

8. Summary of key evidence that nursing and other relevant interventions influence pain and noted gaps in current evidence base. This section is based on findings and conclusions from the integrative reviews published on cancer-related pain since 2000 (see Section 4).

- **Assessment/Measurement**

- No recent systematic reviews are related to prevalence and pattern of pain in cancer.
- Single-item measures: Visual Analog Scale (VAS), Numeric Rating Scale, and Verbal Rating Scale are valid and reliable measures of cancer pain intensity.
 - Mechanical VAS and graphic ratings scales have been used less frequently but also have sufficient evidence of reliability and validity.
 - No one scale consistently shows greater sensitivity to changes in pain than the others.
 - VAS rating scales have shown higher failure rates among older adults and those taking greater amounts of opioids.
- Multidimensional measures: The Memorial Pain Assessment Card, the Brief Pain Inventory, and McGill Pain Questionnaire have demonstrated good reliability and validity and are sensitive to effects of treatment.
 - Less research has examined the psychometric properties of the McGill Pain Questionnaire–Short Form in patients with cancer.
- Instruments that need further psychometric testing to confirm reliability and/or validity in cancer populations
 - The Faces scale (with adults) has some evidence of validity, but no studies reported sensitivity in cancer pain.
 - The Pain-O-Meter has some evidence of validity, but no studies reported sensitivity in cancer pain.
 - Research is needed to evaluate validity of measures of pain location in people with cancer.
 - Psychometric properties of measures of pain frequency and duration need to be studied.
- The Finger Dynamometer has not been shown to be reliable or valid.
- Proxy measures of pain are not reliable or valid.
 - Physicians tend to underestimate patients' cancer pain.
 - Family members tend to overestimate patients' cancer pain.
- Instruments used in other pain populations but not studied in oncology populations
 - *Descriptor Differential Scale*
Gracely, R.H., & Kwilosz, D.M. (1988). The Descriptor Differential Scale: Applying psychophysical principles to pain assessment. *Pain*, 35, 279–288.
 - *Pain Behavior Checklist*
Kerns, R.D., Haythornthwaite, J., Rosenberg, R., Southwick, S., Giller, E.L., & Jacob, M.C. (1991). The Pain Behavior Checklist (PBCL): Factor structure and psychometric properties. *Journal of Behavioral Medicine*, 14, 155–167.
 - *University of Alabama at Birmingham (UAB) Pain Behavior Scale*

Richards, J.S., Nepomuceno, C., Riles, M., & Suer, Z. (1982). Assessing pain behavior: The UAB Pain Behavior Scale. *Pain, 14*, 393–398.

- *Checklist of Nonverbal Pain Indicators*

Feldt, K.S. (2000). The Checklist of Nonverbal Pain Indicators. *Pain Management Nursing, 1*, 13–21.

- *Neuropathic Pain Scale*

Galer, B.S., & Jensen, M.P. (1997). Development and preliminary validation of a pain measure specific to neuropathic pain: The neuropathic pain scale. *Neurology, 48*, 332–338.

- *West Haven-Yale Multidimensional Pain Inventory*

Kerns, R.D., Turk, D.C., & Rudy, T.E. (1985). The West Haven-Yale Multidimensional Pain Inventory (WHYMPI). *Pain, 23*, 345–356.

- Several pain measures, including the Numeric Rating Scale, Brief Pain Inventory, and McGill Pain Questionnaire, have been translated and tested in multiple different languages.
- Correlates of pain include inadequate analgesic use, interference with ability to carry out normal activities, reduced functional status, interference with sleep, disruption in enjoyment or quality of life, psychological distress, anxiety, depression, mood, and performance status.

- **Collaborative Medical/Drug Interventions**

- **Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)**

- Treatment of cancer pain with NSAIDs is more effective than with placebo. Little evidence exists, however, to suggest that any one of the NSAIDs is superior to another. Insufficient evidence is available for the WHO recommendation of combining an NSAID with a “weak” opioid for moderate pain. Insufficient evidence suggests that increasing NSAID dose improves pain relief or increases drug side effects.

- **Opioids**

- Evidence supports the use of morphine to reduce cancer pain. No difference has been documented in pain relief achieved with sustained-release versus immediate-release formulas
- Methadone has a similar analgesic efficacy and side-effect profile as morphine. Most studies, however, have been single-dose comparisons or examined short-term use. Long-term use of methadone in cancer pain needs further investigation.
- Only anecdotal evidence supports the effectiveness of methadone or fentanyl as alternatives to morphine in palliative care.
- Opioid switching to improve pain control and/or decrease side effects is supported by only anecdotal reports and uncontrolled studies.

- Patient-controlled analgesia (PCA) and continuous infusion of opioid analgesics are equally effective for mucositis pain in cancer. Less opioid is used and the duration of analgesia is shorter with PCA administration.
 - **Adjuvant Medications**
 - Insufficient evidence exists regarding the benefits and harms of ketamine as an adjunct to opioids for cancer pain.
 - Evidence does not support the use of calcitonin for pain from bone metastases (no decrease in analgesic consumption, no decrease in complications, no improvement in QOL or survival).
 - **Other Medical Interventions**
 - Single-fraction radiotherapy is as effective as multifraction radiotherapy in relieving pain resulting from metastatic bone disease.
- **Nondrug Interventions**
 - **Physical Modalities**
 - Massage interventions, with or without aromatherapy oils, resulted in short-term improvements in pain (immediately after massage to 24 hours after massage). Long-term effects of massage interventions on pain have not been determined.
 - **Cognitive-Behavioral**
 - These strategies vary in acceptance to individual patients
 - Behavioral methods are not all equally effective for pain. Those with the most support in reducing acute cancer-related pain include hypnosis, distraction, and relaxation interventions.
 - Relaxation-promoting cognitive-behavioral interventions (relaxation, relaxation with guided imagery, hypnosis, music) have a moderate to large effect on pain (effect size, $d = 0.65$). These strategies have been effective in decreasing pain shortly after treatment, but long-term effects are unknown.
 - Relaxation plus other treatments (distraction, massage, problem solving, positive affirmations, cognitive-reappraisal, goal setting, counseling) examined collectively have little effect on pain (effect size, $d = 0.07$). Effect sizes in individual studies, however, ranged from $d = -0.26$ to 0.51 . Additional carefully conducted randomized trials of these interventions are necessary to draw conclusions regarding their effectiveness.
 - Supportive counseling plus other content (discussion of coping strategies, positive reframing, and information about pain and its treatment) have a small to moderate effect on pain (effect size, $d = 0.44$).
 - **Educational Interventions**
 - Interventions to educate healthcare professionals temporarily improve knowledge and attitudes but have not resulted in an improvement in patients'

pain. Effect of educational interventions on professionals' long-term knowledge have not been assessed.

- Interventions to educate patients can increase knowledge and temporarily improve pain (increase pain relief, decrease pain intensity). Improvements in pain have been documented immediately after the education and as many as eight weeks later.
- Educational interventions for patients have a small to moderate effect on pain (effect size, $d = 0.36$).