# Verbal Orders and Medication Overrides: A Dangerous Combination

Catherine Mueller, PharmD, CPPS, Paul MacDowell, PharmD, BCPS, and James A. Bourgeois, OD, MD | April 24, 2024
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## The Case

A 26-year-old man was brought to the emergency department (ED) by law enforcement for evaluation of abdominal pain. He was tachycardic (heart rate 115 beats per minute), but his vital signs were otherwise normal. He was very uncooperative, extremely agitated, and threatening toward multiple staff members. However, he agreed to a physical examination by the resident physician and intermittently answered questions. He denied any pain but acknowledged a recent altercation with law enforcement, which resulted in several taser marks. His abdominal examination was normal, but his behavior continued to escalate, with extreme agitation (unresponsive to verbal reassurance and redirection) and threats to assault or kill staff. For the patient's own safety and the safety of ED staff, physical and chemical restraint were deemed necessary. Screening laboratory tests were reassuring, with negative urine drug screening and only mild elevation in the serum creatinine level. The patient tolerated oral fluids, was diagnosed by the ED physician with acute psychosis and agitation, and was medically cleared for psychiatric evaluation and disposition.

Due to the patient's agitation and escalating aggressive behavior, which included attacking objects in the ED room and yelling profanities, the ED physician verbally ordered 10 mg of intramuscular haloperidol. Due to the urgency of the situation, the primary nurse overrode the automated dispensing unit and mistakenly pulled a vial of midazolam 10 mg instead of haloperidol. A few moments after administration, the patient became very calm and fell into deep sleep for two hours. He was placed on cardiorespiratory and end tidal carbon dioxide monitoring. The primary nurse discovered the medication error, reported it to the medical team, and flumazenil was administered to reverse benzodiazepine toxicity. The patient's respirations remained regular in rate and depth, and his recovery was subsequently uneventful.

## The Commentary

*By Catherine Mueller, PharmD, CPPS, Paul MacDowell, PharmD, BCPS, and James A. Bourgeois, OD, MD*

This case highlights the potential for medication errors and patient harm to occur in the midst of high-stress situations coupled with the bypassing of available layers of safety including pharmacist verification. Central to the error in this case were the use of verbal orders and retrieval of the medication via override from the automated dispensing cabinet, two high-risk and error-prone occurrences in healthcare.

**Verbal Orders**

Verbal orders, which are defined as medication orders spoken aloud or via telephone by a provider to another healthcare provider (typically a nurse or pharmacist), are considered to be error-prone by the Institute for Safe Medication Practices (ISMP) and the National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP).[1,2] Such orders should be reserved for emergency situations in which it is not feasible or possible for a provider to electronically place an order – for example, during a code or if the provider is performing a sterile procedure.[2] Verbal orders can result in error in several ways, including but not limited to:

- Provider mistakenly verbalizes the wrong medication name, dose, frequency and/or route.
- Medication name, dose, frequency and/or route is misheard or misunderstood by recipient.
- Recipient incorrectly transcribes the medication, dose, frequency and/or route.

Environmental factors such as background noise, distractions, or high-stress situations such as responding to a cardiorespiratory arrest can increase the risk of verbal orders resulting in errors. In addition, sound-alike medication names and numbers further increase the chance of an error occurring.[1]

Risk Mitigation Strategies for Ordering Provider

If verbal orders cannot be avoided, communication should be as clear as possible. Providers giving verbal orders should speak loudly and clearly, spelling out drug names and using a phonetic alphabet for sound-alike medications.[1] To avoid misinterpretation of a dose, providers should say each digit of a dose separately – for example, "one five" for "fifteen" to avoid confusion with "fifty".[1] Abbreviations or shortened versions of medication names, such as "TXA" for "tranexamic acid" or "epi" for "epinephrine," should be avoided when stating the verbal order.[3] After giving a verbal order, the provider should expect and encourage the recipient to confirm the order as described below.

Risk Mitigation Strategies for Recipients of Verbal Orders

Readback and confirmation should be performed by the nurse or pharmacist receiving the verbal order. The Joint Commission requires verbal orders to be recorded and read back to the provider by the recipient.[4] This "read back" process is not the same as simply repeating the order, as "read back" helps ensure the recipient has both heard the order correctly and transcribed it correctly.[1] However, an ISMP member survey in 2017 revealed that the practice of recording and reading back verbal orders was not occurring as often as desired – 45% of respondents who reported receiving verbal orders reported using this practice less than 50% of the time.[1] Barriers to recording and reading back verbal orders include lack of knowledge of this requirement, lack of institutional policies and procedures reinforcing this requirement, and interpersonal factors such as fear of appearing incompetent or fear of the ordering provider's response or reaction.[5]

Responsibility of Healthcare Organizations

Healthcare organizations should establish policies and procedures that govern proper use of verbal orders, including:

- Description of when use of verbal orders is appropriate
- List of restrictions for verbal orders, such as for antineoplastic agents which should not be permitted under any circumstances according to NCCMERP and ISMP[1,2]
- Information that should be included in verbal orders

- Guidance on clear and effective communication of verbal orders, including a requirement for recipients to record and read back verbal orders
- A requirement for verbal orders to be co-signed by the prescriber within a certain time period (e.g., 48 hours)[2]

In addition, healthcare organizations should promote a “stop-the-line” culture in which it is normal and encouraged for staff to question prescriber orders if they have any concerns, particularly when the orders are provided verbally.[2]

**Overrides**

An override is defined by ISMP as the process of bypassing pharmacist review of a medication order to obtain a medication from an automated dispensing cabinet (ADC).[6] This definition requires that an order – either verbal, telephone, written, or electronic – be placed prior to removal of the medication from the ADC. However, similar scenarios are often loosely referred to as overrides, including removal of a medication from an ADC without an order, and removal of an ordered medication from a non-profiled ADC. While these situations do not technically fit the traditional definition of “override,” they pose similar risks to patient safety by increasing the chance of medication errors.[7]

Overrides should only be used in urgent situations in which the risk of delayed medication administration outweighs the benefits of pharmacist review and verification.[6] ISMP and the American Society of Health System Pharmacists (ASHP) have published guidelines on the safe use of the override functionality of ADCs, from configuration of the ADC itself to the retrospective review of overrides.[7,8]

ADC Configuration

ADCs can be set up in two major configurations: profiled and non-profiled. Profiled ADCs restrict users to a patient-specific medication profile and limit access to only those medications that have been reviewed and verified by a pharmacist.[6] Non-profiled ADCs are not recommended as they allow users access to all medications contained within the ADC without pharmacist review prior to medication selection.[6] It would be more likely for a wrong-

drug error to occur, for example, if a medication is obtained on override from a non-profiled ADC.

The rationale for an override should be documented upon withdrawing any medication from the ADC on override.[8] In addition, an automated prompt that requires documentation of a witness (i.e., by another healthcare provider) is recommended to encourage double checking medications removed on override.[6] The ADC should be configured to require a minimum number of letter characters during a medication search, with ISMP recommending a minimum of 5 letter characters, to decrease the risk of similar medication names appearing on the screen.[7,8] Utilization of locked, lidded pockets within the ADC should be maximized, as opposed to open matrix drawers that allow unrestricted access to all medications in an ADC drawer.[6]

Override List

ISMP recommends a list of override medications be defined by the healthcare organization and approved by an organizational committee, typically the Pharmacy and Therapeutics committee[7,8] Criteria should be developed to determine the appropriateness of requests for addition to the override list.[8] Institutional policy should include these criteria and specify the frequency with which the list is reviewed; ISMP recommends review at least annually.[7] Medications that should be assessed for inclusion in an institution's override list include:

- Medications considered antidotes, reversal agents, and rescue agents
- Medications for which a delay related to pharmacist review may result in patient harm
- Medications for which immediate administration may be life sustaining
- Medications urgently needed for patient comfort (e.g., acute pain relief)[8]

Medication criteria that may warrant exclusion from an organization's override list include:

- High-risk medications (i.e., medications with a heightened risk of harm if used in error)
- Medications for which dosing is dependent on review of patient parameters (e.g., weight, renal function)[8]

Dosage forms, quantities, and concentrations of medications approved for override should also be optimized to maximize safety. Multi-dose vials and containers should be excluded if possible.[6] Additionally, it is recommended that the quantity of vials or tablets be limited, and ideally only one concentration or strength of a given medication should be available on override to avoid mix-ups resulting in wrong-dose errors.[6]

Override Review Process

As of 2018, The Joint Commission requires hospitals using ADCs to have a policy that describes the types of medication overrides that are reviewed for appropriateness as well as the frequency of review.[9] Override reports should be routinely analyzed at the medication, user, and care area levels to identify patterns that may require intervention, and to determine the appropriateness of the documented rationale for override.[7,8] Ideally, these reports should be reviewed by an interdisciplinary group comprised of pharmacy, physician, and nursing representation. This evaluation of override activity and trends can expose workflow inefficiencies, potential drug diversion, and training gaps.[10] While there are situations that warrant obtaining a medication via override, the perception by frontline staff that an override is needed may be influenced by organizational workflows and inefficiencies. For example, a nurse may anticipate delayed or inefficient pharmacy review for a medication and therefore deem it necessary to obtain the medication via override for timely patient care.

Medications removed from an ADC on override can be linked to the prescriber-entered order, either by manually reviewing the override report or by configuring the electronic health record to flow overrides into the pharmacist queue to allow for real-time monitoring.[11]

Implications for Emergency Psychiatry Treatment

This case illustrates several points pertinent to emergency psychiatry. Broadly speaking, relatively common presentations of psychotic symptoms to emergency care settings include substance intoxication/withdrawal/associated psychotic illness; delirium; acute episode of psychotic disorder or bipolar disorder; and psychotic disorder attributable to other CNS disease, such as post-ictal psychotic disorder in a patient with epilepsy. Especially in a patient unknown to the institution, a comprehensive evaluation should be completed, including urine toxicology screening, blood alcohol level, metabolic panel including liver-associated enzymes, complete blood count, and vital signs. There should be a low threshold to obtain unenhanced computed tomography (CT) of the head. However, patients are often uncooperative and/or violent or agitated, as illustrated here, precluding completion of the medical evaluation. Hence, emergency medications are needed for various clinical reasons: to provide enhanced safety to the patient and staff; to facilitate laboratory and other assessments; and to allow further clinical observation to make a more precise diagnosis.

For adult patients presenting with acute psychosis (from various causes), the most targeted emergency medication is an antipsychotic. The most commonly available intramuscular (IM) antipsychotics are haloperidol (starting dose 5 mg), olanzapine (5 mg) or ziprasidone (20 mg). To potentiate their action, antipsychotics are often combined with a benzodiazepine (e.g., lorazepam 1 or 2 mg). As a precaution, *olanzapine* and benzodiazepine are not typically given parenterally together; they should be staggered by one hour due to a theoretical risk of respiratory depression.[12] Combining haloperidol and lorazepam parenterally is a common practice in emergency settings.[13] Ziprasidone is another IM antipsychotic used for agitation; the safety of combining ziprasidone with lorazepam has not been reported. If the antipsychotic improves the patient's psychotic symptoms, agitation may improve after a single dose, but continued monitoring is needed in case repeated doses are necessary.

Patients who are clearly psychotic are unlikely to respond to a benzodiazepine alone (e.g., midazolam) other than by sedation; therefore, benzodiazepines alone are not indicated. Large doses of benzodiazepine will, of course, sedate the patient. However, a 10 mg midazolam dose in a single administration is clearly excessive. The

relative potencies of lorazepam and midazolam are 1:2, hence 1 mg lorazepam would equate to 2 mg midazolam, a dose usually well tolerated by young patients without pulmonary compromise. In this context, antipsychotics and benzodiazepines should not be thought of as “equivalent” in that their receptor effects and clinical indications are different, even though they can have a potentiated effect, when dosed properly, to improve patients’ symptoms and facilitate essential medical evaluation.

## Take Home Points

- The combination of verbal order utilization and retrieving a medication on override, two high-risk and error-prone actions, can result in medication errors and patient harm.
- Verbal orders should be avoided unless necessary, and when necessary, should be navigated with caution using safe practice recommendations such as using “read back” to confirm the order.
- Best practice recommendations are available from ISMP and ASHP and outline strategies healthcare organizations can use to ensure safe use of the override functionality of ADCs.
- Overrides should only be used in emergency situations when it is impractical for a provider to place an order and when delay of medication administration can result in patient harm.
- It is recommended for organizations to establish a framework for retrospective review of override activity as well as the list of medications approved for override.

**Catherine Mueller, PharmD, CPPS**
Pharmacy Resident, Medication-Use Safety & Policy
Department of Pharmacy
UC Davis Health
cjmueller@ucdavis.edu

**Paul MacDowell, PharmD, BCPS**
Medication Safety Officer
Department of Pharmacy
UC Davis Health
pmacdowell@ucdavis.edu

**James A. Bourgeois, OD, MD**
Vice Chair, Hospital Service
Department of Psychiatry and Behavioral Sciences
UC Davis Health
jbourgeois@ucdavis.edu

## References

1. ISMP Medication Safety Alert! Acute Care Edition. Despite technology, verbal orders persist, read back is not widespread, and errors continue. May 18, 2017;22:1-4. [Free full text ]
2. Recommendations to reduce medication errors associated with verbal medication orders and prescriptions. *National Coordinating Council for Medication Error Reporting and Prevention*. February 1, 2015. Accessed April 18, 2024. [Free full text ]
3. Billstein-Leber M, Carrillo CJD, Cassano AT, et al. ASHP Guidelines on Preventing Medication Errors in Hospitals. *Am J Health Syst Pharm*. 2018;75(19):1493-1517. [Available at ]
4. The Joint Commission Hospital Accreditation Requirements, Provision of Care, Treatment, and Services PC 02.01.03 EP 20. The Joint Commission.
5. Wakefield DS, Wakefield BJ. Are verbal orders a threat to patient safety?. *Qual Saf Health Care*. 2009;18(3):165-168. [Available at ]
6. Guidelines for Safe Use of Automated Dispensing Cabinets. Horsham, PA: Institute for Safe Medication Practices; 2019. (Accessed April 18, 2024) [Free full text ]
7. Over-the-Top Risky: Overuse of ADC Overrides, Removal of Drugs without an Order, and Use of Non-Profiled Cabinets. ISMP Medication Safety Alert! Acute Care Edition. October 24, 2019. (Accessed April 18, 2024) [Free full text ]
8. Cello R, Conley M, Cooley T, et al. ASHP Guidelines on the safe use of automated dispensing cabinets. *Am J Health Syst Pharm*. 2022;79(1):e71-e82. [Available at ]

9. The Joint Commission Hospital Accreditation Requirements, Medication Management MM 08.01.01 EP 16. 2018. The Joint Commission.
10. ASHP practice resource for automated dispensing cabinet overrides. American Society of Health-System Pharmacists. Inpatient Care Practitioners. (Accessed April 18, 2024). [Free full text ]
11. Traynor K. Joint Commission eyes overrides of dispensing cabinets. *Am J Health Syst Pharm*. 2018;75(9):e172-e173. [Available at ]
12. Wilson MP, MacDonald K, Vilke GM, et al. A comparison of the safety of olanzapine and haloperidol in combination with benzodiazepines in emergency department patients with acute agitation. *J Emerg Med*. 2012;43(5):790-797. [Available at ]
13. Wilson MP, Pepper D, Currier GW, et al. The psychopharmacology of agitation: consensus statement of the American Association for Emergency Psychiatry Project BETA Psychopharmacology Workgroup. *West J Emerg Med*. 2012;13(1):26-34. [Free full text ]

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