

## Symptom Management Guidelines: SLEEP- WAKE DISTURBANCES

Definition(s)	
<p><b>Sleep – Wake Disturbance:</b> Perceived or actual alterations in night sleep resulting in daytime impairment. Includes sleep disorders such as: insomnia, sleep apnea, and sleep – related movement disorders (e.g. restless leg)</p> <p><b>Insomnia:</b> Difficulty falling asleep, staying asleep and/or early awakening or non-restorative sleep that causes significant distress and impairs function</p> <p><b>Appendix A: Sleep-wake Disturbances-Parameters below</b></p>	
Contributing Factors	
<b>Cancer Treatment</b>	<ul style="list-style-type: none"> <li>• Chemotherapy (especially antimetabolites e.g. Methotrexate and 5FU)</li> <li>• Radiation therapy</li> <li>• Biotherapy (e.g. Interferon)</li> <li>• Bone marrow transplant</li> <li>• Surgery</li> <li>• Hormones: Antiestrogens (e.g. Tamoxifen) and Antiandrogens (e.g. Leuprolide)</li> </ul>
<b>Cancer Related &amp; Cancer Treatment Related</b>	<ul style="list-style-type: none"> <li>• Cytokine production is associated with cancer development and growth. Changes in cytokines are linked to clinical depression and mood changes, associated with sleep-wake disturbances</li> <li>• Bone and liver metastases or ascites in advanced illness</li> <li>• Hormone level changes:                             <ul style="list-style-type: none"> <li>- Antiestrogens and Antiandrogens- may cause night sweats and hot flashes</li> <li>- Cortisol - shortened irregular sleep periods, daytime sleepiness</li> <li>- Melatonin production - changes in body temperature and sleep regulation</li> </ul> </li> <li>• Presence of other symptoms (e.g. diarrhea, nausea, dyspnea, pain, fatigue, etc)</li> </ul>
<b>Psychological</b>	<ul style="list-style-type: none"> <li>• Depression, anxiety, mood disorder, post-traumatic stress syndrome</li> <li>• Stressful life events</li> <li>• Maladaptive cognitions (e.g. unrealistic sleep expectations, false perceptions of sleep time and quality)</li> </ul>
<b>Medications</b>	<ul style="list-style-type: none"> <li>• Corticosteroids (e.g. Dexamethasone)- linked to erratic circadian patterns</li> <li>• Antiemetics (e.g. Granisteron)-may cause drowsiness, decreased REM sleep, restless leg</li> <li>• Analgesics (e.g. opioids)-may cause decreased REM sleep, altered thermoregulation</li> <li>• Anti-convulsants</li> <li>• Beta-blockers</li> <li>• Insomnia related to withdrawal of medications:                             <ul style="list-style-type: none"> <li>- Hypnotics and sedatives</li> <li>- CNS depressants (e.g. opioids, alcohol, anti –histamine sedatives)</li> <li>- Anti-depressants (e.g. Tricyclic and Monamine Oxidase Inhibitors)</li> <li>- Illicit drugs</li> </ul> </li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>• Female</li> <li>• Maladaptive behaviors (e.g. spending too much time in bed, frequent changes to sleep-wake patterns, daytime napping, decreased daytime activity)</li> <li>• Substances that cause arousal:                             <ul style="list-style-type: none"> <li>- Caffeine - blocks adenosine (a sleep enhancing factor)</li> <li>- Smoking - nicotine is a CNS stimulant</li> <li>- Alcohol consumption - produces sympathetic arousal</li> <li>- Red ginseng – increases effects of stimulants</li> </ul> </li> <li>• Sleep environment (e.g. room temperature, excess noise and light exposure)</li> <li>• Hospitalized patients (e.g. frequent sleep interruptions)</li> </ul>

## Consequences

- Emotional consequences- distress, irritability, depression, decreased pleasure in work and social activities
- Physical effects- fatigue, increased daytime sleepiness, pain tolerance and decrease immune functioning
- Cognitive Impairment- concentration, memory and judgment
- Compromised role function- functional, social and occupational abilities

## Focused Health Assessment

GENERAL ASSESSMENT	SYMPTOM ASSESSMENT	PHYSICAL ASSESSMENT
<p><b>Contact and General Information</b></p> <ul style="list-style-type: none"> <li>• Physician name - oncologist, family physician</li> <li>• Pharmacy</li> <li>• Home health care</li> <li>• Other healthcare providers</li> <li>• Allergies</li> </ul> <p><b>Consider Contributing Factors</b></p> <ul style="list-style-type: none"> <li>• Cancer diagnosis</li> <li>• Cancer treatment(s) – note type and date of last treatment(s), concurrent treatments</li> <li>• Medical history (e.g. Sleep disorders)</li> <li>• Medication profile</li> <li>• Recent lab or diagnostic reports (e.g. Hormone levels)</li> <li>• Fatigue</li> <li>• Pain</li> <li>• Depression and anxiety</li> </ul>	<p><b>Normal – Establish sleep patterns</b></p> <ul style="list-style-type: none"> <li>• What are your normal sleep patterns?</li> <li>• What time do you go to bed at night? What time do you get up? How long does it take you to fall asleep?</li> </ul> <p><b>Onset</b> - When did the change(s) in sleep patterns begin? How often is sleep disturbed? Number and duration of awakenings? Early morning awakenings?</p> <p><b>Provoking / Palliating</b></p> <ul style="list-style-type: none"> <li>• Assess sleep hygiene habits <ul style="list-style-type: none"> <li>- What brings it on? Makes it better? Worse?</li> </ul> </li> <li>• Explore possible barriers to sleep (e.g. environmental factors, exercise patterns, napping, use of stimulants, ruminating about stressful events prior to sleep)</li> </ul> <p><b>Quality</b></p> <ul style="list-style-type: none"> <li>• What is your main sleep complaint? (e.g. too much sleep, trouble falling or staying asleep, non restorative sleep, excessive sleepiness in day)</li> </ul> <p><b>Region / Radiation – N/A</b></p> <p><b>Severity / other Symptoms</b></p> <ul style="list-style-type: none"> <li>• How bothered are you by this symptom? (on a scale of 0 – 10, with 0 being not at all to 10 being the worst imaginable)</li> <li>• Have you had any other symptoms? (e.g. pain, fatigue, anxiety, worry, depressed mood)</li> </ul> <p><b>Treatment</b></p> <ul style="list-style-type: none"> <li>• What medications or sleeping strategies have you tried? Has this been effective?</li> <li>• Have you used any medications or sleep strategies in the past that have been effective?</li> </ul> <p><b>Understanding / Impact on You</b></p> <ul style="list-style-type: none"> <li>• How has your sleep disturbance impacted on your normal daily activity (ADLs)? <ul style="list-style-type: none"> <li>- Do you have trouble staying awake while driving, eating meals, working, or socializing?</li> <li>- What activities are you still able to participate in?</li> <li>- Do you have a partner or roommate? If so, how does it affect them? Have they noticed any unusual behaviors while you sleep (e.g. snoring, sleep walking, interrupted breathing or leg movements?)</li> </ul> </li> </ul> <p><b>Value</b></p> <ul style="list-style-type: none"> <li>• What is your comfort goal for this symptom (0 – 10 scale)?</li> <li>• Are there any other views or feelings about this that are important to you or your family?</li> <li>• What do you believe is causing your symptom(s)?</li> </ul>	<p><b>Vital Signs</b></p> <ul style="list-style-type: none"> <li>• Frequency – as clinically indicated</li> </ul> <p><b>Observe for:</b></p> <ul style="list-style-type: none"> <li>• Dark circles under eyes</li> <li>• Drooping eyelids (ptosis)</li> <li>• Nystagmus (involuntary eye movement)</li> <li>• Frequent yawning</li> <li>• Slurred speech, incorrect word usage</li> </ul>

## INSOMNIA GRADING SCALE

Adapted NCI CTCATE (Version 4.03)

NORMAL	GRADE 1 (Mild)	GRADE 2 (Moderate)	GRADE 3 (Severe)	GRADE 4
Asymptomatic	Mild difficulty falling asleep, staying asleep or waking up early	Moderate difficulty falling asleep, staying asleep or waking up early	Severe difficulty in falling asleep, staying asleep or waking up early	—

### MANAGEMENT OF SLEEP- WAKE DISTURBANCE:

Prevention, support, teaching, & follow-up as clinically indicated

<b>Patient Care and Assessment</b>	<ul style="list-style-type: none"> <li>• Collaborate with physician:               <ul style="list-style-type: none"> <li>- Rule out other causes or concomitant causes of insomnia and determine need for further assessment at cancer centre or with GP</li> <li>- If patient requires new or change in prescription (e.g. pain and sleep medications)</li> </ul> </li> <li>• Assessment and management of contributing factors</li> </ul>
<b>Sleep Hygiene</b>	<ul style="list-style-type: none"> <li>• <b>Encourage:</b> <ul style="list-style-type: none"> <li>- Regular exercise</li> <li>- Dark and quiet sleep environment with a comfortable room temperature</li> <li>- Soothing activities before bedtime</li> <li>- Maintaining consistent bedtime</li> <li>- Removing bedroom clock</li> <li>- Limiting naps to less than 1hr and not too close to bedtime</li> <li>- For patients in hospital, reduce disturbances (adjust timing of night time checks, administration of medications and consolidate patient care activities)</li> </ul> </li> <li>• <b>Avoid the following close to bedtime:</b> <ul style="list-style-type: none"> <li>- Intake of stimulants (e.g. caffeine-within 6hr, nicotine, alcohol)</li> <li>- Going to bed hungry</li> <li>- Heavy, spicy, or sugary foods</li> <li>- Fluids (e.g. more than 1cup of fluid within 4hr)</li> <li>- Stimulating activities (e.g. vigorous exercise within 2-4hr)</li> </ul> </li> </ul>
<b>Stimulus Control</b>	<p>Goal: To re-associate the bed and bedroom with sleeping</p> <p><b>Principles:</b></p> <ul style="list-style-type: none"> <li>• Go to bed and wake up at regular times</li> <li>• Go to bed only when sleepy</li> <li>• Use bed for sleep and intimacy only, not as an office or place to watch television</li> <li>• Avoid spending more than 20-30 minutes awake in bed. If awake more than 20-30 minutes go to another room and engage in a relaxing activity (e.g. reading), avoid stimulating activities (e.g. watching television). Return to bed when sleepy and repeat process as necessary</li> </ul>
<b>Sleep Log</b>	<ul style="list-style-type: none"> <li>• Encourage patient and/or family to maintain a sleep log and record the following for 2 weeks:               <ul style="list-style-type: none"> <li>- Total sleep time per night</li> <li>- Time required to fall asleep</li> <li>- Number, duration and trigger of nighttime awakenings</li> <li>- Subjective reports of sleep quality and daytime impairment</li> <li>- Nap times (frequency, times, durations)</li> <li>- Timing and consumption of medications (including herbal supplements), caffeine and alcohol for each 24hr period</li> </ul> </li> </ul>
<b>Relaxation Techniques</b>	<ul style="list-style-type: none"> <li>• Encourage the following:               <ul style="list-style-type: none"> <li>- Progressive muscle relaxation, massage, yoga</li> <li>- Guided imagery, mindfulness, meditation</li> <li>- Breathing techniques (e.g. diaphragmatic breathing, focused breathing)</li> <li>- Aromatherapy</li> </ul> </li> </ul>

<b>Pharmacological Management</b>	<ul style="list-style-type: none"> <li>• Medications prescribed should be related to type of sleep-wake disturbance and pharmacological properties of the medication</li> <li>• Consider a short-acting sleep medication for difficulties falling asleep and a longer-acting medication for difficulties staying asleep</li> <li>• Sleep medications are generally recommended only for short-term and intermittent use Prolonged use of medications for persistent insomnia can cause: <ul style="list-style-type: none"> <li>- Altered physiologic function and impair natural sleep patterns</li> <li>- Tolerance, abuse, dependence and withdrawal</li> </ul> </li> </ul> <p><b>Appendix B: Sleep-wake Disturbances-Pharmacological Management below</b></p>
<b>Follow-up</b>	<ul style="list-style-type: none"> <li>• Instruct patient/family to contact healthcare providers if symptoms worsen or do not improve</li> <li>• If indicated, arrange for nurse initiated follow – up or physician follow – up</li> </ul>

<b>RESOURCES &amp; REFFERALS</b>	
<b>Referrals</b>	<ul style="list-style-type: none"> <li>• Patient Support Clinic or Telephone Care Management</li> <li>• GP</li> <li>• Patient and Family Counseling</li> <li>• Alternative practitioners (e.g. relaxation therapy, massage)</li> <li>• Sleep specialist or sleep lab</li> <li>• Promote volunteer driver for patients with severe sleep disturbance</li> </ul>
<b>Patient Education</b>	<ul style="list-style-type: none"> <li>• Strategies to help with sleep <a href="http://www.bccancer.bc.ca/NR/rdonlyres/59D9768A-614C-4E71-80EA-D43C5117A443/67593/Strategies_to_help_with_Sleep.pdf">http://www.bccancer.bc.ca/NR/rdonlyres/59D9768A-614C-4E71-80EA-D43C5117A443/67593/Strategies_to_help_with_Sleep.pdf</a></li> <li>• Resources about managing stress, anxiety, depression deep breathing, positive thinking, etc <a href="http://www.bccancer.bc.ca/PPI/copingwithcancer/emotional/dealingemotions/factsheets.htm">http://www.bccancer.bc.ca/PPI/copingwithcancer/emotional/dealingemotions/factsheets.htm</a></li> <li>• Canadian sleep society <a href="http://www.canadiansleepsociety.ca">www.canadiansleepsociety.ca</a></li> <li>• Library Pathfinder: Meditation and Mindfulness <a href="http://www.bccancer.bc.ca/NR/rdonlyres/72A278AB-D97F-41A0-9A6E-AC107A3973C4/70992/MindfulnessGeneral.pdf">http://www.bccancer.bc.ca/NR/rdonlyres/72A278AB-D97F-41A0-9A6E-AC107A3973C4/70992/MindfulnessGeneral.pdf</a></li> <li>• Counseling <a href="http://www.bccancer.bc.ca/PPI/copingwithcancer/emotional/counselling.htm">http://www.bccancer.bc.ca/PPI/copingwithcancer/emotional/counselling.htm</a></li> <li>• Support Programs <a href="http://www.bccancer.bc.ca/PPI/copingwithcancer/emotional/supportprograms.htm">http://www.bccancer.bc.ca/PPI/copingwithcancer/emotional/supportprograms.htm</a></li> <li>• Complementary Therapies: A guide for people with cancer (Canadian Cancer Society) <a href="https://www.cancer.ca/~media/cancer.ca/CW/publications/Complementary%20therapies/Complementary-therapies-2014-EN.pdf">https://www.cancer.ca/~media/cancer.ca/CW/publications/Complementary%20therapies/Complementary-therapies-2014-EN.pdf</a></li> <li>• Complementary and Alternative Cancer Therapies (BCCA) <a href="http://www.bccancer.bc.ca/HPI/UnconventionalTherapies/default.htm">http://www.bccancer.bc.ca/HPI/UnconventionalTherapies/default.htm</a></li> </ul>
<b>Related Online Resources</b>	<ul style="list-style-type: none"> <li>• E.g. Fair Pharmacare; BC Palliative Benefits <a href="http://www.bccancer.bc.ca/NR/rdonlyres/AA6B9B8C-C771-4F26-8CC8-47C48F6421BB/66566/SymptomManagementGuidelinesRelatedResources.pdf">http://www.bccancer.bc.ca/NR/rdonlyres/AA6B9B8C-C771-4F26-8CC8-47C48F6421BB/66566/SymptomManagementGuidelinesRelatedResources.pdf</a></li> </ul>
<b>Bibliography List</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.bccancer.bc.ca/HPI/Nursing/References/SystemManagementGuidelines/Biblio.htm">http://www.bccancer.bc.ca/HPI/Nursing/References/SystemManagementGuidelines/Biblio.htm</a></li> </ul>

### Appendix A: Sleep-wake Disturbances- Parameters

Term	Definition
<b>Total sleep time</b>	Number of minutes of sleep while in bed
<b>Sleep latency</b>	Number of minutes between going to bed and falling asleep
<b>Awakenings</b>	Frequency of awakenings during sleep period
<b>Time awake after sleep onset</b>	Number of minutes awake after initial sleep onset
<b>Daytime naps</b>	Numbers of minutes of sleep during daytime naps
<b>Daytime sleepiness</b>	Number of episodes of falling asleep unintentionally
<b>Quality of perceived sleep</b>	Subjective assessment of sleep quality.
<b>Circadian rhythm</b>	Biobehavioural phenomenon associated with fluctuations in light, hormones, eating, and /or socializing that repeats every 24 hours
<b>Sleep efficiency</b>	Number of minutes of sleep divided by number of minutes in bed

## Appendix B: Sleep-wake Disturbance- Pharmacological Management

<b>Insomnia - Medications that Promote Sleep</b>	
<b>Benzodiazepines</b> <ul style="list-style-type: none"> <li>• Clonazepam, Lorazepam</li> </ul>	<ul style="list-style-type: none"> <li>• Variable metabolic half – lives, those with longer half– lives (e.g. clonazepam) may cause residual daytime sedation and cognitive/motor impairments</li> <li>• Risk for tolerance, dependence and withdrawal</li> <li>• Discontinuation may cause rebound insomnia</li> <li>• Recommended only for short – term or intermittent use</li> </ul>
<b>Nonbenzodiazepine Hypnotics</b> <ul style="list-style-type: none"> <li>• Zaleplon, Zolpidem</li> </ul>	<ul style="list-style-type: none"> <li>• Short metabolic half – lives; therefore less residual daytime sedation</li> <li>• Not associated with tolerance, dependence, sleep cycle alterations or rebound insomnia</li> </ul>
<b>Tricyclic Antidepressants</b> <ul style="list-style-type: none"> <li>• Amitriptyline, Nortriptyline</li> </ul>	<ul style="list-style-type: none"> <li>• Sedative effects and high anticholinergic effects (should be avoided in elderly)</li> <li>• May boost appetite and help with neuropathic pain</li> </ul>
<b>Other:</b> <p><b>Neuroleptics</b></p> <ul style="list-style-type: none"> <li>• Chlorpromazine</li> </ul> <p><b>Herbal supplements</b></p> <ul style="list-style-type: none"> <li>• Melatonin, Kava, Valerian</li> </ul> <p><b>Melatonin receptor agonists</b></p> <ul style="list-style-type: none"> <li>• Ramelteon</li> </ul> <p><b>Antipsychotics (Last option)</b></p> <ul style="list-style-type: none"> <li>• Quetiapine, Chlorpromazine</li> </ul>	<ul style="list-style-type: none"> <li>• Sedative effects</li> </ul>

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