the breast
Fibrosis	An increase in fibrous tissue, which may make an area seem harder than adjacent normal structures
Fine needle aspiration cytology	The sampling of cells, rather than pieces of tissue, from breast tissue for examination by a pathologist
Fixed-effect model	In meta-analysis, a model that calculates a pooled effect estimate using the assumption that all observed variation between studies is caused by random sample variability. Studies are assumed to be estimating the same overall effect.

Term	Definition
Foci	A small group of cells or area of disease. Plural of focus is foci
Follow-up	Observation over a period of time of an individual, group or initially defined population whose appropriate characteristics have been assessed in order to observe changes in health status or health-related variables.
Forest plot	A graphical representation of the individual results of each study included in a meta-analysis together with the combined meta-analysis result. The plot also allows readers to see the heterogeneity among the results of the studies. The results of individual studies are shown as squares centred on each study's point estimate. A horizontal line runs through each square to show each study's confidence interval. The overall estimate from the meta-analysis and its confidence interval are shown at the bottom, represented as a diamond. The centre of the diamond represents the pooled point estimate, and its horizontal tips represent the confidence interval.
Fractionation	Radiotherapy is usually given over several weeks. The dose delivered each day is known as a fraction.
Free tissue transfers	A section of tissue detached from its blood vessels moved to another part of the body and attached by microsurgery to another blood supply
Gene amplification	Excessive amounts of the gene are present, above the 2 copies of each which are present in normal tissue
Generalisability	The extent to which the results of a study hold true for groups that did not participate in the research.
Gold standard	A method, procedure or measurement that is widely accepted as being the best available to test for or treat a disease.
GRADE, GRADE profile	A system developed by the GRADE Working Group to address the short-comings of present grading systems in healthcare. The GRADE system uses a common, sensible and transparent approach to grading the quality of evidence. The results of applying the GRADE system to clinical trial data are displayed in a table known as a GRADE profile.
Grading	The degree of aggressiveness of a malignant tumour, assessed by its appearance under the microscope
Gray	A unit of radiation
Harms	Adverse effects of an intervention.
Health economics	Study or analysis of the cost of using and distributing healthcare resources.
Health-related quality of life (HRQoL)	A measure of the effects of an illness to see how it affects someone's day-to-day life.
Heterogeneity	The term is used in meta-analyses and systematic reviews to describe when the results of a test or treatment (or estimates of its effect) differ
Histology	An examination of the cellular characteristics of a tissue using a microscope
Hormone receptor	Proteins in a cell that bind to specific hormones
Hormone replacement therapy	Supplements to replace the female hormone oestrogen which falls during the menopause
Hotspots	An area that represents an abnormally high absorption of radiation
Human epidermal growth factor receptor	A molecule on the surface of a cell which interacts with a specific growth factor and helps to control how rapidly the cells grow
Hypnosis	An altered state of consciousness brought about by a trained specialist to help change or differently control behaviour, emotions or the state of one's physical appearance

Term	Definition
Hypofractionated schedules	Radiotherapy given with fewer, larger doses
Immediate reconstruction	The reconstruction of the breast at the time of mastectomy
Immunohistochemistry	A technique that uses antibodies to identify specific molecules in tissues which are examined and scored by a pathologist down a microscope
Imprecision	Results are imprecise when studies include relatively few patients and few events and thus have wide confidence intervals around the estimate of effect.
In situ hybridisation	A technique for assessment of the number of copies of a gene using a microscope
Incidence	The incidence of a disease is the rate at which new cases occur in a population during a specified period.
Inclusion criteria (clinical study)	Specific criteria that define who is eligible to participate in a clinical study.
Inclusion criteria (literature review)	Explicit criteria used to decide which studies should be considered as potential sources of evidence.
Incremental cost	The extra cost linked to using one test or treatment rather than another. Or the additional cost of doing a test or providing a treatment more frequently.
Incremental cost effectiveness ratio (ICER)	The difference in the mean costs in the population of interest divided by the differences in the mean outcomes in the population of interest for one treatment compared with another.
Incremental net benefit (INB)	The value (usually in monetary terms) of an intervention net of its cost compared with a comparator intervention. The INB can be calculated for a given cost-effectiveness (willingness to pay) threshold. If the threshold is £20,000 per QALY gained then the INB is calculated as: (£20,000×QALYs gained) minus incremental cost.
Indirectness	The available evidence is different to the review question being addressed, in terms of population, intervention, comparison and outcome (PICO).
Inflammatory breast cancer	A type of breast cancer characterised by skin oedema, thickness and pinkness
Intensity modulated radiotherapy	Specialised form of conformal radiation therapy where the radiation can be adjusted to vary the doses given to different parts of an organ
Intention-to-treat analysis (ITT)	An assessment of the people taking part in a clinical trial, based on the group they were initially (and randomly) allocated to. This is regardless of whether or not they dropped out, fully complied with the treatment or switched to an alternative treatment. Intention-to-treat analyses are often used to assess clinical effectiveness because they mirror actual practice: that is, not everyone complies with treatment and the treatment people receive may be changed according to how they respond to it.
Internal validity	How well an experiment is done and if it is clear that the variable being tested is what is causing the measured effect.
Intervention	In medical terms this could be a drug treatment, surgical procedure, diagnostic or psychological therapy. Examples of public health interventions could include action to help someone to be physically active or to eat a more healthy diet.
Invasive breast cancer	Breast cancer where the malignant cells have broken through the lining layer of the normal tissues and extend into the fat and fibrous tissue of the breast
Invasive lobular carcinoma	A special type of invasive breast cancer with particular microscopic appearances

Term	Definition
Ipsilateral	On, or affecting, the same side
Irradiation	Treatment with, or exposure to, any form of irradiation
Isolated tumour cells	Single cells or tiny clusters of cells, generally referring to metastatic malignant cells within a lymph node that are usually detected by immunohistochemistry
Length of stay	The total number of days a patient stays in hospital.
Licence	See Product licence.
Life years gained	Mean average years of life gained per person as a result of the intervention compared with an alternative intervention.
Likelihood ratio	The likelihood ratio combines information about the sensitivity and specificity. It tells you how much a positive or negative result changes the likelihood that a patient would have the disease. The likelihood ratio of a positive test result (LR+) is sensitivity divided by (1 minus specificity).
Local recurrence	Return of the cancer in the affected breast
Local treatment/control	Treatment that is directed at tumour cells
Locoregional recurrence	Recurrence limited to a localised area, as contrasted to systemic or metastatic, e.g. spread of pathological change into the same area as the original disease (local) or just beyond the site of origin but only into the nearby region (regional)
Lost to follow-up	Patients who have withdrawn from the clinical trial at the point of follow-up.
Lumbar spine	The area of the spine consisting of the five lumbar vertebrae, L1, L2, L3, L4 and L5.
Lumpectomy	Surgical removal of a lump from the breast
Luteinising hormone-releasing hormone agonists	Hormonal drugs that inhibit the production of the hormones that control the production of sex hormones in men and women
Lymph nodes	Small structures which act as filters of the lymphatic system. Lymph nodes close to the primary tumour are generally the first site to which cancer spreads.
Lymphatic drainage	A one-way drainage system to transport excess fluid from body tissues into the blood system
Lymphoedema	Swelling of the arm or breast because of a collection of lymphatic fluid
Macrometastases	Metastases in the lymph glands which are more than 2 mm in size, as assessed using a microscope
Magnetic resonance imaging	A diagnostic imaging technique that uses powerful electromagnets, radio waves and a computer to produce well-defined images of the body's internal structures
Malignancy	An illness that is a cancer.
Malignant	Cancerous cells which can invade into nearby tissue and spread to other parts of the body
Mammography	The process of taking a mammogram – a soft tissue x-ray of the breast which may be used to evaluate a lump or which may be used as a screening test in women with no signs or symptoms of breast cancer
Margins	The edge of the tissue removed
Markers	Substances found in increased amounts in the blood, other body fluids or tissues which suggest that a certain type of cancer may be in the body

Term	Definition
Markov model	A method for estimating long-term costs and effects for recurrent or chronic conditions, based on health states and the probability of transition between them within a given time period (cycle).
Mastectomy	Surgical removal of the breast
Mean	An average value, calculated by adding all the observations and dividing by the number of observations.
Mean difference	In meta-analysis, a method used to combine measures on continuous scales (such as weight), where the mean, standard deviation and sample size in each group are known. The weight given to the difference in means from each study (for example how much influence each study has on the overall results of the meta-analysis) is determined by the precision of its estimate of effect.
Median	The value of the observation that comes half-way when the observations are ranked in order.
Medical oophorectomy	Endocrine therapy to stop the functioning of the ovaries (see ovarian ablation)
Menopause	The end of menstruation; this usually occurs naturally around the age of 50
Meta-analysis	A method often used in systematic reviews. Results from several studies of the same test or treatment are combined to estimate the overall effect of the treatment.
Metachronous	At different times
Metastases	Deposits of cancer elsewhere in the body
Metastasis	Spread of cancer away from the primary site to elsewhere in the body via the bloodstream or the lymphatic system
Methodology	Systematic, theoretical analysis of the methods applied to a field of study.
Microcalcifications	Pieces of calcium, often about the size of a pinhead or less, which can form in the breast tissue and which can be seen on a mammogram
Micrometastases	Very small clusters of malignant cells (less than 2 mm in size but larger than isolated tumour cells) which have spread to the lymph nodes
Minimal important difference (MID)	Threshold for clinical importance which represents the minimal important difference for benefit or for harm; for example the threshold at which drug A is less effective than drug B by an amount that is clinically important to patients.
Morbidity	A diseased condition or state
Morphological	Pertaining to morphology, which is the science of the form and structures of tissues
Multidisciplinary team	A team with members from different healthcare professions (including for example, oncology, pathology, radiology, nursing)
Multivariate model	A statistical model for analysis of the relationship between 2 or more predictors, (independent) variables and the outcome (dependent) variable.
Necrosis	The death of a group of cells within tissue
Needle biopsy	The removal of tissue or fluid through a needle for examination under a microscope
Net monetary benefit (NMB)	The value (usually in monetary terms) of an intervention net of its cost. The NMB can be calculated for a given cost-effectiveness (willingness to pay) threshold. If the threshold is £20,000 per QALY gained then the NMB is calculated as: (£20,000×QALYs gained) minus cost.

Term	Definition
Network meta-analysis (NMA)	Meta-analysis in which multiple treatments (that is, 3 or more) are being compared using both direct comparisons of interventions within RCTs and indirect comparisons across trials based on a common comparator.
Neutropenic sepsis	Life threatening infection made more severe by the patient's having a very low level of white blood cells
Non-randomised	When subjects of a study are not allocated to a specific treatment/group at random.
Nottingham Prognostic Index	A formula based on assessment of microscopic tumour features and the spread of disease to lymph nodes, to help predict the patient's likely outcome/cure
Number needed to treat (NNT)	The average number of patients who need to be treated to get a positive outcome. For example, if the NNT is 4, then 4 patients would have to be treated to ensure 1 of them gets better. The closer the NNT is to 1, the better the treatment. For example, if you give a stroke prevention drug to 20 people before 1 stroke is prevented, the number needed to treat is 20.
Observational study	Individuals or groups are observed or certain factors are measured. No attempt is made to affect the outcome. For example, an observational study of a disease or treatment would allow 'nature' or usual medical care to take its course. Changes or differences in one characteristic (for example whether or not people received a specific treatment or intervention) are studied without intervening. There is a greater risk of selection bias than in experimental studies.
Occult	Hidden, or difficult to observe directly
Odds ratio (OR)	<p>Odds are a way to represent how likely it is that something will happen (the probability). An odds ratio compares the probability of something in one group with the probability of the same thing in another.</p> <p>An odds ratio of 1 between 2 groups would show that the probability of the event (for example a person developing a disease, or a treatment working) is the same for both. An odds ratio greater than 1 means the event is more likely in the first group. An odds ratio less than 1 means that the event is less likely in the first group.</p> <p>Sometimes probability can be compared across more than 2 groups – in this case, one of the groups is chosen as the 'reference category' and the odds ratio is calculated for each group compared with the reference category. For example, to compare the risk of dying from lung cancer for non-smokers, occasional smokers and regular smokers, non-smokers could be used as the reference category. Odds ratios would be worked out for occasional smokers compared with non-smokers and for regular smokers compared with non-smokers.</p> <p>See also Confidence interval, Relative risk.</p>
Oedema	The medical name for excess fluid collection or swelling
Oestrogen	A female sex hormone
Oestrogen receptor	A protein within breast cancer cells that binds to oestrogens. It indicates that the tumour may respond to endocrine therapies. Tumours rich in oestrogen receptors have a better prognosis than those which are not
Oncologist	A doctor who specialises in treating cancer
Oncoplastic	Cancer specific reconstructive surgery
Opportunity cost	The loss of other healthcare programmes displaced by investment in or introduction of another intervention. This may be best measured by the health benefits that could have been achieved had the money been spent on the next best alternative healthcare intervention.

Term	Definition
Osteoporosis	The loss of bony tissue resulting in bones that are brittle and liable to fracture
Outcome	The impact that a test, treatment, policy, programme or other intervention has on a person, group or population. Outcomes from interventions to improve the public's health could include changes in knowledge and behaviour related to health, societal changes (for example a reduction in crime rates) and a change in people's health and wellbeing or health status. In clinical terms, outcomes could include the number of patients who fully recover from an illness or the number of hospital admissions, and an improvement or deterioration in someone's health, functional ability, symptoms or situation. Researchers should decide what outcomes to measure before a study begins.
Ovarian ablation/Ovarian suppression	Surgery, radiation therapy or drug treatment which stops the functioning of the ovaries and significantly reduces oestrogen levels in the blood
Overexpression	An increase in the amount (and activity) of a molecule in a cell, for example of a gene or growth factor receptor such as HER2
p value	The p value is a statistical measure that indicates whether or not an effect is statistically significant. For example, if a study comparing 2 treatments found that one seems more effective than the other, the p value is the probability of obtaining these results by chance. By convention, if the p value is below 0.05 (that is, there is less than a 5% probability that the results occurred by chance) it is considered that there probably is a real difference between treatments. If the p value is 0.001 or less (less than a 1% probability that the results occurred by chance), the result is seen as highly significant. If the p value shows that there is likely to be a difference between treatments, the confidence interval describes how big the difference in effect might be.
Paget's disease of the nipple	Paget's disease of the breast is an eczema-like change in the skin of the nipple, almost always caused by an underlying breast cancer (either DCIS or invasive cancer)
Pairwise analysis	A process of comparing entities in pairs to judge which of each entity is preferred, or has a greater amount of some quantitative property.
Palpable	A mass that can be felt by the doctor
Pathologist	A doctor who examines tissues and cells using a microscope. The pathologist assesses the appearances of the breast cancer and provides information on prognostic and predictive markers, such as histological grade and oestrogen receptor status
Pathology	A branch of medicine concerned with the study of disease, especially its structure and its functional effects on the body
Pedicled flaps	Flap of fat and overlying skin from elsewhere in the body moved to create a new breast shape during reconstruction
Performance bias	Systematic differences between intervention groups in care provided apart from the intervention being evaluated. Blinding of study participants (both the recipients and providers of care) is used to protect against performance bias.
Placebo	A fake (or dummy) treatment given to participants in the control group of a clinical trial. It is indistinguishable from the actual treatment (which is given to participants in the experimental group). The aim is to determine what effect the experimental treatment has had over and above any placebo effect caused because someone has received (or thinks they have received) care or attention.
Placebo effect	A beneficial (or adverse) effect produced by a placebo and not due to any property of the placebo itself.

Term	Definition
Positron emission tomography	A diagnostic imaging technique using a radio-active tracer which shows increased tissue metabolism
Post-hoc analysis	Statistical analyses that are not specified in the trial protocol and are generally suggested by the data.
Postmenopausal	The time of a woman's life after her menstrual periods have ceased for 12 consecutive months.
Power (statistical)	The ability to demonstrate an association when one exists. Power is related to sample size; the larger the sample size, the greater the power and the lower the risk that a possible association could be missed.
Predictive values/markers	A molecule that is assessed to predict the likely response to a specific treatment, for example oestrogen receptor to predict the likely response to endocrine therapy
Premenopausal	The time of a woman's life immediately before the menopause.
Preoperative assessment	The assessment and management of the patient before surgery, e.g. imaging, diagnosis and preparation for surgery
Prevalence	The prevalence of a disease is the proportion of a population that are cases at a point in time.
Primary care	Healthcare delivered outside hospitals. It includes a range of services provided by GPs, nurses, health visitors, midwives and other healthcare professionals and allied health professionals such as dentists, pharmacists and opticians.
Primary care	Services provided in a community setting, outside secondary care, with which patients usually have first contact
Primary outcome	The outcome of greatest importance, usually the one in a study that the power calculation is based on.
Primary systemic therapy	Systemic therapy given before surgery or radiotherapy
Product licence	An authorisation from the Medicines and Healthcare Products Regulatory Agency (MHRA) to market a medicinal product.
Progesterone receptor	A protein within cells that binds to progesterone.
Progestogens	Synthetic hormone similar to the natural progesterone produced in the ovaries.
Prognosis	A probable course or outcome of a disease. Prognostic factors are patient or disease characteristics that influence the course. Good prognosis is associated with low rate of undesirable outcomes; poor prognosis is associated with a high rate of undesirable outcomes.
Prognosis	A prediction of the likely outcome or course of a disease; the chance of recovery, recurrence or death
Prognostic factors	Disease characteristics that influence the course of the disease and which are used to predict the likely outcome
Prospective study	A research study in which the health or other characteristic of participants is monitored (or 'followed up') for a period of time, with events recorded as they happen. This contrasts with retrospective studies.
Prosthesis	Fabricated substitute for a diseased or missing part of a body. A breast prosthesis usually consists of a silicone envelope containing normal saline or silicone gel.
Protocol (review)	A document written prior to commencing a review that details exactly how evidence to answer a review question will be obtained and synthesised. It defines in detail the population of interest, the interventions, the comparators/controls and the outcomes of interest (PICO).

Term	Definition
Psychological	Adjective of psychology, which is the scientific study of behaviour and its related mental process. Psychology is concerned with such matters as memory, rational and irrational thought, intelligence, learning, personality, perceptions and emotions and their relationship to behaviour.
Psychosocial	Concerned with psychological influences on social behaviour
Publication bias	Publication bias occurs when researchers publish the results of studies showing that a treatment works well and don't publish those showing it did not have any effect. If this happens, analysis of the published results will not give an accurate idea of how well the treatment works. This type of bias can be assessed by a funnel plot.
Quality adjusted life year (QALY)	A measure of the state of health of a person or group in which the benefits, in terms of length of life, are adjusted to reflect the quality-of-life. One QALY is equal to 1 year of life in perfect health. QALYS are calculated by estimating the years of life remaining for a patient following a particular treatment or intervention and weighting each year with a quality-of-life score (on a scale of 0 to 1). It is often measured in terms of the person's ability to perform the activities of daily life, and freedom from pain and mental disturbance.
Quality of life	See Health-related quality of life.
Radiotherapy	A treatment for cancer that uses high energy ionising radiation (usually X-rays) to prevent cell growth
Random effect model	In meta-analysis, a model that calculates a pooled effect estimate using the assumption that each study is estimating a different true treatment effect due to real differences between studies. Observed variation in effects are therefore caused by a combination of random sample variability (within-study variation) and heterogeneity between studies (between-study variation). The overall effects is an average of the estimated true study effects.
Randomisation	Assigning participants in a research study to different groups without taking any similarities or differences between them into account. For example, it could involve using a random numbers table or a computer-generated random sequence. It means that each individual (or each group in the case of cluster randomisation) has the same chance of receiving each intervention.
Randomised controlled trial (RCT)	A study in which a number of similar people are randomly assigned to 2 (or more) groups to test a specific drug or treatment. One group (the experimental group) receives the treatment being tested, the other (the comparison or control group) receives an alternative treatment, a dummy treatment (placebo) or no treatment at all. The groups are followed up to see how effective the experimental treatment was. Outcomes are measured at specific times and any difference in response between the groups is assessed statistically. This method is also used to reduce bias.
Reconstruction	See breast reconstruction
Recruitment bias	When proper randomisation is not achieved when recruiting individuals, meaning that the sample obtained may not be representative of the population intended to be analysed.
Reference standard	The test that is considered to be the best available method to establish the presence or absence of the outcome – this may not be the one that is routinely used in practice.
Regimen	A plan or regulated course of treatment
Relative risk (RR)	The ratio of the risk of disease or death among those exposed to certain conditions compared with the risk for those who are not exposed to the

Term	Definition
	same conditions (for example the risk of people who smoke getting lung cancer compared with the risk for people who do not smoke). If both groups face the same level of risk, the relative risk is 1. If the first group had a relative risk of 2, subjects in that group would be twice as likely to have the event happen. A relative risk of less than 1 means the outcome is less likely in the first group. Relative risk is sometimes referred to as risk ratio.
Reporting bias	See Publication bias.
Resection margins	Margins of tissue removed by surgery around a cancer
Resource implication	The likely impact in terms of finance, workforce or other NHS resources.
Retrospective study	A research study that focuses on the past and present. The study examines past exposure to suspected risk factors for the disease or condition. Unlike prospective studies, it does not cover events that occur after the study group is selected.
Review question	The plan or set of steps to be followed in a study. A protocol for a systematic review describes the rationale for the review, the objectives and the methods that will be used to locate, select and critically appraise studies, and to collect and analyse data from the included studies.
Scintiscanning	A diagnostic method. A radioactive tracer is injected into the body. The radiation it sends out produces flashes of light on a scintillator (instrument used to detect radioactivity), and they are recorded.
Secondary care	Services provided by multidisciplinary team in the hospital, as opposed to the General Practitioner and the primary care team
Secondary outcome	An outcome used to evaluate additional effects of the intervention deemed a priori as being less important than the primary outcomes.
Selection bias	Selection bias occurs if: <ul style="list-style-type: none"> <li>• the characteristics of the people selected for a study differ from the wider population from which they have been drawn; or</li> <li>• there are differences between groups of participants in a study in terms of how likely they are to get better.</li> </ul>
Sensitivity	How well a test detects the thing it is testing for. If a diagnostic test for a disease has high sensitivity, it is likely to pick up all cases of the disease in people who have it (that is, give a 'true positive' result). But if a test is too sensitive it will sometimes also give a positive result in people who don't have the disease (that is, give a 'false positive'). For example, if a test were developed to detect if a woman is 6 months pregnant, a very sensitive test would detect everyone who was 6 months pregnant but would probably also include those who are 5 and 7 months pregnant. If the same test were more specific (sometimes referred to as having higher specificity), it would detect only those who are 6 months pregnant and someone who was 5 months pregnant would get a negative result (a 'true negative'). But it would probably also miss some people who were 6 months pregnant (that is, give a 'false negative'). Breast screening is a 'real-life' example. The number of women who are recalled for a second breast screening test is relatively high because the test is very sensitive. If it were made more specific, people who don't have the disease would be less likely to be called back for a second test but more women who have the disease would be missed.
Sensitivity analysis	A means of representing uncertainty in the results of an analysis. Uncertainty may arise from missing data, imprecise estimates or methodological controversy. Sensitivity analysis also allows for exploring the generalisability of results to other settings. The analysis is repeated using different assumptions to examine the effect on the results.

Term	Definition
	<ul style="list-style-type: none"> <li>• One-way simple sensitivity analysis (univariate analysis) – each parameter is varied individually in order to isolate the consequences of each parameter on the results of the study.</li> <li>• Multi-way simple sensitivity analysis (scenario analysis) – 2 or more parameters are varied at the same time and the overall effect on the results is evaluated.</li> <li>• Threshold sensitivity analysis – the critical value of parameters above or below which the conclusions of the study will change are identified.</li> <li>• Probabilistic sensitivity analysis – probability distributions are assigned to the uncertain parameters and are incorporated into evaluation models based on decision analytical techniques (for example Monte Carlo simulation).</li> </ul>
Sentinel lymph node	The sentinel lymph node is the first lymph node that filters fluid from the breast. This is usually found in the lower part of the armpit
Sentinel lymph node biopsy/sentinel lymph node dissection	A surgical removal of the sentinel lymph node(s). This is less extensive than axillary clearance/dissection, which removes multiple lymph nodes from the axilla
SF-12	A 12-question questionnaire to measure Health-Related Quality of life.
SF-36	A 36-question questionnaire to measure Health-Related Quality of life.
Significance (statistical)	A result is deemed statistically significant if the probability of the result occurring by chance is less than 1 in 20 ( $p < 0.05$ ).
Single blind study	A study in which either the subject (patient/participant) or the observer (clinician/investigator) is not aware of which treatment or intervention the subject is receiving.
Specificity	The proportion of true negatives that are correctly identified as such. For example, in diagnostic testing the specificity is the proportion of non-cases correctly diagnosed as non-cases. In terms of literature searching a highly specific search is generally narrow and aimed at picking up the key papers in a field and avoiding a wide range of papers. See also Sensitivity.
Staging	Clinical description of the size and spread of a tumour, allocated by internationally agreed categories
Stakeholder	An organisation with an interest in a topic on which NICE is developing a clinical guideline or piece of public health guidance. Organisations that register as stakeholders can comment on the draft scope and the draft guidance. Stakeholders may be: <ul style="list-style-type: none"> <li>• manufacturers of drugs or equipment</li> <li>• national patient and carer organisations</li> <li>• NHS organisations</li> <li>• organisations representing healthcare professionals.</li> </ul>
Standard deviation (SD)	A measure of the spread or dispersion of a set of observations, calculated as the average difference from the mean value in the sample.
Structural abnormality	Endometrial polyps or fibroids.
Subcutaneous	Beneath the skin
Subgroup analysis	An analysis in which the intervention effect is evaluated in a defined subset of the participants in a trial, or in complementary subsets.
Submucous fibroid	Fibroid that grows into the uterine cavity.
Subserous fibroid	Fibroid that grows into the abdominal cavity.
Supraclavicular fossa	The indentation immediately above the clavicle (collar bone)

Term	Definition
Systematic review	A review in which evidence from scientific studies has been identified, appraised and synthesised in a methodical way according to predetermined criteria. It may include a meta-analysis.
Systemic therapy/treatment	Medicine, usually given by mouth or injection, to treat the whole body rather than targeting one specific area
Telangiectasia	Permanent dilation of groups of superficial blood vessels
Three-dimensional (3D) ultrasound scan)	A medical ultrasound technique that provides 3D images.
Thromboembolic disease	Obstruction of a blood vessel with a blood clot which may be carried in the blood stream from the site of origin to plug another blood vessel
Time horizon	The time span over which costs and health outcomes are considered in a decision analysis or economic evaluation.
Transvaginal ultrasound scan (TVUS)	An ultrasound scan performed via the vagina.
Treatment allocation	Assigning a participant to a particular arm of a trial.
Triple negative breast cancer (TNBC)	Breast cancer that is negative for oestrogen receptors, progesterone receptors and human epidermal growth factor receptor 2
True negative	A diagnostic test result that correctly indicates that an individual does not have the disease of interest when they actually do not have it.
True positive	A diagnostic test result that correctly indicates that an individual has the disease of interest when they do actually have it.
Tumour bed	The area surrounding the site from which a cancer has been surgically removed.
Tumour, node, metastasis	The system used to describe the size of a cancer ('tumour'), whether it has spread to the lymph nodes ('nodes') and whether it has spread ('metastasis'). T can be 1,2,3, or 4 (1= small, 4 = large) N can be 0, 1, 2 or 3 (0 = no nodes affected, 3 = multiple nodes) M can be 0 or 1 (0 = no metastasis, 1 = metastasis)
Tumour on ink	When a breast cancer is removed the pathologist covers the edges of the removed tissue in ink to mark them. 'Tumour on ink' means that when the pathologist looks at the sample down the microscope the cancer extends as far as the ink.
Two-dimensional (2D) ultrasound scan	A medical ultrasound technique that provides 2D images.
Ultrasound	An imaging method in which high-frequency sound waves are used to outline a part of the body
Univariate	Analysis which separately explores each variable in a data set.
Utility	In health economics, a utility is the measure of the preference or value that an individual or society places upon a particular health state. It is generally a number between 0 (representing death) and 1 (perfect health). The most widely used measure of benefit in cost-utility analysis is the quality-adjusted life year, but other measures include disability-adjusted life years (DALYs) and healthy year equivalents (HYEs).
Vasomotor flushes	Hot flushes and sweats
WHOQOL-BREF	Generic Quality of Life Scale developed through the World Health Organization
Wide local excision	The complete removal of a tumour with a surrounding margin of normal breast tissue

# 1 Abbreviations

Abbreviation	Definition
3D-CRT	3 dimensional conformal radiotherapy
4-NS	4-Node sampling
ABS at BASO	Association of Breast Surgery at British Association of Surgical Oncology
ABC	Adjuvant breast cancer
ABC	Active breathing coordinator
ABCSG	Austrian Breast & Colorectal Cancer Study Group
AC	Doxorubicin and cyclophosphamide
ACOSOG	American College of Surgeons Oncology Group
ACS	American Cancer Society
AE	Adverse event
AERO	Association Européenne de Recherche en Oncologie
AGO	German Gynecological Oncology Group (Arbeitsgemeinschaft Gynäkologische Onkologie);
AH	Alkaline haematin
AJCC	American Joint Committee on Cancer
Als	Aromatase Inhibitors
ALE	Arm lymphoedema
ALND	Axillary lymph node dissection
ALT	Alanine aminotransferase
AMAROS	After mapping of the axilla: radiotherapy or surgery
AMSTAR	Assessing the Methodological Quality of Systematic Reviews
ANC	Axillary node clearance
ANS	Axillary node sampling
APBI	Accelerated partial breast irradiation;
AR	Activity restriction
aRT	Axillary radiotherapy
AST	Aspartate aminotransferase
AT-CMF	Doxorubicin, paclitaxel, cyclophosphamide, methotrexate, fluorouracil
ATLAS	Adjuvant Tamoxifen Longer Against Shorter
aTTom	Adjuvant Tamoxifen Treatment Offers More?
ATTRM	Agència d'Avaluació de Tecnologia i Recerca Mèdiques
AUC	Area under the curve
AUROC	Area under the receiver operating curve
AZURE	Adjuvant Zoledronic acid redUce REcurrence
BASO	British Association of Surgical Oncologists
BC	Breast cancer
BCCA	British Columbia Cancer Agency
BCIRG	Breast Cancer International Research Group
BCOS	Breast Cancer Outcomes Simulator
BCRL	Breast cancer related lymphoedema
BCS (of FACT-B)	Breast cancer subscale
BCS	Breast-conserving surgery

Abbreviation	Definition
BCSS	Breast cancer specific survival
BCTQAP	Breast Cancer Treatment Quality Assurance Project
BIS	Bioelectrical impedance spectroscopy
BMD	Bone mineral density
BMI	Body mass index
BNF	British National Formulary
BOOG	Borstkanker Onderzoek Groep
BR23	EORTC-BR23 quality of life questionnaire
BRCA	Breast CAncer susceptibility gene
BRCA1	BReast CAncer1
BRCA2	BReast CAncer2
BSGE	British Society for Gynaecological Endoscopy
BTWSP	Breast Test Wales Screening Programme
CAF	Cyclophosphamide, doxorubicin, fluorouracil
CALGB	Cancer and Leukemia Group B
CAP	College of American Pathologists
CASP	Critical Appraisal Skills Programme
CBT	Cognitive behavioural therapy
CC	Complete cytoreduction
CEAC	Cost-effectiveness acceptability curves
CEF	Cyclophosphamide, epirubicin, fluorouracil
cGy	Centigray (see glossary)
CHCVR	Combined hormonal contraceptive vaginal ring
CI	Confidence interval
CLO	Clodronate
CMF	Cyclophosphamide, methotrexate and fluorouracil
CNS	Central nervous system
COC	Combined oral contraceptives
CPMC-IRB	California Pacific Medical Center Institutional Review Board
CPR	Clinical prediction rule
CrI	Credible interval
CT	Chemotherapy
CT	Computed tomography
CTC	Common Toxicity Criteria
CWRT	Chest wall radiotherapy
DASH	Disabilities of the Arm, Shoulder and Hand, self-report questionnaire
DBCG	Danish Breast Cancer Cooperative Group
DCIS	Ductal carcinoma in situ
DCISm	DCIS with microinvasion
ddAC	Dose dense doxorubicin & cyclophosphamide
DEVA	Docetaxel epirubicin adjuvant trial
DEXA	Dual energy X-ray absorptiometry
DFCI	Dana-Farber Cancer Institute
DFS	Disease-free survival

Abbreviation	Definition
DIBH	Deep inspiration breath hold
DIC	Deviance information criterion
DNA	Deoxyribonucleic acid
EBCTCG	Early Breast Cancer Trialists Cancer Group
EC	Epirubicin and cyclophosphamide
EC-Doc	Epirubicin docetaxel trial
EC-TX	Epirubicin, cyclophosphamide-docetaxel capecitabine
ECG	Electrocardiogram
ECOG	Eastern Cooperative Oncology Group
ECTO	European Cooperative Trial in Operable Breast Cancer
EDLM	Extended latissimus dorsi myocutaneous
EFS	Event free survival
EGFR	Epidermal growth factor receptor
EIC	Extensive intraductal component
eMIT	Electronic market information tool
EORTC	European Organisation for Research and Treatment of Cancer
EORTC QLQ-30	European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire
EP	Epirubicin paclitaxel;
EPG	Excellent prognostic group
EQ-5D	EuroQoL five dimensions questionnaire
ER	Oestrogen receptor
ERG	Evidence Review Group
ESMO	European Society for Medical Oncology
ET	Endocrine therapy
EVM	Epirubicin, vincristine, methotrexate
FAC	Fluorouracil, doxorubicin and cyclophosphamide
FACT-B	Functional assessment of cancer therapy – Breast cancer
FACT-G	Functional assessment of cancer therapy – General
FB	Free breathing
FEC	Fluorouracil, epirubicin and cyclophosphamide
FISH	Fluorescence in situ hybridization
FLAC	Fluorouracil, leucovorin, doxorubicin, cyclophosphamide
FN	False negative
FN	Femoral neck
FNAC	Fine needle aspiration cytology
FP	False positive
FSD	Focus-to-surface distance
GABG	German Adjuvant Breast Cancer Study Group
GAIN	German Adjuvant Intergroup Node Positive
GC	Guideline committee
G-CSF	Granulocyte colony-stimulating factor
GEC-ESTRO:	Groupe Européen de Curiethérapie and the European Society for Radiotherapy & Oncology
GEICAM	Grupo Español de Investigación en Cáncer de Mama

Abbreviation	Definition
G(m)-CSF	Granulocyte(-macrophage) colony-stimulating factor
GnRH	Gonadotropin-releasing hormone
GOIM	Gruppo Oncologico Italia Meridionale
GONO-MIG5	Gruppo Oncologico Nord-Ovest - Mammella Intergruppo Group 5
GOS	Goserelin
GP	General Practitioner
GPG	Good prognostic group
GRADE	Grading of Recommendations Assessment, Development and Evaluation
Gy	Gray (see glossary)
HADS	HADS: Hospital Anxiety and Depression Scale
HDR	High dose rate
HER2	Human epidermal growth factor receptor 2
HERA	Herceptin Adjuvant
HORG	Hellenic Oncology Research Group
HR	Hazard ratio
HR+	Hormone receptor positive
HR-	Hormone receptor negative
HRG	Healthcare Resource Group
HRQoL	Health-related quality of life
HRT	Hormone replacement therapy
HTA	Health Technology Assessment
IBA	ibandronate
IBCTG	International Breast Cancer Study Group
IBIS	International Breast Cancer Intervention Studies
ICER	Incremental cost-effectiveness ratio
iddETC	Intense dose-dense epirubicin, paclitaxel, cyclophosphamide
IHC	Immunohistochemistry
IMC	Internal mammary chain
IMN	Internal mammary nodes
IMPORT	Intensity Modulated and Partial Organ Radiotherapy
IMRT	Intensity modulated radiotherapy
Intvn	Intervention
IQR	Interquartile range
ISH	In situ hybridisation
ISRCTN	International Standard Randomised Controlled Trials Number
ITT	Intention to treat
IV	Inverse variance
IVC	Infraclavicular
k	Number of studies or publications
KCSG	Korean Cancer Study Group
KROG	Korean Radiation Oncology Group
LACE	Life after cancer epidemiology
LAD	Left anterior descending
LCIS	Lobular carcinoma in situ

Abbreviation	Definition
LD	Latissimus dorsi
LHRH	Luteinising hormone-releasing hormone
LHRHa	Luteinising hormone-releasing hormone agonists
LN	Lymph node
LPM	Lymphoedema prevention module, moderate exercise program
LR-	Negative likelihood ratio
LR+	Positive likelihood ratio
LRFS	Local recurrence free survival
LRR	Locoregional recurrence
LS	Lumbar spine
LVEF	Left ventricular ejection fraction
LV	Lymphovascular
LVI	Lymphovascular invasion
M	Mean
M*	Metastasis stage
M0	Metastasis stage, no distant metastases
MIB1	Mindbomb E3 ubiquitin protein ligase 1
MCS	Mental component summary
MD	Mean difference
mDIBH	Moderate deep inspiration breath hold
MDT	Multidisciplinary team
MENQOL	Menopause-specific quality of life
MET	Metabolic equivalent of task
M-H	Mantel-Haenszel
MHD	Mean heart dose
MID	Minimally important difference
MLD	Manual lymph drainage
MMM	Mitomycin, methotrexate, mitoxantrone
MPG	Moderate prognostic group
MR	Mean ratio
MRI	Magnetic resonance imaging
MRM	Modified radical mastectomy
MS	Medial supraclavicular
MTV	Mitomycin, thiotepa, vindesine
MUGA	Multi-gated acquisition
MVAC	Methotrexate, vinblastine, doxorubicin and cisplatin
N	Number of participants
N*	Node stage
N0	Node negative
N/A	Not applicable
N/C	Not calculable
NACT	Neoadjuvant chemotherapy
NAR	No activity restriction
NCCN	National Comprehensive Cancer Network

Abbreviation	Definition
NCCTG	North Central Cancer Treatment Group
NCI	National Cancer Institute
NET	Neoadjuvant endocrine therapy
NGA	National Guideline Alliance
NHS	National Health Service
NHSBSP	National Health Service Breast Screening Programme
NICE	National Institute of Health and Care Excellence
NIHR	National Institute of Health Research
NMB	Net monetary benefit
NNH	Number needed to harm
NNT	Number needed to treat
NPI	Nottingham Prognostic Index
NR	Not reported
NRCT	Non-randomised controlled trial
ns	Not significant
NSABP	National Surgical Adjuvant Breast and Bowel Project
NSAIDs	Nonsteroidal anti-inflammatory drugs
NSQIP	National Surgical Quality and Improvement Program
NTBC	Nottingham Tenovus Breast Cancer
O:E	Observed: expected
O-E	Observed minus expected
OFS	Ovarian function suppression/ablation
OIS	Optimal information size
ONJ	Osteonecrosis of the jaw
ONS	Office for National Statistics
OPI	Oxford Prognostic Index
OR	Odds ratio
ORR	Overall response rate
OS	Overall survival
OSS	Oxford Shoulder Score
OTOASOR	Optimal treatment of the axilla - surgery or radiotherapy
PAM	Pamidronate
Pbi	Partial breast irradiation
PBR	Partial breast radiotherapy
pCR	Pathologically complete response
PCS	Physical component summary
PDR	Pulsed dose rate
PICO	Population, intervention, comparison, outcome
PICOTS	Population, intervention, comparator, outcome, timing and setting
PMD	Postmenopausal bleeding
PMRT	Postmastectomy radiotherapy
POSH	Prospective study of Outcomes in Sporadic versus Hereditary breast cancer
POSNO	Positive Sentinel node: adjuvant therapy alone versus adjuvant therapy plus clearance or axillary radiotherapy. An RCT of axillary treatment in women

Abbreviation	Definition
	with early stage breast cancer who have metastases in one or two Sentinel Nodes
Postop RT	Postoperative radiotherapy
PR	Progesterone receptor
PRIME	Postoperative Radiotherapy in Minimum-Risk Elderly
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PROMS	Patient-reported outcome measures
PS	Performance status
PSA	Probabilistic sensitivity analysis
PSS	Personal Social Services
PSSRU	Personal Social Services Research Unit
QALY	Quality-adjusted life year
QoL	Quality of life
QuickDASH	A shortened version of the DASH outcome measure
RAPID	Randomized Trial of Accelerated Partial Breast Irradiation
RAPP	Risk Assessment and Prevention Program
RCPATH	Royal College of Pathologists
RCOG	Royal College of Obstetricians and Gynaecologists
RCT	Randomised controlled trial
RECIST	Response evaluation criteria in solid tumours
RFS	Recurrence free survival
RFS	Relapse free survival
RIS	Risedronate
ROBIS	Risk of bias in systematic reviews
ROC	Receiver operating characteristics
ROM	Range of motion
RCT	Randomised controlled trial
RR	Relative risk/risk ratio
RT	Radiotherapy
RTOG	Radiation Therapy Oncology Group
SBR	Scarff-Bloom-Richardson
SCF	Supraclavicular fossa
SD	Standard deviation
SE	Standard error
SECSG	Southeastern Cancer Study Group
Sens	Sensitivity
SF-12	12-Item Short Form Survey
SF-36	36-Item Short Form Survey
SLN	Sentinel lymph node
SLNB	Sentinel lymph node biopsy
SLND	Sentinel lymph node dissection
SM	Simple mastectomy
SN	Sentinel node
SOFT	Suppression of Ovarian Function Trial

Abbreviation	Definition
SOMA-LENT	Subjective, Objective, Management, Analytic-Late Effects of Normal Tissues
Spec	Specificity
SPOFIA	Subjective Perception of Post-Operative Functional Impairment of the Arm
SR	Systematic review
SSO-ASTRO	Society of Surgical Oncology – American Society for Radiation Oncology
SSRIs	Selective serotonin re-uptake inhibitors
std	Standard
SUPREMO	Selective Use of Postoperative Radiotherapy aftEr MastectOmy
SVC	Supraclavicular
SWDI	Simplified Water Displacement Instrument
T	Trastuzumab
T*	Tumour stage
TA	Technology appraisal
TAC	Docetaxel, doxorubicin and cyclophosphamide
TAM	Tamoxifen
TC	Docetaxel and cyclophosphamide
TEXT	Tamoxifen and Exemestane Trial
TH	Total hip
TisN0M0	Breast Cancer stage; cancer cells are only growing in the most superficial layer of tissue with no lymph node involvement or distant metastases
TN	True negative
TNBC	Triple negative breast cancer (see glossary)
TOI	Trial outcome index
TP	True positive
TNBC	Triple Negative Breast Cancer
TNM	Tumour, nodes, metastasis (see glossary)
TRAM	Transverse rectus abdominus myocutaneous
UICC	Union for International Cancer Control
UK	United Kingdom
UK/ANZ	UK, Australia and New Zealand
US	Ultrasound
VACP	Vincristine, doxorubicin, cyclophosphamide, prednisone
VAS	Visual analogue scale
VBH	Voluntary breath holding
VEM	Vincristine, epirubicin, methotrexate
WBRT	Whole breast radiotherapy
WHEL	Women's healthy eating and living
WHO	World Health Organization
WHOQOL	World Health Organization quality of life
WINS	Women's intervention nutrition study
wk	Week
WLE	Wide local excision
WMCIU	West Midlands Cancer Intelligence Unit
wP	Weekly paclitaxel

<b>Abbreviation</b>	<b>Definition</b>
Z-FAST	Zometa-Femara Adjuvant Synergy Trial
ZIPP	Zoladex In Pre-menopausal Patients trial
ZOL	Zoledronic acid

# 1 **Equalities considerations**

2 Breast cancer affects women, men, and can affect those who have undergone a gender  
3 reassignment or who are non-binary. We have used the term 'women' in this guideline for  
4 recommendations that usually only relate to women (such as breast-conserving surgery) and  
5 'people' in all other cases. However, no discrimination is intended and recommendations  
6 relate to all those who have early or locally advanced breast cancer.