## **Dosing and Conversion Chart for Opioid Analgesics**

| Drug                                      | Route | Equianalgesic Dose (mg) | Duration(h) | Plasma Half-Life(h) |
|---|-------|-------------------------|-------------|---------------------|
| Morphine                                  | SQ/IV | 10                      | 4           | 2-3.5               |
| Morphine                                  | P0    | 30                      | 4           | 4                   |
| Codeine                                   | SQ/IV | 130                     | 4           | 3                   |
| Codeine                                   | P0    | 300                     | 4           |                     |
| Oxycodone                                 | SQ/IV | -                       |             |                     |
| Oxycodone                                 | P0    | 30                      | 3-4         | 4                   |
| Hydromorphone                             | SQ/IV | 1.5                     | 4           | 2-3                 |
| (Dilaudid)<br>Hydromorphone<br>(Dilaudid) | P0    | 7.5                     | 4           | 4                   |
| Meperidine                                | SQ/IV | 75                      | 4           | 2                   |
| Meperidine                                | P0    | 300                     | 4           | normeperidine       |
| Methadone                                 | SQ/IV | 10*                     | 6-8†        | 12-24               |
| Methadone                                 | P0    | 20*                     | 6-8†        | 20-200              |
| Fentanyl                                  | IV    | 0.1                     |             |                     |
| Hydrocodone                               | SQ/IV | -                       |             |                     |
| Hydrocodone                               | P0    | 30                      | 3-4         | 4                   |

| Conversion to Transdermal Fentanyl (Duragesic)                                 |                             |  |  |  |
|--|-----------------------------|--|--|--|
| Parenteral Morphine: mg/24h  | Duragesic Equivalent (µg/h) |  |  |  |
| (recommended)  |                             |  |  |  |
| 8-22 (17)  | 25                          |  |  |  |
| 23-37 (33)   | 50                          |  |  |  |
| 38-52 (50)   | 75                          |  |  |  |
| 53-67 (66)   | 100                         |  |  |  |
| 68-92 (83)   | 125                         |  |  |  |
| 83-97 (95)   | 150                         |  |  |  |
| Adapted from the Texas Cancer Council Guidelines for Treatment of Cancer Pain. |                             |  |  |  |

Adapted from Foley KM. The treatment of cancer pain. N Engl J Med. 1985;313:84-95. (PMID: 2582259)

Source: PIER modules on Pain and Opioid Abuse. ©2007 by the American College of Physicians.

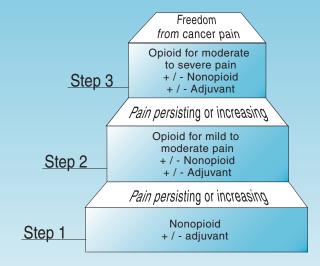
The information included herein should never be used as a substitute for clinical judgment and does not represent an official position of ACP. Check the PIER Web site (http://pier.acponline.org) for the most current information available.



# **Chronic Pain Management**

Appropriate Use of Opioid Analgesics

### **WHO Pain Relief Ladder**



If pain occurs, there should be prompt oral administration of drugs in the following order: nonopioids (aspirin and paracetamol); then, as necessary, mild opioids (codeine); then strong opioids such as morphine, until the patient is free of pain. To calm fears and anxiety, additional drugs – "adjuvants" – should be used. To maintain freedom from pain, drugs should be given "by the clock," that is every 3-6 hours, rather than "on demand." This three-step approach of administering the right drug in the right dose at the right time is inexpensive and 80%-90% effective. Surgical intervention on appropriate nerves may provide further pain relief if drugs are not wholly effective.

Source: World Health Organization, http://www.who.int/cancer/palliative/painladder/en/

<sup>\*</sup>The equianalgesic dose of methadone compared to other opioids is extremely variable with chronic dosing. Conversion from oral morphine to oral methadone may range from 4 to 14:1.

<sup>†</sup> Risk of CNS depression with repeated use; accumulation in elderly or persons with impaired renal function with regular dosing. Monitor for patient variability in duration of efficacy.

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#### **Decision Phase**

- · Establish diagnosis
- . Confirm inadequacy of nonopioid and nonmedical treatments
- Ensure that the balance of risk and benefit favors treatment
- Explain benefits and risks and clinic's monitoring policies
- . Establish treatment goals
- Request written consent or contract when necessary

#### Dose-adjustment Phase

(Up to 8 weeks)

- Start therapy at low standard dose and increase dose as tolerated to achieve acceptable analgesia
- Discontinue opioid if satisfactory analgesia is not achieved or if adverse effects are intolerable

#### Stable Phase

Maintain stable, moderate dose

#### Monthly refills:

- Require patient to pick up prescriptions in person Assess and document patient's pain score and
- side effects of opioid Treat side effects
- · Refer patient for comprehensive follow-up if indicated

#### Comprehensive follow-up:

- . Require at least every year and optimally every 3 months
- Assess pain relief, effect of pain on well-being. achievement of treatment goals, functioning. and quality of life
- . Toxicologic screening, if indicated

### Outcomes

#### Treatment successful:

(Criteria for success are one or more of the following): Pain relief that improves

- well-being, progress toward goals, improved function, improved quality of life
- . Continue stable dose and follow-up

#### Dose Escalation:

- · Exclude or identify disease escalation
- · Hospitalize, if necessary · Repeat dose adjustment
- phase
- . Aim to reach new, stable moderate dose

#### Treatment Failed:

(Criteria for failure are any of the following):

- Failure to achieve success. evidence of addiction. noncompliance
- . Wean and discontinue therapy

#### Dose Escalation Failed

Try opioid rotation; switch opioid and start at lower dose, or

Wean and discontinue therapy: restart opioid after period of abstinence, if necessary

Side effects other than constipation usually subside during prolonged treatment but occasionally persist. Other adverse effects include addiction and complex problems in functioning or quality of life. There are no accepted or validated risk factors for these effects, but it is widely acknowledged that there is a link between previous drug or alcohol abuse and addiction to opioids prescribed for pain. Deterioration in functioning or quality of life appears to be closely associated with lack of motivation to improve; young adults are the most susceptible to this type of deterioration.

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## **Opioid Treatment for Pain**

| opioid iredifficit for Fair  |   |  |  |  |  |  |
|--|---|--|--|--|--|--|
| Agent  | Dosage  | Notes  |  |  |  |  |
| Short-acting: Morphine<br>(MSIR, Roxanol)  | 15-30 mg q 4 h  |  |  |  |  |  |
| Short-acting: Hydromorphone<br>(Dilaudid)  | 2-4 mg q 3-4 h  |  |  |  |  |  |
| Short-acting: Codeine<br>(alone, or in acetaminophen<br>with codeine)  | 30-60 mg q 4 h  | With all combination agents, doses limited by maximal daily dose of nonopioid component (4 g/d of acetaminophen or aspirin)  |  |  |  |  |
| Short-acting: Oral transmucosal fentanyl citrate (Actiq)   | 200-1600 µg q 3 h<br>as needed  | Cherry-flavored lozenge; use only<br>in opioid-tolerant patients (taking<br>at least the equivalent of 60 mg of<br>morphine per day)   |  |  |  |  |
| Short-acting: Hydrocodone and acetaminophen; hydrocodone and aspirin; hydrocodone and ibuprofen                                | 5-10 mg q 4 h   | With all combination agents, doses limited by maximal daily dose of the nonopioid component (4 g/d of acetaminophen or aspirin)  |  |  |  |  |
| Short-acting: Oxycodone (Roxicodone) or in acetaminophen and oxycodone (Percocet, Roxicet); ibuprofen and oxycodone (Combunox) | 5-10 mg q 4 h   | With all combination agents, doses limited by maximal daily dose of the nonopioid component (4 g/d of acetaminophen or aspirin)  |  |  |  |  |
| Short-acting: Tramadol (Ultram) or<br>in acetaminophen and tramadol<br>(Ultracet)  | Initial: 25 mg/d; average<br>analgesic dosage: 50 mg tid;<br>maximum dosage: 400 mg/d | Constipation, sedation, nausea. Adjust dose based on renal and hepatic function and in patients over age 75. With all combination agents, doses limited by maximal daily dose of the nonopioid component (4 g/d of acetaminophen or aspirin) |  |  |  |  |
| Long-acting, sustained-release:<br>Morphine (MS Contin, Oramorph,<br>Kadian, Avinza)   | 15-30 mg q 12 h or q 24 h<br>(or based on 24-hour use<br>of short-acting opioid)      | Patients on sustained-release<br>opioids should generally<br>have a short-acting opioid<br>available as needed for<br>breakthrough or episodic pain  |  |  |  |  |
| Long-acting, sustained-release:<br>Oxycodone (Oxycontin)   | 10-20 mg q 12 h<br>(or based on 24-hour use<br>of short-acting opioid)                | Patients on sustained-release opioids should generally have a short-acting opioid available as needed for breakthrough or episodic pain  |  |  |  |  |
| Long-acting: Transdermal fentanyl<br>(Duragesic patch)   | 12-25 μg/h patch q 72 h<br>(avoid in opioid-naïve<br>patients)                        | Peak effects occur 12-24 hours<br>after application and effects last<br>12-24 hours after removal of patch   |  |  |  |  |

ad = once daily: gid = four times daily: tid = three times daily.