TEMOZOLOMIDE

INSTRUCTIONS FOR THE PHARMACIST

Prescription

- All orders 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
  - The order must be signed by BOTH the prescriber (at the bottom) AND at least one other oncology health professional (nurse or hospital pharmacist) who has verified the order
  - Measure the patient's height (cm) and weight (Kg), then recalculate body surface area (BSA)
- The prescription may **not** be refilled (unless specifically ordered by the oncologist) and it may **not** be filled as a continuing care prescription
  - If the prescriber has written for refills, do **not** dispense until the oncology team authorizes the refill.
  - Blood work must be checked for each cycle.
- It is strongly recommended that this medication be dispensed in pill packs prepackaged for this drug alone. Adherence is very important and toxicities from double dosing may be serious.
- 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.

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 open capsules in an open air environment and risk inhalation of powder.

- ALWAYS affix the auxiliary label to identify this medication as "Cancer Chemotherapy"- this is an important warning label for other health professionals caring for the patient.

Patient Counseling and Follow-up

- Counsel the patient, including the key messages listed below. Use the **Initial Assessment and Patient Counseling Visit- Pharmacist Guide❶** and the **Medication Info Sheet❷** 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 Guide❶**.
- 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 Guide❶**.

- If the patient reports any adverse effects, consider the management strategies suggested in the **Adverse Drug Reaction Management Guide❷**.
- 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

Temozolomide is clinically indicated for: Brain cancers- Astrocytoma, Glioblastoma

DRUG ADMINISTRATION

- Temozolomide may be given ***once daily.***
- Capsules should be swallowed whole with a glass of water.
- Keep capsules in blister pack until time of ingestion.
- Drug absorption is affected by food—capsules should be taken ***consistently*** with OR without food. Temozolomide may be taken on an empty stomach at bedtime to reduce nausea and vomiting.
- Keep out of reach of children.
- Do not open or chew capsules.
- If a dose is missed (or lost due to vomiting), 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
Initial counselling- At time of dispensing	• How to take the medication properly (including treatment-free breaks) • Good oral hygiene* • When to call back to the cancer care team for urgent care • Use the **Initial Assessment and Patient Counseling Visit- Pharmacist Guide❶** and the drug-specific **Medication Info Sheet❷**
First call-back – Within first week (5 days for intermittent treatment): 	• If on intermittent schedule 5 days every 4 weeks), remind patient to stop taking pills after five days- ask if there are any pills left over and, if so, PROBE to determine any barriers to treatment adherence • Use the **First Follow-Up Call/Visit- Pharmacist Guide❶** and the **Medication Info Sheet❷** (if needed) • Reinforce initial key messages o How and when treatment is taken o 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 o 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
Second call-back – After 2-3 weeks: (telephone or return visit to Pharmacy) 	• Identify any adverse effects (**PROBE** for evidence of skin rashes; constipation; continuing nausea or vomiting; fatigue or headaches; muscle or joint aches; mouth sores) • Use the **Continuing Follow-Up Calls/Visits- Pharmacist Guide❶** o If any identified, contact oncologist or oncology nurse, and consider the information below under Adverse Effects • Reinforce oral hygiene measures (**PROBE** to ensure patient is adherent) • Identify any continuing problems with adherence (see above) • Reinforce initial key messages

	Key Messages (continued)
End of Treatment call-back – 4 or 6 weeks from start:	• If on continuous treatment, remind patient to stop taking pills after six weeks- ask if there are any pills left over and, if so, PROBE to determine any barriers to treatment adherence (see above) • Identify any adverse effects, as above • Plan for return to Pharmacy at start of next cycle
Subsequent cycles- (at least one call during each cycle):	• Negotiate with patient and cancer care team for ongoing needs for counseling and timely follow up calls • Use the **Continuing Follow-Up Calls/Visits- Pharmacist Guide❶** • Adherence assessment and support is an important issue for reinforcement at each visit and mid-cycle call-back as treatment continues

🗁Available on the CCNS website- Health Professionals section, click on Systemic Therapy (left side list), select Patient Education Resources and choose hyperlink to PDF document

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.
- Seizure/convulsions
- Numbness or tingling on one side of your body
- Signs of infection (fever, chills, sore throat, flu symptoms, easy bruising or bleeding, loss of appetite, nausea and vomiting, unusual weakness)
- Dry cough, shortness of breath, night sweats, weight loss

The following are the common adverse effects from Temozolomide.

More Common	**Less Common**
<u>Myelosuppression</u> • Thrombocytopenia✶ <u>CNS disorders</u> • Seizures, hemiparesis🗲 • Fever, dizziness, coordination problems♦ <u>Dermatologic disorders</u> • Skin rash✶, alopecia✶ <u>Gastrointestinal disorders</u> • Nausea✶, vomiting✶, constipation✶ <u>General disorders</u> • Fatigue✶, headache✶	<u>Myelosuppression</u> • Neutropenia✶ <u>CNS disorders</u> (*may be related to tumor*) • Insomnia, somnolence, confusion♦ • Memory impairment, depression♦ <u>Dermatologic disorders</u> • Itchy skin✶, dry skin✶, red skin <u>Neuromuscular & Skeletal disorders</u> • Arthralgia✶, myalgia✶ <u>Gastrointestinal disorders</u> • Stomatitis✶, taste perversion✶, diarrhea✶ <u>Respiratory disorders</u> • Dyspnea♦ <u>General disorders</u> • Allergic reaction 🗲

✶ For detailed recommendations on the management of these adverse drug reactions, see the **Adverse Drug Reaction Management Guide❷**

♦ 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

Take a ***thorough medication history*** (call other pharmacies if necessary) and determine the potential for all other drugs to increase or decrease Temozolomide plasma concentration.

- Drug interactions are often missed by community pharmacy computer systems
- ***REPORT any potential interaction*** to the prescribing oncologist- either the SUNItinib 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.

Online Programs for Drug Interaction Checking-Publicly available:	**Other Interaction Checkers-Subscription required**:
• 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)	• Lexicomp • Micromedex • eCPS

Some common interactions with Temozolomide are:

- CloZAPine: Temozolomide may increase the toxicity of Clozapine (specifically, agranulocytosis). *Avoid combination.*
- Echinacea: may decrease the therapeutic effect of Temozolomide
- Leflunomide: may increase toxicity of Leflunomide (specifically, the risk of hematologic toxicity). Consider not using a leflunomide loading dose in patients receiving Temozolomide. Monitor patient for bone marrow suppression at least monthly if using these drugs concurrently.
- Tacrolimus (topical): may increase the toxicity of Temozolomide (*avoid combination*)
- Vaccines (inactivated, live): may increase toxicity and decrease therapeutic effect of vaccines (*avoid combination*)
- Valproic acid & derivatives: may increase serum concentration and toxicity of Temozolomide