



Section II:

Assessment of Pain

A. INITIAL ASSESSMENT OF PAIN

Assessment is an essential, but challenging, component of any pain management plan. Pain is subjective, so no satisfactory objective measures of pain exist. Pain is also multidimensional, so the clinician must consider multiple aspects (sensory, affective, cognitive) of the pain experience. Finally, the nature of the assessment varies with multiple factors (e.g., purpose of the assessment, the setting, patient population, clinician), so no single approach is appropriate for all patients or settings.

This section reviews some core principles of pain assessment and management to help guide this process. It then explores approaches that clinicians can use in the initial assessment of pain (i.e., patient history, physical examination, diagnostic studies). Subsequent discussions explore tools that facilitate assessment and address the reassessment of pain.

1. Overcoming Barriers to Assessment

Underassessment of pain is a major cause of inadequate pain management (see I.E). In fact, the most common reason for the undertreatment of pain in U.S. hospitals is the failure of clinicians to assess pain and pain relief.¹ This situation has prompted recent efforts to raise clinicians' awareness of the importance of pain assessment. In 1996, the American Pain Society (APS) introduced the phrase "pain as the 5th vital sign."^{a,2} This initiative emphasizes that pain assessment is as important as assessment of the standard four vital signs and that clinicians need to take action when patients report pain.¹ The Veterans Health Administration recognized the value of such an approach and included pain as the 5th Vital Sign in their national pain management strategy.³

In addition to these efforts, the Joint Commission on Accreditation of Healthcare Organization (JCAHO) recently introduced standards for pain assessment and management relevant to multiple health care disciplines and settings (see V.B.1). These standards stress patients' rights to appropriate assessment and management of pain (JCAHO Standard RI 1.2.8, 2000) and emphasize that pain should be assessed in all patients (JCAHO Standard PE1.4, 2000).⁴ Multiple additional clinical practice guidelines (CPGs) for pain management have emerged

^aThe Pain as the 5th Vital Sign initiative is a concept, not a guide, for pain assessment. Whereas assessing pain with each assessment of the standard four vital signs is appropriate in some clinical situations, more or less frequent assessment may be appropriate in others.

since the first guideline for pain management in 1992 (see V). Thus, the means for improved pain assessment and management are readily available.

Successful pain management depends, in part, on clinician adherence to such standards and guidelines and commitment to some core principles of pain assessment and management (Table 7).

2. Goals and Elements of the Initial Assessment

Important goals of the initial assessment of pain include establishing rapport with the patient and providing an overview of the assessment process.⁸ These processes help to engage the patient, foster appropriate treatment expectations, and promote a coordinated approach to management. The clinician's primary objective is to obtain information that will help identify

Table 7. Core Principles of Pain Assessment and Management

- Patients have the right to appropriate assessment and management of pain (JCAHO Standard RI 1.2.8, 2000). Pain (should be) is assessed in all patients (JCAHO Standard PE1.4, 2000).
- Pain is always subjective.¹ Therefore, the patient's self-report of pain is the single most reliable indicator of pain.⁵ A clinician needs to accept and respect this self-report, absent clear reasons for doubt.
- Physiological and behavioral (objective) signs of pain (e.g., tachycardia, grimacing) are neither sensitive nor specific for pain.⁵ Such observations should not replace patient self-report unless the patient is unable to communicate.⁵
- Assessment approaches, including tools, must be appropriate for the patient population. Special considerations are needed for patients with difficulty communicating. Family members should be included in the assessment process, when possible.
- Pain can exist even when no physical cause can be found. Thus, pain without an identifiable cause should not be routinely attributed to psychological causes.
- Different patients experience different levels of pain in response to comparable stimuli. That is, a uniform pain threshold does not exist.
- Pain tolerance varies among and within individuals depending on factors including heredity, energy level, coping skills, and prior experiences with pain.
- Patients with chronic pain may be more sensitive to pain and other stimuli.
- Unrelieved pain has adverse physical and psychological consequences. Therefore, clinicians should encourage the reporting of pain by patients who are reluctant to discuss pain, deny pain when it is likely present, or fail to follow through on prescribed treatments (JCAHO standard PE1.4, 2000).
- Pain is an unpleasant sensory and emotional experience, so assessment should address physical and psychological aspects of pain.

Sources: References 1 and 4-7.

the cause of the pain and guide management. A patient history, physical examination, and appropriate diagnostic studies are typically conducted for this purpose.

a. Patient history

The patient's self-report of pain is the most reliable indicator of pain.⁵ Physiological and behavioral (objective) signs of pain (e.g., tachycardia, grimacing) are neither sensitive nor specific for pain and should not replace patient self-report unless the patient is unable to communicate.⁵ Therefore, talking to patients and asking them about their pain (i.e., obtaining a "pain history") is integral to pain assessment.

The pain history usually is obtained as part of the patient history, which includes the patient's past medical history, medications, habits (e.g., smoking, alcohol intake), family history, and psychosocial his-

tory. Obtaining a comprehensive history provides many potential benefits, including improved management, fewer treatment side effects, improved function and quality of life, and better use of health care resources.⁹

The manner in which information is elicited from the patient is important. Ideally, the clinician should afford ample time, let the patient tell the story in his or her own words, and ask open-ended questions. Information to be elicited during the initial assessment of pain includes (see Table 8):

- Characteristics of the pain (e.g., duration, location, intensity, quality, exacerbating/alleviating factors)
- Present and past pain management strategies and their outcomes
- Past and present medical problems that may

Table 8. Information From the Patient History

Parameter	Information To Be Obtained	Sample Questions
Pain characteristics	Onset and duration Location(s) Quality Intensity (severity) Associated symptoms Exacerbating or alleviating factors	When did the pain begin? Where does it hurt? (Use diagram, when possible.) What does the pain feel like? How severe is the pain right now? (Use numeric rating scale to obtain score, when possible.) What increases or decreases the pain?
Management strategies	Past and current: <ul style="list-style-type: none"> • Medications ("natural," nonprescription, and prescription) • Nonpharmacologic treatments • Coping strategies (e.g., prayer, distraction) 	What methods have you used to manage the pain? What methods have worked?
Relevant medical history	Prior illnesses (including psychiatric illnesses and chemical dependence), surgeries, and accidents Coexisting acute or chronic illnesses Prior problems with pain and treatment outcomes	How is your general health? Have you had any problems with pain in the past? If so, how did you manage the pain?
Relevant family history	Health of family members Family history of chronic pain or illnesses	How is the health of your family? Do any family members have problems with pain?
Psychosocial history	Past or current: <ul style="list-style-type: none"> • Developmental, marital, or vocational problems • Stressors or depressive symptoms • "Reinforcers" of the pain (e.g., compensation-litigation issues) 	Are there any recent sources of increased stress? How has the pain affected your mood?
Impact of the pain on the patient's daily life	Impact of the pain on the patient's: <ul style="list-style-type: none"> • Work • Other daily activities (e.g., chores, hobbies) • Personal relationships • Sleep, appetite, emotional state 	How has the pain affected your work and relationships with others? How is your sleep? How is your appetite?
Patient's expectations and goals	Expectations and goals for pain management in regard to pain intensity, daily activities, and quality of life	What are your goals for treatment?

Sources: References 5 and 7-8.

- influence the pain and/or its management
- Relevant family history
- Current and past psychosocial issues or factors that may influence the pain and its management
- The impact of the pain on the patient's daily life and functioning
- The patient's and family's knowledge of, expectations about, and goals for pain management.

Careful characterization of the pain facilitates diagnosis and treatment (see Table 9). Assessment tools (e.g., rating scales, questionnaires) play an

important role in this process (see II.B). Both the choice of tool and the general approach to assessment should reflect the needs of the patient.

The assessment of pain in some patients warrants special consideration. Tables 10 and 11 summarize approaches to assessment in patients with impaired ability to communicate. Tables 12 and 13 review recommended pre- and post-operative assessment and management methods for perioperative pain, including pain after the surgery (postoperative pain). Patient education about these methods is a key element of the initial assessment of a surgical patient. As unrelieved pain has adverse physical and psychological consequences, clinicians should encourage the reporting of pain by patients who are reluctant to discuss pain or who deny pain that is likely to be present (JCAHO standard PE1.4, 2000).

The initial assessment of a patient with chronic pain, especially chronic noncancer pain (CNCP), also warrants special consideration. Associated neural remodeling (central sensitization) means that the pain may exist without an apparent physical cause (see I.B.8). In such cases, the clinician needs to avoid attributing the pain to psychological causes and to accept and respect the patient's self-report of pain.⁵ Other clinicians often have seen and/or treated patients with CNCP. Therefore, past medical records, test results, and treatment histories need to be obtained. Given the link between chronic pain and

Table 9. Characteristics of Pain Types

Characteristic	Pain Types and Examples
Location and distribution	Localized pain: pain confined to site of origin (e.g., cutaneous pain, some visceral pain, arthritis, tendonitis) Referred pain: pain that is referred to a distant structure (e.g., visceral pain such as angina, pancreatitis, appendicitis, acute cholecystitis) Projected (transmitted) pain: pain transferred along the course of a nerve with a segmental distribution (e.g., herpes zoster) or a peripheral distribution (e.g., trigeminal neuralgia) Dermatomal patterns: peripheral neuropathic pain Nondermatomal: central neuropathic pain, fibromyalgia No recognizable pattern: complex regional pain syndrome
Duration and periodicity	Brief flash: quick pain such as a needle stick Rhythmic pulses: pulsating pain such as a migraine or toothache Longer-duration rhythmic phase: intestinal colic Plateau pain: pain that rises gradually or suddenly to a plateau where it remains for a prolonged period until resolution (e.g., angina) Paroxysmal: neuropathic pain Continuously fluctuating pain: musculoskeletal pain
Quality	Superficial somatic (cutaneous) pain: sharp pricking or burning Deep somatic pain: dull or aching Visceral pain: dull aching or cramping Neuropathic pain: burning, shock-like, lancinating, jabbing, squeezing, aching
Associated signs and symptoms	Visceral pain: "sickening feeling," nausea, vomiting, autonomic symptoms Neuropathic pain: hyperalgesia, allodynia Complex regional pain syndrome: hyperalgesia, hyperesthesia, allodynia, autonomic changes, and trophic changes (skin, hair, nail changes)

Sources: References 8 and 10.

Table 10. Assessment of Patients With Barriers to Communication

<p>Patient Populations</p> <ul style="list-style-type: none"> • Infants and children • Individuals of advanced age (e.g., older than 85 years) • Adults with emotional or cognitive disturbances • Patients with cultural, educational, or language barriers to communication • Intubated patients • Patients who are seriously ill
<p>General Approach</p> <ul style="list-style-type: none"> • Allow sufficient time for the assessment. • Give patient the opportunity to use a rating scale or other tool appropriate for that population. • Use indicators of pain according to the following hierarchy of importance: <ul style="list-style-type: none"> Patient self-report Pathological conditions or procedures known to be painful Pain-related behaviors (e.g., grimacing, restlessness, vocalization) Reports of pain by family members or caretakers Physiological measures (vital signs). • Rely on behavioral or objective indicators of pain (e.g., vital signs) only when no suitable alternative exists.

Sources: References 5, 7, and 11.

Table 11. Assessment Challenges and Approaches in Special Populations

Population	Challenges	Approaches
Elderly	Under-reporting of discomfort due to fear, cultural factors, stoicism Impairments (e.g., hearing, vision, comprehension, verbal skills) may limit ability to communicate Difficulty with visually oriented or complex assessment tools	Avoid time pressure in assessment Evaluate for impairments that limit ability to communicate Use tools that the elderly find easy to use (e.g., FPS ^a) Be aware of changes in various parameters in elderly patients (impaired ADLs, social function, walking) that may be indicative of unrelieved pain
Infants and children	Difficulty communicating (e.g., pre-verbal) Difficulty discriminating between anxiety and pain intensity	Select an approach that is consistent with the patient's developmental stage For infants, rely on indicators such as crying and reflex withdrawal In toddlers, watch for pursed lips, wide opening of eyes, rocking, rubbing, defensive behavior (e.g., biting, hitting, kicking, running away) Use age-appropriate assessment tools for children 3 years or older (e.g., Oucher picture scale, FPS, "thermometer" NRS ^a)
Patients of different cultural or language backgrounds	Different languages Different behavioral responses to pain Different treatment preferences	Use words such as "pain," "hurt," and "ache" Use assessment tools in appropriate language Provide patient education materials in native language, when possible

Sources: References 7 and 11-16.
^aSee Table 17 for information about FPS and NRS.
ADLs: activities of daily living; FPS: Faces Pain Scale; NRS: numeric rating scale.

depression, the impact of the pain on the patient's mood, satisfaction, quality of life, and cognitive functioning also requires thorough exploration. Key elements of this evaluation include a more comprehensive psychosocial assessment, psychiatric evaluation, psychometric testing (as appropriate), and assessment of function and any disability (see Table 14).^{9,18}

b. Physical examination

The initial assessment of a patient with pain includes a physical examination. The clinician uses this examination to help identify the underlying cause(s) of the pain and reassure the patient that his or her complaints of pain are taken seriously.⁸ During this examination, the clinician appraises the patient's general physical condition, with special attention to the musculoskeletal and neurological systems and site(s) of pain (see Table 15). The clinician also may evaluate the effect of various physical factors (e.g., motion, applied heat or cold, deep breathing, changes in position) on the pain and/or performance measures of physical function (e.g., range of motion, ability of patient to carry out activities of daily living).

Patients with some types of pain (e.g., chronic and/or neuropathic pain) require more extensive neurological and musculoskeletal assessment. For exam-

ple, a clinician may need to use a dermatome map to determine the origin of neuropathic pain or perform a formal assessment of disability in a patient who is applying for disability benefits.

c. Diagnostic studies

The need for and type of diagnostic studies are determined by characteristics of the pain and suspected underlying condition. Appropriately selected tests can lead to accurate diagnosis and improve outcomes (e.g., reduce pain and adverse effects of therapy, improve function and quality of life).⁹ However, diagnostic studies are meant to supplement, not replace, a comprehensive patient history and physical examination. Table 16 summarizes examples of diagnostic studies used in patients with pain.

Table 12. Preoperative Assessment and Patient Education Recommendations

- Establish a positive relationship with patients and/or families.
- Obtain a pain history.
- Educate the patient about pain assessment (e.g., methods, frequency) and pharmacologic and nonpharmacologic management strategies.
- Explore concerns/dispel misconceptions about use of pain medications, side effects, and addiction.
- Develop a strategy for postoperative analgesia in collaboration with the patient based on type of surgery, expected severity of postoperative pain, underlying medical conditions, the risk-benefit ratio and costs of available techniques, and patient's preferences and/or previous experience(s) with pain.
- Involve the patient in selecting an appropriate^a pain measurement tool (e.g., NRS, VAS), and review its features with the patient.
- Educate the patient (and/or families) about their responsibilities in pain management (e.g., providing a factual report of pain, preventing or halting pain before it has become well established). Negotiate a criterion (e.g., a score of 3-4 on a 10-point pain intensity scale) that will result in a dose increment or other intervention.
- Document the patient's preferred pain assessment tool and the goals for pain control (pain score).

Sources: References 5 and 17.

^aFactors that help to determine the appropriate tool include: 1) the patient's age; physical, emotional, or cognitive status; and preference; 2) the assessor's expertise, time, and degree of effort available; and 3) the institution's requirements for monitoring and documentation for quality assurance purposes. NRS: numeric rating scale; VAS: visual analog scale.

B. MEASUREMENT OF PAIN: COMMON ASSESSMENT TOOLS

Tools for pain assessment include unidimensional scales and multidimensional tools. The former (i.e., rating scales) usually assess a single dimension of pain, patient self-report of pain intensity. Although useful for assessing acute pain of clear etiology (e.g., postoperative pain), rating scales may oversimplify the assessment of some types of pain.¹² Therefore, experts recommend the use of multidimensional tools in the assessment of complex or persistent pain.

1. Unidimensional Scales

Rating scales provide a simple means for patients to rate pain intensity. Typical scales use numeric (e.g., 0-10), verbal (word), or visual (image) descriptors to quantify pain or pain relief. The tool should be appropriate for the patient's developmental, physical, emotional, and cognitive status, as well as reli-

Table 13. Postoperative Assessment and Patient Education Recommendations

- Assess multiple indicators of pain, including 1) patient perceptions (self-report), 2) cognitive attempts to manage pain, 3) behavioral responses (e.g., splinting the operative site, distorted posture, decreased mobility, insomnia, anxiety, depression), and 4) physiological responses (vital signs).
- Accept the patient self-report, and only substitute behavior and/or physiological responses if the patient is unable to communicate.
- Measure pain at rest and during activity (e.g., moving, deep breathing, coughing).
- Assess pain frequently during the immediate postoperative period: 1) at regular intervals, consistent with surgery type and pain severity (e.g., every 2 hours while awake for 1 day after surgery); 2) with each new report of pain; and 3) at a suitable interval after each analgesic intervention (e.g., 30 minutes after parenteral drug therapy, and 1 hour after oral analgesics). Increase the frequency of assessment for changing interventions or inadequate pain control.
- Record pain intensity and response to any interventions (including side effects) in a visible and accessible place (e.g., bedside chart).
- Immediately evaluate instances of unexpected intense pain, particularly if sudden or associated with evidence of potential complications.^a
- Consider all reasons for any discrepancies between a patient's self-report of pain and his or her behavior. Such discrepancies may reflect good coping skills or diversionary activities (e.g., distraction, relaxation techniques). Alternatively, a patient may be denying pain because of stoicism or fear of inadequate pain control.
- Give special consideration to needs of special populations, and be aware of potential barriers to effective communication (e.g., mental, cognitive, or hearing impairments; language barriers; cultural traditions).
- Revise the management plan, as needed, if pain behavior is observed or the patient expresses feelings of inadequate pain control.
- Prior to patient discharge, review with the patient the interventions used and their efficacy; provide specific discharge instructions regarding outpatient pain management.

Sources: References 5 and 17.

^aSigns such as fever, hypertension, tachycardia, or oliguria may be indicative of complications including wound dehiscence, infection, or deep venous thrombosis.

able, valid, and easy to use.⁵ Examples of these scales include the following (see Table 17):

- **Numeric rating scale (NRS):** The NRS is the most commonly used rating scale. Patients rate their pain on a 0-to-10 scale or a 0-to-5 scale, with 0 representing "no pain at all" and 5 or 10 representing "the worst imaginable pain." Pain intensity levels are measured at the initial encounter, following treatment, and periodically, as suggested by guidelines and the clinical situation.
- **Visual analog scale (VAS):** The VAS consists of a 10-cm line, with anchors at either end. One end is marked "no pain" and the other end is marked

Table 14. Additional Aspects of the Patient History in Patients With Chronic Noncancer Pain

- Pain treatment history: full review of results from past work-ups and treatments as well as patient's utilization of health care resources (e.g., office visits).
- Comprehensive psychosocial evaluation focused on: 1) patient responses to chronic pain (e.g., coping skills, avoidance of stressors, presence of chronic pain syndrome); 2) what the pain means to the patient; 3) evidence of family, legal, or vocational issues; and 4) expectations of family members, employers, attorneys, or social agencies (e.g., Social Security Administration). This evaluation may involve interviewing family members, too.
- Psychiatric interview to: 1) identify any psychological symptoms (e.g., depression, anxiety, anger), coexisting psychiatric disorders, or psychological traits; 2) evaluate suicide risk in patients with clinical signs of depression (e.g., sleep or appetite disturbances, hopelessness); and 3) identify history of events (e.g., severe or extreme trauma) that may lead to somatization or pain.
- Psychometric tests,^a when appropriate, to provide information about the pain, associated problems, and any coexisting psychopathology.
- Assessment of function and any disability to determine the patient's ability to perform daily activities (e.g., household chores, work tasks, leisure interests) and function autonomously, as well as the presence and levels of disability. Questionnaires such as the Pain Disability Index can be used to assess levels of disability, when appropriate. More formal evaluation of disability may be needed in some cases (e.g., application for disability benefits).
- Review of results with patient and family: This is the first step in the treatment of chronic noncancer pain, providing an opportunity to establish the rehabilitative focus of pain management and set realistic treatment goals.

Sources: References 8 and 18.

^aPsychometric tests include pain-related instruments (e.g., McGill Questionnaire, Multidimensional Pain Inventory, Beck Depression Inventory) and personality assessment instruments (e.g., Minnesota Multiphasic Personality Inventory-2, Coping Strategies Questionnaire).

“pain as bad as it could be” or “the worst imaginable pain.” The patient marks the place on the line to indicate his or her pain intensity. The clinician then measures the line with a ruler and assigns a score.²⁸

- **Categorical scales:** Categorical scales provide a simple means for patients to rate pain intensity using verbal or visual descriptors of the pain. Melzack and Torgerson²⁹ introduced a scale with five verbal descriptors (i.e., mild, discomforting, distressing, horrible, and excruciating). The Faces Pain Scale (FPS) for Adults and Children¹⁶ and the Wong-Baker Faces Rating Scale (for children)³⁰⁻³¹ are categorical scales with visual descriptors. The FPS consists of eight images of faces with various expressions (e.g., smiling, frowning, grimacing). The patient

selects the face that is consistent with his or her current level of pain.

2. Multidimensional Tools

Although not used as often as they should be, multidimensional tools provide important information about the pain's characteristics and effects on the patient's daily life.^{12,22} These tools are designed for patient self-report, but a clinician may assist the patient. Examples of multidimensional tools include (see Table 18):

- **Initial Pain Assessment Tool:** This tool, which was developed for use in the initial patient evaluation, elicits information about characteristics of the pain, the patient's manner of expressing pain, and the effects of the pain on the patient's life (e.g., daily activities, sleep, appetite, relationships, emotions).⁷ It includes a diagram for indicating pain location(s), a scale for the patient to rate pain intensity, and a space for documenting additional comments and management plans.
- **Brief Pain Inventory (BPI):** This tool is quick and easy to use and quantifies both pain intensity and associated disability.^{12,34-35} It consists of a series of questions that address aspects of the pain experienced over the preceding 24 hours (e.g., pain location and intensity, impact on the patient's life, type and effectiveness of any treatments). The BPI generally takes about 5 to 15 minutes to complete and is useful for a variety of patient populations.³⁶⁻³⁷
- **McGill Pain Questionnaire (MPQ):** The MPQ is one of the most extensively tested multidimensional scales in use.³² This tool assesses pain in three dimensions (i.e., sensory, affective, and evaluative) based on words that patients select to describe their pain. The MPQ can be combined with other tools to improve diagnostic accuracy.¹² A briefer form of the MPQ, the short-form McGill Pain Questionnaire, is also available.³⁹

A number of other multidimensional tools for pain assessment exist.¹² Some are designed to measure chronic pain in general, while others are specific to particular pain syndromes. In addition, some quality of life instruments (e.g., Medical Outcome Study Short-Form 36 Health Survey Instrument) assess pain.

Table 15. Physical Examination of a Patient With Pain

Region	Rationale, Methods, and Potential findings
General	Observe and/or identify: <ul style="list-style-type: none"> • Patient's general appearance and vital signs • Evidence of overt abnormalities (e.g., weight loss, muscle atrophy, deformities, trophic changes) • Any subjective manifestations of pain (e.g., grimacing, splinting)
Site of pain	Inspect the pain site(s) for abnormal appearance or color of overlying skin or visible muscle spasm Palpate the site(s) to assess for tenderness and correlate tenderness with any associated subjective or objective findings Use percussion (or jarring) to elicit, reproduce, or evaluate the pain and any tenderness on palpation Use the brush, pinch, pin prick, and/or scratch tests to assess for allodynia, hyperalgesia, or hyperesthesia Determine the effects of physical factors (e.g., motion, applied heat or cold, deep breathing, changes in position) on pain
Other regions	Examine other regions as directed by the patient history or assessment of pain site
Neurological system	At minimum, perform a screening neurological examination (i.e., assess cranial nerves, spinal nerves, sympathetic nervous system function, coordination, and mental status) to screen for: <ul style="list-style-type: none"> • Sensory deficits (e.g., impaired vision or hearing) or abnormal sensations (e.g., paresthesia, dysesthesia, allodynia, hyperpathia) • Motor abnormalities or deficits (e.g., weakness, exaggerated or diminished reflexes) • Lack of coordination • Evidence of sympathetic nervous system dysfunction (e.g., skin flushing, unusual sweating) • Abnormalities or deficits in orientation, recent or remote memory, parietal sensory function, language function, and mood
Musculoskeletal system	Observe and/or identify: <ul style="list-style-type: none"> • Body type, posture, and overall symmetry • Abnormal spine curvature or limb alignment and other deformities • Abnormal movements and/or irregular gait during walking • Range of motion (spine, extremities) For muscles in neck, upper extremities, trunk, and lower extremities: <ul style="list-style-type: none"> • Assess multiple parameters (e.g., tone, volume, contour, strength and power, range of motion) • Observe for any abnormalities (e.g., weakness, atrophy, hypertrophy, irritability, tenderness, trigger points)

Source: Reference 8.

Table 16. Examples of Diagnostic Tests

Type	Definition	Potential Uses
Screening laboratory tests	Includes CBC, chemistry profile (e.g., electrolytes, liver enzymes, BUN, creatinine), urinalysis, ESR	Screen for illnesses, organ dysfunction
Disease-specific laboratory tests	Includes autoantibodies, sickle cell test	Autoimmune disorders, SCD
Imaging studies	Includes radiographs (x-rays), CT, MRI, US, myelography	Detection of tumors, other structural abnormalities
Diagnostic procedures	Includes lumbar puncture, thoracentesis, paracentesis, biopsy	Detection of various illnesses
Electrodiagnostic tests	Include EMG (direct examination of skeletal muscle via needle electrodes) and NCS (examination of conduction along peripheral sensory and motor nerves or plexuses)	Detection of myopathies, some neuropathies, MS
• EMG		
• NCS		
Diagnostic nerve block	Nerve block (injection of a local anesthetic to determine the source/mechanism of the pain)	Multiple uses, ^a including: <ul style="list-style-type: none"> • Identification of structures responsible for the pain (e.g., sacroiliac or facet joint blocks) • Differentiation between types of pain

Sources: References 19-20a.

^aDiagnostic neural blockade (pain blocks) with a local anesthetic may be useful in determining the anatomic source of the pain, nociceptive pathways, or the contribution of the sympathetic nervous system to the pain.^{20a} They also may allow differentiation between local vs. referred pain, somatic vs. visceral pain, or central vs. peripheral pain.

BUN: blood urea nitrogen; CBC: complete blood count; CT: computed tomography; EMG: electromyography; ESR: erythrocyte sedimentation rate; MRI: magnetic resonance imaging; MS: multiple sclerosis; NCS: nerve conduction studies; SCD: sickle cell disease; US: ultrasound.

Table 17. Unidimensional Pain Assessment Tools

Scale	Administration	Advantages	Disadvantages	Comments
Numeric rating scale (NRS)	Verbal or visual	Easy to use Simple to describe High rate of adherence Flexible administration (including by telephone) Validated for numerous settings and pain types (acute, cancer, CNCP)	Less reliable for some patients (very young or old; patients with visual, hearing, or cognitive impairment)	Most commonly used rating scale
Visual analog scale (VAS)	Visual	Efficient to administer Valid in patients with chronic pain, older than age 5 years, rheumatic disease	Time-consuming scoring Controversial validity Can cause patient confusion Poor reproducibility with cognitive dysfunction	FPS generally preferred to the VAS for assessment in the elderly
Faces pain scale (FPS)	Visual	Perceived as easier than NRS or VAS No influence of culture, gender, or ethnicity Useful in individuals with difficulty communicating (e.g., children, elderly, individuals with limited language fluency or education)	Potential for distorted assessment (i.e., patients' tendency to point to the center of such scales) Need for instrumentation (i.e., a printed form)	Good alternative for patients with difficulty communicating

Sources: Reference 7, 11-13, 16, and 21-27.
CNCP: chronic noncancer pain; FPS: Faces Pain Scale; NRS: numeric rating scale; VAS: visual analog scale.

Table 18. Multidimensional Pain Assessment Tools

Scale	Administration	Advantages	Disadvantages or Comments
Brief Pain Inventory (BPI)	Visual	Reliable and valid for many clinical situations (e.g., cancer pain, arthritis pain, pain associated with HIV infection) and across cultures and languages Available in multiple languages Quick, quantifies pain intensity and disability	Used both clinically and in research Good choice of measure in patients with progressive conditions
Initial Pain Assessment Inventory (IPAI)	Visual	May be completed by patient or clinician Includes diagram for illustrating sites of pain	
McGill Pain Questionnaire (MPQ)	Verbal	Extensively tested Assesses sensory and affective dimensions of pain Short form takes only 2-3 minutes	Long form takes 5-15 minutes to complete Some patients confused by vocabulary Total score, but not individual scale scores, is considered valid measure of pain severity
Memorial Pain Assessment Card	Visual	Rapid to use Correlated with other longer measures of pain and mood Can fold card so that the patient views only one scale at a time	Assesses pain relief and mood on VAS and adds a set of adjectives reflecting pain intensity
Pain drawing	Written	May demonstrate nature of pain at a glance (e.g., radiculopathy, peripheral neuropathy, trigeminal neuralgia, arthritis) Helps to avoid overlooking pain that the patient fails to mention	

Sources: References 7, 12, and 32-38.
BPI: Brief Pain Inventory; HIV: human immunodeficiency virus; IPAI: Initial Pain Assessment Inventory; MPQ: McGill Pain Questionnaire; VAS: Visual analog scale.

3. Neuropathic Pain Scale

Although the Short Form MPQ³⁹ provides some information about neuropathic pain, it does not quantify it. The recently developed Neuropathic Pain Scale provides information about the type and degree of sensations experienced by patients with neuropathic pain.²⁷ It evaluates eight common qualities of neuropathic pain (i.e., sharp, dull, hot, cold, sensitive, itchy, and deep versus surface pain). The patient rates each item on a scale from 0 to 10, with 0 for none and 10 for the “most imaginable.” Although still in its developmental form, this scale may hold diagnostic and therapeutic promise.⁷ Early data suggest that this scale is easy to use and sensitive to treatment effects.²⁷

C. REASSESSMENT OF PAIN

Reassessment of pain is integral to effective pain management. Many factors influence its frequency, scope, and methods. This section reviews some approaches to reassessment in common clinical settings and situations.

1. Frequency

The 1992 Agency for Health Care Policy and Research^b CPG states that pain should be reassessed: 1) within 30 minutes of parenteral drug administration, 2) within one hour of oral drug administration, and 3) with each report of new or changed pain.⁵ However, these recommendations pertain to the reassessment of acute pain in an acute care setting. Multiple factors determine the appropriate frequency of pain reassessment, including characteristics of the pain (e.g., duration, severity), patient factors and needs, the clinical setting, and pain management plan (i.e., type of drug or intervention).

Reassessing pain with each evaluation of the vital

signs (i.e., as a fifth vital sign) is useful in some clinical settings. However, the frequency of vital signs checks in others settings suggests the need for more or less frequent reassessment. Clinicians should instruct outpatients to contact them to report changes in the pain’s characteristics, side effects of treatment, and treatment outcomes. Periodic reassessment is recommended in patients with chronic pain to evaluate improvement, deterioration, or treatment-related complications.^{9,40} Residents of long-term health care facilities should be assessed for pain upon admission, at quarterly reviews, with changes in the patient’s medical condition, and whenever pain is suspected.⁴¹

2. Scope and Methods

The scope and methods of reassessment vary with factors including the setting, characteristics of the pain, the patient’s needs and medical condition, and responses to treatment. Routine screening for pain with a pain rating scale provides a useful means of detecting unidentified or unrelieved pain. Appropriate tools, as well as terms synonymous with pain (e.g., burning, discomfort, aching, soreness, heaviness, tightness), should be used to screen elderly patients.⁴⁰ The presence of any pain indicates the need for further assessment, consideration of pain-relieving interventions, and post-intervention follow-up.³ For example, reassessment of pain in a stable and comfortable postoperative patient may be relatively simple and brief (i.e., score on NRS alone). However, sudden, unexpected intense pain, especially if associated with altered vital signs, should prompt immediate and thorough assessment for potential complications (e.g., wound dehiscence, infection, or deep venous thrombosis).⁵ Patients who have not responded to treatment and/or have complex types of pain (e.g., chronic pain, neuropathic pain) often require more comprehensive reassessment of pain. A pain diary may facilitate this process.⁹ A pain diary or log is a patient-generated record that is used to track various aspects of the pain and its management (e.g., pain intensity, associated activities, medication use, side effects, and other responses to treatment).

^bThe Agency for Health Care Policy and Research is now the Agency for Health Care Research and Quality.