

OTC Oral Analgesic Selection and Patient Education

This algorithm is provided as a resource to guide pharmacists in assessing patient complaints of pain, selecting analgesics that are appropriate for individual patients, and educating patients about appropriate OTC analgesic use.

Patient presents with report of pain

Assess the patient and pain complaint:

- **Patient**

- Health conditions
- Allergies
- Current medications and medication history
- Social history (e.g., alcohol, nicotine, nutritional intake)

- **Pain**

- Duration/onset: How long have you had the pain?/When did it begin?
- Remitting factors: What makes the pain better? (activities, treatments, etc.)
- Aggravating factors: What makes the pain worse?
- Quality: Describe the pain (aching, throbbing, stabbing, tingling, burning, radiating, etc.)
- Location: Where is the pain?
- Severity: Rate the intensity of the pain on a numeric scale of 0–10 or use Wong-Baker FACES pain rating scale.
- Temporal factors: Is the pain constant or intermittent?
- Function: How does the pain limit your activities?

Use the information obtained about the pain complaint along with an overall patient assessment to determine whether the patient has exclusions for self-treatment:

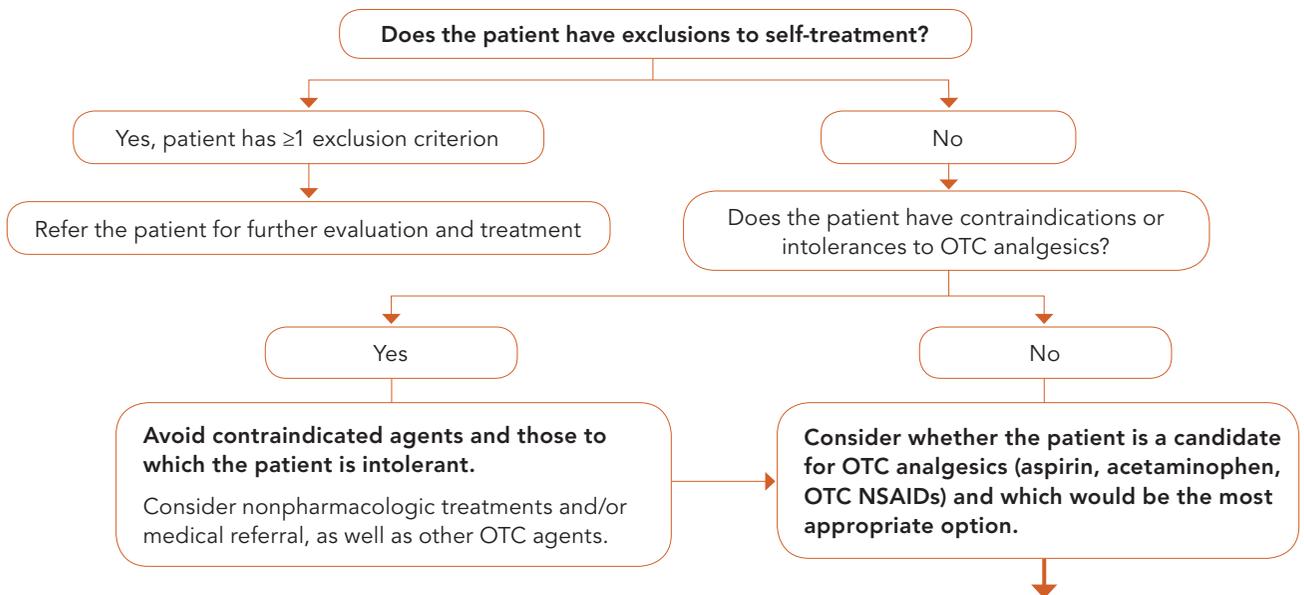
- Severe pain (rated >6 on a 0–10 scale)
- Pain that lasts >10 days (including chronic low back pain)
- Increased intensity or change in the character of pain
- Pelvic or abdominal pain (other than dysmenorrhea)
- Back pain and loss of bowel and/or bladder control
- Accompanying nausea, vomiting, high fever, or other signs of systemic infection or disorder
- Pregnancy
- History of liver disease or consumption of ≥ 3 alcoholic drinks per day
- Symptoms consistent with undiagnosed pain condition (e.g., undiagnosed migraine headache, neuropathic pain, secondary headache due to underlying pathology)
- Signs of an injury requiring medical attention (e.g., fracture, visually deformed joint, weakness or numbness in a limb, concussion, laceration requiring stitches)

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*List provides common examples of health conditions and medications. Always consider all of the patient's medications and health conditions and consult professional labeling before making drug therapy recommendations.



Health Condition*	Yes	Preferred Agent/Treatment
Dysmenorrhea	<input type="radio"/>	NSAID
Musculoskeletal injury	<input type="radio"/>	NSAID or acetaminophen in conjunction with RICE (rest, ice, compression, and elevation, usually for the first 1–3 days after the injury). Heat may provide benefit for noninflammatory pain.
Osteoarthritis	<input type="radio"/>	Acetaminophen for mild to moderate pain; NSAID for flares or swollen, inflamed joints.
Headache	<input type="radio"/>	Acetaminophen and/or NSAID. For acute migraine headache, combinations such as acetaminophen with aspirin and caffeine, or acetaminophen with an OTC NSAID, can be effective. For sinus headache, systemic and local decongestants may be used in conjunction with analgesics.

Consider whether the patient has a health condition that warrants use of a specific OTC analgesic, and recommend that analgesic if appropriate based on other patient data.

Health Condition*	Yes	Preferred Agent/Treatment
Asthma or nasal polyps	<input type="radio"/>	Acetaminophen
Bleeding disorder	<input type="radio"/>	Acetaminophen
Congestive heart failure	<input type="radio"/>	Acetaminophen
Hypertension	<input type="radio"/>	Acetaminophen
Pregnant	<input type="radio"/>	Acetaminophen
Lactating	<input type="radio"/>	Acetaminophen, ibuprofen
Peptic ulcer disease	<input type="radio"/>	Acetaminophen
Renal impairment	<input type="radio"/>	Acetaminophen
Varicella or influenza symptoms in children	<input type="radio"/>	Acetaminophen, ibuprofen
Gout	<input type="radio"/>	Ibuprofen, naproxen

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Consider whether the patient is using other medications that could interact with OTC analgesics, and select an alternate analgesic or implement appropriate management strategies.



OTC Analgesic	Drug*	Potential Interaction	Management/Preventive Measures
Acetaminophen	Alcohol	Increased risk of hepatotoxicity	Avoid concurrent use, if possible; minimize alcohol intake when using acetaminophen
Acetaminophen	Warfarin	Increased risk of bleeding (elevations in INR)	Limit acetaminophen to occasional use; monitor INR for several weeks when acetaminophen 2–4 g daily is added or discontinued
Aspirin	Valproic acid	Displacement from protein-binding sites and inhibition of valproic acid metabolism	Avoid concurrent use or monitor levels; use acetaminophen, ibuprofen, or naproxen
Aspirin	NSAIDs, including COX-2 inhibitors	Increased risk of gastroduodenal ulcers and bleeding	Avoid concurrent use, if possible; consider use of gastroprotective agents (e.g., PPIs)
Ibuprofen	Aspirin	Decreased antiplatelet effect of aspirin	Aspirin should be taken at least 30 minutes before or 8 hours after ibuprofen; use acetaminophen (or other analgesic) instead of ibuprofen
Ibuprofen	Phenytoin	Displacement from protein-binding sites	Monitor free phenytoin levels; adjust dose as indicated; consider naproxen
NSAIDs	Bisphosphonates, steroids	Increased risk of GI or esophageal ulceration	Exercise caution with concomitant use
NSAIDs	Digoxin	Renal clearance of digoxin inhibited	Monitor digoxin levels; adjust dose as indicated
NSAIDs	Lithium	Renal clearance of lithium inhibited	Monitor for signs of toxicity and lithium levels; use acetaminophen
Salicylates and NSAIDs	Antihypertensive agents: beta-blockers, ACE inhibitors, vasodilators, diuretics	Antihypertensive effect inhibited; possible hyperkalemia with potassium-sparing diuretics and ACE inhibitors; increased risk of renal dysfunction with ACE inhibitors	Monitor blood pressure, cardiac function, and potassium levels
Salicylates and NSAIDs	Anticoagulants	Increased risk of bleeding, especially GI	Avoid concurrent use, if possible; risk is lowest with nonacetylated salicylates (salsalate and choline magnesium trisalicylate)
Salicylates and NSAIDs	Alcohol	Increased risk of GI bleeding	Avoid concurrent use, if possible; minimize alcohol intake when using salicylates and NSAIDs
Salicylates and NSAIDs	Methotrexate	Decreased methotrexate clearance	Avoid salicylates and NSAIDs with high-dose methotrexate therapy; monitor levels with concurrent treatment
Salicylates and NSAIDs	Drugs affecting serotonin	Enhanced antiplatelet effect and increased risk of bleeding	Monitor for bleeding
Salicylates (moderate- to high-dose)	Sulfonylureas	Increased risk of hypoglycemia	Avoid concurrent use, if possible; monitor blood glucose levels when changing salicylate dose

ACE = angiotensin-converting enzyme; COX = cyclooxygenase; GI = gastrointestinal; INR = international normalized ratio; NSAID = nonsteroidal anti-inflammatory drug; PPI = proton pump inhibitor.
Table adapted from Wilkinson.



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**Based on the above factors, recommend an appropriate OTC oral analgesic.
Refer to product labeling for pediatric dosing.**

Agent	Brand	Usual Adult OTC Dosage	Maximum Daily OTC Dose
Acetaminophen regular strength	Tylenol	650 mg every 4–6 hours	3,250 mg (brand) 3,900 mg (generic)
Acetaminophen extra strength	Tylenol Extra Strength	1,000 mg every 6 hours	3,000 mg (brand) 3,000 – 4,000 mg (generic)
Acetaminophen extended release	Tylenol 8 Hour Tylenol Arthritis Pain	1,300 mg every 8 hours	3,900 mg
Aspirin	Various	650 mg every 4 hours or 1,000 mg every 6 hours	4,000 mg
Ibuprofen	Advil, Motrin	200–400 mg every 4–6 hours	1,200 mg
Naproxen sodium	Aleve	220 mg every 8–12 hours; for the first dose an additional tablet can be taken within the first hour	660 mg
Magnesium salicylate tetrahydrate	Doan's Extra Strength	580–1,160 mg every 6 hours	4,640 mg

Provide patient education to support appropriate OTC analgesic use.

Using patient-friendly language, discuss:

- Proper medication administration and dosing; emphasize the importance of avoiding overdoses
 - Calculate the correct dose, especially for pediatric patients (be sure parents and caregivers know that the dose for each child is based on weight)
- The importance of always reading and following the directions on the label
 - Review the Drug Facts label with patients, parents, and caregivers
 - Never exceed the recommended dose
- Avoiding therapeutic duplication (consider both prescription analgesics and other OTC products, such as those used in the treatment of the common cold)
 - Never take >1 acetaminophen-containing medication or >1 NSAID-containing medication
- Appropriate length of treatment; seek medical evaluation if pain gets worse or lasts >10 days or if new symptoms occur
 - Patients with headache should avoid using OTC analgesics ≥3 days per week, because this may cause rebound headache
- Possible adverse reactions and precautions, including when to seek medical attention:
 - Signs and symptoms of severe allergic reactions
 - Acetaminophen overdose can cause liver damage; symptoms of acetaminophen poisoning may not appear for 24 hours, if at all; in most cases, vomiting may be the only symptom, however symptoms may include nausea, fatigue, or abdominal pain
 - Acetaminophen may cause severe skin reactions; symptoms may include skin reddening, blisters, or rash; if symptoms occur, stop acetaminophen use and seek immediate medical attention
 - NSAIDs may cause gastrointestinal bleeding; symptoms may include feeling faint, vomiting blood, having bloody or black stools, or stomach pain that does not get better; if any of these symptoms occur, stop NSAID use and seek medical attention
- Minimize concurrent alcohol use; complete avoidance of alcohol use is best, however occasional consumption of a glass of wine or beer is acceptable; refer to OTC analgesic chart on page 3 for potential interaction with alcohol
- Advise patient follow-up with health care provider regarding any questions or concerns

References

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