

Pain Relief Connection

The Pain Information Newsletter

Provided by MGH Cares About Pain Relief



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Clinical Focus: Ten Guidelines for Assessing and Treating Pain

This is the 5th in a series on the principles and guidelines for pain management.

6. Prescribe an adequate opioid dose at correct intervals; include a breakthrough or rescue dose.

- *Adequate dose:*
 - For most opioids there is no ceiling dose; individualize the treatment: the adequate dose is the dose that relieves pain with acceptable side effects.
 - When pain is inadequately relieved, escalate dose by 25 – 50% of the current dose
- *Prescribe a correct dosage interval:*
 - In general, prescribe “by the clock:” around the clock (ATC) at intervals determined by the pharmacokinetics of the drug and patient response. PRN dosing usually assures regular periods of recurrent pain.
 - Reserve as-needed (PRN) dosing for breakthrough/rescue dosing, for intermittent pain states, and for incident pain (see below).
- *Provide a breakthrough or rescue dose:*
 - People with either acute or chronic pain can be expected to have occasional acute exacerbations of their pain; a **rescue dose** of 15-20% of total daily opioid dosage should be available every 1 – 2 hours as needed for **breakthrough pain**.
 - If the rescue dose is being used frequently, increase the basal 24 hour dose by an amount at least equal to the current dose plus all rescue doses in the past 24 hours. Depending on the opioid being used, decreasing the prescribed interval may also be appropriate.
- *Provide for pre-emptive doses when appropriate:* activities that can reasonably be predicted to cause exacerbation in pain (**incident pain**) should be scheduled to permit pre-emptive analgesic medication at a dose at least equal to the rescue dose. Common examples of precipitators of incident pain include physical therapy and dressing changes.
- *Provide for potential missed doses:*
 - When a patient is scheduled to be off the floor for a test or procedure that could potentially delay a scheduled analgesic, make arrangements for the dose to be given at the alternate site.
 - Anticipate that a patient who normally takes PO meds may also need an alternate route.

In the News

The [MGH Cares About Pain Relief](http://www.mghcaresaboutpainrelief.org) web site was launched in May, with content for both clinicians and patients. Web sites, especially informational sites, are rarely static. Feedback on any aspect of the site and suggestions for new content are welcome at PainRelief@Partners.org.

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The second printing of “[What You Need to Know About Pain: A Guide for Patients and Families](#)” has just been completed and is now available through Standard Register for \$58.75 per pack of 25 booklets (request item #0084023). Supplies of the first printing of the popular MGH Cares About Pain Relief booklet, distributed free through a pharmaceutical company grant, have been exhausted.

Eavesdropping

An article in the June 24 [American Medical News](#) warns about a little-known analgesic, metamizole, that is banned in the US and unknown to most US-trained clinicians. However, it is a commonly used over-the-counter analgesic and antipyretic among Latin American, especially Mexican, immigrants. Metamizole is a nonsteroidal anti-inflammatory drug (NSAID) that was pulled from the US market in 1979 because it can cause a fatal agranulocytosis. An [article](#) on the drug and its medical and cultural implications appears in the June issue of [Pediatrics](#).

In the January 22 issue of the [New York Times](#) health columnist Jane Brody wrote on “[Misunderstood Prescription Drugs and Needless Pain](#).” Common misperceptions, especially those related to fears of addiction, are discussed. Brody stresses that many people are in unnecessary pain because they, their physicians, or their families do not understand that the risk of inadequate pain treatment is far greater than the risk of addiction. Free registration on the site is required to access the article.

Education

Free (for a limited time): Online CE offerings on [constipation, pain](#), and other cancer symptoms at [CancerSourceRN.com](#). Free registration on the site is required to access the CE modules. Cost for contact hours is usually \$10 – 14 per offering.

August 21-25 (Weds – Sat): **Advanced Training in Pediatric End-of-Life Care**: The University of New England (Portland, ME) has partnered with the [Jason Program](#) to sponsor a five-day workshop series that will cover a variety of topics related to the unique skills necessary to providing quality care and support to terminally ill children, their families and caregivers. For more information, Phone: 207-797-7688, ext. 4412; Fax: 207-878-4891; email: oce@une.edu

September 19 – 22 (Thurs – Sun): [4th Biennial Forum on Pediatric Pain](#), **The Context of Pediatric Pain**:

Biology, Family, Society, Culture: White Point Beach Resort, Nova Scotia, Canada. Additional information is available on their web site or by calling 902-453-4664.

October 3-5 (Thurs – Sat) (Please note that this reflects a schedule change): **New England Conference on Pediatric Hospice**: Sponsored by the [Jason Program](#), dedicated to the care of seriously ill and dying children. An annual multidisciplinary conference. Register online, or print registration form to mail or fax. Phone number for more information: (207) 283-0170 ext 2589.

MGH Pain Calendar:

June 26 (Weds) 8:00am – 12:00noon, O’Keefe Auditorium: **Neonatal and Infant Pain Assessment**: A 4-hour continuing education course co-sponsored by the NICU and the Center for Clinical and Professional Development. Faculty are Pat Hummel, MA, RNC, NNP, PNP and Mary Puchalski, MS, RNC, APN of Loyola University Medical Center near Chicago. They are the developers of the Neonatal Pain Agitation and Sedation Scale (N-PASS). **Target audience is all practitioners who work with children up to 3 years old.**

URL notes: **Hold your cursor over the link for a second to see the URL.** If you are reading this in hard copy, this month’s links are:
MGH Cares About Pain Relief: <http://www.massgeneral.org/painrelief>; http://www.massgeneral.org/painrelief/mghpain_guide.htm
American Medical News: <http://www.ama-assn.org/public/journals/amnews/amnews.htm>
Metamizole article: <http://www.pediatrics.org/cgi/content/full/109/6/e98>
Pediatrics: <http://www.pediatrics.org/>
Jane Brody article: <http://www.nytimes.com/2002/01/22/health/anatomy/22BROD.html?ex=1012709249&>
New York Times: <http://www.nytimes.com>
Constipation CE offering: <http://www.cancersourcern.com/Nursing/CE/CECourse.cfm?courseid=71&contentid=21082>
Pain CE offering: <http://www.cancersourcern.com/Nursing/CE/CECourse.cfm?courseid=48&contentid=18989>
CancerSourceRN.com: <http://www.cancersourcern.com>
Jason Program: <http://www.jasonprogram.org>
4th Biennial Forum on Pediatric Pain: <http://www.pediatric-pain.ca/ifpp>

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PAIN TOPICS

Converting Opioid Analgesics, Part I: Use of Equianalgesic Tables

Thomas E. Quinn, MSN, RN, AOCN

Editor's Note: With this issue of *Pain Relief Connection* we introduce a new feature. PAIN TOPICS will be an occasional one to two-page column. It may expand on topics covered briefly in another section of the newsletter; it may be educational in nature; it may include commentary; it will always be related to pain. Readers are invited to submit articles for consideration, as well as suggestions for future columns to PainRelief@Partners.org.

A barrier to effective pain management with opioids

In the “Clinical Focus” column of this issue we pointed out that it is sometimes necessary to change the route by which an opioid analgesic is given; in some circumstances it may also be desirable to change to a different opioid. The chemical differences between opioids effects their relative potency when compared milligram for milligram. Also, the pharmacokinetics of an opioid taken orally is different than when taken intravenously. For example, morphine and hydromorphone (Dilaudid) are very effective analgesics for moderate to severe pain. However, 7.5 mg of oral hydromorphone is as potent as 30 mg of oral morphine: these two doses are considered to be equianalgesic. Similarly, that same 30 mg of oral morphine is equianalgesic to 10 mg of parenteral morphine.

For some less experienced practitioners, conceptualizing the sometimes-dramatic differences between potencies of opioids can be a psychological barrier to effective use of these analgesics. For both experienced and inexperienced practitioners, having to “do the math” for these conversions is another potential barrier, especially when both route and drug change at the same time.

Lowering the barrier

Using an opioid equianalgesic table can help to lower both the psychological and practical barriers to selecting the best drug and route for a patient. There is an opioid equianalgesic [table](#) on the MGH Cares About Pain Relief [web site](#). All listed doses are considered to be approximately equivalent to each other. No equianalgesic table is fool-proof and the fact that different tables sometimes display different equivalencies naturally leads one to question their validity. However, these tables can be effectively used with the following caveats:

1. **Use only one table:** Consistent use of the same table reduces errors and increases comfort with dose conversion.
2. **Start conservatively, then titrate to effect:** There is incomplete cross-tolerance between opioids and both route and drug “equianalgesic” calculations are approximate. When changing drugs, reduce the *calculated* equianalgesic dose by at least 25% to prevent overshooting the patient’s analgesic needs, but be prepared to titrate in 25 – 50% increments per day.
3. **Treat the patient, not the table:** Available dosage forms may not match the calculated dose: in general, start with a dose lower than the calculated dose. For example, if the calculated dose minus 25% (to account for incomplete cross-tolerance) is 10 mg but the available dosage form is in 4 mg tablets, start with an 8 mg dose.
4. **Calculate doses based on 24-hour usage:** Equianalgesic tables usually list *per dose* equivalencies. In clinical practice, it is usually most appropriate to determine the patient’s total opioid use in the previous 24 hours, calculate the equianalgesic dose of the new drug, subtract 25%, then divide by the number of desired doses per day, as determined by the standard dosing interval for that drug.
5. **Don’t forget rescue doses:** As discussed on Page 1, rescue doses should be available as a standard part of an around-the-clock dosing regimen. Use of rescue doses can be particularly helpful in titrating to the appropriate dose after a drug or route conversion. The rescue dose is generally 15-10% of the 24 hour dose.
6. **Know the drugs you are using:** Recognize that the conversion of certain agents may be different depending on whether the patient is relatively opioid naïve vs using opioids chronically.
7. **Get help:** Have a colleague check both your plan and your math.

Still confused? Try the problems on the next page.

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1. **The case:** Mr. Mendez is maintained on MS Contin (sustained-release morphine) 30 mg q12 hours for chronic pain not related to a malignant disease. He also takes 15 mg of Roxanol (oral morphine) for breakthrough pain. He averages 1 - 2 rescue doses per day. His pain averages 2-3/10 and he requests the breakthrough dose when the pain reaches 5/10.

Mr. Mendez is scheduled for an all-day GI procedure that requires a bowel prep. He will likely be NPO for a total of 48 hours. A continuous infusion is considered, but Mr. Mendez thinks it be unnecessarily cumbersome. He requests intermittent IV injections.

Thinking it through: Mr. Mendez is stable on his basal morphine dose and is quite familiar with rescue doses. It is decided that his basal dose will be converted to q4 hour IV injections and his IV rescue dose will be available every 1 – 2 hours.

Doing the math (use the equianalgesic [table](#) to confirm equivalent doses):

- a. First calculate the 24 hour basal dose: morphine 30 mg x 2 doses per day = 60 mg + (conservatively) 15 mg Roxanol = 75 mg morphine/24 hours.
- b. Set up the simple proportion equation:

$$\frac{\text{morphine 30 mg PO}}{\text{morphine 10 mg IV}} = \frac{\text{\{current dose\} morphine 75 mg PO}}{\text{\{planned dose\} morphine x mg IV}} = 25 \text{ mg morphine IV/24 hours}$$
- c. Morphine is generally dosed q 4 hours = 6 x/day: 25 mg ÷ 6 = 4 mg q 4 hours.
- d. The rescue dose is 10 – 20% of the 24 dose: 25 x .2 = 5 mg IV q 1- 2 hours as needed for breakthrough pain.

2. **The Case:** Ms Anders has advanced endometrial cancer. Ms. Ander’s abdominal pain is well controlled (range: 0 – 3/10) with 100 mg MS Contin q8 hours. She has ascites, lower extremity edema, and has recently experienced nausea and vomiting, so that the oral route has become unreliable for medications. The decision is made to change to continuous IV analgesia, and to convert the morphine to hydromorphone (Dilaudid) in order to minimize the volume of IV fluid she receives. Ms Anders has a rescue dose of immediate release morphine 30 mg PO ordered, but rarely needs it.

Thinking it through:

A simple conversion of the basal oral morphine dose to an hourly Dilaudid parenteral dose is the goal. Ms Anders has not needed her oral rescue dose, but it should be available now because route and drug changes are inexact. A relatively conservative rescue dose may be appropriate.

Doing the math:

- a. First calculate the 24 hour basal dose: morphine 100 mg x 3 doses per day = 300 mg.
- b. Set up the simple proportion equation:

$$\frac{\text{morphine 30 mg PO}}{\text{Dilaudid 1.5 mg IV}} = \frac{\text{\{current dose\} morphine 300 mg PO}}{\text{\{planned dose\} Dilaudid x mg IV}} = 15 \text{ mg Dilaudid IV/24 hours}$$
- c. Reduce dose by 25%: 15 x .75 = 11.25 mg IV to be deliver over 24 hours by continuous infusion. (Note that some practitioners recommend reducing an additional 25% because both drug and route are being changed).
- d. The hourly dose is 11.25 ÷ 24 = 0.5 mg/hour.
- e. The rescue dose is 10 – 20% of the 24 dose: 11 x .1 = 1.1 mg. Suggested rescue dose: 0.5 – 2 mg IV q 1- 2 hours as needed for breakthrough pain.

In each case the patient should be assessed frequently for both pain and side effects, and the doses adjusted accordingly.

Next step

Standardizing opioid conversion as described above is one step toward improving opioid use—but you still have to do the math. In Part II we will discuss the use of electronic calculators for equianalgesic dose conversions.

(The URL for the equianalgesic table is: http://www.massgeneral.org/painrelief/mghpain_equichart.htm)

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