



TAMOXIFEN

INSTRUCTIONS FOR THE PHARMACIST

Prescription

- The initial order for Tamoxifen should be written on a **pre-printed order**; if not, compare prescription to standard regimens in the Systemic Therapy Manual to confirm the dosing and instructions
 - Prescriptions for subsequent orders may be written by the most responsible physician (often the family doctor), following up the care plan initiated by the oncologist.
- Always check for drug-drug interactions, especially before the first cycle, as described below. Consult the **Drug Interactions** section (page 4), and consider an online drug interactions checking program.
- Check with patient for any other medications filled at a different pharmacy

Handling and Dispensing

- When handling this drug, disposable gloves should be worn at all times by any woman of child-bearing potential. Counting trays and other equipment directly exposed to the drug should be cleaned with soap and water, followed by rinsing with copious amounts of water (wear gloves).
- Do not crush tablets in an open air environment and risk inhalation of powder.

Patient Counseling and Follow-up

- Counsel the patient, including the key messages listed below. Use the **Initial Assessment and Patient Counseling Visit- Pharmacist Guide ①** and the **Medication Info Sheet ②** for this drug. Be sure that you know the specific treatment schedule and that this is clearly communicated to the patient.
- Call the patient within the first week to identify any problems with adverse reactions or adherence.
 - When speaking with the patient and during call backs, ask the patient to identify any problems with medication adherence. Use the **First Follow-Up Call/Visit- Pharmacist Guide ①**.
- Continuing follow up calls between clinic visits are necessary for ADR identification and prevention and for adherence management. Contact the oncology clinic nurse or hospital pharmacist to negotiate who will do follow-up calls between clinic visits. Tell the patient that you plan to call back to check on their progress. Consider the suggested call-back schedule (pg. 2), with specific questions for each contact.
 - When speaking with the patient and during call backs, ask the patient to identify any problems with medication adherence. Use the **Continuing Follow-Up Calls/Visits - Pharmacist Guide ①**.
- If the patient reports any adverse effects, consider the management strategies suggested in the **Adverse Drug Reaction Management Guide ②**.
- ALWAYS document your findings in the patient profile of your pharmacy computer system
- ALWAYS contact the patient's cancer care team of any findings and actions you have taken.
- ALWAYS **watch for any unusual or unexpected symptoms or problems** (such as an adverse reaction that appears too soon or too severe) and contact the cancer care team promptly if something seems wrong with the patient experience.



CLINICAL INDICATIONS



Tamoxifen is clinically indicated for: Breast cancer

DRUG ADMINISTRATION

- Tamoxifen may be given **once daily**, with or without food. Swallow tablets whole with a glass of water.
- Do not eat grapefruit or drink grapefruit juice while taking this medication.
- Keep tablets out of reach of children and protect from light.
- If a dose is missed, do not take a double dose the next day to make up for it.

PATIENT COUNSELLING- INITIAL AND FOLLOW-UP CALLS

- In addition to other printed materials, use the **Medication Info Sheet** from the Cancer Care Nova Scotia website, and consider the more detailed suggestions in this toolkit.

| | Key Messages |
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| <p>Initial counselling- At time of dispensing</p> | <ul style="list-style-type: none"> • How to take the medication properly (including the importance of adherence over the years of treatment) • When to call back to the cancer care team for urgent care • Use the Initial Assessment and Patient Counseling Visit- Pharmacist Guide ❶ and the drug-specific Medication Info Sheet ❷ |
| <p>First call-back – Within first week:</p>  | <ul style="list-style-type: none"> • Identify any initial problems with understanding or adherence • Use the First Follow-Up Call/Visit- Pharmacist Guide ❶ and the Medication Info Sheet ❷ (if needed) • Reinforce initial key messages <ul style="list-style-type: none"> ○ How and when treatment is taken ○ Barriers to adherence- remembering to take medication; reluctance to take treatment; financial issues; nausea, vomiting or other adverse effects; trouble with packaging; felt better off medication; other concerns ○ Suggest strategies to ensure adherence; reminder that full dose is needed for cancer control- partial doses may be ineffective. • Identify any early adverse effect symptoms; suggest management strategies |
| <p>Second call-back – After 2-3 weeks: (telephone or return visit to Pharmacy)</p>  | <ul style="list-style-type: none"> • Identify any adverse effects (PROBE for evidence of hot flushes; gynecologic symptoms; skin rashes; peripheral edema; mood disturbances; nausea and/or vomiting; musculoskeletal problems) • Use the Continuing Follow-Up Calls/Visits- Pharmacist Guide ❶ <ul style="list-style-type: none"> ○ If any identified, contact family physician, oncologist or oncology nurse, and consider the information below under Adverse Effects • Identify any continuing problems with adherence (see above) • Reinforce initial key messages |
| <p>Second call-back – After 2-3 months: (telephone or return visit to Pharmacy)</p> | <ul style="list-style-type: none"> • Identify any continuing problems with adherence (see above) • Identify any adverse effects, as above • Plan for return to Pharmacy at start of next cycle |
| <p>Subsequent call backs:</p> | <ul style="list-style-type: none"> • Negotiate with patient and cancer care team for ongoing needs for counseling and timely follow up calls (at least 1-2 per year) • Use the Continuing Follow-Up Calls/Visits- Pharmacist Guide ❶ • Adherence assessment and support is an important issue for reinforcement at each visit for refills and mid-cycle call-back as treatment continues |

ADVERSE EFFECTS: PREVENTION AND MANAGEMENT SUGGESTIONS

If you identify any of the following, you should contact the oncologist and tell the patient to call the oncologist or go directly to the Emergency Department of the nearest hospital right away **↗** :

- Signs of allergic reaction (hives, trouble breathing, swollen face, lips, tongue, or throat.
- Sudden numbness or weakness, especially on one side of the body
- Sudden severe headache, confusion, trouble seeing, talking, or keeping his/her balance
- Chest pain, sudden cough, wheezing, rapid breathing, fast heart rate
- Pain, swelling, warmth, or redness in one or both legs
- Unusual vaginal bleeding or discharge, irregular menstrual periods, pelvic pain or pressure
- Easy or unusual bruising or bleeding, red pinpoint spots under skin
- Upper stomach pain, itching, dark urine, clay-coloured stools, jaundice

The following are the common adverse effects from Tamoxifen.

| More Common | Less Common |
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| <p><u>Cardiovascular disorders</u></p> <ul style="list-style-type: none"> • Vasodilation†, flushing★, hypertension★ <p><u>CNS disorders</u></p> <ul style="list-style-type: none"> • Mood changes★, pain★, depression★ <p><u>Dermatologic disorders</u></p> <ul style="list-style-type: none"> • Skin changes, rash★ <p><u>Gastrointestinal disorders</u></p> <ul style="list-style-type: none"> • Nausea★, vomiting★, weight loss <p><u>Neuromuscular & Skeletal disorders</u></p> <ul style="list-style-type: none"> • Hot flashes★, fluid retention◆ <p><u>Genitourinary disorders</u></p> <ul style="list-style-type: none"> • Amenorrhea, altered menses◆ • Vaginal discharge◆, vaginal bleeding◆ <p><u>General disorders</u></p> <ul style="list-style-type: none"> • Lymphedema◆, peripheral edema◆ • Pharyngitis◆ | <p><u>Cardiovascular disorders</u></p> <ul style="list-style-type: none"> • Chest pain↗, blood clots↗, edema★ <p><u>CNS disorders</u></p> <ul style="list-style-type: none"> • Insomnia, dizziness, headache★, anxiety, fatigue★ <p><u>Dermatologic disorders</u></p> <ul style="list-style-type: none"> • Alopecia★ <p><u>Endocrine & Metabolic disorders</u></p> <ul style="list-style-type: none"> • Hypercholesterolemia◆ <p><u>Neuromuscular & Skeletal disorders</u></p> <ul style="list-style-type: none"> • Back pain★, bone pain★, osteoporosis★ • Fracture↗, arthralgia★, myalgia★, musculoskeletal pain★ • Paresthesia↗ <p><u>Gastrointestinal disorders</u></p> <ul style="list-style-type: none"> • Abdominal pain†, weight gain, anorexia★ • Constipation★, diarrhea★, dyspepsia★ <p><u>Genitourinary disorders</u></p> <ul style="list-style-type: none"> • Urinary tract infection◆, leucorrhea◆ • Menstrual disorder◆, vulvovaginitis◆, vaginal hemorrhage◆, ovarian cyst◆ <p><u>Respiratory disorders</u></p> <ul style="list-style-type: none"> • Cough, trouble breathing★, bronchitis◆, sinusitis◆ <p><u>General disorders</u></p> <ul style="list-style-type: none"> • Cataracts◆ • Infection↗ • Breast pain◆ |

★ For detailed recommendations on the management of these adverse drug reactions, see the **Adverse Drug Reaction Management Guide** ②

◆ For management of these symptoms, the patient should see his physician

↗ These symptoms require urgent attention- advise the patient to go to the Emergency Department or contact their doctor (see instructions above)

DRUG INTERACTIONS

Tamoxifen is metabolized by CYP2C9, CYP2D6, CYP3A4, CYP2A6, CYP2B6, and CYP2E1. It inhibits CYP2B6, CYP2C8, CYP2C9, CYP3A4, and P-glycoprotein.

- Take a **thorough medication history** (call other pharmacies if necessary) and determine the potential for all other drugs to increase or decrease Tamoxifen plasma concentration.
- Drug interactions are often missed by community pharmacy computer systems
- **REPORT any potential interaction** to the prescribing oncologist- either the Tamoxifen or the interaction drug may need to be dose altered or discontinued.



It is strongly recommended that you check any concurrent medications for interactions with this oral chemotherapy agent. Try one of the following comprehensive programs for checking drug interactions.

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| <p>Online Programs for Drug Interaction Checking-Publicly available:</p> <ul style="list-style-type: none"> • http://www.drugs.com/drug_interactions.php • http://reference.medscape.com/drug-interactionchecker • http://www.healthline.com/druginteractions • http://cpref.goldstandard.com/inter.asp?r=8084 • http://umm.edu/health/medical/drug-interaction-tool • http://online.epocrates.com/ (free account required) | <p>Other Interaction Checkers-Subscription required:</p> <ul style="list-style-type: none"> • Lexicomp • Micromedex • eCPS |
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Some common interactions with Tamoxifen are:

- Anastrozole- Do not co-administer
- ARIPiprazole: may increase serum concentration of Aripiprazole by inhibiting CYP3A4. Monitor for increased aripiprazole pharmacologic effects.?
- Bromocriptine- may increase Tamoxifen concentrations and increase Bromocriptine adverse GI reactions (e.g. abdominal pain) (*avoid combination*)
- Colchicine: may increase serum concentration of Colchicine by inhibiting P-glycoprotein. Colchicine distribution into certain tissues (e.g. brain) may also be increased. Do not give concurrently to patients with impaired renal or hepatic function. Otherwise, reduce colchicine dose.
- CYP2C9 inhibitors: may decrease Tamoxifen metabolism of (increased Tamoxifen levels) (*avoid combination*)
- CYP2D6 inhibitors (e.g. bupropion, paroxetine): may decrease serum concentrations of the active metabolite of Tamoxifen (*avoid combination*)
- CYP3A4 inducers: may increase metabolism of Tamoxifen (*avoid combination*)
- CYP3A4 inhibitors: may decrease metabolism of Tamoxifen (*avoid combination*)
- Dabigatran: may increase serum concentrations of the active metabolite of Dabigatran by inhibiting P-glycoprotein. Dabigatran dose reductions may be needed.
- QTc-Prolonging agents: Tamoxifen may increase risk of QTc prolongation
- Letrozole: may decrease serum concentration of Letrozole; Do not co-administer
- P-glycoprotein (PgP) substrates: Tamoxifen may increase serum concentration of PgP substrates
- Pimozide: may increase serum concentration of Pimozide by inhibiting CYP3A4 (*avoid combination*)
- Rifamycin derivatives (e.g. rifampin): may increase metabolism of Tamoxifen (*avoid combination*)
- Vitamin K Antagonists (e.g. Warfarin): may increase the serum concentration of Vitamin K Antagonists (*avoid combination*)

*Do not drink grapefruit juice or take St John's wort while taking Tamoxifen.