NHS
National Institute for Health and Clinical Excellence

Quick reference guide

Issue date: October 2006

Familial breast cancer

The classification and care of women at risk of familial breast cancer in primary, secondary and tertiary care

NICE clinical guideline 41 (Partial update of NICE clinical guideline 14)
This clinical guideline was developed by the National Collaborating Centre for Primary Care; the section on MRI surveillance has been updated.

Familial breast cancer: the classification and care of women at risk of familial breast cancer in primary, secondary and tertiary care
(NICE clinical guideline 41)
This replaces NICE clinical guideline 14, issued in May 2004.

The section on magnetic resonance imaging (MRI) for breast cancer surveillance (pages 9–10) has been updated in line with new evidence. The pages containing the new recommendations are highlighted by a red border. All other recommendations are unchanged from the original guideline.

The original guideline (CG 14) and this partial update have been developed by the National Collaborating Centre for Primary Care.

This quick reference guide should be interpreted, where necessary, with reference to the full guideline (see page 14).

Patient-centred care

Treatment and care should take into account patients' individual needs and preferences. Good communication is essential, supported by evidence-based information, to allow patients to reach informed decisions about their care. Parents, carers and relatives should have the chance to be involved in discussions unless the patient thinks it inappropriate.

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This guidance is written in the following context
This guidance represents the view of the Institute, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Contents

Important messages to share with women with concerns

- Most women do not develop breast cancer, and of those who do, most will not have a known family history of the disease.
- For most women, increasing age is the greatest risk factor.
- The great majority of women with a family history of breast cancer do not fall into a high-risk category and do not develop breast cancer.
- The great majority of women with a relative with breast cancer are not at substantially increased risk of breast cancer themselves.

Key priorities for implementation

Family history and referral

- When a woman presents with breast symptoms or has concerns about relatives with breast cancer, a first- and second-degree family history should be taken in primary care to assess risk, because this allows appropriate classification and care.
- Healthcare professionals should respond to women who present with concerns, but should not, in most instances, actively seek to identify women with a family history of breast cancer.
- Local protocols for the care of women at risk of familial breast cancer should be developed with clear referral mechanisms between primary, secondary and tertiary care, and with appropriate facilities.

Care

- Access to psychological support and assessment is a key part of the package of care needed for many women covered by this guideline.
- All women aged 40–49 years satisfying referral criteria to secondary or specialist care (at raised risk or greater) should be offered annual mammographic surveillance.
- Surveillance should only be undertaken after provision of information about its potential advantages and disadvantages for the early detection of breast cancer, and where offered, this should be of high quality (equivalent to NHS Breast Screening Programme standard) and audited.
- ***New*** Women who are known to have a genetic mutation should be offered annual MRI surveillance if they are:
  - *BRCA1* and *BRCA2* mutation carriers aged 30–49 years
  - *TP53* mutation carriers aged 20 years or older.
- ***New*** MRI surveillance should be offered annually when indicated:
  From 30–39 years:
  - to women at a 10-year risk of greater than 8%

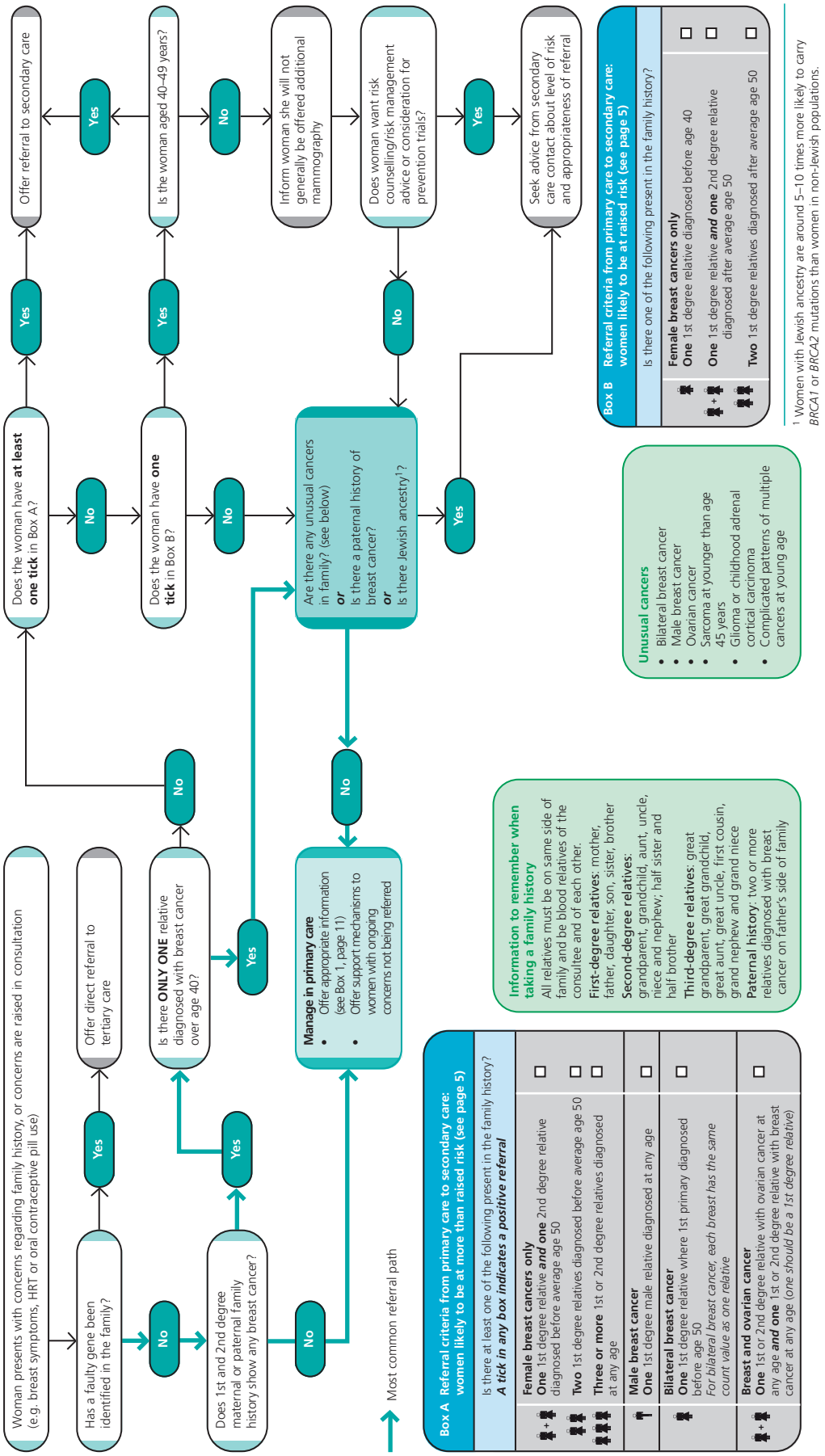
  From 40–49 years:
  - to women at a 10-year risk of greater than 20%, or
  - to women at a 10-year risk of greater than 12% where mammography has shown a dense breast pattern.
- Genetic testing is appropriate only for a small proportion of women who are from high-risk families.
- Risk-reducing surgery (mastectomy and/or oophorectomy) is appropriate only for a small proportion of women who are from high-risk families and should be managed by a multidisciplinary team.

The intention of the guideline is as follows

- Women at or near **population risk** of developing breast cancer (that is, a 10-year risk of less than 3% for women aged 40–49 years and a lifetime risk of less than 17%) are cared for in primary care.
- Women at **raised risk** of developing breast cancer (that is, a 10-year risk of 3–8% for women aged 40–49 years or a lifetime risk of 17% or greater but less than 30%) are generally cared for in secondary care.
- Women at **high risk** of developing breast cancer (that is, a 10-year risk of greater than 8% for women aged 40–49 years or a lifetime risk of 30% or greater) are cared for in tertiary care. High risk also includes a 20% or greater chance of a faulty *BRCA1*, *BRCA2* or *TP53* gene in the family.

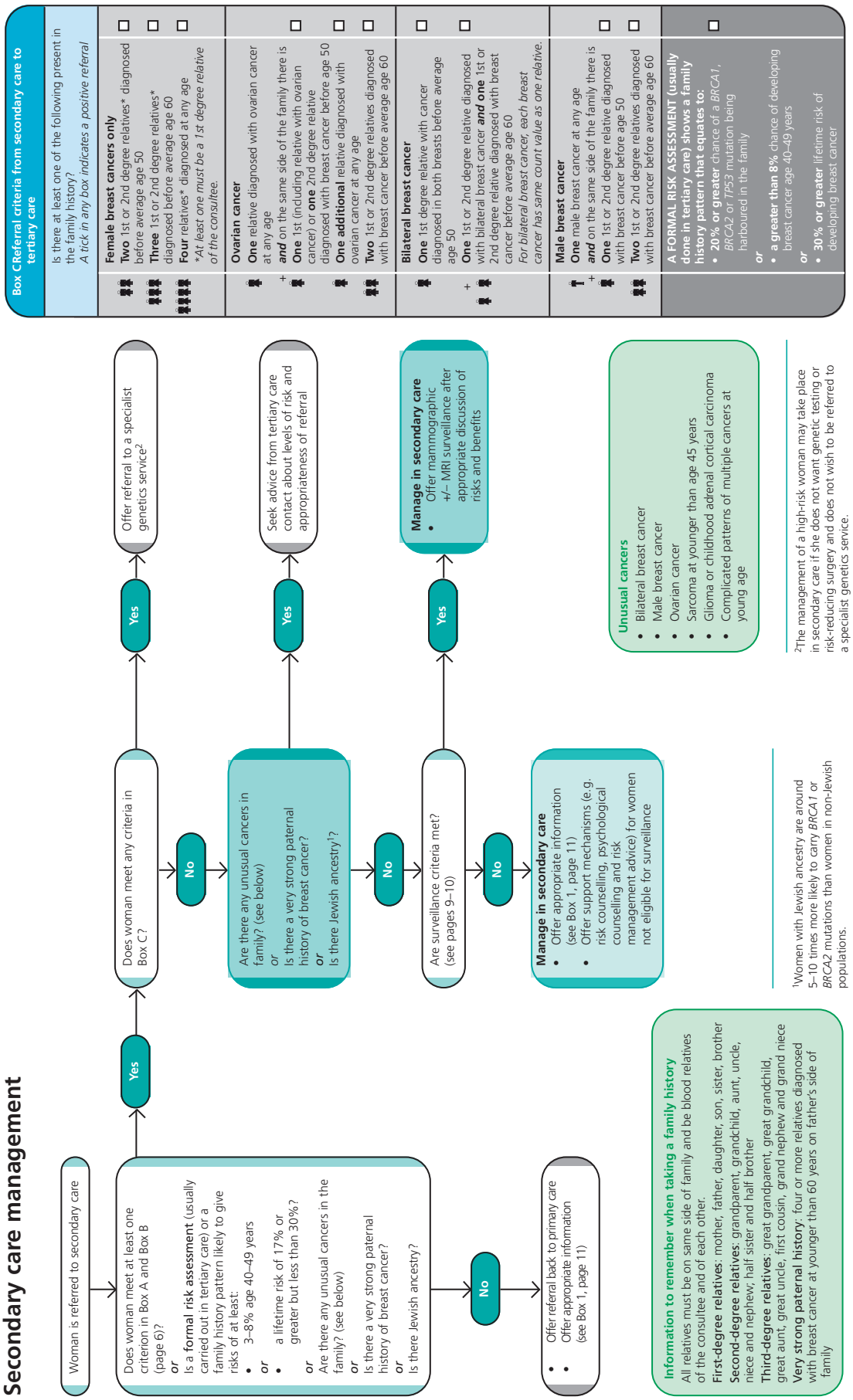
The referral criteria given in this guideline are examples of family histories that may equate to the levels of risk described above. Other family histories may also lead to a suspicion of an increased risk, due to the numbers of breast or other cancers in the family or in cases of bilateral breast cancer.

Primary care management

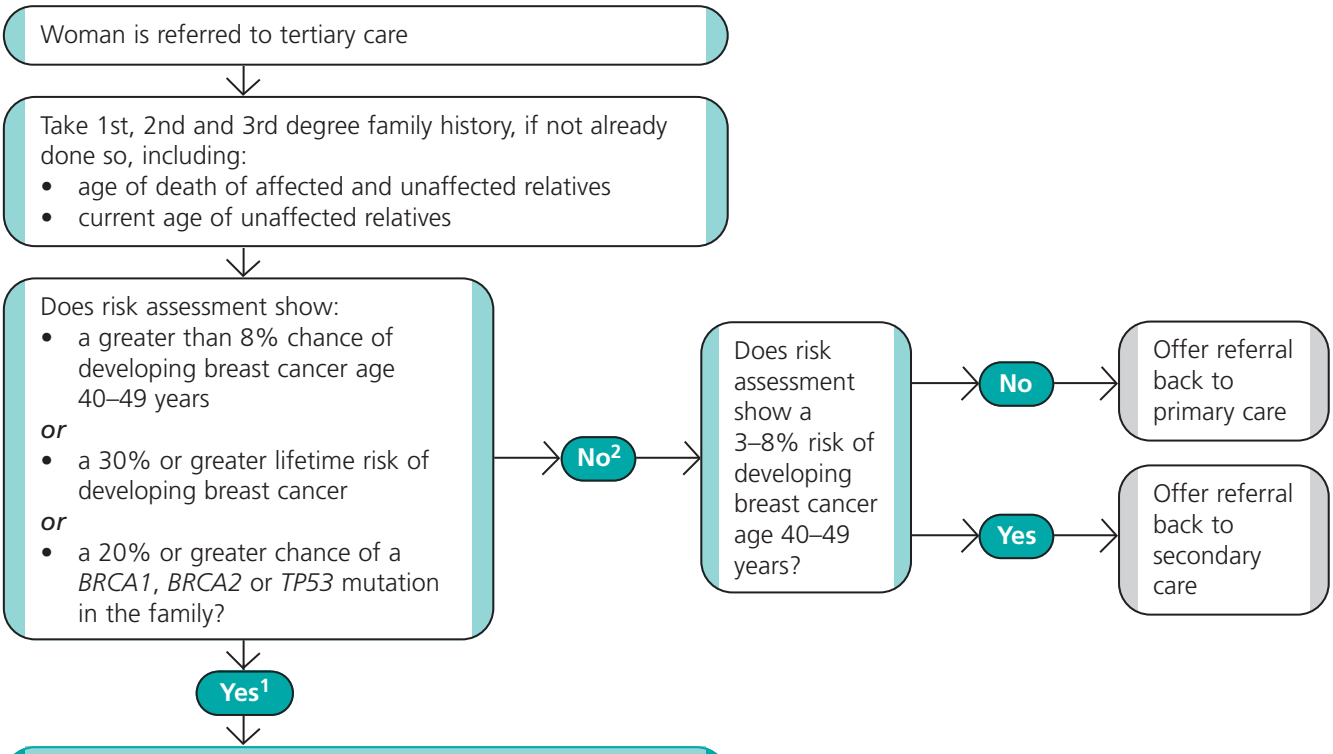


[1] Women with Jewish ancestry are around 5–10 times more likely to carry *BRCA1* or *BRCA2* mutations than women in non-Jewish populations.

Secondary care management



Tertiary care management



Offer genetic counselling
- undertake personal risk estimate, if requested, and provide:
  - information about uncertainties of estimation
  - a written summary of consultation.

Following discussion of risks and benefits:
- offer mammographic +/– MRI surveillance if criteria met (see pages 9–10)
- if 20% or greater chance of *BRCA1*, *BRCA2* or *TP53* mutation in the family and there is an affected relative available, offer genetic testing following two sessions of pre-test counselling
- offer risk-reducing surgery (mastectomy and/or oophorectomy), including pre-operative counselling (if no mutation identified, this should be following validation of family history or agreement with multidisciplinary team).

Women having risk-reducing surgery should have access to support groups and should be able to discuss:
- reconstruction options with a specialist surgical team (mastectomy)
- effects and management options of early menopause (oophorectomy), including advantages, disadvantages and risk impact of HRT
- possible psychosocial and sexual consequences of surgery.

Provide appropriate information to all women (see Box 1, page 11).

Information to remember when taking a family history

All relatives must be on same side of family and be blood relatives of the consultee and of each other.

First-degree relatives: mother, father, daughter, son, sister, brother

Second-degree relatives: grandparent, grandchild, aunt, uncle, niece and nephew; half sister and half brother

Third-degree relatives: great grandparent, great grandchild, great aunt, great uncle, first cousin, grand nephew and grand niece

[1]The management of a high-risk woman may take place in secondary care if she does not want genetic testing or risk-reducing surgery and does not wish to be referred to a specialist genetics service.

[2]Women not at high risk who raise the possibility of risk-reducing oophorectomy should be offered appropriate information, and if seriously considering this option should be referred to the team that deals with women at high risk.

Breast cancer surveillance

Women should be offered mammography and MRI scans of both breasts based on their age and estimated risk.

	Mammography		MRI
20–29 years	Should not be available for women younger than age 30.		Should be available only for those at exceptionally high risk (that is, annual risk greater or equal to 1%), for example *TP53* carriers.
30–39 years	Should be available to women satisfying referral criteria for secondary or specialist care: • only as part of a research study (ethically approved) or nationally approved and audited service. Individualised strategies should be developed for exceptional cases, such as: • women from families with *BRCA1*, *BRCA2* or *TP53* mutations (or women with equivalent high risk).	+/–	Should be available annually to: • women with a 10-year risk of greater than 8% • *TP53*, *BRCA1* and *BRCA2* mutation carriers • women who have not been tested but have a high chance of carrying a *BRCA1* or *TP53* mutation, specifically: – those at a 50% risk of carrying a *BRCA1* or *TP53* mutation in a tested family – those at 50% risk of carrying a *BRCA1* or *TP53* mutation from untested or inconclusively tested families with at least a 60% risk of a *BRCA1* or *TP53* mutation (that is, a 30% chance of carrying a mutation themselves).
40–49 years	Should be available annually to: • women at raised and high risk satisfying referral criteria for secondary or specialist care.	+/–	Should be available annually to: • women with a 10-year risk of greater than 20% • women with a 10-year risk of greater than 12% whose mammography has shown a dense breast pattern† • *TP53*, *BRCA1* and *BRCA2* mutation carriers • women who have not been tested but have a high chance of carrying a *BRCA1* or *TP53* mutation, specifically: – those at a 50% risk of carrying a *BRCA1* or *TP53* mutation in a tested family – those at 50% risk of carrying a *BRCA1* or *TP53* mutation from untested or inconclusively tested families with at least a 60% risk of a *BRCA1* or *TP53* mutation (that is, a 30% chance of carrying a mutation themselves).
Aged 50 and over	Should be available every 3 years as part of the NHS Breast Screening Programme. • More frequent mammographic surveillance should take place only as part of a research study (ethically approved) or nationally approved and audited service. Individualised strategies should be developed for exceptional cases, such as: • women from families with *BRCA1*, *BRCA2* or *TP53* mutations (or women with equivalent high risk).		Should not be available for women older than age 50.

†As defined by the 3-point mammographic classification used by UK breast radiologists (Breast Group of the Royal College of Radiologists 1989)

Supporting information

An 8% risk aged 30–39 and a 12% risk aged 40–49 years would be fulfilled by women with the following family histories:

- 2 close relatives diagnosed with average age < 30 years*
- 3 close relatives diagnosed with average age < 40 years*
- 4 close relatives diagnosed with average age < 50 years*.

*All relatives must be on the same side of the family and one must be a mother or sister of the consultee.

A genetic test would usually be required to determine a 10-year risk of 20% or greater in women aged 40–49 years.

For the purposes of these calculations, a woman's age should be assumed to be 30 years of age for a woman in her thirties and 40 years of age for a woman in her forties. A 10-year risk should then be calculated for the period 30–39 and 40–49, respectively.

- Before entry to a breast cancer surveillance programme, and at each subsequent change in the programme, women should be provided with a documented plan that includes:
  - written patient information and discussion on mammography and MRI, including the risks and benefits
  - a clear description of the methods and intervals
  - the reasons for any changes to the surveillance plan
  - sources of support and further information.
- Women who have been referred to a clinical genetics centre who are not known to have a genetic mutation should be offered an assessment of their 10-year breast cancer risk using a validated tool (for example, Tyrer-Cuzick or BOADICEA) to assess whether they are or will be eligible for MRI.
- Mammographic surveillance should be audited, to NHS Breast Screening Programme standards and as part of the NHS Research and Development Health Technology Assessment programme evaluation for women under 50 years with a family history, wherever possible.
- When mammography is recommended in women under 50, digital mammography should be used in preference to conventional mammography at centres where this is available to NHS Breast Screening Programme standards.
- MRI of both breasts should be performed to high quality standards ensuring high temporal and spatial resolution. Dynamic sequences are recommended post contrast. They should be double-read where possible.
- MRI and mammography data should be collected for audit purposes to support a national database.
- Support mechanisms (for example, risk counselling, psychological counselling and risk management advice) need to be identified and should be offered to women not being offered surveillance who have ongoing concerns.
- On the basis of current evidence, ultrasound should not be used in routine surveillance practice but may have a role in problem solving mammographically or MRI-detected abnormalities.

Box 1: Recommendations for information provision

All women at all care levels should receive standard written information that includes:

- risk information about population level and family history levels of risk, including a definition of family history
- the message that, if their family history alters, their risk may alter
- breast awareness information
- lifestyle advice, including information about HRT, oral contraceptives, lifestyle (including diet, alcohol etc.), breastfeeding, family size and timing
- contact details of those providing support and information, including local and national support groups
- the message that women can bring a family member/friend to appointments
- details of any appropriate trials or studies that may be appropriate to consider taking part in.

In addition

Women being cared for in primary care should receive:

- advice to return to discuss any implications if family history changes or breast symptoms develop.

Women being referred to secondary care should receive:

- information on the risk assessment that may take place and advice on obtaining a comprehensive family history if required
- information about potential outcomes, depending on the outcome of the risk assessment (including referral back to primary care, management in secondary care or referral to a specialist genetics service) and what might happen at each level.

Women being referred back to primary care should receive:

- detailed information about why secondary or tertiary care is not required
- advice to return to primary care to discuss any implications if family history changes or breast symptoms develop.

Women being cared for in secondary care should receive:

- details of risk assessment outcome, including why not being referred to a specialist genetics service
- details of surveillance options, including risks and benefits.

Women being referred to tertiary care should receive:

- details of risk assessment outcome, including why being referred to a specialist genetics service
- details of surveillance options, including risks and benefits
- details of what to expect in a specialist genetics service, including counselling and genetic testing.

Women being cared for in tertiary care should receive:

- information about hereditary breast cancer
- information about genetic testing (predictive testing and mutation finding); what tests may mean; how informative they are likely to be; timescale for results
- risks and benefits of risk-reducing surgery when it is being considered, including both physical and psychological impact.

Box 2: Risk factors

HRT

- Women with a family history of breast cancer who are considering taking, or are already taking, HRT should be informed of the increase in breast cancer risk with type and duration of HRT.
- Advice to individual women on the use of HRT should vary according to the individual clinical circumstances (such as asymptomatic of menopausal symptoms, age, severity of menopausal symptoms, osteoporosis).
- HRT usage in a woman at familial risk should be restricted to as short a duration and as low a dose as possible. Oestrogen-only HRT should be prescribed where possible.
- A woman having an early (natural or artificial) menopause should be informed of the risks and benefits of HRT, but generally HRT usage should be confined to women younger than 50 years of age if at raised or high risk.
- Alternatives to HRT should be considered for specific symptoms such as osteoporosis or menopausal symptoms.
- Consideration should be given to the type of HRT if it is being considered for use in conjunction with risk-reducing gynaecological surgery.

Hormonal contraceptives

- Advice to women up to age 35 years with a family history of breast cancer should be in keeping with general health advice on the use of the oral contraceptive pill.
- Women aged over 35 years with a family history of breast cancer should be informed of an increased risk of breast cancer associated with taking the oral contraceptive pill, given that their absolute risk increases with age.
- For women with *BRCA1* mutations, the conflicting effects of a potential increased risk of breast cancer under the age of 40 years and the lifetime protection against ovarian cancer risk from taking the oral contraceptive pill should be discussed.
- Women should not be prescribed the oral contraceptive pill purely for prevention of cancer, although in some situations, reduction in ovarian cancer risk may outweigh any increase in risk of breast cancer.
- If a woman has a *BRCA1* mutation and is considering a risk-reducing oophorectomy before the age of 40 years, the oral contraceptive pill should not be prescribed purely for the reduction in ovarian cancer risk.

Breastfeeding

- Women should be advised to breastfeed if possible because this is likely to reduce their risk of breast cancer, and is in accordance with general health advice.

Box 2 *continued*: Risk factors

Alcohol consumption

- Women with a family history should be informed that alcohol may increase their risk of breast cancer slightly. However, this should be considered in conjunction with any potential benefit of moderate alcohol intake on other conditions (such as heart disease) and adverse effects associated with excessive alcohol intake.

Smoking

- Women should be advised not to smoke, in line with current health advice.

Weight and physical activity

- Women should be advised of the probable increased postmenopausal risk of breast cancer associated with being overweight.
- Women should be advised about the potential benefits of physical exercise on breast cancer risk.

Menstrual/reproductive factors

- Healthcare professionals should be able to provide information on the effects of hormonal and reproductive factors on breast cancer risk.

Implementation

NICE has developed tools to help organisations implement this guidance (listed below). These are available on our website (www.nice.org.uk/CG041).

- Costing tools:
  - costing report to estimate the national savings and costs associated with implementation
  - costing template to estimate the local costs and savings involved.

The original costing report and costing template for NICE clinical guideline 14 can be found on the NICE website (www.nice.org.uk/CG041).

Further information

Ordering information

You can download the following documents from www.nice.org.uk/CG041

- The quick reference guide (this document) – a summary of the recommendations for healthcare professionals.
- 'Understanding NICE guidance' – information for patients and carers.
- The NICE guideline – all the recommendations.
- The full guideline – all the recommendations, details of how they were developed, and summaries of the evidence they were based on.

For printed copies of the quick reference guide or 'Understanding NICE guidance', phone the NHS Response Line on 0870 1555 455 and quote:

- N1130 (quick reference guide)
- N1131 ('Understanding NICE guidance').

Related guidance

For information about NICE guidance that has been issued or is in development, see the website (www.nice.org.uk).

- Paclitaxel for the adjuvant treatment of early node-positive breast cancer. *NICE technology appraisal guidance* no. 108 (September 2006). Available from www.nice.org/TA108
- Docetaxel for the adjuvant treatment of early node-positive breast cancer. *NICE technology appraisal guidance* no. 109 (September 2006). Available from www.nice.org/TA109
- Trastuzumab for the adjuvant treatment of early-stage HER2-positive breast cancer. *NICE technology appraisal guidance* no. 107 (August 2006). Available from www.nice.org/TA107
- Guidance on the use of trastuzumab for the treatment of advanced breast cancer. *NICE technology appraisal guidance* no. 34 (2002). Available from www.nice.org/TA034
- Guidance on the use of capecitabine for the treatment of locally advanced or metastatic breast cancer. *NICE technology appraisal guidance* no. 62 (2003). Available from www.nice.org/TA062
- Guidance on the use of vinorelbine for the treatment of advanced breast cancer. *NICE technology appraisal guidance* no. 54 (2002). Available from www.nice.org/TA054
- Guidance on the use of taxanes for the treatment of breast cancer. *NICE technology appraisal guidance* no. 30 (2001). Available from www.nice.org/TA030
- Improving outcomes in breast cancer. *NICE cancer service guidance* (2002). Available from www.nice.org.uk/csgbc

NICE is in the process of developing the following guidance (details available from www.nice.org.uk):

- Early breast cancer: diagnosis and treatment. *NICE clinical guideline* (publication expected July 2008)
- Advanced breast cancer: diagnosis and treatment. *NICE clinical guideline* (publication expected July 2008)
- Gemcitabine for advanced/metastatic breast cancer. NICE technology appraisal guidance (publication date to be confirmed).

Updating the guideline

NICE clinical guidelines are updated as needed so that the results of new research can be put into practice. We check for new evidence 2 and 4 years after publication, to decide whether all or part of the guideline should be updated. If important new evidence is published at other times, we may decide to do a more rapid update of some recommendations.

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