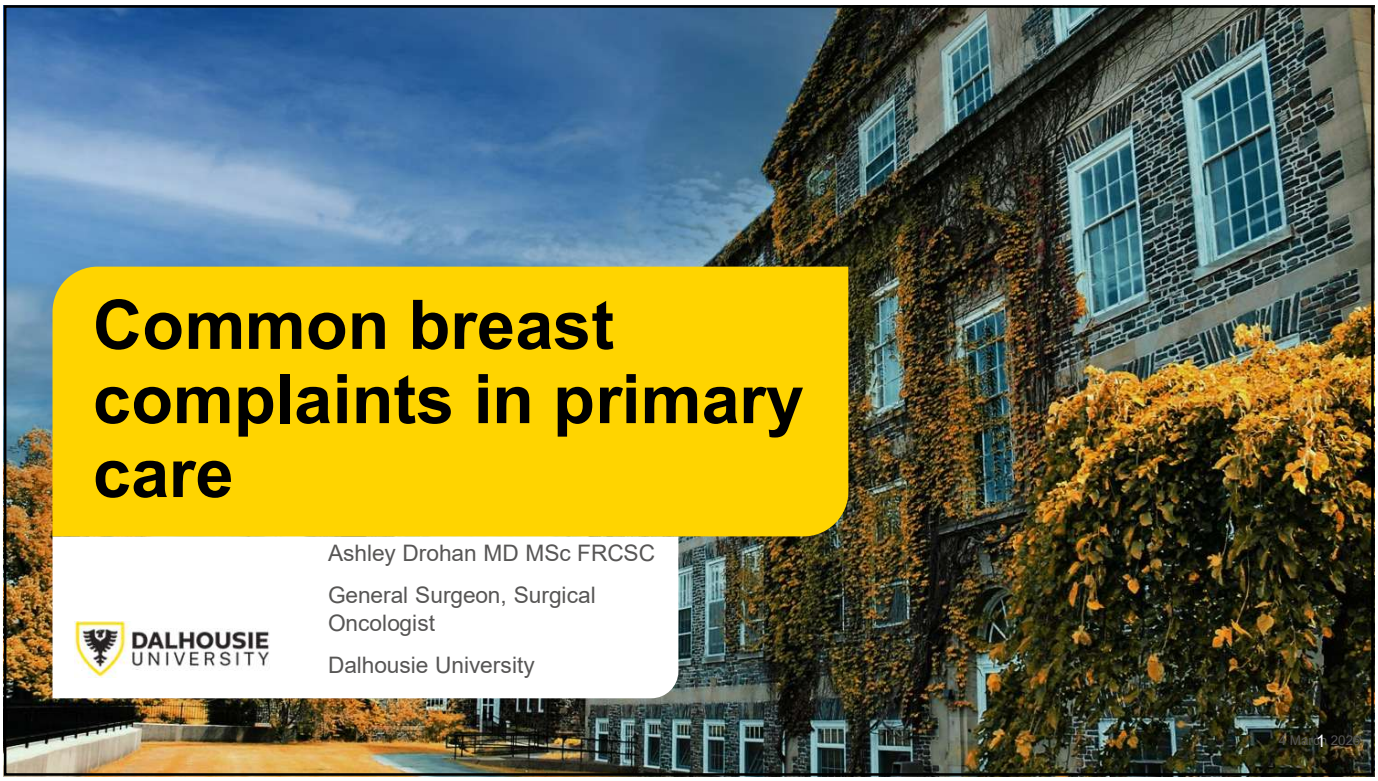

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Objectives

1. Review the clinical approach to common breast conditions including both benign and malignant conditions (*Medical Expert, Collaborator, Communicator)*
   - Including physical exam, initial investigations, indications for referral
2. Apply current breast cancer screening guidelines by age and risk-category (*Medical Expert, Communicator, Health Advocate)*
   - Including mammogram, MRI indications and share-decision making
3. Identify patients at increased hereditary risk for breast cancer (*Medical Expert, Collaborator, Leader)*

2

Conflicts of interest

I have no conflicts of interest to declare

3

Breast symptoms are common

- Approximately 3% of all visits by a female patient to family physicians are for breast symptoms[1]
- Most women with breast symptoms do **not** have breast cancer [2,3]
  - ~10% will have cancer. A breast mass has the strongest correlation
- Symptoms can cause significant patient anxiety
- Primary Care Physicians have an essential role in the management of patients with breast symptoms

4

Appropriate triage and workup is important

- Between 2018-2024, almost half (**45.3%**) of patients diagnosed with breast cancer in NS presented as a palpable mass[4]

- Wait times are increasing[4]
  - The time from diagnostic mammogram to first treatment has nearly **doubled** (49 to 86 days)
  - The time from core biopsy to surgery has increased from 41 to 63 days

5

Appropriate triage and workup is important

Median wait-time difference (95% CI) in days between 2018 and 2024 for Nova Scotian breast cancer patients diagnosed with non-metastatic breast cancer[4]

	Median (2018)	Median (2024)	Δ Median (2024-2018)	95% CI	p-value*
Mammogram to core biopsy	9.0	16.0	7.0	5.0 – 11.0	<0.001
Mammogram to first treatment[1]	49.0	86.0	37.0	26.0 – 43.0	<0.001
Core biopsy to surgery consultation	22.0	35.0	13.0	8.5 – 16.0	<0.001
Core biopsy to surgery	41.0	63.0	22.0	19.0 – 30.0	<0.001
Core biopsy to first treatment[1]	41.0	63.0	22.0	17.0 – 28.0	<0.001
Surgical consultation to surgery	15.0	28.0	13.0	7.0 – 16.0	<0.001
Surgery to radiation consultation[2]	35.0	77.0	42.0	33.0 – 49.0	<0.001
Surgery to medical consultation	39.0	58.0	19.0	14.0 – 25.0	<0.001
Surgery to first adjuvant treatment[3]	66.0	98.0	32.0	24.0 – 41.0	<0.001
Consultation to initial treatment[4]	15.0	28.0	13.0	6.0 – 15.0	<0.001

6

Appropriate triage and workup is important

SCREENING

90th | 50th

Community	Facility	Wait Time
Yarmouth	Yarmouth Regional Hospital	9 days
Amherst	Cumberland Regional Health Care Centre	14 days
Antigonish	St. Martha's Regional Hospital	26 days
Sydney	Cape Breton Regional Hospital	32 days
Bridgewater	South Shore Regional Hospital	46 days
Kentville	Valley Regional Hospital	51 days
Dartmouth	Dartmouth General Hospital	60 days
Halifax	Halifax Clinic - Halifax Shopping Centre	73 days
Lower Sackville	Cobequid Community Health Centre	74 days
New Glasgow	Aberdeen Hospital	117 days
Truro	Colchester East Hants Health Centre	144 days

Data Source: Nova Scotia Breast Screening Program
Data Period: October 1 - December 31 2025
Next Update: May 2026

DIAGNOSTIC

90th | 50th

Community	Facility	Wait Time
Amherst	Cumberland Regional Health Care Centre	23 days
Sydney	Cape Breton Regional Hospital	28 days
Yarmouth	Yarmouth Regional Hospital	28 days
Bridgewater	South Shore Regional Hospital	34 days
Kentville	Valley Regional Hospital	39 days
Truro	Colchester East Hants Health Centre	45 days
New Glasgow	Aberdeen Hospital	46 days
Antigonish	St. Martha's Regional Hospital	63 days
Halifax	IWK Health Centre	92 days

Data Source: Nova Scotia Breast Screening Program
Data Period: October 1 - December 31 2025
Next Update: May 2026

Appropriate triage and workup is important

- The time from presentation to PCP to diagnosis has not been measured, but also is likely increasing
- Many benign breast complaints can be safely managed in primary care setting
- Collaboration is key

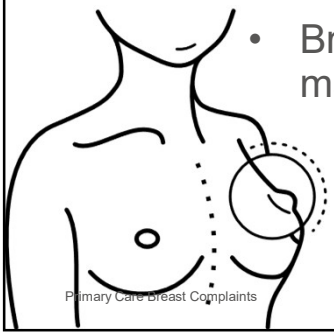
COMMON BREAST CONDITIONS

Objective 1

9

Breast mass

- Breast masses are common
- Age is highly associated with etiology with the risk of malignancy significantly increasing after the age of 40
- Breast cancer is the diagnosis of exclusion in **all** breast masses, regardless of age



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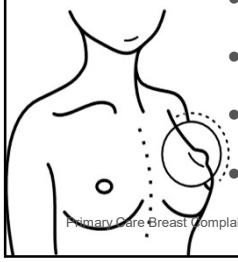
Breast mass differential diagnosis

- Breast cancer
- Fibroadenoma (<40 usually)
- Phyllodes (smooth, well circumscribed, rapid growth)
- Cyst (may fluctuate or get infected)
- Galactocele (lactating)
- Papillary lesion (may be associated with nipple discharge)
- Radial scar
- PASH
- Post op changes (fat necrosis, hematoma, scar)
- Fibrocystic change



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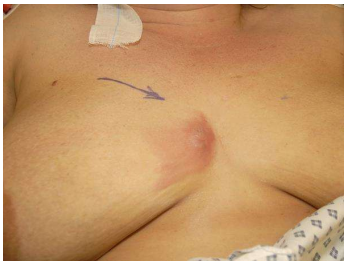
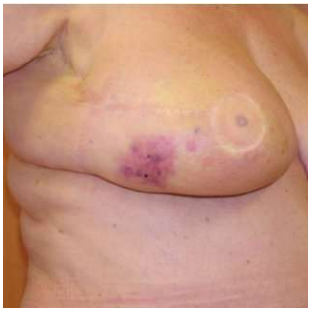
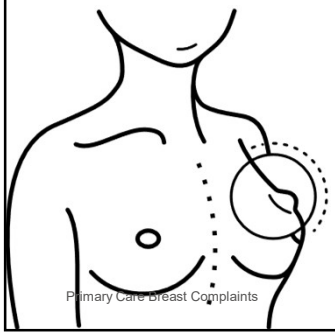
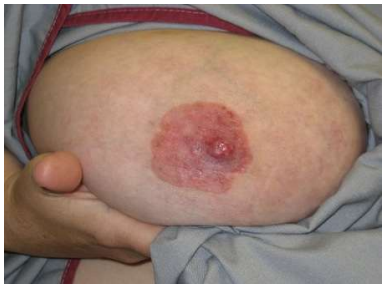
Breast mass differential diagnosis









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Approach to a Palpable Breast Mass

1) Clinical assessment
• Targeted history + exam
• Identify red flags & pregnancy/lactation

2) Imaging (age- & context-based)
<30: Ultrasound
30–39: Ultrasound ± diagnostic mammogram
≥40: Diagnostic mammogram + ultrasound
Pregnant/lactating: Ultrasound first (mammogram if indicated)

3) BI-RADS–guided next step
1–2: Reassure / clinical follow-up
3: Short-interval imaging follow-up (e.g., 6 months)
4–5: Core needle biopsy (image-guided)

4) Pathology disposition
Benign concordant: Routine screening / follow-up
High-risk lesion (e.g., atypia): Surgical referral
Malignancy: Urgent breast surgery / cancer program referral

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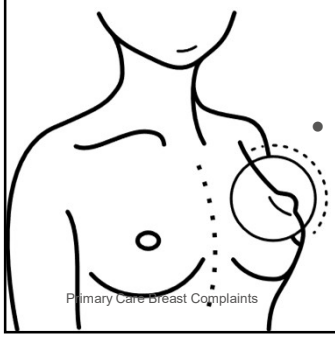
Breast mass

- All patients should undergo a clinical breast exam (CBE) including inspection, palpation of both breast and lymph node basin
- Patients are then referred for **diagnostic** breast imaging
- Staging investigations are not required unless confirmation of a locally advanced or metastatic breast cancer



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Breast mass

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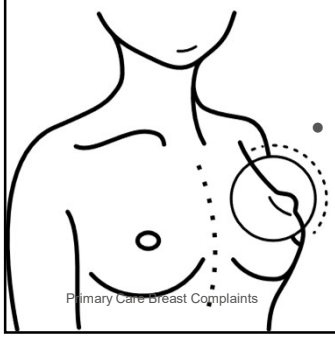

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Breast mass imaging referral NS

BREAST IMAGING REFERRAL

↓

Diagnostic mammogram

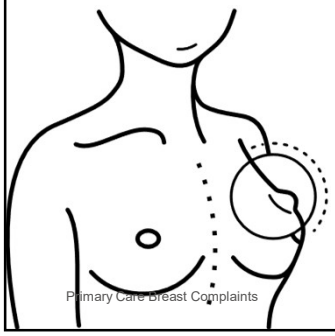
- Symptomatic at any age **OR;**
- Breast implants (asymptomatic) **OR;**
- Breast cancer survivor◊

Breast imaging requisition

- **PCP** faxes req. to 902-473-3959 or 1-866-470-3959

↓

- Appointment for additional breast imaging sent to **PCP**
- Patient notified of appointment



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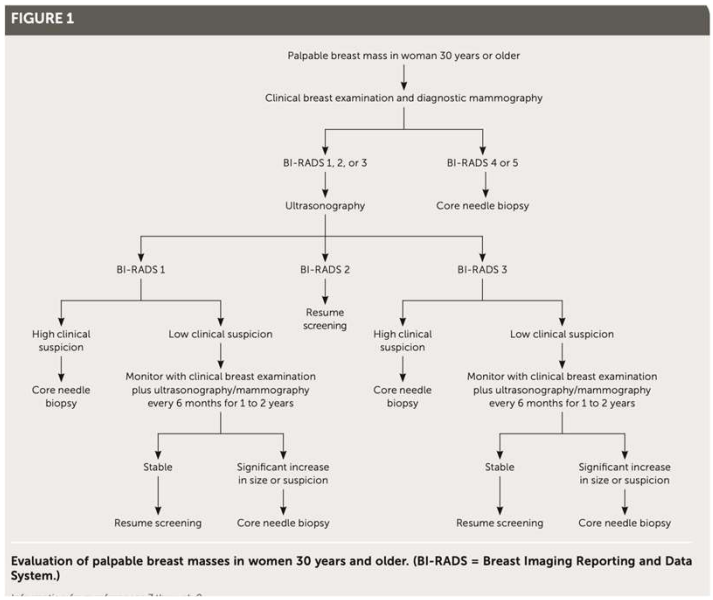
Breast mass in women 30 or older[6]



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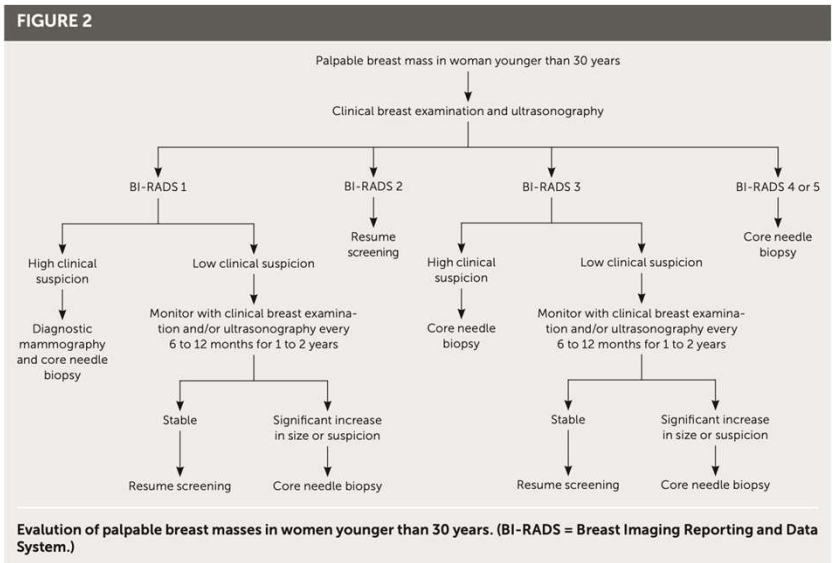
Breast mass in women under 30[6]



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BI-RADS

TABLE 1

BI-RADS Assessment Categories

BI-RADS category	Interpretation	Recommended management
0	Incomplete	Obtain additional imaging
1	Negative findings	Manage according to Figures 1 and 2; no additional imaging necessary unless high clinical suspicion
2	Benign findings	Resume routine screening
3	Probably benign findings (< 2% risk of cancer)	Short-interval follow-up according to Figures 1 and 2
4	Suspicious abnormality	Biopsy; referral to subspecialist
5	Highly suggestive of malignancy (≥ 95% risk of cancer)	Biopsy; urgent referral to subspecialist
6	Biopsy-proven malignancy	Ensure appropriate treatment

BI-RADS = Breast Imaging Reporting and Data System.

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Breast mass - Fibroadenoma

- Painless, solid benign breast tumor
- Most common between 14-35 age range
- Arise from stromal and epithelial **connective tissue**
- Sensitive to estrogen and progesterone
  - Can grow rapidly during pregnancy, or appear
  - Shrink after menopause
- Not associated with increased risk of invasive breast cancer (but CAN mimic Phyllodes tumor)

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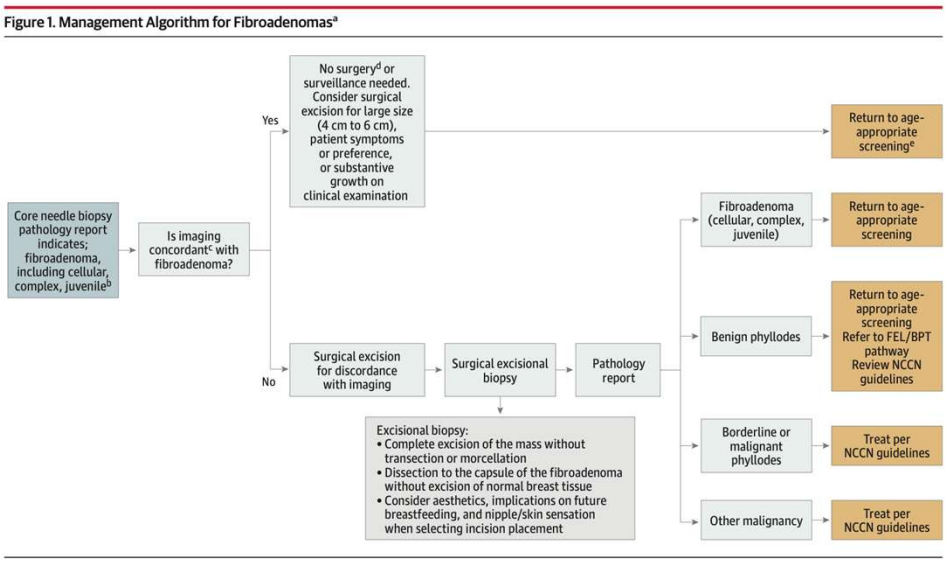
2025 ASBS Guidelines on Fibroadenoma[7]



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2025 ASBS Guidelines on Fibroadenoma[7]

- Routine excision is not recommended for patients with biopsy, proven, concordant FA
- Indications for excision
  - Patient preference, substantive growth on clinical exam, >4-6cm, atypia or discordant
- Patients with biopsy-proven, concordant FA do **not** require imaging follow-up and can return to age-appropriate screening

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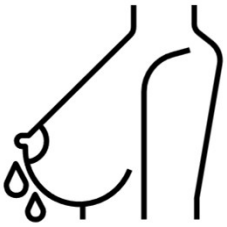
Nipple discharge

- Common symptom in women of reproductive age
- Most women will experience at some point in their lifetime[8]
- Vast majority is physiologic



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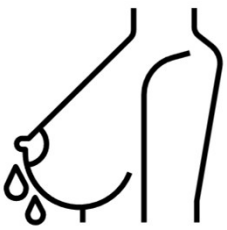
Worrisome (pathologic) Nipple discharge

- UNILATERAL
- BLOODY
- SPONTANEOUS
- INTRADUCTAL PAPILLOMA
- DCIS/Cancer
- DUCT ECTASIA*



* More common in perimenopausal women

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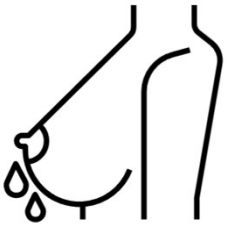
Practical tips to sort out

- Spontaneous = leakage on to bra/clothing/after shower when drying off, etc
- Spontaneous ≠ squeezing breast
- Ask patient for photo of color (rusty, greenish/brown can be interpreted as “bloody”)
- Try to elicit in office. If is not **not** reproducible then no intervention is required



- A single episode that has self resolved does usually not require any further workup or intervention
- Serous, spontaneous, unilateral discharge can be pathologic

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Pathologic nipple discharge workup

Canadian Association of Radiologists Breast Disease Imaging Referral Guidelines[9]

1. Females, at any age, with physiologic nipple discharge→ **no imaging**
2. Females <30 with non-physiologic nipple discharge →targeted US of retroareolar region
3. Females ≥ 30 with non-physiologic nipple discharge→ mammo/tomo+targeted US of retroareolar region
   - If negative→ MRI or ductography
   - If all imaging negative, surgical consult

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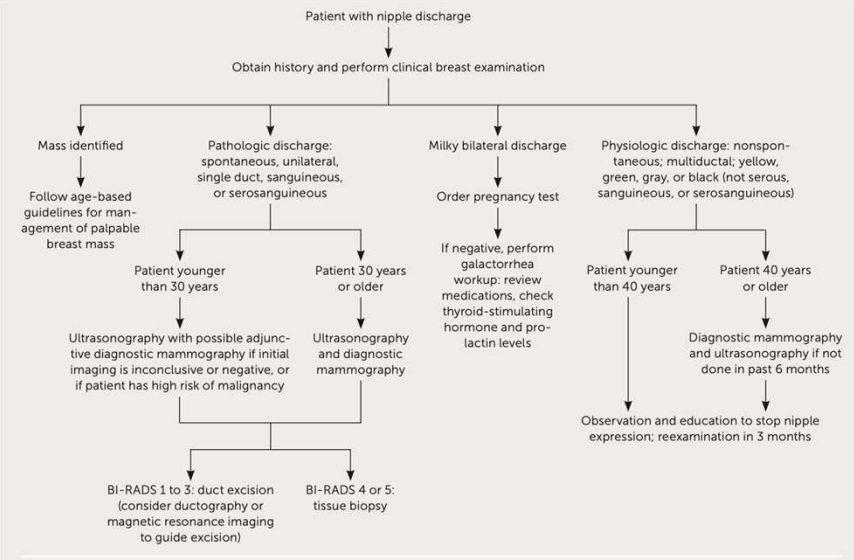
IWK/NSHA imaging guidelines indications

The following are the typical nipple discharge characteristics ***for which work up may be indicated****:*

1. *Bloody/Sanguinous, Serous/Watery, Yellow/Serous or Pink/Serosanguinous,*
2. *Non-lactational.*
3. *Spontaneous (not expressed only).*
4. *Unilateral and from one duct in one nipple.*
5. *Persistent and observed to have been present for weeks to months,*

A discharge which lacks these features, in particular, a bilateral, multipore or expressed-only nipple discharge is usually physiologic and need not be assessed by galactography. Discharges with a milky, multi-colored, sticky or purulent consistency or greenish or blackish colour are also of very low risk and not surgically significant.

General approach to nipple discharge[6]



Mastalgia (breast pain)

- Extremely common (~70% of women)
- Detailed history and physical exam will distinguish from referred pain from chest wall vs true breast pain
- Ddx: true mastalgia, Tietze's syndrome, cervical/thoracic spondylosis, lung disease, gallstones, HRT, thoracic outlet syndrome

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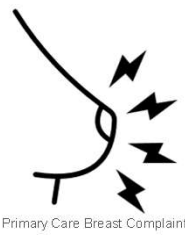
True mastalgia

CYCLICAL

UOQ/AXILLA

TRIGGER SPOTS ON EXAM



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True mastalgia (cyclical)

- More common in women in the 20s-30s[12]
- Increased sensitivity of the breast parenchyma to hormonal stimulation during the luteal phase of menstrual cycle[13]

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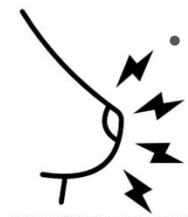
Non-cyclical breast mastalgia

- No association with menses
- Can be diffuse or focal
- Usually resolves spontaneously
- Medications (OCP, HRT, psychotropic), trauma, infection, ligamentous pain from pedunculus breasts[12-13]



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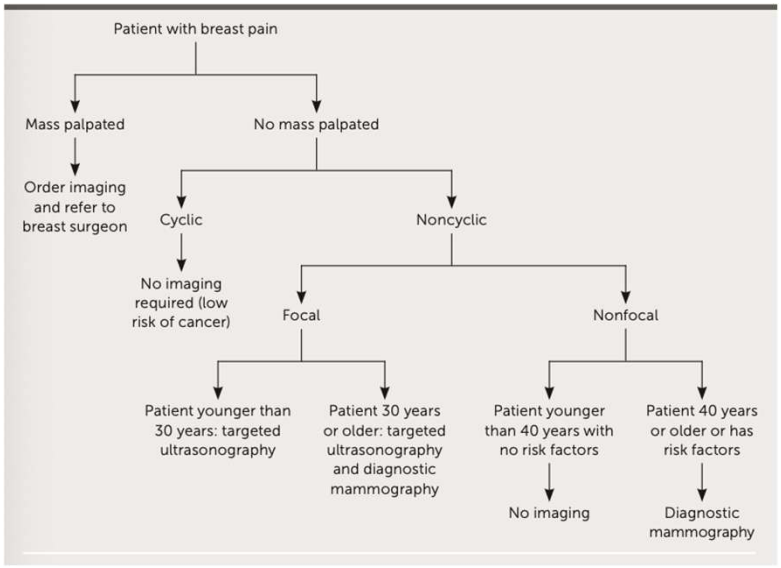
Workup of breast pain



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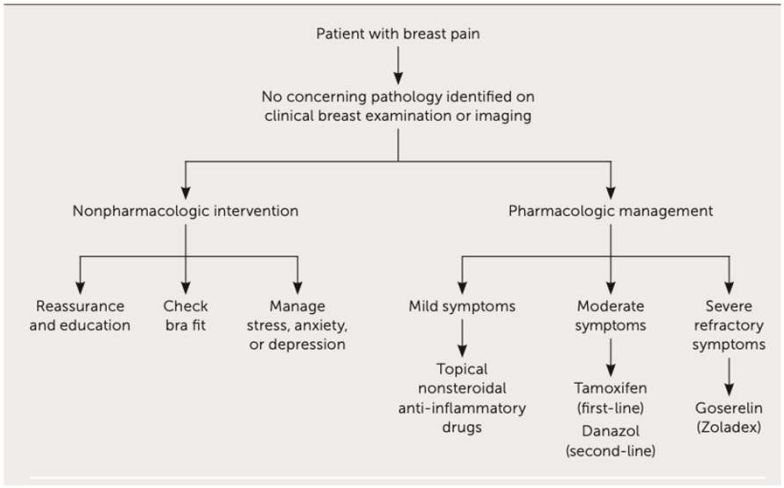
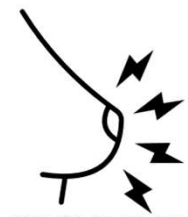
Management of breast pain





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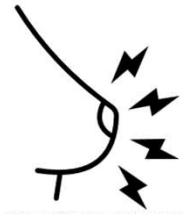
Management of breast pain



Treatment Options for Mastalgia

Treatment	Comments
Clear benefit (cost-benefit analysis)	
Bra fit[25]	70% of women wear poorly fitting bras Mechanism of action: proper bra fit reduces tension on Cooper ligaments, particularly in large-breasted women Effectiveness: evidence suggests benefit in 85% of women who adjust fit
Danazol (200 mg daily, reduced to 100 mg daily after relief of symptoms)[13,14,16,18]	Only drug FDA-approved for treatment of mastalgia Mechanism of action: anterior pituitary suppressant Effectiveness: less effective than tamoxifen with less favorable adverse effect profile Adverse effects: androgenic effects (e.g., weight gain, deepening of voice), menorrhagia, and muscle cramps Contraindications: pregnancy, lactation, history of thromboembolic disease
Goserelin (Zoladex)[13,14,28]	Reserved for severe refractory mastalgia Mechanism of action: induces reversible ovarian suppression to postmenopausal levels Effectiveness: limited data but compelling evidence of pain reduction Adverse effects: vaginal dryness, hot flashes, decreased libido, and irritability Treatment duration: less than six months
Tamoxifen (10 mg daily)[13,14]	Preferred hormonal treatment; limited duration of therapy because of potential for serious adverse effects Effectiveness: highly effective, but high rate of symptom reemergence after discontinuation Adverse effects: antiestrogenic effects (hot flashes and vaginal discharge), venous thromboembolism, endometrial cancer, and teratogenicity Treatment duration: initially prescribed for three months, but may be extended for an additional three months if a response is observed
Topical NSAIDs (diclofenac)[13,14]	First-line pharmacologic agent (preferred over oral NSAIDs because of adverse effect profile) Effectiveness: significant pain reduction for cyclic/noncyclic pain Adverse effects: elevated liver enzyme levels, photosensitivity

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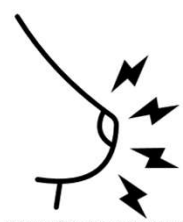
Management of breast pain



Unknown effectiveness, limited data, or strongly limiting adverse effects	
Bromocriptine (Parlodel)[13,14,18]	FDA approval has been withdrawn because of serious adverse effects Effectiveness: proven long-lasting effectiveness Adverse effects: nausea, dizziness, and hypotension are common; stroke and death reported after use for lactation inhibition
Caffeine avoidance[14,20]	Caffeine is often cited as a causative factor in breast pain Effectiveness: RCTs do not show clear evidence of pain reduction
Dietary modifications (low fat, high fiber)[14,20]	Effectiveness: limited and low-quality RCTs show no clear evidence of pain reduction
Evening primrose oil[14,27]	Proposed mechanism of action: augments low levels of gamma-linolenic acid metabolites in women with cyclic mastalgia Effectiveness: no more effective than placebo Adverse effects: may reduce seizure threshold; questionable safety during pregnancy and lactation
Oral contraceptives[13,18]	Effectiveness: no RCTs have evaluated effectiveness
Oral NSAIDs[14,17]	Effectiveness: limited poor-quality studies show potential effectiveness Adverse effects: limited utility secondary to gastrointestinal adverse effects and liver toxicity
Surgery[17,29]	Limited role for mastectomy or partial mastectomy because of high risk of complications and persistent pain after surgery in nearly one-half of patients
Vitamin E[14]	Effectiveness: no high-quality systematic reviews or RCTs show effectiveness; general consensus is it should not be used Adverse effects: long-term use may increase risk of hemorrhagic stroke

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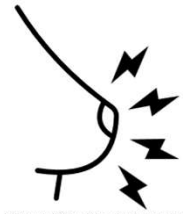
Most effective management of breast pain.. (in my opinion)

- Reassurance
- A well-fitting bra



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HRT and mastalgia[14]

- Common estrogenic adverse effect of HRT
- Will usually improve over the first 3-4 months of treatment
- Can minimize estrogen dose to lowest effective dose, cyclic progestin dosing or switch to tibolone

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BREAST CANCER SCREENING

Objective 2

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What is breast screening?

- The systematic use of imaging tests in asymptomatic individuals to detect breast cancer at an early, preclinical stage
- **NOT** a diagnostic mammogram used to investigate symptoms
- **NOT** an ultrasound
- **NOT** (currently) an MRI

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Breast cancer screening is effective

- Multiple RCT's conducted between 1960s and 1990s found a clear mortality benefit between 6-27%[16-19]
- The breast cancer mortality rates in Canada have steadily declined following introduction of organized screening programs and advances in treatment at the same time period[20]
- Harms of breast cancer screening include false positives and overdiagnosis also exist

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Who should get breast screening?

- Asymptomatic average-risk patient
- **Age** varies by province

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Canadian Task Force Draft Guidelines 2024[22]

For women aged 50 to 74 we suggest screening with mammography every 2 to 3 years. Because individual values and preferences may differ, it is important that women aged 50 to 74 have information about the benefits and harms of screening to make their decision (conditional recommendation, very low certainty).

For women aged 40 to 49, we suggest not to systematically screen with mammography. Because individual values and preferences may differ, those who want to be screened after being informed of the benefits and harms should be offered screening every 2 to 3 years (conditional recommendation, very low certainty).

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Organized breast screening start age in Canada

British Columbia	**40**	Self-referral to BC Cancer Breast Screening Program
Alberta	**45**	Routine screening every 2 years (40–44 possible with referral)
Saskatchewan	**50**	Screening every 2 years
Manitoba	**50**	Screening every 2 years
Ontario	**40**	Ontario Breast Screening Program expanded to age 40 in 2024
Quebec	**50**	Quebec Breast Cancer Screening Program
New Brunswick	**40**	Program expanded to age 40 in 2024
Nova Scotia	**40**	Self-referral allowed
Prince Edward Island	**40**	Self-referral allowed
Newfoundland & Labrador	**50**	Screening every 2 years

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NS Breast Cancer Screening Pathway

AVERAGE
Risk Screening

- Individuals† with no personal history of breast cancer◊ AND;
- No breast implants AND;
- No breast symptoms* AND;
- Age 40 - 74
- No family history of breast cancer

AVERAGE and INCREASED
Risk Screening

Self-referral
- Individual† calls 902-473-3960 or 1-800-565-0548 and books their own appointment

Normal or abnormal **screening mammogram** completed and report sent to individual and their **PCP**

Normal
- Next screen reminder sent by NSBSP

Abnormal
- Appointment for additional breast imaging sent to individual† and **PCP**

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NB Breast Cancer Screening Pathway

Screening

People living in New Brunswick who are 40 to 74 years of age and have no signs, symptoms or previous diagnosis of breast cancer can self-refer to breast cancer screening mammography by contacting one of the screening sites.

People over 74 who have no signs, symptoms or previous diagnosis of breast cancer are accepted for screening mammography only by referral from a primary health-care provider.

Routine screening mammography should be done every one to two years for individuals aged 40 to 49 and every two to three years for individuals aged 50 to 74 if the results are normal.

Routine screening is not recommended for individuals under the age of 40.

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PEI Breast Cancer Screening Pathway

Are you at average risk?	
50 - 74	Routine screening mammograms are recommended every two years.
40 - 49	Routine screening mammograms are available yearly. Benefits and potential harms can be discussed with your primary care provider.
<40	Routine screening mammograms are not recommended. If you have any concerns with your breasts please contact your primary care provider.
75+	Please talk to your primary care provider about the benefits and potential harms of continued screening. A doctor's referral is needed.

Health PEI
One Island Health System
PEI Breast Screening Program
healthpei.ca/breastscreening

Breast Screening Services are located:
Queen Elizabeth Hospital and
Prince County Hospital

Please call to book your appointment
1-888-592-9888

Help Reduce Your Risk of Breast Cancer

- **Be Physically Active**
- **Limit Alcohol**
- **Eat Healthy**
- **Stop Smoking and**
- **Maintain a Healthy Body Weight**

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Breast cancer screening rates[23]

Screening Mammogram Rates Pre and Post Pandemic by Province and Territory (Women Age 40-49 and 50+)

Province/Territory	2017 CCHS Reported Average Rates in Past 3 Years[3]		2024 CCHS Reported Average Rates in Past 3 Years[3] and comparison to pre-pandemic (↑, ↓, =)	
	Age 40-49 Years	Age 50-74 Years	Age 40-49 Years	Age 50-74 Years
Canada (National Average)	36%	79%	34% ↓	79% =
British Columbia	47%	72%	45% ↓	73% ↑
Alberta	50%	80%	51% ↑	84% ↑
Saskatchewan	36%	80%	24% ↓	78% ↓
Manitoba	26%	72%	18% ↓	72% =
Ontario	32%	79%	30% ↓	81% ↑
Quebec	27%	81%	23% ↓	79% ↓
New Brunswick	29%	83%	23% ↓	68% ↓
Nova Scotia	50%	73%	50%	67% ↓
Prince Edward Island	47%	70%	unknown	67% ↓
Newfoundland	56%	76%	45% ↓	72% ↓
First Nations Living Off Reserve	Not reported	Not reported	Not reported	71%
Métis	Not reported	Not reported	Not reported	77%

- Most provinces have not recovered to pre-pandemic screening rates
- NS, PEI, NB have the lowest screening rates in the country

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Why?[24]

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Canadian Partnership for Tomorrows Health Report 2024[21]

- Self-reported questions on engagement in screening mammograms
- 79,986 aged 50-74 and 46,907 between 40-49

Factors significant associated with lower odds of screening mammogram

- Lower household income, single/never married, current daily smoking, poor-self perceived health, no history of breast feeding, and more than 24 months since last routine medical check up by doctor or nurse

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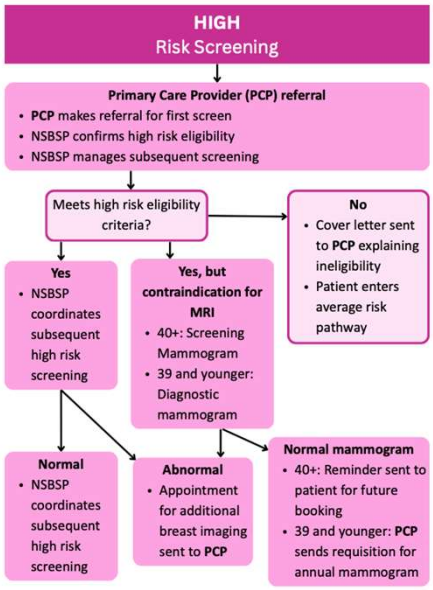
NS High-risk breast screening

HIGH
Risk Screening

- **No breast symptoms* AND;**
- **Age 30 - 74 (after 69, mammo only)**

- Known genetic mutation associated with high lifetime risk of breast cancer (i.e., BRCA1, BRCA2, Cowden's syndrome) **OR;**
- Has declined genetic testing and is a first degree relative of a known mutation carrier (e.g., BRCA1, BRCA2) **OR;**
- High lifetime risk (>25%) of breast cancer, established and documented by a standard breast cancer risk assessment model (e.g., including, but not limited to, CanRisk, IBIS) **OR;**
- History of chest radiation as cancer treatment before age 30. Screening is not indicated until 8 years after the end of radiotherapy or age 30, whichever date is later



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NB High-risk breast screening

- Under review

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PEI High-risk breast screening

High Risk of Breast Cancer:

Screening is recommended **yearly** with mammography for people who:

- Have had radiation therapy to the chest (prior to age 30) to treat another cancer or condition (e.g., Hodgkin lymphoma); or
- Are known to have a gene mutation (e.g., BRCA1, BRCA2).

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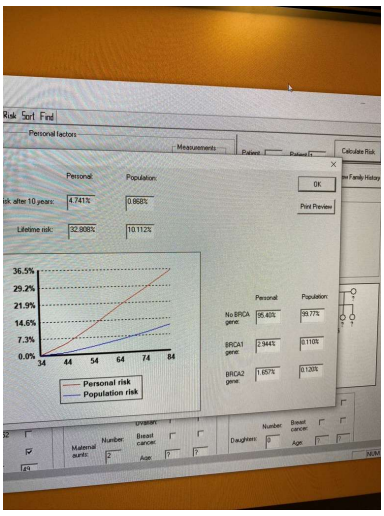
How to calculate risk

- Breast cancer risk calculator
- IBIS (Tyrer-Cuzick model) predicts likelihood of developing cancer within 10 years and lifetime risk



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What about dense breasts?

- ~10% of women have extremely dense breasts (category D), reducing mammographic sensitivity
- MRI detects ~3-4x more cancers than mammography in dense tissue[25-26]
- **DENSE trial[25]** MRI reduced interval cancer by ~50% (2.5 vs 5/1000)
- Higher false positives, increased resource use and potential for patient anxiety

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Primary Care Breast Complaints 4 March 2026 56

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Canadian Task Force Draft Guidelines 2024[22]

For women with moderately increased risk due to high breast density (Category C and D), we did not find any evidence on the benefits of supplemental screening for outcomes important to patients (e.g., stage at diagnosis, death). Therefore, we do not suggest the use of MRI or ultrasound as supplementary screening tests for people with dense breasts (conditional recommendation, very low certainty).

If interested in screening, women who are aware that they have moderately increased risk due to high breast density (Category C and D) should refer to the recommendation that corresponds to their age group.

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Screening for dense breasts…(my opinion)

- Breast density is a risk factor for breast cancer
- In addition to many other genetic, lifestyle and biologic risk factors
- I calculate risk using IBIS (density is a variable), and if high-risk.. They are referred for high risk screening

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Identify patients at a high-risk of hereditary breast cancer

Objective 3

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Genetic conditions associated with increased risk of breast cancer

Gene	Associated Hereditary Cancer Syndromes	NCCN Breast Cancer Screening Guidelines[a]	
		Starting age for MRI (yrs)	Starting age for mammogram (yrs)
TP53	Li-Fraumeni syndrome	20[b]	30
BRCA1	*BRCA*-related breast and/or ovarian cancer syndrome	25[c]	30
BRCA2	*BRCA*-related breast and/or ovarian cancer syndrome	25[c]	30
STK11	Peutz-Jeghers syndrome	30	30
CDH1	Hereditary diffuse gastric cancer	30[d,e]	30[d,e]
NF1	Neurofibromatosis type 1	30[d,e,f]	30[d,e]
PALB2		30[d,e]	30[d,e]
PTEN	Cowden syndrome/*PTEN* hamartoma tumor syndrome, Bannayan-Riley-Ruvalcaba syndrome	30[d,g]	30[d,g]
ATM	Ataxia telangiectasia (A-T)	30-35[d,e,h]	40[d,e]
CHEK2		30-35[d,e,h]	40[d,e]
BARD1	*BARD1*-related cancer risk (women only)	40[d,e,h]	40[d,e]
RAD51C		40	40
RAD51D		40	40

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Indications for genetic testing (Martimes)

Personal history – Please attach relevant pathology and consults

Age Specific Diagnosis:	At any age:
☐ Breast cancer, diagnosed < age 40	☐ Ovarian, fallopian tube or peritoneal cancer (incl. STIC lesions)
☐ Two primary breast cancers, with at least one diagnosed < age 50	☐ Male breast cancer
☐ Triple negative breast cancer, diagnosed < age 60	☐ Metastatic prostate cancer
☐ Colon cancer, diagnosed < age 40	☐ Pancreatic adenocarcinoma
☐ Endometrial cancer, diagnosed < age 40	☐ dMMR Lynch syndrome related cancer (IHC deficient)
☐ Prostate cancer, diagnosed < age 50	☐ Polyposis (≥10 adenomas **or** ≥2 hamartomas **or** meets sessile serrated guidelines)
☐ Unilateral renal cancer, diagnosed under age 50	☐ 3 or more malignant melanoma
☐ Bilateral renal cancer, diagnosed under age 70	☐ Medullary thyroid cancer
	☐ Paraganglioma/pheochromocytoma

Very recent update:

- all bilateral breast cancers
- all women **under 50** regardless of biomarkers INCLUDING DCIS
- all triple negative

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Important topics not discussed

- Breast infections
- Inflammatory breast cancer
- Breast cancer surveillance/survivorship
- HRT and breast cancer risk
- Male breast cancer/gynecomastia
- Etc, etc, etc

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Random additional thoughts

- THANK YOU!
- Importance of primary care physician disclosing cancer diagnosis
- The breast will change after surgery and after radiation
- The management of breast cancer (surgery, radiation, systemic therapy) is constantly changing
- When a patient thinks something is wrong with their body, they are usually right.
- Team approach – can always call or email with questions

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Conclusions

- Breast complaints are common in primary care
- Many common breast symptoms are benign
- A breast mass is cancer until proven otherwise
- Breast cancer screening rates need to be improved in the Maritimes
- Genetic testing indications have recently been broadened in the Maritimes

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Thank You!

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References

1. Eberl MM, Phillips RL, Lamberts H, Okkes I, Mahoney MC. Characterizing breast symptoms in family practice. *Ann Fam Med.* 2008;6(6):528-533
2. Ryerson AB, Miller J, Eheman CR. Reported breast symptoms in the National Breast and Cervical Cancer Early Detection Program. *Cancer Causes Control.* 2015;26(5):733-740
3. Centers for Disease Control and Prevention. National Cancer Institute. United States cancer statistics: data visualizations. Leading cancer cases and deaths, male and female, 2015. https://gis.cdc.gov/Cancer/USCS/DataViz.html. Accessed August 19, 2018
4. Unpublished data. Breast Health Research Unit. Retrospective wait time data 2018-2024. November 2025. \
5. NSABP Wait time data. Accessed Jan 6, 2026
6. Salzman B, Collins E, Hersh L. Common Breast Problems. American Family Physician. Volume 99. Number 8, April 15, 2019
7. Rosenberger LH, White RL, Tafra L, et al. American Society of Breast Surgeons and Society of Breast Imaging 2025 Guidelines for the Management of Benign Breast Fibroepithelial Lesions. JAMA Surg.2025;160(12):1378–1385. doi:10.1001/jamasurg.2025.4392
8. 0. Lee SJ, Trikha S, Moy L, et al.; Expert Panel on Breast Imaging. ACR appropriateness criteria: evaluation of nipple discharge. J Am Coll. Radiol. 2017; 14(5S): S138-S15
9. Hamel C, Avard B, Flegg C, Freitas V, Hapgood C, Kulkarni S, Lenkov P, Seidler M. Canadian Association of Radiologists Breast Disease Imaging Referral Guideline. Can Assoc Radiol J. 2024 May;75(2):287-295. doi: 10.1177/08465371231192391. Epub 2023 Sep 19. PMID: 37724018.
10. ElSherif A, Valente SA. Management of Mastalgia. Surg Clin North Am. 2022 Dec;102(6):929-946. doi: 10.1016/j.suc.2022.06.001. PMID: 36335929.
11. Groen JW, Grosfeld S, Bramer WM, Ernst MF, Mullender MM. Cyclic
12. and non-cyclic breast-pain: a systematic review on pain reduction,side effects, and quality of life for various treatments [published correction appears in Eur J Obstet Gynecol Reprod Biol. 2018; 223: 148]. EurJ Obstet Gynecol Reprod Biol. 2017; 219: 74-93

66

References

13. Holbrook AI, Moy L, Akin EA, et al.; Expert Panel on Breast Imaging. ACR appropriateness criteria: breast pain. J Am Coll Radiol. 2018; 15(11S):

S276-S28

14. Iliana C. Lega, Alexa Fine, Margarita Lam Antoniades and Michelle Jacobson. CMAJ May 15, 2023 195 (19) E677-E682; DOI: https://doi.org/10.1503/cmaj.221438

15. Caswell-Jin JL, Sun LP, Munoz D, et al. Analysis of Breast Cancer Mortality in the US—1975 to 2019. JAMA. 2024;331(3):233–241. doi:10.1001/jama.2023.25881

16. Bennett, A., Shaver, N., Vyas, N., Almoli, F., Pap, R., Douglas, A., Kibret, T., Skidmore, B., Yaffe, M., Wilkinson, A., Seely, J. M., Little, J., & Moher, D. (2024). Screening for breast cancer: a systematic review update to inform the Canadian Task Force on Preventive Health Care guideline. Systematic Reviews., 13(1). https://doi.org/10.1186/s13643-024-02700-3

17. Béatrice L-S, Chiara S, Dana L, Lamia B-T, Véronique B, Franca B, et al.Breast-cancer screening—viewpoint of the IARC Working Group. N Engl Med. 2015;372(24):2353–8.

18. Nyström L, Andersson I, Bjurstam N, Frisell J, Nordenskjöld B, Rutqvist LELong-term effects of mammography screening: updated overview ofhe Swedish randomised trials. The Lancet. 2002;359(9310):909–19.

19. Nyström L, Bjurstam N, Jonsson H, Zackrisson S, Frisell J. Reduced breast cancer mortality after 20+ years of follow-up in the Swedish randomized controlled mammography trials in

20. Seely JM, Alhassan T. Screening for breast cancer in 2018—what should we be doing today? Curr Oncol [Internet]. 2018 Jun [cited 2024 Jan14];25(Suppl 1):S115–24. Available

21. Darvishian, M., Moustaqim-Barrette, A., Awadalla, P., Bhatti, P., Broet, P., Murphy, R. A., . . . Dummer, T. J. B. (2025). Provincial variation in adherence to breast cancer screening in canada: Evidence from the canadian partnership for tomorrow's health. Cancer Medicine, 14(6) doi:https://doi.org/10.1002/cam4.7054

22. Scott Klarenbach, Nicki Sims-Jones, Gabriela Lewin, Harminder Singh, Guylène Thériault, Marcello Tonelli, Marion Doull, Susan Courage, Alejandra Jaramillo Garcia and Brett D. Thombs; for the Canadian Task Force on Preventive Health Care

References

23. Annual Progress Report - Breast Cancer Canada - October 2025

24. 2024 Statistics Canada CCHS Canadian Community Health Survey for Breast Mammography in Ages 50-79 years old, in past 3 years.

25. Bakker MF, de Lange SV, Pijnappel RM, Mann RM, Peeters PHM, Monninkhof EM, Emaus MJ, Loo CE, Bisschops RHC, Lobbes MBI, de Jong MDF, Duvivier KM, Veltman J, Karssemeijer N, de Koning HJ, van Diest PJ, Mali WPTM, van den Bosch MAAJ, Veldhuis WB, van Gils CH; DENSE Trial Study Group. Supplemental MRI Screening for Women with Extremely Dense Breast Tissue. N Engl J Med. 2019 Nov 28;381(22):2091-2102. doi: 10.1056/NEJMoa1903986. PMID: 31774954.

26. Hussein, H., Abbas, E., Keshavarzi, S., Fazelzad, R., Bukhanov, K., Kulkarni, S., Au, F., Ghai, S., Alabousi, A., & Freitas, V. (2023). Supplemental Breast Cancer Screening in Women with Dense Breasts and Negative Mammography: A Systematic Review and Meta-Analysis. Radiology., 306(3). https://doi.org/10.1148/radiol.221785