

# Nurse AdviseERR®

Educating the Healthcare Community About Safe Medication Practices

## Despite technology, verbal orders persist, read back is not widespread, and errors continue

In January 2017, we invited readers of our acute care, community/ambulatory care, long-term care, and nursing newsletters to complete an online survey to learn about the use of verbal orders that are spoken aloud (face-to-face), provided via telephone, or left on voicemail. The survey directed respondents to exclude verbal orders that occurred during order clarifications. We sincerely thank the 1,622 nurses (75%), pharmacists (23%), and other practitioners (2%) who completed the survey! Most respondents practice in a wide variety of hospital settings (87%), including medical/surgical units (31%), intensive care units (21%), inpatient pharmacies (18%), emergency departments (15%), procedural areas (14%), telemetry units (13%), and obstetrical units (7%). The

**Table 1.** Medication classes received as verbal orders

| Medication class                             | Percent (%) reporting verbal orders |
|--|-------------------------------------|
| Analgesics (controlled substances)           | 67                                  |
| Agents to control blood pressure             | 59                                  |
| Fluids for hydration                         | 59                                  |
| Analgesics (non-controlled substances)       | 55                                  |
| Antiemetics                                  | 54                                  |
| Anti-infectives                              | 40                                  |
| Antipsychotics, anxiolytics, sleep agents    | 38                                  |
| Electrolytes                                 | 34                                  |
| Gastrointestinal agents                      | 31                                  |
| Respiratory agents                           | 30                                  |
| Emergency drugs                              | 29                                  |
| Anticoagulants                               | 28                                  |
| Antidiabetic agents                          | 28                                  |
| Other controlled substances (not analgesics) | 13                                  |
| Anticoagulation reversal agents              | 10                                  |
| Other medication classes                     | 9                                   |
| Oncologic agents/chemotherapy                | 2                                   |

remaining respondents practice in ambulatory clinics (6%), long-term care facilities (2%), community pharmacies (2%), or other facilities (3%).

ISMP conducted this survey to gain insight into the current use of verbal orders in today's healthcare environment given the increased use of computerized prescriber order entry and electronic prescribing, which have the potential to reduce errors resulting from unclear handwritten and verbal orders. The survey results suggest that verbal orders are still used, and that the critical safeguard of reading back verbal orders for verification is limited. The potential for verbal orders to be misunderstood, misheard, or transcribed incorrectly makes them error prone, particularly given different accents, dialects, and drug name pronunciations by the prescriber and recipient of the order. Add in sound-alike drug names and dosing numerals (e.g., 50 vs. 15), background noise and disruptions,

and the failure to seek verification, it is not surprising that errors with verbal orders continue to be reported.

### Survey Results

**Methods used to communicate verbal orders.** Most respondents reported receiving verbal orders during the past year via telephone (85%) and spoken face-to-face (74%). While only 4% of nurses and pharmacists reported receiving verbal orders left on voicemail, such occurrences were reported in both hospital pharmacies and

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### ISMP Releases Guidelines on Safe Subcutaneous Insulin Use

For years, insulin has been shown to be associated with more medication error-related harm than any other drug. The new *ISMP Guidelines for Optimizing Safe Subcutaneous Insulin Use in Adults* are designed to help healthcare practitioners prevent errors and improve outcomes for patients with diabetes who use insulin. The guidelines provide recommendations for avoiding errors and at-risk behaviors involving subcutaneous insulin across the entire medication-use process, including prescribing, preparation, administration, monitoring, and patient education. The document also addresses evolving practices, devices, and technologies that aim to enhance the safety of insulin use, such as with concentrated insulin and insulin pen devices. For a FREE copy, visit: [www.ismp.org/sc?id=2917](http://www.ismp.org/sc?id=2917). ISMP thanks BD for their support of this project.

### SAFETY wires

#### ⚡ Don't leave "Meds to Beds" prescription bags at bedside.

"Meds to Beds" programs are becoming more popular with patients and their healthcare providers. These programs bring prescription medications to the patient's bedside prior to patient discharge from the hospital and may include patient education about the medications, as well as follow-up by a pharmacist post-discharge. These services may be provided by the health-system's ambulatory care pharmacy or by outside community pharmacies that have contracted with hospitals. Besides convenience, benefits may include increased adherence to medication regimens and fewer patient readmissions.

Keep in mind that, for safety reasons, this program should not simply involve having a pharmacy technician or assistant drop off the medications or leave them on the patient's bedside table. Otherwise, confusion

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> **Verbal orders**—continued from page 1

patient care units, particularly medical/surgical units, emergency departments, intensive care units, and telemetry units. In community pharmacies, telephone (96%) and voice-mail (79%) were the primary modes of communicating verbal orders.

**Frequency of verbal orders.** For more than a quarter of respondents, at least 1 in every 4 orders is received verbally. Almost 12% of respondents indicated they received more than half of all orders during the past year as verbal orders, and another 14% reported receiving 26% to 50% of all orders as verbal orders. For most of the remaining respondents, verbal orders were received less frequently—between 6-25% of all orders for 33% of respondents, and between 1-5% of all orders for 40% of respondents. Only 1% of all respondents told us they had not received any verbal orders in the past year.

**Read back verbal orders.** The Joint Commission (TJC) includes a requirement under the Provision of Care, Treatment, and Services (PC 02.01.03, EP 20) for the receiver of a verbal order to record it and read (not repeat) it back to the prescriber. This helps ensure that one has heard and transcribed an order correctly. Nevertheless, nearly half (45%) of all respondents who reported receiving telephone or spoken orders told us they do this less than 50% of the time. In fact, 16% of respondents said they read back verbal orders only 1-5% of the time, and 9% indicated they never carry out this important verification process. A few respondents commented that their organizations require practitioners receiving verbal orders to repeat back, rather than read back, verbal orders, or that no distinction has been made between repeat

**Table 2.** Examples of errors related to verbal orders continued on page 3—**Verbal orders** >

| Error type                             | Description of error  |
|--|---|
| <b>Transcription errors</b>            | A verbal order was given to hold an antihypertensive medication if the patient's blood pressure was less than a specific reading. When transcribed, the symbol for "greater than," not "less than," was used. The error was corrected before reaching the patient.                                |
|  | A prescriber called in an order for a one-time <b>LOR</b> azepam dose for an agitated, anxious patient. The nurse entered the drug into the computer as "q4h PRN," which was the default frequency, instead of as a one-time dose. The patient became oversedated after receiving multiple doses. |
|  | A physician gave a verbal order to a pharmacist for <b>ZOSYN</b> (piperacillin-tazobactam) 300 mg/kg/day in divided doses every 6 hours. The pharmacist entered the order as 300 mg/kg/dose q6h.  |
|  | A prescriber verbally ordered 0.2 mg of oral morphine solution for a newborn with withdrawal symptoms. The nurse transcribed the order as 0.2 mg/kg. The pharmacy clarified the dose with the prescriber, and it was corrected.   |
| <b>Misheard sound-alike drug names</b> | A consultant recommended fluvox <b>MINE</b> , but the resident misheard the drug name as <b>FLU</b> oxetine.  |
|  | A telephone order for propafenone was mistaken as propranolol.  |
|  | An emergency department physician verbally ordered " <b>KENALOG</b> " (triamcinolone acetonide), but the nurse misheard the drug as ketamine and handed the vial to the physician. The physician drew up the medication and administered it.  |
|  | A nurse misheard a physician's verbal order for <b>HYDRO</b> morphine as morphine.  |
| <b>Prescriber confusion</b>            | A physician verbally ordered "100 mg of <b>TORADOL</b> " (ketorolac) when he meant to say "tra <b>MAD</b> ol."  |
| <b>Misheard dose</b>                   | "50" mg was misheard as "15" mg.  |
| <b>Misunderstood dose</b>              | During an emergency at the bedside, a prescriber asked for "10" of diaz <b>PAM</b> , but the nurse prepared 10 mL (5 mg/mL), not the intended 10 mg.  |
| <b>Misheard frequency</b>              | A nurse misheard a verbal order for temazepam "qhs" PRN for sleep as "q8h" and entered the order into the computer. A pharmacist called the physician to clarify the order, and the physician corrected the frequency to every night at bedtime as needed.  |
| <b>Route confusion</b>                 | Subcutaneous <b>EPINEPH</b> rine was prescribed. The route was misunderstood, and the drug was administered by the IV route.  |

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sion (and medication errors) may occur. We recently learned about a close call in which a nurse gave a patient his morning medications, and then the patient opened the bag of discharge medications left at his bedside and nearly took the same medications again.

Nursing and pharmacy staff awareness of this issue is important, as is patient education, which should be considered imperative for "Meds to Beds" programs. Medications (including controlled substances) should not be left unsecured at the bedside prior to discharge. A plan should be established regarding where to secure these medications until discharge, after a pharmacist has reviewed them with the patient, and what to do if the patient is not in the room at the time of delivery. Affixing an auxiliary label to the bag containing the medication(s) to remind patients that the medication(s) is not for use while in the hospital may help prevent errors.

 **VinCRISTine extravasation unlikely with minibags.**

Twelve months of data collected at The Johns Hopkins Hospital found zero cases of extravasation among more than 1,300 minibag administrations of intravenous (IV) vin**CRIST**ine after a recent change from administering the drug from a syringe. These results were recently presented at the Oncology Nursing Society (ONS) 42<sup>nd</sup> Annual Congress ([www.ismp.org/sc?id=2921](http://www.ismp.org/sc?id=2921)). ISMP Targeted Medication Safety Best Practice #1 calls for dilution of IV vin**CRIST**ine in a minibag rather than dispensing and administering the drug in a syringe. This reduces the risk of an accidental mix-up with intrathecal medications, which are given via a syringe. Such a mix-up has been uniformly fatal. Still, it has been difficult to make this change at some locations, because nurses are so used to administering vesicants—other than continuous infusions—as an IV push through the side port of a free-flowing IV line. Per the presenters, one barrier to standardizing vin**CRIST**ine administration in minibags is the fact that some nurses believe the risk of extravasation is higher than when manually pushing the agent through the IV line. Other barriers noted by the researchers included a lack of understanding of the risk of death associated with central nervous

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back and read back. Others indicated that verbal orders are first written on scrap paper and read back, then later transcribed or entered into the patient's actual medical record.

**Classes of medications.** Respondents also identified medication classes for which they have received verbal orders in the past year (see **Table 1**, on page 1), some of which are high-alert medications. Analgesics, agents used to control blood pressure, fluids for hydration, and antiemetics were reported by more than half of the respondents. Despite being highly discouraged by ISMP, 2% of respondents reported receiving verbal orders for oncologic agents/chemotherapy in the past year.

**Medication errors.** Fourteen percent of respondents were aware of an error that occurred in the past year due to mishearing, misunderstanding, or incorrectly transcribing verbal orders. No trend emerged regarding the type of pharmacy or patient care unit where the errors occurred. Selected examples of the 211 errors reported by respondents are described in **Table 2**, on page 2.

### Recommendations

Because there are situations (e.g., emergencies, sterile procedures) in which verbal orders are unavoidable, consider the following recommendations to reduce the risk of an error.

#### Organizational Policies and Procedures

**Prohibit verbal orders for chemotherapy.** Do not allow verbal orders for chemotherapy except to hold or discontinue it. These medications are not administered in emergent situations, and the dosing regimens are often complex.

**Limit verbal orders.** Limit verbal orders to true emergencies or circumstances in which the prescriber is physically unable to electronically transmit, write, or fax orders (e.g., working in a sterile field). For example, except in emergent situations, do not allow verbal orders for entire order sets when admitting or discharging patients or during medication reconciliation when prescribing medications. Do not allow verbal orders for convenience or as a means of circumventing an electronic prescribing system.

**Limit to formulary drugs.** If verbal orders are necessary, only allow them for items on formulary because the names and dosages of drugs unfamiliar to practitioners are more likely to be misheard.

**Define the process.** Define the prohibitions and limitations on verbal orders; when they are acceptable; a mechanism to establish the identity and authority of the prescriber; elements of a complete verbal order; and the requirements for clear communication of verbal orders, direct transcription into the medical record, and the readback process for verification.

#### Prescribers and Receivers

**Clarify all communications.** Avoid all drug name abbreviations and error-prone dose, route, or frequency abbreviations (e.g., U, IU, SC, QD). Spell out drug names, and for sound-alike drug name pairs, use a phonetic alphabet (e.g., "T" as in "Tango," "C" as in "Charlie"). Communicate each individual dose, not a total daily dose, and pronounce each digit of a number separately (e.g., "sixteen, one six," to avoid confusion with "sixty"). When appropriate, use leading zeros but not trailing zeros when specifying doses.

#### Prescribers

**Receivers are encouraged to directly enter orders.** Prescribers must wait until the receiver is in front of a computer and have the patient's record pulled up.

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system administration of vinCRISTine, as well as an insufficient understanding of how to properly administer vinca alkaloids via a minibag. Hopefully this new data will help convince hospitals that have yet to make the switch to minibags for vinCRISTine. Infusion from a minibag is also supported by The Joint Commission, the World Health Organization, the Oncology Nursing Society, and the National Comprehensive Cancer Network.

## Oral chloral hydrate still used for pediatric procedural sedation

ISMP thanks the more than 400 pharmacists, nurses, and physicians who completed our survey on the use of chloral hydrate for pediatric procedural sedation in late 2016. More than half (58%) of the survey respondents no longer use chloral hydrate or see it used for pediatric procedural sedation since the commercial product was discontinued in late 2012. However, 28% reported still using the drug for pediatric sedation in both inpatient and outpatient settings. Among those, chloral hydrate is often compounded by a hospital pharmacy (47%), compounding pharmacy (19%), or ambulatory pharmacy (4%); however, 30% of respondents did not know the source of the drug.

The reasons for the continued use of chloral hydrate include: past experiences with positive outcomes (20%); efficacy (10%); low cost (8%); inadequate alternatives (8%); as safe as other alternatives (5%); lack of availability of anesthesia professionals (4%); and less frequent sedation failures than alternatives (1%). Several respondents also reported that chloral hydrate is used for sedation with certain investigational studies, during auditory brainstem response (ABR) and electronystagmography (ENG) tests for hearing since it does not affect brain waves, and for sedation during mechanical ventilation when other sedation agents have failed. Most of these respondents reported that chloral hydrate

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**Confirm patient and allergies.** Before issuing the order, identify the patient using his or her full name and birth date, and confirm the patient's allergies with the order receiver.

**Speak clearly.** Enunciate orders clearly and expect (or ask) the receiver to read back the order as transcribed in the patient's medical record. Provide the indication for the medication to help distinguish between sound-alike medications.

**Provide complete orders.** Be sure to include all elements of a complete verbal order, being clear about the unit of measure for each dose and the frequency of administration.

**Repeat order on voicemail.** Avoid leaving orders on voicemail in the inpatient setting. If leaving a voicemail in the outpatient setting, repeat the complete order a second time.

**Provide weight-based doses.** Include the mg per kg dosage along with the patient-specific dose for all weight-based neonatal and pediatric medication orders.

**Request patient verification.** To verify patient identification, ask the recipient to read back the patient's name and birth date on the screen or order form that was used to transcribe the verbal order.

## Receivers

**Transcribe directly into the medical record.** Immediately transcribe verbal orders into the patient's medical record as they are being communicated. Transcription from scrap paper to the medical record introduces another opportunity for error. Based on survey comments, the challenge of directly entering verbal orders into an electronic health record is difficult, requires additional time, and may need to be addressed. For order clarification by a pharmacist, provide a mechanism for the pharmacist to transcribe the orders directly into the patient's medical record.

**Read back the order.** Read the order back to the prescriber for verification. This step is essential and should become habit even if the receiver is confident that he or she has initially heard the order correctly. Although TJC first required this safeguard in its 2003 National Patient Safety Goals, do not assume that this practice is widespread in your facility despite a longstanding policy. Assess adherence to this practice in your organization, and take any necessary steps to help practitioners fulfill this safety check. The readback process is perhaps the single most important strategy to reduce errors with verbal orders.

**Understand the indication.** Ensure that the verbal order makes sense in context of the patient's condition and problem list. This helps to differentiate sound-alike drug names. Record the medication's indication (ask the prescriber for this information) directly on the order or with the order.

**Discourage misuse.** Do not accept verbal orders when the prescriber is present and physically able to document the order. Do not accept verbal orders from a "go-between" (e.g., office staff) who is not the original prescriber. Do not accept verbal orders for chemotherapy. When telephone communication results in the need to prescribe or change an existing medication, ask the prescriber to transmit the order electronically or by fax, instead of communicating the order by phone.

**Do not accept abbreviations.** If an abbreviation is given as part of a verbal order, transcribe and read back the meaning of the abbreviation, not the abbreviation. For example, if the prescriber states QID, document and read back *four times daily*.

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is not used in combination with other sedation agents (66%), or is only used in combination with other agents for sedation failures (24%).

While about half (52%) of respondents are not aware of any serious adverse events with chloral hydrate in the past 3 years, about one in five reported seeing three very common adverse events: the patient's refusal of the medication (spitting out the dose) or vomiting (20%); sedation failures leading to the inability to complete procedures (20%); and prolonged sedation (19%). Other adverse effects, such as airway obstruction, respiratory depression, hypercapnia, respiratory arrest, excessive somnolence, post-discharge sedation, hypotension, and cardiopulmonary arrest, were reported by 4-7% of the respondents.

Although most respondents (82%) do not believe chloral hydrate has a role in pediatric sedation procedures, 18% still believe its use is indicated, particularly for radiology imaging, neuroimaging, and electrocardiology/echocardiology procedures; pulmonary function tests; emergency department procedures such as suturing; ABR hearing tests; and dental procedures conducted in a hospital setting.

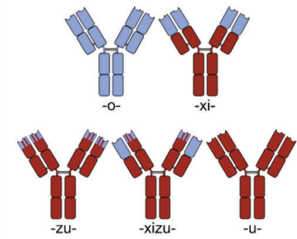
Based on the results of this survey, ISMP plans to continue listing oral chloral hydrate as one example of an oral moderate sedation agent for children on the *ISMP List of High-Alert Medications in Acute Care Settings* ([www.ismp.org/sc?id=2820](http://www.ismp.org/sc?id=2820)), and the *ISMP List of High-Alert Medications in Community/Ambulatory Healthcare* ([www.ismp.org/sc?id=2821](http://www.ismp.org/sc?id=2821)). While it is not our intention to promote the use of chloral hydrate, it appears its use has continued in some facilities despite discontinuation of the commercial product. Thus, safeguards need to be in place if you use the drug. See our December 2016 newsletter ([www.ismp.org/sc?id=2928](http://www.ismp.org/sc?id=2928)) for a description of the risks associated with using oral chloral hydrate, and take the necessary steps to either remove it from use or implement safeguards to protect patients from known adverse effects.

## what's in a Name?

### The “-mab” drug name stem

In our April 2017 issue of *Nurse AdviseERR*, we announced we would begin a regular series highlighting common drug name stems. This month we focus on drugs that have the suffix “-mab.” These drugs are considered monoclonal antibodies (mAb), which bind to specific targets within the body and have various uses in the treatment of autoimmune diseases, multiple types of cancer, hypercholesterolemia, and other indications.

The naming process for monoclonal antibodies consists of a prefix, a substem A and B, and the -mab suffix.<sup>1</sup> The prefix is a random letter sequence used to differentiate between the various monoclonal antibodies. The substem A describes the target of the antibody. Some target sources include tumor “-t(u)-,” bone “-s(o)-,” and immunomodulating “-l(i)-.” The substem B is located immediately before the suffix and identifies the source of the antibody. Common substems include “-zu-” for humanized (e.g., trastuzumab [**HERCEPTIN**]), “-o-” for mouse (e.g., blinatumomab [**BLINCYTO**]), “-u-” for fully human (e.g., denosumab [**PROLIA**]), and “-xi-” for chimeric (e.g., rituximab [**RITUXAN**]), which is part-mouse, part-human (**Figure 1**). **Table 1** lists additional monoclonal antibodies. These examples, except for fully human, contain protein from non-human sources. What does this mean to you?



**Figure 1.** Sketches of chimeric (top right), humanized (bottom left), and chimeric/humanized (bottom middle) monoclonal antibodies. Human parts are shown in brown, non-human parts in blue ([www.ismp.org/sc?id=2929](http://www.ismp.org/sc?id=2929)).

Non-human antibodies are recognized by the body's immune system as foreign; therefore, patients are more likely to have an allergic reaction to these agents or decreased response over time from increased elimination.<sup>2</sup> Some monoclonal antibodies may require pretreatment with acetaminophen, an antihistamine, and/or a steroid depending on the potential for infusion-related reactions. Signs and symptoms of an infusion reaction include fever; nausea, vomiting, or diarrhea; skin rashes; and fluctuations in

**Table 1.** Examples of monoclonal antibodies, their source, and indication.

| Generic            | Brand            | Source    | Indication   |
|--------------------|------------------|-----------|--|
| abciximab          | REOPRO           | Chimeric  | Antiplatelet agent used during percutaneous coronary intervention (PCI)  |
| adalimumab         | HUMIRA           | Human     | Psoriasis, rheumatoid arthritis, ulcerative colitis                      |
| alemtuzumab        | CAMPATH LEMTRADA | Humanized | Multiple sclerosis, B-cell chronic lymphocytic leukemia                  |
| bevacizumab        | AVASTIN          | Humanized | Cervical or colorectal cancer  |
| canakinumab        | ILARIS           | Human     | Familial Mediterranean Fever, juvenile idiopathic arthritis              |
| certolizumab pegol | CIMZIA           | Humanized | Crohn's disease, psoriatic or rheumatoid arthritis                       |
| denosumab          | PROLIA XGEVA     | Human     | Osteoporosis, hypercalcemia of malignancy                                |
| inFLIXimab         | REMICADE         | Chimeric  | Crohn's disease, rheumatoid arthritis, ulcerative colitis                |
| omalizumab         | XOLAIR           | Humanized | Asthma   |
| riTUXimab          | RITUXAN          | Chimeric  | Chronic lymphocytic leukemia, non-Hodgkin lymphoma, rheumatoid arthritis |
| trastuzumab        | HERCEPTIN        | Humanized | Breast cancer, gastric cancer  |

heart rate and blood pressure. These reactions typically occur within 30 minutes to 2 hours after starting the infusion and after the first or second exposure to the drug.<sup>3</sup> For example, denosumab, which is fully human, does not require any pre-medications, whereas all patients should receive acetaminophen and an antihistamine prior to infusion with riTUXimab because over 50% of patients experience an infusion reaction with first use.<sup>4</sup> If you encounter a drug with the -mab suffix, you should monitor for any infusion reactions and take into consideration whether the patient might need pre-medications prior to administration.

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