

Early Detection and Management of Breast Symptoms

National Guideline for
Primary Care Doctors & Family Physicians



**National Cancer Control Programme
Ministry of Health
Sri Lanka**

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The Message from Secretary of Health

Non-communicable diseases (NCDs) have gradually replaced communicable diseases as the dominant health problem in the country, and have become the leading causes of morbidity, mortality, and disability. Therefore, Ministry of Health has prioritized policies, strategies and activities related to prevention and control of NCDs in Sri Lanka. A series of actions are being carried out at national and provincial levels to combat NCDs.

Cancer, one of the major components in NCDs, will become an increasingly important condition in the burden of diseases in the future. It is evident by the increment of cancer incidence in Sri Lanka from 31.6 in 1995 to 70.9 in 2006 per 100,000 population. Furthermore, neoplasms were the second commonest cause of death of all the hospital admissions in 2007.

Most common sites for cancer in Sri Lanka are breast among females and oral cavity in males. Hence, it is imperative that strategies for early detection, diagnosis and treatment of breast cancer should be strengthened in the country. Ensuring early detection of breast cancer would lead to better treatment outcomes such as breast conservative surgery and higher survival rates, minimizing patient suffering with more effective treatment outcomes.

While appreciating the hard work of all the experts who actively participated in this activity, it is expected that medical officers would use this information for optimal management of breast symptoms at the primary care level and timely referral for specialized care.

Dr. Y.D. Nihal Jayathilaka

Secretary

Ministry of Health



The Message from Director General of Health Services

Breast cancer is the leading cancer among women worldwide, as well as in Sri Lanka. Women are routinely screened for breast cancer by performing clinical breast examination at well women clinics and educating women on breast self-examination as the current strategy in detecting breast cancer early. Therefore updating the guideline for primary care medical officers on early detection of breast cancer is a timely need as the Ministry of Health is strengthening primary care for better delivery of health care at grass root level.

This guideline provides information on how to assess a woman with symptoms of the breast and when and where to refer if the symptom is suspicious of a malignancy. This guideline has been developed and revised by a multidisciplinary panel composed of experts from different fields. Recommendations in the guidelines are based on evaluation of evidence from clinical trials that are published in the medical literature.

I would like to thank the National Cancer Control Programme for initiating this activity and the panel of experts who enormously contributed in the development of this guideline.

Dr. Palitha G. Mahipala

Director General of Health Services

Ministry of Health



Message from Deputy Director General of Health Services (Medical Services 1)

Cancer is an important factor in the Sri Lankan burden of disease. Breast cancer is the most common cancer in women and a leading cause of cancer mortality in Sri Lanka. Breast cancer does not strike an individual alone but the whole family unit. The impact of breast cancer is therefore profound on both the woman diagnosed with the disease and her family.

Although the aetiology of breast cancer is unknown, numerous risk factors may influence the development of this disease including hormonal, socio-demographic, genetic, environmental and psychological factors.

Over the past years, in spite of increased incidence of breast cancer, the survival has been improved. Advances in technology, especially in detection and treatment methods, are in part responsible for this improved survival. The high incidence and mortality rates of breast cancer, as well as the high cost of treatment and limited resources availability, indicate that it should continue to be a focus of attention in policy-making.

One of the effective methods of addressing the burden of breast cancer includes early detection as well as timely referral. I hope this guide will support in detecting breast cancer early by updating the knowledge of primary care medical officers.

Dr. Lakshmi C. Somatunga

Deputy Director General (Medical Services I)
Ministry of Health



Preface

Director, National Cancer Control Programme

The commonest neoplasm among Sri Lankan adults is breast cancer, as evident by its age- standardized rate of 10.8 cases per 100,000 population reported in 2006. With reference to females, this rate was almost double at 20.6 per 100,000 female population, accounting for the highest percentage of cancer (27%) among females. Furthermore, age-standardized incidence rate for breast cancer has risen from 1985 to 2006.

It is shown that around 50% of breast cancer patients in Sri Lanka are diagnosed at a late stage, hence the morbidity, mortality and cost of treatment per patient is extremely high. According to the cancer mortality data, breast cancer had the highest age standardised mortality rate among female cancers being 4.7/100,000 in year 2006.

Early detection of breast cancer greatly increases the chances for successful treatment. Promoting awareness among women in recognizing possible warning signs of cancer and taking prompt action leads to early diagnosis. Hence strengthening capacities of primary care medical officers on early detection of breast cancer and timely referral will have a great impact on the disease.

In order to achieve the above objective, revising the existing national guideline which was developed by the Ministry of health in 2007 was a timely need. Therefore, the first edition of the guide for primary care doctors and family physicians was developed and published in 2012. The second edition of this guideline has been prepared with the opinion of experts in breast cancer including consultant onco-surgeons, pathologists, oncologists, primary care medical officers and other public health staff.

I hope this guide will help the primary care medical officers to upgrade their knowledge on assessing females presenting with breast symptoms and referring them for further management in order to detect breast cancer early.

Dr Neelamani Paranagama

Director

National Cancer control Programme

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CHAPTER ONE

Introduction

1.1 Global and Sri Lankan situation of breast cancer

Breast cancer is the commonest cancer among women all over the world, and it is the commonest cancer among women in Sri Lanka as well. It accounted for 27% of all newly diagnosed cancers among females in Sri Lanka in 2006 (Figure 1.1). There is an increasing incidence of breast cancer over the past 15 years (Figure 1.2).

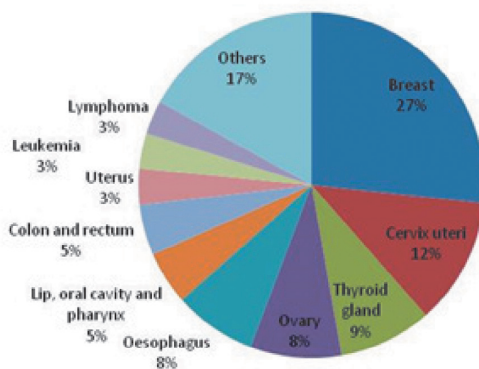


Figure 1.1- Newly diagnosed cancers among Sri Lankan Females in 2006

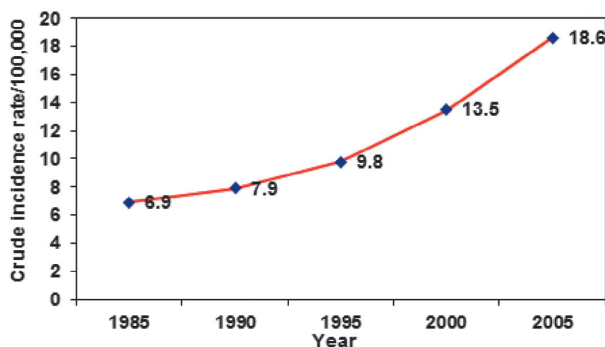


Figure 1.2- Cancer incidence among Sri Lankan women over 1985-2005

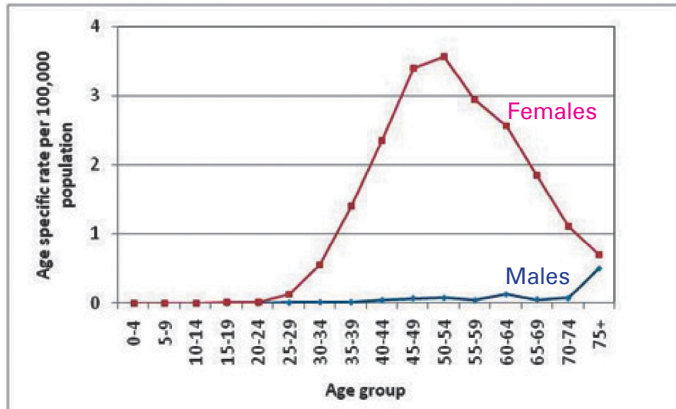


Figure 1.3- Incidence of breast cancer in Sri Lanka by age and sex, in 2006

Females have a 100 times higher risk of getting breast cancer than males (female: male = 100:1)

1.2 Women with high risk for breast cancer

Women with following risk factors are at a higher risk of developing breast cancer:

- a past history of breast cancer/breast condition
- a family history of breast or ovarian cancers
- infertility
- first child birth after 35 years
- low parity
- not breast fed or breast fed only for a short period
- High before 11 years
- menopause after 55 years
- use of oral contraceptive pills 5 years or more (slight increase in risk)
- obesity after menopause
- High consumption of animal fats
- consumption of less fruits and vegetables
- less exercise/sedentary life style
- consumption of more alcohol
- active or passive smoking
- past exposure to radiation

1.3 Clinical features of breast cancer

Breast cancer does not show any clinical features during early stages. Clinical features appear only with the advancement of the cancer. These clinical features include;

- Skin changes of the breast
- Color changes of the breast



- Change in the shape of the breast



- Dimpling/Indurations of the breast



- Pseudo orange appearance of breast (orange peel)



- Ulcer (wound) over the breast
- Asymmetry of recent onset of the breast (Inequalities of size which is there from the very early days is not a sign of breast cancer)
- Nipple change or nipple discharge other than breast milk



- Breast lump or thickening of the skin over the breast
- Axillary or cervical lumps (lymph nodes)

Presence of above features do not always indicate the presence of a breast cancer.

1.4 Importance of early detection of breast cancer

If breast cancer is detected at an early stage, it can be cured by applying appropriate intervention early. If a breast cancer is detected at a late stage, it is difficult to achieve a complete cure.

1.5 Methods of early detection of breast cancer

Following methods are available for early detection of breast cancer in Sri Lanka.

- Clinical breast examination by a health care worker
- Breast self examination
- Mammography and/or Ultrasound Scan

CHAPTER TWO

Early Detection of Breast Cancer

2.1 Health education on breast self examination

Breast self examination is the Inspection and palpation of the breast by the woman herself. The role of the primary health care physician is to provide necessary information regarding this to women and to make them competent in breast self examination.

2.1.1 Information that should be provided to the woman

- **Need for breast self examination**

If breast cancer is detected early, it can be cured completely. A practice of breast self examination on monthly basis is very important for early detection of breast cancers.

- **Frequency of carrying out the breast self examination**

This should be carried out once a month by all women over 20 years of age.

- **Date for conduction of breast self examination**

This should be conducted on a fixed date every month. It is better to conduct this, one week after the start of menstruation. If she is not menstruating, a fixed date in every month should be used.

- **Place and postures to conduct breast self examination**

A woman can use any place that suites her. It can be conducted in a lying down, sitting or a standing position or while bathing.

2.1.2 Instructions to be given to the woman on steps of breast self examination

Breast self examination has two components:

1. Inspection
2. Palpation

Inspection

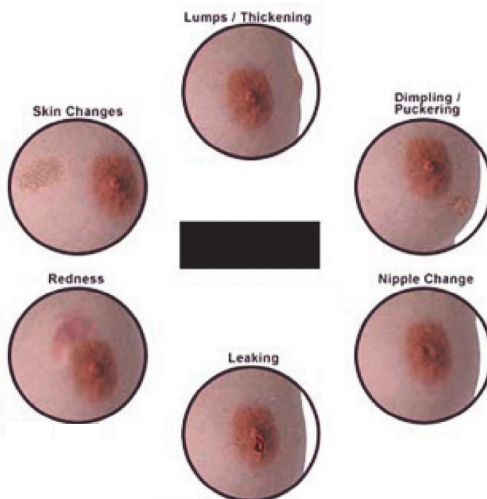
Stand in front of the mirror exposing the chest up to the waist. Observe the breasts for the following changes while keeping the arms in positions shown in picture 2.1(1. arms hanging by the side, 2. hands pressed on the waist, 3. arms lifted above the head)



Picture 2.1

Clinical features of the breast cancer

- * Skin changes of the breast
- * Color changes of the breast
- * Change in shape of the breast
- * Orange peel (Pseudo orange) appearance of breast
- * Ulceration on the breast
- * Late occurrence of breast asymmetry (usually both breasts are not of equal size. Therefore, a long standing breast asymmetry is not a sign of a cancer)
- * Nipple change/discharge other than breast milk (Having inverted nipples from birth is not a sign of a cancer)
- * Breast lump or thickening of the breast skin
- * Lumps in the arm pit or around the neck

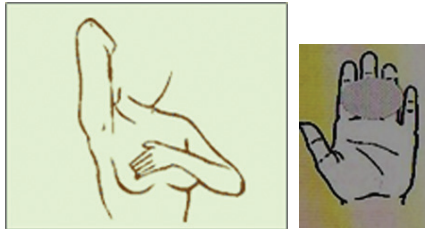


Picture 2.2

Palpation

As shown in the picture 2.3 palpate the breast using fingers for any increase in thickness or lump. Use the palmer surfaces of the fingers (flat surface of the three middle fingers) but do not use the finger tips.

- ❖ This can be conducted in a sitting/lying down/standing or bathing position



Picture 2.3

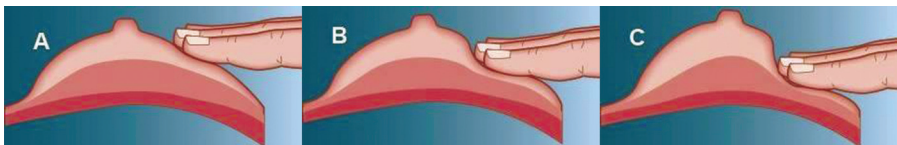
- ❖ On examining right breast, lift the right upper arm and palpate the right breast using the left hand (Picture 2.3).

While examining the left breast lift the left upper arm and palpate the left breast using the right hand

- ❖ As shown in picture 2.4, continue palpating the breast in a clockwise direction from outside of the breast towards the nipple. Start with applying 'minimal' pressure as indicted in picture 2.5 (to feel the area just beneath the skin) and then gradually increase the pressure (to feel the tissue deeper within)

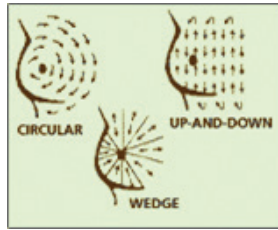


Picture 2.4



Picture 2.5

- ❖ After examining the breast in the circular direction, examine it in the up and down direction and in wedges as shown in picture 2.6.



Picture 2.6

- ❖ Then examine the arm pit (Picture 2.7)



Picture 2.7

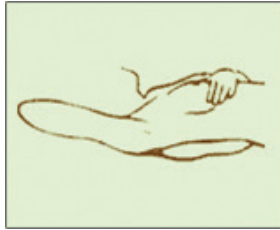
- ❖ Finally as shown in the picture 2.8 find out whether there is a nipple discharge using thumb and first finger to squeeze the areola.



Picture 2.8

- ❖ Use the same technique to examine the other breast.
- ❖ If breast self examination is conducted in a lying down position, follow the following procedure. For the right breast examination, keep a flat pillow under right shoulder and keep the right palm beneath the head (picture 2.9) and palpate the breast using the left hand.

For the examination of the left breast keep a pillow under the left shoulder and keep the left palm under the head and examine with the right hand.



Picture 2.9

2.1.3 What to do after breast self examination?

If any abnormality is detected during breast self examination, it is necessary to consult a doctor. It is important to note that all the changes in the breast are not cancers.

National recommendation for breast self-examination:
All women should practice breast self examination once a month from 20 years of age.

2.2 Clinical breast examination (CBE)

Clinical breast examination is used as a method of early detection of breast lesions as well as a component in triple assessment in diagnosing breast cancer

A detailed history and thorough clinical examination provide important information on which, further investigations would be based on.

2.2.1 Clinical history

Relevant history includes details of breast symptoms.

Breast Lump	<ul style="list-style-type: none">• Site - constant or changing• Duration - when and how first noted• Any changes since first noted• Relationship to menstrual cycles or exogenous hormones• Associated symptoms
Breast Pain	<ul style="list-style-type: none">• Site - constant or changing / Unilateral or bilateral• Cyclical or acyclical• Duration - when and how first noted• Any changes since first noted• Relationship to menstrual cycles or exogenous hormones• Associated symptoms
Nipple discharge or change in appearance	<ul style="list-style-type: none">• Duration - when and how first noted• Any changes since first noted• By lateral or unilateral• From single duct or multi-duct

Previous breast problems

Previous breast investigations

Most recent imaging - date and results (screening or diagnostic)

Biopsy results - FNAC/ Histology

Risk factors - History should be taken on the risk factors mentioned in Page 9 under 1.2

The following categories of woman with a strong family history should be referred to a surgical unit or breast clinic

1. One first degree relative diagnosed with breast cancer < 40 years
2. Two first or second – degree relatives on the same side of the family diagnosed with breast and ovarian cancer at any age.
3. Three family members on the same side of the family with breast cancer < 70 years
4. Four family members on the same side of the family with breast cancer at any age
5. Breast and ovarian cancer combination within the same side of the family. (A single person with a breast and ovarian cancer fulfils this criterion. Breast and ovarian cancer combination diagnosed in 4 or more relatives on the same side of the family is associated with a very high risk of the presence of a germ line cancer predisposing gene.)
6. First degree relatives with bilateral breast cancer
7. First degree relatives with male breast cancer < age 60 years
8. Family members with rare a cancer syndromes
e.g. Li- Fraumeni

Hormone replacement therapy (HRT) - Women over the age of 50 years should be discouraged to be on HRT unless with severe post menopausal symptoms (WHO recommendation).

Any woman with a family history of breast cancer should not take HRT. If HRT has to be started for severe post menopausal symptoms, it should be given for a period not exceeding 2 years. These women should be given special attention for early detection of breast cancer, preferably they should undergo a screening mammography.

2.2.2 Steps of clinical breast examination (CBE)

CBE should be done in a covered room with good light in the presence of a female chaperone.

Explain the purpose and the procedure of CBE to the woman

Inspection

The breasts should be observed in each of the following sitting positions: (1) arms relaxed at her side, (2) arms raised over her head and (3) hands placed on the hips and pushing inward (contraction of the pectoralis major muscle).

The breasts should be inspected from the front and from each side (include frontal and lateral views) in step 1 - 3 in page 19

Pay particular attention to:

- Breast size, contour, shape, symmetry
- Skin changes such as erythema, dimpling, tethering or puckering, peau d'orange, eczematous skin changes, visible lumps
- Nipple - position height, any inversion, retraction, erythema, eczema, nodules, ulceration, discharge

Step 1 -

Position with arms at side for inspection



Step 2 -

Position with arms overhead for inspection



Step 3 -

Position with hands on hips and leaning forward for inspection



Palpation

The ability to identify breast cancers by palpation is influenced by the characteristics of the tumour, surrounding breast tissue, the position of the lesion in the breast, proper positioning of the patient, thoroughness of the search, the area covered and use of a consistent pattern of search.

During the process of palpation, the patient should be asked whether she is comfortable or the pressure is causing any discomfort.

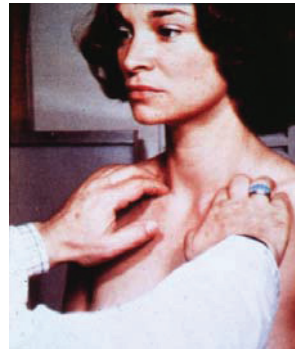
Palpation of Regional Lymph Nodes

The regional lymph nodes should be palpated while the woman is in the sitting position. These lymph nodes include the supraclavicular, infraclavicular and axillary nodes.

Step 4 - Palpation of axillary lymph nodes



Step 5 - Palpation of supra and infra clavicular lymph nodes



Palpation of breasts

Step 6 – Positioning the female for palpation

For the palpation of the breasts, the woman should be placed in the supine position. Help the female to lie supine.

Place ipsilateral arm overhead.

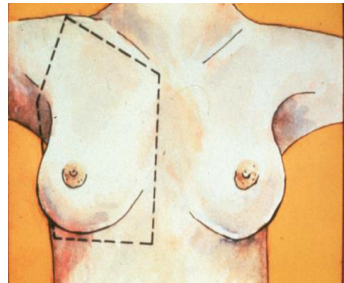
A flat pillow positioned under the shoulder may assist in examining the outer quadrants of a large breast

Step 7 – Positioning the breast towards the midline

Centralize the breast (manually or with a towel or a flat pillow under the shoulder) towards the midline. The non-examining hand may be used to immobilize a large breast. When examining a woman who has identified a palpable abnormality during breast self-examination, ask her to point with one finger exactly where she feels the abnormality. (Examiner should start palpation of normal breast first)

Step 8 – Identifying the perimeter of breast

Perimeter of breasts should be noted during clinical breast examination. Anatomically, breast tissue extends superiorly from the second rib or clavicle, medially to the lateral border of the sternum, inferiorly to the sixth rib, and laterally to the latissimus dorsi muscle.



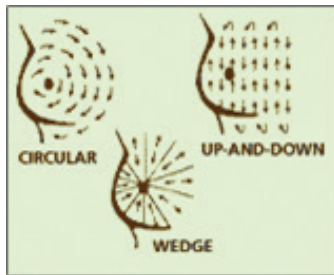
Step 9 – Palpation technique

To palpate the breast tissue, the examiner should use the pads of the middle 3 fingers, using overlapping dime-sized circles.

The entire breast tissue should be palpated using 3 different levels of pressure -- light, medium, and deep -- to examine the different depths of the breast tissue.

(Picture 2.5)





There are 3 typical patterns used to palpate the breast: the circular technique, the wedge technique and the vertical strip technique.

Note that the circular method does not always cover the entire perimeter of the breast unless a conscious effort is made to do so.

The woman should be asked to squeeze areola region of the nipple to see whether there is any nipple discharge. Nipple discharge that occurs only with nipple or breast stimulation is a normal physiologic function.

The same steps (steps 6-9) should be repeated for the opposite breast

Breast symptoms management at primary care

(1) Breast lump

All women with breast lumps should be referred to a surgical unit or breast clinic.

(2) Breast pain (Mastalgia)

Cardiac pain and chest wall pain should be clearly differentiated from the history. History should clearly differentiate whether the pain is arising from the chest wall or it is cardiac pain.

Mastalgia (especially unilateral noncyclical mastalgia) should be referred to a surgical unit.

(3) Nipple discharge

Single duct discharge, unilateral of whatever color, should be referred to a surgical unit.

Bilateral milky discharge: Assess FSH/LH/Prolactin levels.

Abnormal- should be referred to a surgical unit.

Normal- Reassure the patient.

Purulent discharge: Do culture/ABST and start appropriate antibiotics.

If there is no response within one week, refer to a surgical unit.

(4) Skin and nipple changes

Women with suspicious breast skin and nipple changes of breast should be referred to a surgical unit.

(5) Axillary mass

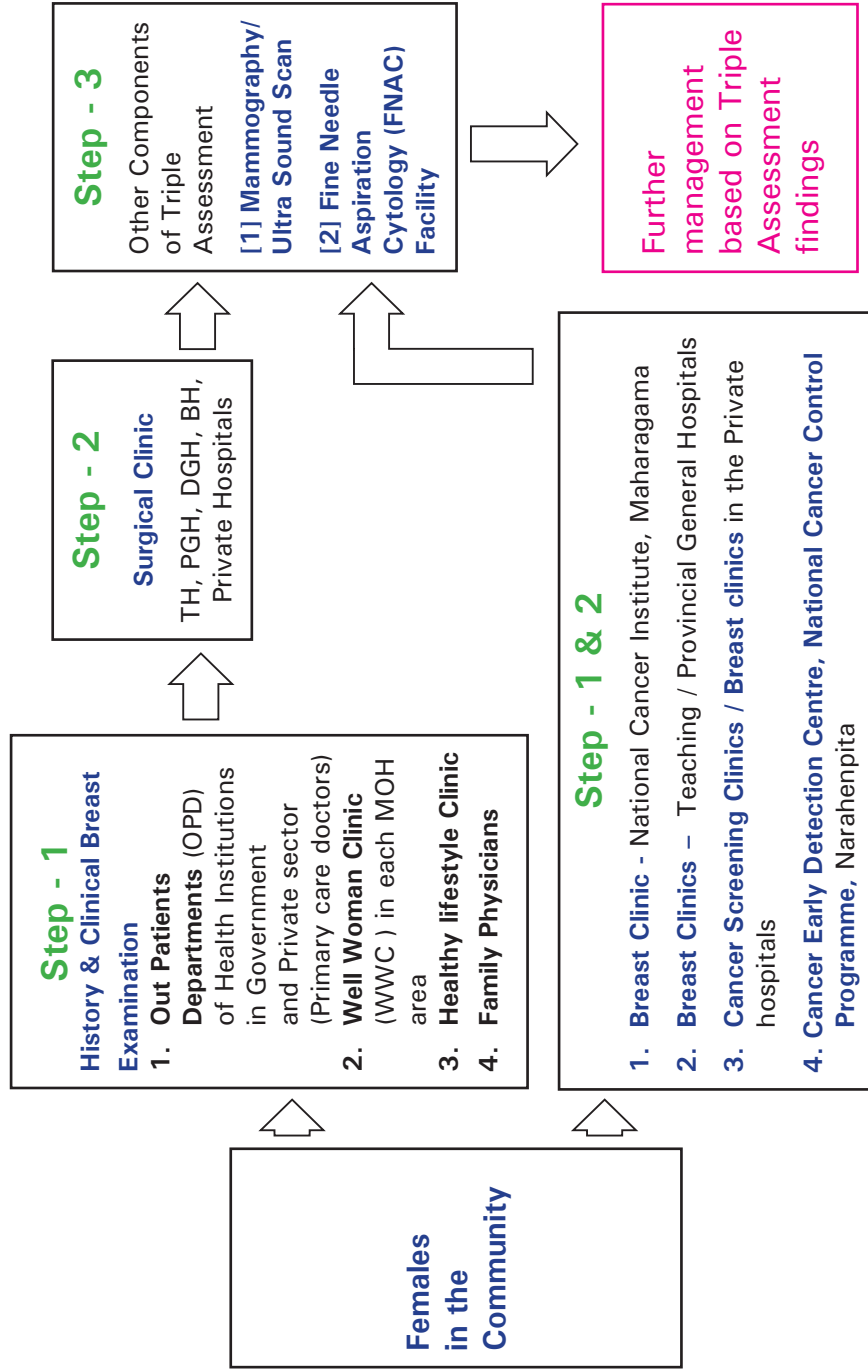
All axillary masses should be referred to a surgical unit

(6) All other complaints – Mastitis, sinuses etc

All should be referred to a surgical unit

If any abnormality is detected during clinical breast examination, suggesting of a breast pathology, do not indicate to the woman that she has a cancer as the diagnosis has to be confirmed by conducting other components of triple assessment and diagnosis will be confirmed at the next level of care.

Referral Pathway



Recommendations

- Presenting complaint and all the risk factors should be documented in the clinic file / Bed Head Ticket
- Any breast lump should be considered as a cancer, until proven otherwise in a woman over 35 years.
- Attention should be paid to benign conditions such as nipple discharge and mastalgia as they could precede the symptoms of a cancer.
- All women with above presentations should be referred within one week to a surgical clinic.
- All women with above risk factors should be referred within one month.
- If a ' Specialized Breast Clinic ' is available, could be referred directly to those clinics. (The breast clinic is a dedicated clinic for breast problems. The clinic is conducted by a team led by a Consultant Surgeon or a Consultant Oncosurgeon. Medical & nursing staff are specially trained in providing services for breast problems. In addition breast clinics have made arrangements for timely access for radiological and pathological laboratory services for triple assessment.)
- No surgery should be done on the breast unless supervised or authorized by a Consultant Surgeon / Consultant Oncosurgeon.

2.3 Mammography and ultrasound scan

These investigations are used in breast cancer screening as well as a component of triple assessment in diagnosing breast cancer

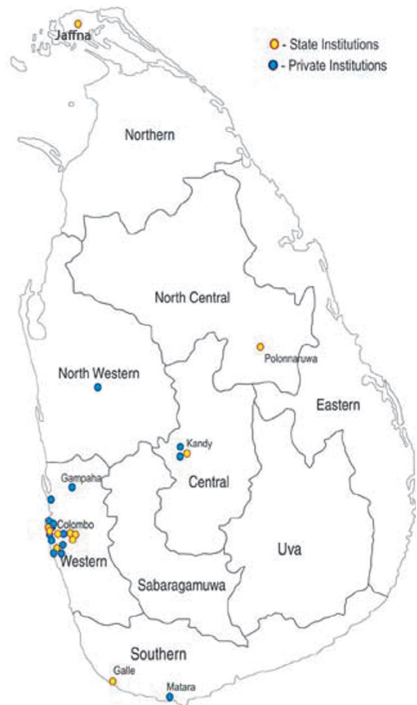
- Mammography and the ultrasound scans are used for imaging of breast lesions.
- The sensitivity of mammography increases with increasing age. Sensitivity is improved with the addition of ultrasound over all ages especially in women under the age of 40 years.

- Ultrasound is more sensitive than mammography in the detection of cancer in younger women.

Distribution of mammography machines in Sri Lanka

Availability in the State Sector		
Province and District	Place	No. of Machines
Western - Colombo	NHSL	02
	Narahenpita (NCCP)	01
	Maharagama (NCI)	03
	CSTH Kalubowila	01
Southern - Galle	TH Karapitiya	01
Central - Kandy	TH Kandy	01
North Central - Polonnaruwa	DGH Polonnaruwa	01
Northern - Jaffna	TH Jaffna	01
Total		11

Availability in the Private Sector		
Province and District	Place	No. of Machines
Western - Colombo	Sri Jayawardenapura	01
	Pvt Hospitals in Colombo city limits	07
	Pvt Hospital (Gampaha)	01
	Pvt Hospital (Wattala)	01
	Pvt Hospital (Matara)	02
	Pvt hospital	02
North West - Kurunegala	Pvt Kurunegala	01
Total		15



Recommended screening protocol

- Breast self examination should be conducted once a month by all women starting from age of 20 years.
- Clinical breast examinations (CBE) are recommended every 3 years for all women from the age of 20 to 40. For women aged 40 or over, CBEs are recommended annually.
- In women whose relatives developed breast or ovarian cancer under the aged of 40 years, annual clinical breast examination should be started 5 years before the index case.
- Breast self examination should be taught and

- reinforced at every consultation.
- From age 50 – 69 years, screening mammography is offered once in every 2 years if the woman requests it.(Can be adopted only when adequate mammography facilities are available throughout the country)
 - Screening mammography or ultrasound scan in every 12 months from 35 years can be offered for woman with a strong family history of breast and ovarian cancers.
 - For women younger than 35 years, ultrasound scan should be offered instead of mammography
 - Any male with breast symptoms should be referred to a surgical clinic

Diagnosis at the tertiary care level

- ❖ Diagnosis of a breast cancer is made at the tertiary care level
- ❖ It is diagnosed by the Triple assessment
- ❖ Triple Assessment refers to three diagnostic components
 - Medical history and clinical breast examination
 - Imaging - mammography and or ultrasound scan
 - Non excision biopsy - Fine needle aspiration cytology (FNAC) and or cone biopsy

The sensitivity of the triple assessment is greater than any of the individual component alone.

The triple assessment is positive, if any component is indeterminate, suspicious or malignant, and they will need further follow up at a specialist centre.

Annex I

Hereditary Breast Cancer

Dr. Nirmala Sirisena, Dr. Niluka Dissanayake and Prof. Vajira H. W. Dissanayake

Department of Anatomy, Faculty of Medicine, University of Colombo

Breast cancer is the commonest cancer among Sri Lankan women, accounting for approximately 27% of all female cancers. Although all cancers are genetic, only some are hereditary. Five to ten percent of breast cancers have a strong hereditary component due to highly penetrant germ-line mutations in autosomal dominant cancer predisposition genes, while 10–15% are familial due to a combination of multiple low penetrant genes and shared environmental/lifestyle risk factors.

Genetically determined breast cancer syndromes

- Hereditary breast and ovarian cancer syndrome (HBOC) – BRCA1 and BRCA2 genes [OMIM 604370, 612555]
- Cowden syndrome (multiple hamartoma syndrome) – PTEN gene.[OMIM 158350]
- Li-Fraumeni syndrome - TP53 and CHEK2 genes.[OMIM 151623]
- Peutz-Jeghers syndrome - STK11 gene. [OMIM 175200]
- Ataxia-telangiectasia - ATM gene. [OMIM208900]

OMIM – Online Mendelian Inheritance in Man: <http://www.ncbi.nlm.nih.gov/omim>
GeneReviews – BRCA1 and BRCA2 Hereditary Breast and Ovarian

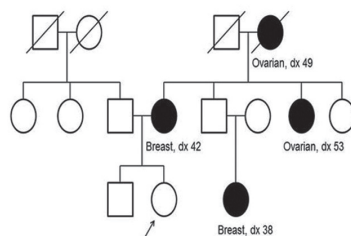
Cancer : <http://www.ncbi.nlm.nih.gov/books/NBK1247/>

Identifying hereditary breast cancer

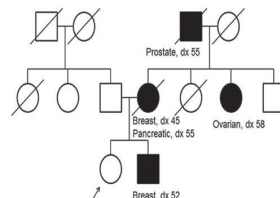
The key to identifying individuals who are at risk for a hereditary predisposition to breast cancer lies in obtaining and analyzing a complete and accurate three-generation **family history** (pedigree).

Pedigrees should include detailed medical history of the person seeking consultation (who may or may not be a person affected with breast cancer at the time of consultation), as well as their first-, second- and third-degree maternal and paternal relatives (i.e. children, parents, siblings, grandparents, aunts,

Classic BRCA1 Pedigree



Classic BRCA2 Pedigree



uncles, nephews, nieces and first cousins).

The pedigree should document the type and primary site of cancer, bilaterality, age at diagnosis and the current age or, if deceased, the age at death for each affected individual as well as information about other family members. Confirmation of cancer diagnosis through review of medical records, pathology reports or death certificates of family members will be useful in families where the verbal history appear to be unreliable.

When to refer patients for a genetic consultation?

Referral for genetic counselling and testing for individualized cancer risk assessment should be offered to patients who meet any of the following “hereditary breast cancer” criteria:

- Multiple cases of breast and/or ovarian cancer in the family occurring in two or more close relatives:
 - Two 1st degree, or one 1st and one 2nd degree relative with breast cancer <60 yrs and/or ovarian cancer at any age on the same side of the family.
 - Three or more family members (1st or 2nd degree) with breast or ovarian cancer on the same side of the family, any age.
- Patient or 1st degree relative with breast cancer <40 yrs, with or without family history.
- A family member with bilateral breast cancer.
- A family member with both breast and ovarian cancers.
- A family member with primary cancer in both breasts if one or both cancers diagnosed before age 50 years.
- A family member with male breast cancer.
- A family member with ovarian cancer.
- A family history with characteristic combinations of cancers.
- Diagnosis of a hereditary breast cancer syndrome in a family member.
- A family member with an identified BRCA1 or BRCA2 mutation.

(First degree relatives - parents, children, siblings; Second degree relatives - grandparents, grandchildren, aunts/uncles, nephews, nieces, half-siblings; Third-degree relatives - first-cousins, great grandparents, great grandchildren).

Predictive Cancer Genetics Steering Committee (PCGSC). Ontario physicians' guide to referral of patients with family history of cancer to a familial cancer genetics clinic. Toronto, ON: Ontario Medical Association; 2001.

Available at: www.oma.org/pcomm/OMR/nov/01genetics.htm.

All recommendations are level 2A evidence-based with uniform PCGSC consensus.

Genetic counselling for hereditary breast cancer

Genetic counselling allows individuals an opportunity to learn how heredity contributes to cancer risk, understand their personal risk of developing cancer, understand their options for managing their cancer risk and

encourages adoption of risk-reducing behaviors that are appropriate for them. All those undergoing genetic testing should be offered pre-test and post-test counseling.

Pre-test counseling is a process that includes discussion of personal risks of cancer based on the family history, the possible outcomes of genetic testing, including benefits, risks, limitations of testing and obtaining informed consent prior to testing.

Post-test counseling is a process in which the genetic test results and their significance are discussed, and medical management is reviewed, including screening and treatment options.

Other matters to be discussed during counselling include: privacy and confidentiality of genetic information; potential insurance, employment and social discrimination; adverse psychological reactions; and sharing test results with relatives.

Although *BRCA1* and *BRCA2* mutations are inherited in an autosomal dominant manner, their expression depends on acquiring a second mutation in the normal *BRCA1* or *BRCA2* gene in somatic cells. Although children of mutation carriers are at 50% risk of inheriting the mutation, the age of onset of their cancer is difficult to predict. It is important therefore to explain the difference between inheriting the mutation and development of the cancer to those seeking genetic counseling to help them understand the meaning of a positive test result and discuss with them the estimated lifetime risk of cancer for *BRCA1* and *BRCA2* mutation carriers given below:

Table 1- Estimated lifetime risk for developing cancer in *BRCA1* and *BRCA2* mutation carriers.

Type of Cancer	Lifetime risk for developing cancer	
	<i>BRCA1</i>	<i>BRCA2</i>
Breast cancer before age 50 years	50%	28%
Breast cancer to age 70 years	50-85%	50-85%
Ovarian cancer to age 70 years	40-60%	10-20%
Male breast cancer	Slight increase	6%
Prostate cancer	Slight increase	Slight increase
Pancreatic cancer	No increase	1.5-5%
Melanoma	No increase	Slight increase

Daly MD: National Comprehensive Cancer Network (NCCN) v.1.2010. Genetic/Familial High-Risk Assessment: Breast and Ovarian in Clinical Practice Guidelines in Oncology.
All recommendations are level 2A evidence-based with uniform NCCN consensus.

Genetic testing

Genetic testing for *BRCA1* and *BRCA2* mutations are available in Sri Lanka. Testing is done on DNA extracted from peripheral venous blood.

The steps involved in genetic testing:

- Test an affected family member FIRST after providing pre-test counseling and obtaining written informed consent.
- If a mutation is found, then other family members, including those who are not affected, can be tested for that mutation.
- If a mutation is not found, consider testing other genes.
- Always provide post-test counseling.

Benefits of genetic testing:

- Clarify risks of cancer.
- Identify individuals who are at increased risk who could benefit from increased cancer surveillance, or measures to decrease risk.
- Identify individuals who may not be at increased risk.

Implications of a positive test result:

- Clinical intervention can improve outcomes e.g. risk reduction mastectomy reduces risk of breast cancer and salpingo-oophorectomy reduces risk of ovarian and breast cancer (in premenopausal women).
- Family members at risk can be offered testing and identified.
- Healthy life styles can be reinforced.

Implications of a negative test result:

- Reassures the individual and their family members.

Management

The options described below are available for managing the increased cancer risk in BRCA1 and BRCA2 mutation carriers:

Cancer surveillance:

- Monthly breast self-examination starting at the age of 20 years.
- Annual clinical breast examination by trained primary health care worker from five years before the index case
- Annual mammogram/magnetic resonance imaging surveillance beginning at the age of 35 years, or 5 years earlier than the earliest breast cancer diagnosis in the family.
- Ovarian surveillance if BRCA1 or 2 mutation positive or family history of ovarian cancer
[Pelvic exam, trans-vaginal ultrasound, CA-125 once or twice a year starting at the age of 25 years.]

Prophylactic surgery:

- Prophylactic bilateral total mastectomy
-up to 90% reduction in breast cancer risk.
- Prophylactic bilateral salpingo-oophorectomy
-up to 95% reduction in ovarian cancer risk.
-up to 50% reduction in breast cancer risk.

Chemoprevention

- Tamoxifen/Raloxifene - selective estrogen receptor modulators reduce cancer risk in BRCA2 carriers (still questionable in BRCA1 carriers).

Horsman D, Wilson BJ, Avar D et al., on behalf of the National Hereditary Cancer Task Force (NHCTF). Clinical Management Recommendations for Surveillance and Risk-Reduction Strategies for Hereditary Breast and Ovarian Cancer Among Individuals Carrying a Deleterious BRCA1 or BRCA2 Mutation. J Obstet Gynaecol Can 2007; 29(1):45-60.

All recommendations are level 2A evidence-based with uniform NHCTF consensus.

WHERE TO REFER PATIENTS FOR GENETIC CONSULTATIONS:

Human Genetics Unit,
Faculty of Medicine,
University of Colombo,
Kynsey Road,
Colombo 08

Telephone: 0112689545
email: office@hgucolombo.org

Working hours: 08:00am – 04:00pm (Mondays to Fridays)

Annex II

Psychological Considerations in the Management of Breast Symptoms

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For a vast majority, the possibility of a diagnosis of cancer is a very real fear. In considering the emotional upheaval that this fearsome disease arouses, it is essential that doctors take the utmost interest in uplifting the psychological status of their patients who present with 'suspicious' breast symptoms and/or a diagnosis of breast cancer. This section gives you some psychological aspects that we recommend you consider in the management of breast symptoms.

Psychological aspects when motivating women to do regular breast self examinations (BSE)

- We are aware that a majority of Sri Lankan women are not informed of the need for regular BSE. Hence, It is the duty of her doctor to inform her of this necessity.
- In notifying a woman of this necessity, it is important that the doctor gives her clear information (i) about what a cancer is, (ii) what breast cancer is, (iii) that the prognosis is good if cancer is detected early, (iv) the need for regular BSE, (v) what indicators to look out for when doing so, (vi) how to do the BSE, and (vi) the need to immediately inform the doctor if any suspicious indicators are detected.
- When giving the above information, be focused and serious but do not evoke undue fear as the latter may actually prevent the woman doing the BSE. You have to balance your approach.

Psychological aspects when motivating women to do regular clinical breast examinations (CBE)

- Being a traditional culture, many Sri Lankan women would feel uncomfortable when the necessity of doing a CBE is presented to her. Even when done so by a female doctor.
- Hence, the doctor should be careful when introducing the need for a CBE. Give the woman clear information on the necessity to do this and inform her that it would be done by a female doctor. This latter aspect may make her comfortable with the idea.
- When introducing the need for a CBS, be focused and serious but do not evoke undue fear as the latter may actually prevent the woman in getting the CBE done.

- When doing the CBE, keep your facial expression and body posture friendly, relaxed and neutral. Even if anything suspicious is detected, do not show any worry. This point is essential. Do not in anyway indicate to the woman that you are worried about the findings. As this may affect her psychological health and make her worried prematurely and unnecessarily. But also, do not seem casual if you indeed detect anything suspicious as this may not motivate her to go onto do further investigations. You have to keep your attitude in balance.

Psychological aspects when referring the woman for further investigations

- The manner in which you do the referral for further investigations, after finding anything suspicious at the CBE, should be done delicately. You should not raise undue worry in the woman. Nor should you appear casual, as if the referral is a routine one, as the woman may interpret that there is nothing to worry about her condition.
- Communicate to the woman in a clear, focused and gentle manner that you need her to do some further investigations. You could inform her that it is part of the routine care process, but you must also be firm when you say so as some women may not go on to do the further investigations.
- Inform the woman clearly where she needs to go to in order to do these routine investigations. And, give her an appointment for her to come back to you once these investigations are done. This latter aspect is intended to bind the woman to come back to you. This means that there is a higher chance that she will do these investigations.

Psychological aspects if a diagnosis of cancer is made

- If the woman comes to you with a diagnosis of a malignancy, she would then already know about the process she needs to follow in her course of treatment. Or, you may need to inform her of this.
- There will be an enormous amount of emotional disturbance the woman would feel at this stage. This is normal and is to be expected. Her life will be in shatters now. As her doctor, you need to give her kind hearing ear to her feelings about her unexpected condition. Of course this may take up a considerable amount of your time. However, it is essential that you devote your time to this process, nevertheless. For, we know that talking about ones fears and worries, particularly with a trustworthy and knowledgeable doctor is very therapeutic.

- If you feel that you are not inclined to talking with the woman about her diagnosis, try to develop empathy. One of the best ways to develop empathy is to consider if you were the one with the diagnosis and if so how you may be feeling at that moment.
- When talking to the patient, encourage and give her hope for the future. Site examples of those whom you know who had gone on towards 'recovery'.
- In the event that the prognosis is not that good, it is important not to inculcate undue hope but also not to make the patient despair. In this situation, a listening ear, by the doctor is a must and maybe the only solace the woman may have.
- At all cost, avoid developing guilt in the woman. Do not tell her what she should have done (e.g. that she should have done the CBE much earlier on in life) that could have minimized her diagnosis. Blaming and developing guilt does not help anyone, and especially not a woman with e breast cancer.

Kindness and compassion are essential requisites in a doctor. A doctor so endowed would be a pillar of strength to a patient. This is particularly so when it comes to the domain of cancer. Your approach to the patient would make a vast difference in her life. By being kind and compassionate towards the patient, it is not only she who would benefit, so will you. By being kind and compassionate towards those whom you serve will uplift you and make your life more meaningful, the goal that all of us human beings strive for.

Annex III

Management of Breast Cancer at tertiary care level

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1. Diagnosis

The diagnosis is based on clinical, radiological and pathological examinations. Clinical examination includes bimanual palpation of the breasts and loco-regional lymph nodes. Radiological examinations include bilateral mammography and ultrasound of the breasts (and regional lymph nodes depending on local expertise). Magnetic resonance imaging (MRI) of the breast is not needed as a routine procedure, but may be considered in cases involving diagnostic challenges arising, for example, because of dense breast tissue especially in young women or where multiple tumour foci are suspected, in particular with lobular breast cancer. Pathological diagnosis should be based on core needle biopsy obtained by manual, or preferably by ultrasound or stereotactic, guidance. A core needle biopsy (or, if that is not possible, at least a fine needle aspiration indicating carcinoma) must be obtained before any surgical operation. If preoperative chemotherapy is anticipated, a core needle biopsy is preferred. Final pathological diagnosis should be made according to the World Health Organization (WHO) classification and the tumour-node-metastases (TNM) staging system analysing all tissue removed.

2. Staging and risk assessment

Patient-related staging assessment includes complete personal medical history, family history relating to breast/ovarian and other cancers, physical examination, full blood count, liver and renal function tests, alkaline phosphatase and calcium. Assessing the menopausal status is imperative [if in doubt by measuring serum oestradiol and follicle-stimulating hormone (FSH) levels].

Preoperative disease-related staging includes clinical TNM staging, pathological examination of the core needle biopsy with a pathologist's report on histological type and grade, needle cytology of axillary nodes if involvement is suspected clinically or on ultrasound, and determination of oestrogen receptor (ER), progesterone receptor (PgR) and HER2 receptor status. Alternatively, these biological markers can be assessed on the definitive surgical specimen if primary systemic therapy is not planned.

If preoperative (neoadjuvant) systemic therapy is planned, additional investigations such as chest X-ray, abdominal ultrasound or CT scan and bone scintigraphy should be considered to exclude metastatic disease. These investigations are also recommended for patients with clinically positive axillary nodes, large tumours (e.g. >5 cm) or clinical signs, symptoms or laboratory values indicating the presence of metastases, even if preoperative systemic treatment is not planned.

The postoperative pathological assessment of the surgical specimen should be made according to the pTNM system to include: number, location and maximum diameter of tumours removed, the total number of removed and number of positive lymph nodes, and the extent of metastases in the lymph nodes. The report should also include histological type and grade of the tumour, evaluation of the resection margins including the location

and minimum distance of the margin, vascular and lympho-vascular invasion; immunohistochemical evaluation of ER, PgR and HER2 receptor expression.

3. Treatment by disease stage

Multidisciplinary treatment planning involving at least a breast surgeon, radiologist, pathologist, and medical and radiation oncologists should be used.

3.1 Surgery:

About two-thirds of newly diagnosed cancers are amenable to breast conservation (wide local excision and radiotherapy), but in the remaining third mastectomy is still recommended because of larger tumour size, or tumour multifocality / multicentricity, and prior radiation to the chest wall or breast.

3.1.1 Breast conservation surgery (BCS):

For patients undergoing wide local excision, greater emphasis is now placed on achieving acceptable cosmesis. Newer volume displacement techniques using adjacent breast tissues, have allowed surgeons to get a wider clearance maintaining an acceptable cosmesis. Newer oncoplastic procedures such as therapeutic mammoplasty (breast reduction at the same time as wide local tumour excision) can achieve better cosmetic outcomes in patients with large breasts. Postoperative radiotherapy is strongly recommended after BCS.

3.1.2 Mastectomy:

European treatment guidelines recommend that breast reconstruction should be available to those women requiring mastectomy. Immediate reconstruction in some women can make the prospect of losing a breast easier to accept, but not all women will be suitable for immediate reconstruction. When post-mastectomy radiation therapy is anticipated, some women will be advised against immediate reconstruction as there is a possibility of flap sinkage with radiation. Skin-sparing and nipple sparing mastectomy allows the skin envelope to be conserved for use in the breast reconstruction.

3.1.3 Advances in axillary staging:

Regional lymph node status remains the strongest predictor of long-term prognosis in primary breast cancer. Sentinel lymph node biopsy (SLNB) rather than full nodal clearance is now accepted as the safe procedure of care for axillary staging in early breast cancer, unless axillary node involvement is suspected clinically or on ultrasound.

SLNB delivers less morbidity in terms of shoulder stiffness and arm swelling, and allows for reduced hospital stay.

The presence of macrometastatic spread in the sentinel node traditionally mandates conventional axillary lymph node clearance. Axillary clearance is associated with lymphedema affecting the upper limb in 3–5% of women following surgery alone, but the incidence of lymphedema rises significantly to 40% when axillary clearance is combined with radiotherapy to the axilla. Women who have undergone axillary clearance are advised to avoid cannulation, venesection and blood pressure monitoring in the ipsilateral arm, and to start antibiotic treatment promptly

for potentially infected wounds on the ipsilateral arm. Once established, lymphedema should be treated by trained therapists using a combination of compression bandaging, manual lymphatic drainage and graduated compression garments.

3.1.4 Surgery for in situ malignancy (intraepithelial neoplasia):

Ductal carcinoma in situ (DCIS, ductal intraepithelial neoplasia) may be treated with BCS providing clear resection margins can be achieved (margins < 1 mm are considered inadequate). Adjuvant breast irradiation after BCS decreases the risk of local recurrence but has no effect on survival. Total mastectomy with clear margins in DCIS is curative, and radiation therapy is not recommended. Axillary node evaluation with SLNB is not required with in situ malignancy but may be reasonable in the context of large tumours requiring mastectomy or tumours in the tail of the breast. Lobular neoplasia (formerly called lobular carcinoma in situ, LCIS), unlike DCIS, is considered a non-obligate precursor to invasive cancer and is best regarded as a risk factor for future development of invasive cancer in both breasts. The pleomorphic variant of lobular neoplasia may behave similarly to DCIS and should be treated accordingly.

3.1.5 Risk-reducing mastectomy:

Risk-reducing surgery with prophylactic bilateral mastectomy and reconstruction (with or without oophorectomy) may be an option for women at very high risk, such as those with previous chest wall irradiation for lymphoma or carrying the BRCA1 or BRCA2 gene mutations. The lifetime risk of breast cancer in a BRCA1 carrier is 80–85%, with a 60% chance that the cancer will be bilateral. The risk for both subsequent breast cancer incidence and mortality is reduced by 90–95%, but surgery cannot guarantee prevention of developing breast cancer in the future. In addition, mutations in BRCA 1 and BRCA 2 account for around 15% of ovarian cancers overall. Careful genetic assessment and psychological counselling is mandatory before undertaking such surgery.

3.1.6 Surgery after primary systemic therapy

Down-sizing of a large unifocal primary tumour with neoadjuvant therapy will allow BCS to be undertaken in some patients who would at presentation have otherwise required mastectomy. With multifocal disease, or where the primary tumour size reduction is more limited, mastectomy will still be required. Breast MRI is the most accurate modality for assessing the extent of residual disease following neoadjuvant treatment.

3.2 Radiation therapy:

3.2.1 Invasive carcinoma:

3.2.1.1 Radiation therapy after BCS: Whole breast radiotherapy

Postoperative radiotherapy is strongly recommended after BCS. Whole breast radiotherapy reduces the risk of local recurrence by two-thirds and an additional boost gives a further 50% risk reduction. Furthermore, radiotherapy has a beneficial effect on survival. In patients >70 years of age who have endocrine-responsive invasive breast cancer with maximum stage pT1N0 and clear margins, it may be possible to omit radiation therapy without compromising survival.

3.2.1.2 Accelerated partial breast irradiation (PBI) only

PBI is an attractive approach to shorten the overall treatment time substantially. PBI is considered an acceptable treatment option in patients at least 50 years old with unicentric, unifocal node-negative non-lobular breast cancer up to 3 cm in size without the presence of an extensive intraductal component and lymphovascular invasion, and with negative margins of at least 2 mm.

3.2.1.3 Radiation after mastectomy

Postmastectomy radiotherapy (PMRT) is always recommended for patients with four or more positive axillary nodes, and indicated for patients with T3–T4 tumours independent of the nodal status. PMRT may also be considered in patients with 1–3 positive axillary lymph nodes in the presence of additional risk factors, such as young age, vessel invasion and low number of examined axillary lymph nodes.

3.2.2 Non-invasive carcinoma (intraepithelial neoplasia)

Adjuvant whole breast irradiation after BCS of DCIS decreases the risk of local recurrence but has no effect on survival. The decrease in risk of local recurrence by radiotherapy is evident in all subtypes of DCIS. However, in some patients with low-risk DCIS (tumour size < 10 mm, low/intermediate nuclear grade, adequate surgical margins), the risk of local recurrence following excision only is so low that omitting radiation may be an option. In ER-positive DCIS, Tamoxifen may be considered following BCS (with or without adjuvant radiation). Total mastectomy with clear margins in DCIS is curative, and radiation therapy is not recommended. In this group of patients Tamoxifen may also be considered to decrease the risk of contralateral breast cancer. Lobular neoplasia (formerly called LCIS) is a risk factor for future development of invasive cancer in both breasts; radiotherapy is not warranted, perhaps with an exception for the pleomorphic subtype.

3.3 Systemic therapy

3.3.1 Adjuvant systemic therapy

ER and HER2 status are the most relevant predictive factors for the choice of treatment modality. Tumours with any detectable expression of ER and/or PgR by IHC are considered hormone- receptor positive. Tumours with no detectable expression of ER and PgR are considered hormone receptor negative or endocrine non-responsive. Features indicative of uncertainty of endocrine responsiveness include low levels of steroid hormone receptor immunoreactivity, lack of PgR, poor differentiation, high proliferation markers, HER2 overexpression and high gene expression score results. In the absence of all these features, tumours are considered highly endocrine responsive.

Patients with tumours of different degrees of endocrine responsiveness may receive endocrine treatment alone, or a combination of chemotherapy and endocrine therapy. Patients with tumours of uncertain endocrine responsiveness are usually treated with a combination of endocrine therapy and chemotherapy.

Patients with endocrine-non-responsive tumours benefit from chemotherapy and should not receive endocrine therapy. In addition to endocrine therapy and chemotherapy, patients with tumours indicative of HER2 overexpression or amplification should be considered for adjuvant treatment with Trastuzumab and chemotherapy.

3.3.2 Endocrine therapy

Patients with tumours considered of high or uncertain responsiveness should be treated with endocrine therapy.

3.3.3 Chemotherapy

Adjuvant chemotherapy is recommended for patients with tumours of uncertain or absent endocrine responsiveness and for patients with HER2-overexpressing or amplified tumours. If both chemotherapy and endocrine therapy are indicated, chemotherapy should be started first followed by endocrine therapy.

3.3.4 Systemic adjuvant therapy for ductal intraepithelial neoplasia (DCIS)

Tamoxifen reduces the risk of invasive and non-invasive recurrences after breast-conserving resection of ER-positive DCIS but has no impact on survival.

3.3.5 Primary (neoadjuvant) systemic therapy

Primary systemic therapy is indicated for locally advanced breast cancer (stages IIIA–B) including inflammatory breast cancer and for large operable tumours for reducing tumour size in order possibly to perform BCS. Prior to primary systemic therapy, a core needle biopsy and complete pathological assessment (i.e. histological type, grade, ER, PgR and HER2 status) is essential. In addition, full clinical staging to rule out gross metastatic disease is recommended.

3.4 follow-up: ASCO GUIDELINE UPDATE

Breast Cancer Follow-Up and Management after Primary Treatment: American Society of Clinical Oncology Clinical Practice Guideline Update
Key Recommendations

- Regular history, physical examination, and mammography are recommended
- Examinations should be performed every 3 to 6 months for the first 3 years, every 6 to 12 months for years 4 and 5, and annually thereafter
- For women who have undergone breast-conserving surgery, a post-treatment mammogram should be obtained 1 year after the initial mammogram and at least 6 months after completion of radiation therapy (whichever the longest); thereafter, unless otherwise indicated, a yearly mammographic evaluation should be performed
- Use of CBCs, chemistry panels, bone scans, chest radio-graphs, liver ultrasounds, computed tomography scans, magnetic resonance imaging, or tumour markers (carcinoembryonic antigen, CA 15-3, and CA 27.29) is not recommended for routine breast cancer follow-up in an otherwise asymptomatic patient with no specific findings on clinical examination.

Annex IV

In the fight to win against lymphoedema in breast cancer

Dr.Kosala Muthukumarana MD
National Cancer Control Programme

Background and objectives

Despite the improvement in early detection and management, there is a significant morbidity related to breast cancer in Sri Lanka. Upper extremity lymphoedema is one of the main complications responsible for this morbidity. Lymphedema is the physical manifestation of inadequate lymph flow leading to tissue swelling. Fluid transport is impaired primarily by removal of lymphatic channels and nodes during resection of tumour and nodal sampling, resulting in accumulation of protein-rich fluid in the interstitium. The stagnant fluid can lead to progressive changes in the tissue and places the limb at risk for infection.

Primary care physicians provide care for most survivors of breast cancer in many areas of Sri Lanka. The overall goal of this article is to offer insight into the confidence in their abilities to manage lymphoedema in evidence based manner.

Symptoms of lymphoedema

- Fullness, tightness or heaviness in an extremity,
- Inability to wear rings, bracelets or other jewellery,
- Clothing feeling tight
- Altered sensation.

Assessment of lymphoedema

Preoperative, bilateral upper extremity function should be assessed to provide a baseline

Simple circumferential tape measurements (Pre-and postoperative). Circumferential measurements should be taken at 4 points:

- the metacarpal-phalangeal joints,
- the wrists,
- 10 cm distal to the lateral epicondyles, and
- 12 cm proximal to the lateral epicondyles (Harris SR, 2001).

A difference of more than 2.0 cm at any of the 4 measurement points may warrant treatment of the lymphedema, provided that tumour involvement of the axilla or brachial plexus, infection, and axillary vein thrombosis have been ruled out (Harris SR, 2001). Patients with less of a measurement difference between their extremities (pre-clinical lymphedema) may also benefit from skilled therapy interventions as well, especially if they present with reduced range of motion, strength, and/or functional limitations.

Treatment for lymphoedema

Complete Decongestive Therapy (CDT) is the main treatment for lymphedema. Experts who treat lymphedema consider CDT as the “gold standard” of treatment (Mayrovitz, 2009),

Components of CDT

- Manual lymph drainage (MLD)
- Multi-layer, short-stretch compression bandaging
- Lymphatic exercise
- Skin care
- Education in lymphedema self-management and elastic compression garments.

Manual lymph drainage (MLD)

MLD is a light, skin technique performed by certified lymphedema therapists designed to improve fluid removal from congested areas where the lymphatics are not working properly and into lymph vessels and lymph nodes that are functioning (McNeely, 2004).

Lymphatic exercise

With lymphedema, specific exercise is beneficial for all patients. Although heavy activity may temporarily increase fluid load, appropriate exercise enables the person with lymphedema to resume activity while minimizing the risk of exacerbation of swelling. For people who have lymphedema, compression garments or compression bandages must be worn during exercise to counterbalance the build-up of interstitial fluid (Schmitz, 2009)

Considerations for designing an exercise program:

- Allowing adequate rest intervals between sets
- Avoiding weights that wrap tightly around an extremity or clothing that causes constriction.
- Wearing compression sleeves or bandages during exercise
- Maintaining hydration
- Avoiding extreme heat or overheating

Skin and nail care

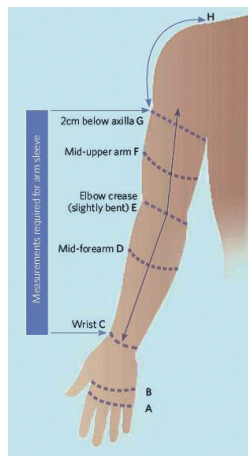
Thorough hygiene is recommended to decrease the infection on the skin. Low pH moisturizers will help to keep skin from drying and cracking. Damage to skin can result in infections and wounds which might lead to cellulites. Generally, injections, vaccinations, venipuncture, and intravenous access in the axillary-dissected upper extremity have been contraindicated (Susan R. Harris, 2012).

Bandaging

The patient should receive two bandages at a time for each affected body part: one to wear and one to wash and dry. Having two bandages ensures that the patient does not wear a dirty or wet garment which promotes bacterial or fungal infection. Properly-fitted bandages are essential for long-term control of lymphedema. It should be washed daily so that they will be long lasting.

How to measure the compression garment:

Begin by relaxing the arm and resting it on a table, bending it slightly to create a small bend in the elbow. The arm should not be completely straight, or fully bent. Hold measuring tape around the wrist, going over the ulnar styloid process on the outside. Pull tape to the point of gentle tension; there should be no slack, but do not pull so hard that the tape creates an indentation and write down this measurement. Next, move the measuring tape up the arm so that it goes around the area of the forearm that is directly between the wrist and the elbow crease (mid-forearm, D). Use



the same amount of gentle tension and record the measurement. Take measurement at elbow crease. Finally, bring the measuring tape to the upper part of the arm, halfway between the elbow and the armpit (mid-upper arm F). If there is extra skin here, gather it together as much as possible and hold the tape a bit tighter so that all the skin is encircled evenly. Take final circumferential measurement 2 finger widths (2cm) below the axilla. The length measurement is taken along the inside of the arm from the wrist to 2cm (2 finger widths) below the axilla (G) to determine whether a short, standard or longer length garment is required. Measure from G to outside of bra strap, point H, for shoulder cap option. For an integrated hand piece without fingers, measure the hand at points A and B. According to the measurements taken choose the bandage size accordingly.

	B	C	D	E	F	G
SIZE(cm)	13-16	16-20	20-24	24-28	28-36	36-48
Wrist	small	medium	large			
Elbow		small	medium	large		
Ankle			Small/med	Med/large		
Knee			small	medium	large	X large
Thigh					small	medium

Patient education

Since lymphedema is a life-long condition, patient education in self-management is very important. To reduce the risk of developing lymphedema or having lymphedema worsen, all patients with lymphedema or at-risk for lymphedema should be instructed in essential self care.

References

- Harris SR, H.M.O.I., 2001. Upper extremity rehabilitation after axillary dissection for the treatment of breast cancer: clinical practice guidelines. *Crit Rev Phys Med Rehab*, 13(2-3), pp.91-103
- Mayrovitz, 2009. The standard of care for lymphedema: current concepts and physiological considerations. *Lymphat res biol*, 7, p.101.
- McNeely, M., 2004. The addition of manual lymph drainage to compression therapy for breast cancer related lymphedema. *Breast Cancer Res Treat*, 86, pp. 95-106.
- Schmitz KH, A.R.T.A.e.a., 2009. Weight lifting in women with breast-cancer-related lymphedema.. *N Engl J Med*, 361(7), pp.664-73.
- Susan R. Harris, K.H.S.M.L.M., 2012. Clinical Practice Guidelines for Breast Cancer Rehabilitation. *Cancer*, 118(8).

Model Referral Form for Specialist Care for a Breast Symptom

Name of the referring Primary Care Centre / Family Physician		Contact details of referring Primary Care Centre / Family Practice	
Name of the referral centre (Name of the Surgeon or Breast Clinic)		Date of referral	

Personal Details of the Patient

Name of the Patient		Address of the Patient	
Age	Sex	Marital status	

Clinical History

Presenting complaint

Breast lump Yes ☐ No ☐ Duration

Breast Pain Yes ☐ No ☐ Duration

Cyclical ☐ Acyclical ☐ Duration

Nipple Abnormality

Nipple discharge Yes ☐ No ☐ Duration

If yes Blood stained Yes ☐ No ☐ Duration

Recent inversion Yes ☐ No ☐ Duration

Rash Yes ☐ No ☐ Duration

Any other breast problem

Risk factor assessment

<input type="checkbox"/> Family History	Breast cancer	Yes <input type="checkbox"/> No <input type="checkbox"/>	Relationship
	Ovarian cancer	Yes <input type="checkbox"/> No <input type="checkbox"/>	Relationship
	Age at Menarche	(risk <11 years)
	Age at Menopause	(risk > 55 years)
<input type="checkbox"/> Endogenous estrogen exposure	Parity	(risk - nulliparity)
	Age at first pregnancy	(risk >35 years)
	OCP	Yes <input type="checkbox"/> No <input type="checkbox"/>	Duration
<input type="checkbox"/> Exogenous estrogen exposure	HRT	Yes <input type="checkbox"/> No <input type="checkbox"/>	Duration
	Detailed information		
<input type="checkbox"/> Previous breast disease		

Previous breast investigations

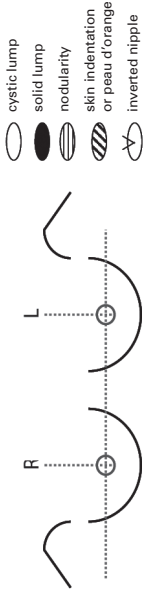
Investigation	Date	Finding
USS		
Mammography		
FNAC		

Other Medical history

Remarks

Clinical Examination Findings

Breast



General examination

Referral Note

Dr.
Consultant Surgeon / Consultant Oncosurgeon

Signature of the Medical Officer / Family Physician

STATEMENT OF INTENT

The main purpose of this guideline is to improve the quality of clinical care provided in the health institutions. This guideline is not intended to be construed (understood) or to serve as a standard of medical care. Standards of medical care are determined on the basis of all clinical data available for an individual case and are subject to change as scientific knowledge and technology advance and patterns evolve.

These parameters of practice should be considered recommendations only. Adherence to them will not ensure a successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgment regarding a particular clinical procedure or treatment plan must be made by the doctor in light of the clinical data presented by the patient and diagnostic and treatment options available.

