



## Since when is it a crime to be human?

Two weeks ago, a nurse from Wisconsin was charged with criminal *neglect of a patient causing great bodily harm* in the medication error-related death of a 16-year-old woman during labor.<sup>1</sup> The nurse accidentally administered a bag of epidural analgesia by the intravenous route instead of the intended penicillin. The criminal complaint ([www.wha.org/legalAndRegulatory/DOJcriminalcomplaint11-2-06.pdf](http://www.wha.org/legalAndRegulatory/DOJcriminalcomplaint11-2-06.pdf)) alleges that the nurse failed to follow the "five rights," did not use an available bedside bar-code scanning system, and did not read the label of the medication.

Like so many other healthcare professionals around the country, we were deeply saddened by the tragic loss of life in this case and extend our condolences to the patient's family. We have also been supportive of the nurse involved in the error, as she works through the agony of having made a fatal error, faces potential action against her nursing license, and copes with the loss of her job of 15 years.

Now, as she faces the threat of 6 years in jail and a \$25,000 fine, some may be hasty in their judgment of this case, without knowing all the facts. It is important to keep in mind that there is usually much more to a medication error than what is presented in the media or a criminal complaint. For example, while the criminal complaint alleges that the nurse failed to follow the "five rights"<sup>2</sup> and did not use an

available bedside bar-coding system, some of the most safety-minded hospitals across the nation with bar-coding systems have yet to achieve a 100% scanning rate for patients and drug containers.

This incident is similar to a 1998 case involving three nurses in Denver who were indicted for criminally *negligent homicide* and faced a possible 5-year jail term for their role in the death of a newborn who received IV penicillin G benzathine.<sup>3,4</sup> At first glance, it appeared to many that disciplinary measures might be warranted in that case. But when working pro bono for one nurse's attorney, ISMP found more than 50 deficiencies in the medication use system that

contributed to the error. Had even *one* of them been addressed before the incident, the error would not have happened or would not have reached the infant. Fortunately, in the Denver case, the nurse who stood trial was rightfully acquitted of the charges by a jury of laymen that deliberated for less than one hour.

While there is considerable pressure from the public and the legal system to blame and punish individuals who make fatal errors, filing criminal charges against a healthcare provider who is involved in a medication error is unquestionably egregious and may only serve to drive the reporting of errors underground. The belief that a medication error could lead to felony charges, steep fines, and a jail sentence can also have a chilling effect on the recruitment and retention of healthcare providers—particularly nurses, who are already in short supply.

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## nicecatch



**What's in your ADC?** Sorted alphabetically by brand name, the antiarrhythmic **BREVILOC** (esmolol) and the anesthetic

**BREVILOC** (methohexital) followed one another on an automated dispensing cabinet (ADC) screen in a hospital procedural area. This led a nurse to accidentally remove Brevibloc instead of Brevital and eventually place the wrong medication at the patient's bedside. Fortunately, another nurse and the physician caught the error during the "time out" period immediately before the procedure, although medication verification is not typically part of this process. The near miss reminds us that, whenever feasible, products with look-alike names should not appear sequentially on ADC screens. In this case, the pharmacy also now dispenses maintenance infusions of esmolol for patients as prescribed.

**Filing criminal charges against a nurse involved in a medication error is unquestionably egregious.**

## safetywires



### Conflicting volume on label.

Pharmacy prepared an infusion of **ACTIVASE** (alteplase), 30 mg/30 mL, in an empty 100 mL IV container. The pharmacy label stated "30 mg/30 mL, to be infused over 1 hour," but the nurse who administered the drug saw "100 mL," which was printed by the manufacturer on the top of the plastic container. Believing the total volume in the bag was 100 mL, the nurse set the pump at 100 mL/hour, and the drug infused over 20 minutes. Fortunately, no harm resulted, but the incident did point out how mistakes can happen if the actual total volume of drug and diluent differs from the volume on the manufacturer's label. Since nurses may only "see" the most prominent information on a container, pharmacists at this hospital decided to cover the "100 mL" portion of the manufacturer's label with the pharmacy label if the actual volume in the bag differs significantly

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### Defense Fund

Concerned friends and colleagues have started a fund to help support Julie—the nurse involved in this error. Checks can be made payable to "Friends of Julie T" and sent to the Park Bank, P.O. Box 8969, Madison, WI 53708-8969.

## Promethazine survey spurs renewed efforts to prevent tissue damage

In our August 2006 newsletter, we highlighted the well-known, caustic effects of IV PHENERGAN (promethazine) and suggested ways to reduce the risk of serious tissue injuries and amputations from inadvertent arterial injection or IV extravasation. We also invited readers to participate in a survey to learn more about the scope of the problem and to encourage sharing of additional injury prevention strategies. This topic evoked considerable response from readers who contacted us with troubling stories of their own about serious injuries from promethazine extravasations (see Figure 1 for an example). From the nearly 1,000 survey responses and many additional unsolicited comments we received, two things were abundantly clear:

■ *Promethazine extravasations that result in serious tissue damage are not rare; one in five respondents reported*

*awareness of such an occurrence in their facility within the past 5 years*

■ *While practitioners are frustrated with this longstanding problem for which there is no easy solution, many have been inspired to revisit the issue and take new measures to reduce the risk of patient injury from IV promethazine.*

**Survey findings.** Among the recommendations we suggested in our survey to reduce the risk of tissue injuries, most were deemed to be of great value by respondents, particularly: diluting the drug; limiting the concentration and initial dose; providing alerts on medication administration records (MARs) and automated dispensing cabinet (ADC) screens; injecting the drug into a running IV using the port furthest from the patient's vein; and advising patients to report any IV site

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**Figure 1.** A patient accidentally received promethazine via an arterial line in his wrist, leading to pain that he described as "squeezing my thumb and index finger with pliers." Redness, pain, and swelling extended from his fingers to his forearm. Believing the patient had developed a thrombosis, his physician performed an embolectomy, but no clot was found. Now, 1 month later, the patient will soon undergo amputation of his thumb and finger.

### Crime to be human? continued

ISMP supports the stance that the Wisconsin Hospital Association ([www.wha.org/newsCenter/pdf/nr11-2-06Crimchargesmt.pdf](http://www.wha.org/newsCenter/pdf/nr11-2-06Crimchargesmt.pdf)) and Wisconsin Nurse Association ([www.wisconsin-nurses.org/docs/WNA%20Press%20Release%2011.3.06.pdf](http://www.wisconsin-nurses.org/docs/WNA%20Press%20Release%2011.3.06.pdf)) have taken in opposing criminal prosecution of healthcare professionals for unintentional errors. We also join the many professional colleagues and friends who have been publicly supportive of Julie, the nurse involved in the Wisconsin case. Former patients have come forward in tribute to the competent and compassionate care they have received from Julie, and concerned friends and colleagues have started a fund to help support her defense (see page 1).

If you would like to send a message to Julie, please submit it to [Julie@ismp.org](mailto:Julie@ismp.org) (or to ISMP, 1800 Byberry Road, Suite 810, Huntingdon Valley, PA 19006) and we will forward it. We also invite you to send a letter to the Wisconsin Attorney General, Peggy A. Lautenschlager, in protest of the criminal charges filed against Julie (Wisconsin Department of Justice, P.O. Box 7857, Madison, WI 53707-7857; Fax: 608-267-2779).

If possible, ISMP will bring any details we learn about this error to healthcare providers across the nation so we can all learn from this tragedy. Until then, please reserve judgment on this case and recognize that a fatal medication error could happen to any nurse.

**References:** [www.ismp.org/pressroom/viewpoints/julie.asp](http://www.ismp.org/pressroom/viewpoints/julie.asp).

### safetywire continued

from the manufacturer's label. The hospital also revised its procedures to more clearly state the total volume in the bag, to reduce the potential for confusion. For high-alert drugs such as Activase, all staff involved in administration should also be familiar with approved drug dosing and administration protocols, which will provide other opportunities to catch such errors. An independent double check is also warranted before the infusion is started.

#### ⚡ Misspelling leads to confusion.

A nurse called the pharmacist for clarification about administering **ZESTRIL** (lisinopril) 40 mg to an already hypotensive patient. Upon review, the pharmacist learned that a handwritten order for **ZEGERID** (omeprazole) 40 mg had been misread as Zestril, in part because Zegerid had been misspelled as "Zegrid." Zestril is indicated for hypertension, heart failure, or post acute myocardial infarction, while Zegerid is used to treat duodenal or gastric ulcers, gastroesophageal reflux disease, erosive esophagitis, or to reduce the risk of upper gastrointestinal bleeding in critical patients. These drugs have 20 mg and 40 mg overlapping dosage strengths and are administered orally once daily. Fortunately, the nurse questioned the order, which was corrected, and the patient received the right medication. ISMP cannot stress enough the importance of understanding and matching drug actions to the patients' current disease processes to help prevent sound-alike, look-alike medication errors. Be sure your organization has a reliable process for communicating this information to all practitioners that need it, including pharmacists.

**What lies behind us  
and what lies before us  
are small matters  
compared to what lies  
within us.**

—Ralph Waldo Emerson

Promethazine continued

discomfort. Yet, implementation of these recommendations was much lower than expected, considering their perceived value (see Table 1).

While about two-thirds of all respondents limit promethazine concentration to 25 mg/mL, only about half of all respondents dilute the drug in 10 to 20 mL of saline, inject it through a running line, and advise patients to report IV site discomfort. Only about a quarter limit the starting dose to 6.25 mg or 12.5 mg, provide alerts on MARs, and use the furthest port when injecting the drug. Just one-fifth of all respondents provide alerts on ADC screens. Even more surprising, just one-third of all respondents expect staff to remain with the patient during administration to assess the IV site, and only one-quarter require slow administration over 10 minutes, although two-thirds clearly felt these actions were valuable. About half of all respondents agreed that IV promethazine should never be administered via hand or wrist veins, but just 10% reported following such a policy. Recommendations that would eliminate the use of IV promethazine and remove it from the formulary received the lowest scores for both perceived value and current implementation, perhaps because there are so few alternatives as effective as IV promethazine.

**Additional recommendations.** Some facilities reported additional strategies not mentioned in our survey or article. One pharmacist reported that he now dispenses each vial of promethazine in a small ziplock bag with an insert that contains instructions for safe administration along with a photo of actual tissue damage, taken from our August newsletter. Although the pharmacy prints alert messages on MARs, these warnings are not available to ED or OR staff, so the attention-grabbing photo and information in the bag offer a good way to communicate precautions.

Another hospital reported that, along with IV sites in the hand and wrist, nurses no longer give the drug through an IV in the antecubital space, where nerves, arteries, and veins are very close. Whenever possible, they use an IV site on the back of the arm or a central line.

Several hospitals told us about nausea and vomiting prevention protocols they use to reduce the use of IV promethazine. For example, in one hospital, patients receive ZANTAC (ranitidine) and dexamethasone preoperatively, and ANZEMET (dolasetron) 30 minutes before the end of surgery. Promethazine IV is used only as a last resort.

**Conclusion.** Only 24% of respondents believe FDA should withdraw approval for IV promethazine. As such, health-care providers need to review their current practices and establish safeguards to prevent inadvertent arterial injection and IV extravasation. An ED physician aptly affirmed both the desire to pre-

serve IV use of promethazine and the need to address its risks in the following message to ISMP:

*For 27 years, I have used IV promethazine 2 to 3 times every shift I work. I have personally never seen serious tissue damage with this medication, aside from rare instances of local phlebitis that have resolved without incident. This is not to underestimate the serious risks of using this medication,... but to underscore the fact that all medications have risks/benefits. In my opinion, the benefits far outweigh the risks with IV promethazine...I have seen many good drugs go out of favor because of problems...mostly related to improper use... Let's not ignore the risks, but let us also keep the benefits in perspective!*

Thanks to all who completed the survey. We hope that our recent article and survey have brought sufficient attention to this longstanding problem to drive needed changes in practice around the administration of IV promethazine.

| Table 1<br>Recommendations  | All Respondents (N=989) |                         |
|---|-------------------------|-------------------------|
|   | Value (1=low, 5= high)  | % Follow Recommendation |
| Dilute the drug in 10 to 20 mL of saline                                | 4.5                     | 47                      |
| Advise patients to report burning/pain                                  | 4.5                     | 59                      |
| Limit concentration to 25 mg/mL   | 4.3                     | 69                      |
| Alerts about safety precautions on MARs                                 | 4.3                     | 27                      |
| Alerts about safety precautions on ADC screens                          | 4.2                     | 19                      |
| Inject drug through running IV line                                     | 4.1                     | 41                      |
| Safety requirements in standing orders                                  | 4.1                     | 22                      |
| Inject in port furthest from the patient's vein                         | 4                       | 24                      |
| Limit starting dose to 6.25 or 12.5 mg                                  | 4                       | 29                      |
| Administer slowly over 10 minutes                                       | 3.8                     | 26                      |
| Require person giving the drug to remain with patient to assess IV site | 3.8                     | 33                      |
| Do not administer via hand/wrist veins                                  | 3.7                     | 10                      |
| Use alternative rescue antiemetics                                      | 3.5                     | 38                      |
| Prepare drug in saline minibags   | 3.3                     | 10                      |
| Give drug through central venous site only                              | 2.8                     | 4                       |
| Ban IV use of promethazine  | 2.4                     | 3                       |
| Remove promethazine from formulary                                      | 2.3                     | 3                       |

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