# Practice Resource for Automated Dispensing Cabinet Overrides

## Introduction

Prospective order review prior to medication dispensing is recommended; however, there are events in which a minimal delay in medication administration can result in patient harm.[i] For this reason, facilities should evaluate those medications that may be needed emergently, ensure their availability, and implement proactive risk reduction strategies to mitigate patient harm. The development of a well-defined automated dispensing cabinet (ADC) override list provides an effective way to mitigate risk associated with a lack of proactive pharmacist review of certain medications.

## Background

Regulatory bodies including the Joint Commission advocate for pharmacist review of all medications prior to dispensing with few exceptions. One such exception is that of emergent situations for which a delay may result in patient harm.[ii] ADCs can be set to only dispense medications reviewed by a pharmacist, inventory function to dispense medications without a profile review, or offer a combination of profiled medications and inventory medications set to override. In 2016 the Institute for Safe Medication Practices released an updated Targeted Medication Safety Best Practices for Hospitals, which included the recommendation that with established protocols in place, facilities should ensure appropriate antidotes, reversal agents, and rescue agents are readily available for administration in emergencies.[iii] Establishing a list of medications that will be available through an ADC override function is one way to establish emergency access to these needed medications.

## Purpose

The purpose of this resource is to discuss the risks associated with medications available through ADC override, provide guidance for selecting medications on an override list and re-evaluation of the selected medications, suggest recommendations for monitoring the override process, and propose risk mitigation strategies for the selected medications.

## Override Medication Selection

According to the Institute for Safe Medication Practices' *Guidance on the Interdisciplinary Safe Use of Automated Dispensing Cabinets*, the ninth core element is to establish criteria for ADC overrides.[iv] Establishing this criteria should be a

interdisciplinary effort by physicians, pharmacists, nurses, and other healthcare providers involved in emergency administration of medications and should limit the list of medications to those for which the urgent need outweighs the possible risk of harm due to error.[v]

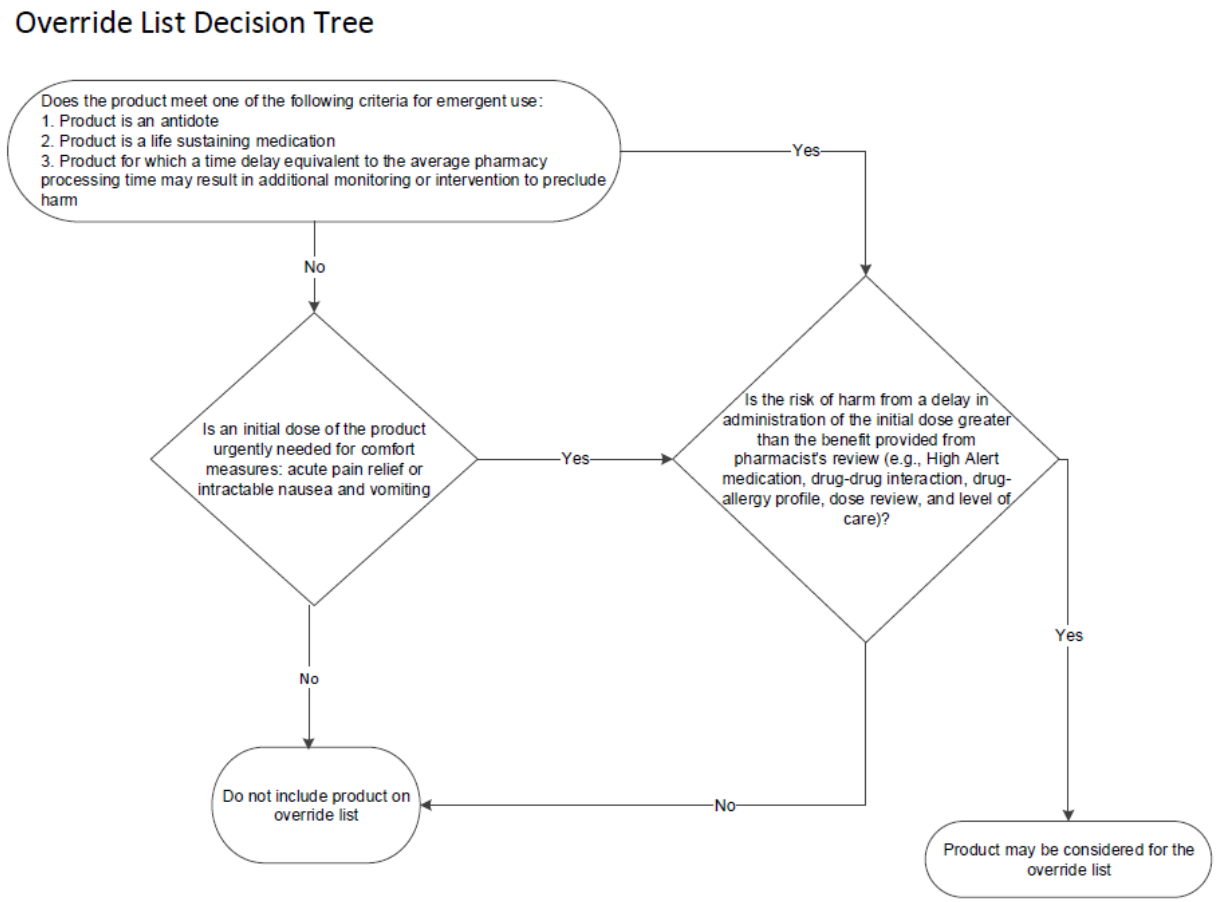
The list of medications available on override should be managed by the pharmacy, with input from nursing and other healthcare providers who administer or order emergency medications. In addition, organizational committees for medication management should review and approve the institutional override list (e.g. Pharmacy & Therapeutics Committee) and subsequent additions or deletions. Establish criteria with the creation of policies and procedures or an approved list of medications available through the override feature. In the analysis of this list, organizations should consider creating patient care unit-specific override lists to best accommodate the emergent needs of that patient population, a facility wide list with differing levels of access for nursing, or a standard list of medications available for emergent use house wide.

Initial consideration of override availability should be focused on life sustaining medications needed in emergent situations. Those medications for which immediate access may be life sustaining, the time delay related to pharmacist review may result in potential patient harm, and/or medications considered antidotes, reversal agents, and rescue agents should all be assessed for override availability. Other criteria for emergent need may include medications urgently needed for comfort measures such as acute pain relief or intractable nausea and vomiting. Considerations for which medications should be excluded from an override list include medications with high risk of preparation error such as those with multiple concentrations available, multi-dose vials, reconstitution or dilution requirements, or multi-step calculations. When determining if the benefit of immediate availability of a medication outweighs the risk of harm from lack of prospective profile review, final considerations should include if the medications bears a heightened risk of harm when used in error (i.e. high alert medications), if the medication has an increased risk for drug-drug or drug-allergy interactions, and if the dosing of the medication is complicated or dependent on ensuring correct patient parameters such as patient weights or renal function. An algorithm to guide override medication selection is provided in Figure 1.

In addition to evaluating the characteristics and emergent need of the medication, organizations should also consider if appropriate risk reduction strategies are able to be implemented to mitigate potential harm. Some strategies include limiting the strength

and quantity of the medications available on override, implementing bar-code scanning upon removal from the ADC, providing readily available preparation or dosing guidelines for complex preparations, optimizing alerts for those obtaining the medication via override of dosing limits or look or sound-alike potential, and requiring independent double checks of any medication pulled via the override function.

**Figure 1**




## Monitoring and Metrics

The override rate of a single medication or class, the override rate for a single nursing unit or user, and the total campus override rate can reveal system break downs and are

key components to measuring and setting standards. Evaluating the override process and monitoring override trends can expose order communication, dispensing, and verification issues. Monitoring overrides highlight potential drug diversion and identify education or training gaps. At the time of this publication, there is no national standard for an acceptable override rate. Due to differing facility sizes and patient/location demographics, there is not a best practice goal or standard acceptable override rate per facility, user, or unit type. Hospitals should consider a baseline evaluation of their overall override rate, unit override rate, individual user override rate, and override rate by medication. Organizations should set goals focused on a continued downward trend of their facilities overall override percentage and identify barriers related to those medications, individuals, and units with override rates that exceed the average of similar units or individuals treating similar patient populations (e.g., an ICU nurse or pharmacist with a higher override percentage than other ICU peers). In addition to routine monitoring of top medications and top override users, organizations should also monitor if the override function is being used appropriately. An analysis of the time the order was received in comparison to when the medication was accessed via the override function may identify education gaps or workarounds. Reports that identify the time elapsed from product override to order entry and the time elapsed from order entry to pharmacist verification can identify technology access issues or improper staffing patterns. 24-hour reports should be reviewed by pharmacy to verify that all products accessed via the override function can be matched to a prescriber order and that the medication was properly documented in the patient's medical record. Improper documentation or missing medication orders can be an early identifier of potential medication diversion. It is also important to monitor the quantity of medication removed on override as this can identify potential medication errors, employee workarounds, or potential drug diversion.

Finally, override lists should be reviewed at least annually or more frequently if a potential safety concern is identified. Considerations for evaluation should include but not be limited to continued emergent need of the medication, operational changes, reported medication errors, identified adverse events, identified workarounds or diversion, and/or clinical/safety concerns identified by frontline healthcare workers.

**Education and Training**

Organizational leaders should ensure staff are aware of all available features on the ADCs. Ensuring staff are competent to use the override feature in emergent situations

will increase efficiency and ensure timely delivery of emergency medications to patients.[vi] A lack of competency with the override function may result in a delay of care and patient harm. Additionally, ensuring staff are aware of which medications or classes of medications are available on override may also contribute to more timely medication administration and prevent the patient's clinical status from deteriorating due to delayed administration time. It is important for front line staff to be familiar with the antidotes, reversal agents, and rescue medications that are immediately available upon prescriber orders or organization policies or protocols for emergent treatment.

**Conclusion**

Organizations should develop strict criteria for medications available on override via ADCs. Criteria should be based on making medications available for administration to the patient in emergencies where the risk of a delay in administration may result in patient harm. The safety profile of the medications and potential adverse events should be considered and appropriate risk reduction strategies implemented to mitigate the associated risk. While there is no benchmark or national goal for measuring override rates, organizations should strive for a continual decline in overall, unit specific, and individual user override rates and should continually assess their improvement. Continual re-evaluation of these lists is necessary to ensure that clinical and safety concerns are assessed. Finally, staff education is a necessary component to the success of any override list. Staff competency and awareness is a vital step to ensure medication availability in emergent situations.

**Definitions**

Automated dispensing cabinets (ADCs) – Computerized drug storage devices or cabinets that allow medications to be stored and dispensed near the point of care while controlling and tracking drug distribution. They also are called unit based cabinets (UBCs), automated dispensing devices (ADDs), automated distribution cabinets or automated dispensing machines (ADMs).[iv]

High-alert medications - Drugs that bear heightened risks of causing significant patient harm when used in error. [iv]

Override - The process of bypassing the pharmacist's review of a medication order to obtain a medication from the ADC, when assessment of the patient indicates that a delay in therapy (to wait for a pharmacist's review of the order)

would harm the patient. [iv]

Profile - ADC software functionality that allows the pharmacist to review and approve medications before they are available for selection and administration by the nurse, respiratory therapist or physician. [iv]

Profiled ADC - An ADC that allows a practitioner to select a drug from a patient-specific list on the ADC screen and obtain a medication only after the order has been verified by a pharmacist. [iv]

## References


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