

# Medication Safety Alerts

Jack Seki and Linda Turner

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## DEVELOPMENT OF EQUIANALGESIC CHARTS

The collaborative opioid safety projects of the Institute for Safe Medication Practices of Canada (ISMP Canada) that are currently taking place in Ontario<sup>1</sup> and Alberta have generated interest in shared learning about narcotic safety initiatives. In this column, we describe the experience of one hospital in developing an equianalgesic dosage chart to enhance the quality of patient care.

The University Health Network (UHN) is a 750-bed quaternary referral centre for the province of Ontario. UHN participates with the National Research Corporation, Picker Group, in an ongoing comparative evaluation of pain management practices in Ontario hospitals. In the 2002 and 2003 evaluations, UHN scored worse than other Ontario hospitals on the “dimension of comfort”, which comprises information about the patient’s worst and least pain over a 24-h period, the degree to which pain interfered with daily activity, staff response to the pain, and the amount of pain medication received.<sup>2</sup> The UHN nursing department decided to investigate pain management practices by conducting several knowledge and attitudes surveys of nurses in fall 2002, using a 10-question survey adapted from a scale recommended by McCaffrey and Ferrell.<sup>3</sup> On the basis of the results of the surveys, a corporate objective was established in 2003 to improve pain management through the patient-centred model of care. Several important steps were taken to achieve this objective, one of which was to select and provide professional education for 85 “pain resource nurses”, who would act as consultants to their colleagues for enhanced pain management. The same 10-question survey was used to assess the knowledge and attitudes of these nurses before and after the education program. Question 9 of the scale, relating to the concept of equianalgesia, yielded the lowest score before training, with 54% of respondents providing the correct answer (for

all other questions, at least 65% of respondents provided the correct answer before training). After the educational sessions, 69% of respondents had the correct score for question 9 (the corresponding values for other questions were 89% or better). When the same knowledge and attitudes survey was administered to nurses in other units at UHN, we obtained similar results. Nurses’ lack of knowledge about equianalgesic opioid conversion was recognized as a potentially hazardous clinical issue, because it would likely lead to mismanagement of patients’ pain, and may have contributed to ongoing issues of unresolved pain.

In spring 2004, the UHN Pharmacy Department conducted an in-patient satisfaction survey to measure the success of pain management related to pharmacists’ interventions during the hospital stay. Forty-one percent of the patients surveyed reported having experienced pain and having a pharmacist inquire about their pain control, and 38% stated that their pain was under control and that they had no additional concerns about pain or discomfort when pharmacists asked about this issue during their hospital stay. The remaining 21% represented the proportion of patients who had experienced pain but for whom pharmacists had not initiated any intervention to resolve the issue. The latter group was to be the focus of our goal to improve pain management.

Pharmacists, nurses, and physicians with expertise in pain management began joining forces in an attempt to educate health care staff at UHN. It became clear early in this process that there were no standardized tools in the hospital to serve as a quick reference for clinicians on the topic of equianalgesia. Although many equianalgesic dosing charts are available in the literature, most come from studies of single-dose, immediate-release opioids administered in the acute care setting.<sup>4,7</sup> It was recognized



that equianalgesic dosing ratios differ for short-term dosing (a few doses) and long-term dosing and that extrapolation of data from one situation to the other could be problematic.

In addition, pain management at UHN encompasses a wide scope of practice areas, including acute postoperative and procedural pain, as well as chronic nonmalignant and palliative cancer pain. Caregivers working with the different patient populations held strong beliefs about what constituted appropriate pain management, and it was therefore important to listen to and include input from representative practitioners in all practice areas. For these reasons, the clinical nurse specialist (L.T.) and the clinical pharmacist (J.S.) representatives on the Corporate Pain Management Committee chose to develop a unique equianalgesic chart for UHN as a first step in addressing pain management issues.

Patient safety was an important objective during development of the standardized chart. Safety strategies included standardization, simplification, education, and awareness. By creating a standardized equianalgesic chart and using the Pharmacy and Therapeutics Committee's list of approved formulary opioids, we were able to minimize the risk of confusion when patients are transferred within UHN, as well as when patients are transferred from other facilities. For methadone dosing, the chart includes a warning to clinicians to consult a pain expert licensed by the Ministry of Health and Long-Term Care, since the dose equivalency and dose range are both highly variable in the published literature.<sup>8</sup> In addition, the oral formulation of meperidine has been removed from the UHN formulary, and guidelines for the use of injectable meperidine have been developed.

The development of patient monitoring guidelines for intermittent and continuous opioid dosing is extremely important, and close patient monitoring is required when changing from one opioid to another.<sup>3</sup> The pharmacokinetic parameters of each opioid, such as bioavailability, were considered in creating the equianalgesia chart.<sup>9</sup> Even so, a chart can never replace monitoring for intra- and inter-individual variability in response and toxic effects. Rather, the chart provides a guide for the initial dose conversion, and the monitoring parameters guide safe titration according to patient response.<sup>10</sup>

Once the chart was completed, we set out to obtain expert review and evaluate the "buy-in" from various clinicians at the 3 UHN sites, which took approximately 1 year. The chart has been approved by the appropriate UHN committees. Laminated versions are now posted in strategic areas of all nursing units, and a Web-based e-chart is available for easy access by clinicians. Education for UHN staff is well under way at all levels, with the aim of reaching approximately 5000 front-line staff. We have

also teamed up with our public relations department to undertake an extensive communications strategy, which includes providing articles for various hospital publications and posting a quiz on the hospital intranet. All new hospital staff, including medical staff, receive a description of the equianalgesic dosing chart during orientation.

Education about pain management is an ongoing endeavour at UHN. We will continue to develop and provide pain education to staff members, including the use of interactive "e-learning" programs. Patient satisfaction surveys, along with well-designed clinical documentation, will help us to determine our success in managing patients' pain. We believe that the equianalgesic dosing chart and associated educational initiatives will contribute to improved patient care outcomes at UHN.

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**Jack Seki**, BSc(Phm), PharmD, is Pharmacy Clinical Site Leader, Oncology, at Princess Margaret Hospital, University Health Network, Toronto, Ontario.

**Linda Turner**, RN, MN, was previously a clinical nurse specialist at University Health Network. She is now a Pain Consultant for Health Care working through Langara College Continuing Studies, Vancouver, British Columbia.

**e-mail:** [info@ismp-canada.org](mailto:info@ismp-canada.org)

**ISMP Canada home page:** [www.ismp-canada.org](http://www.ismp-canada.org)

A copy of the equianalgesic dosing chart can be obtained by contacting Jack Seki at the University Health Network ([Jack.Seki@uhn.on.ca](mailto:Jack.Seki@uhn.on.ca)).

