MSHP Annual Meeting 2016
Medication Safety & Automated Dispensing Machines
For Pharmacy Technicians
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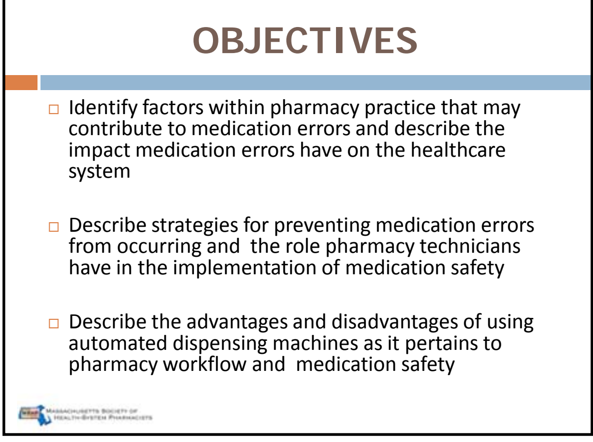
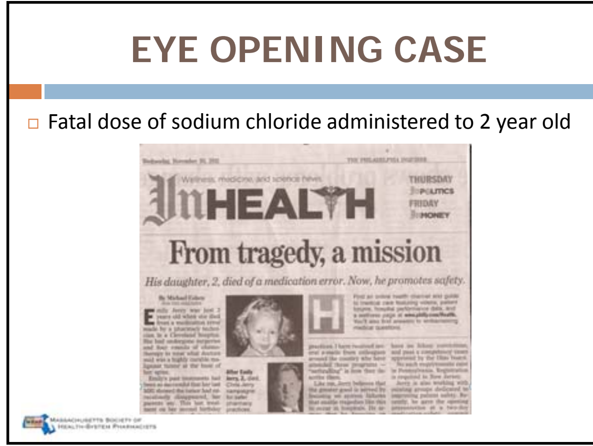
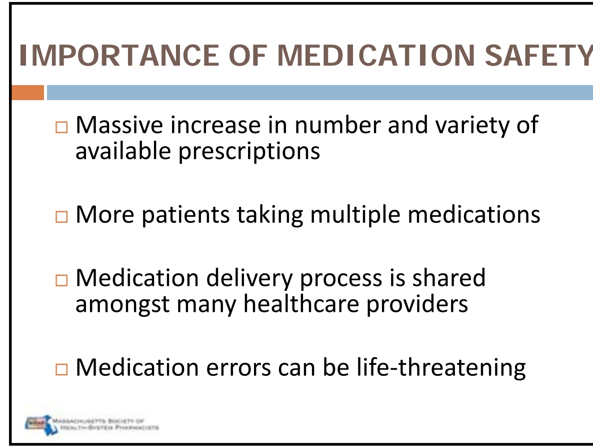
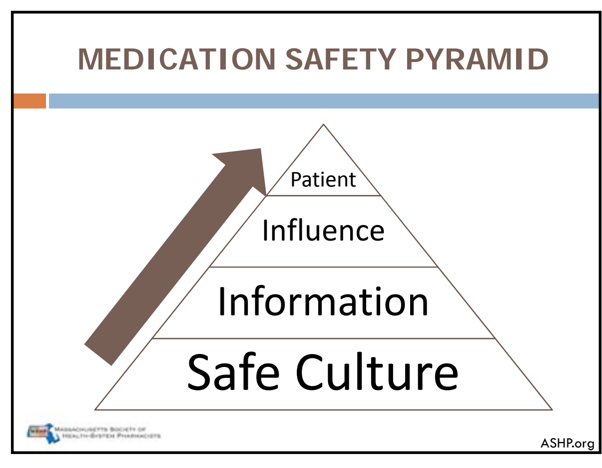
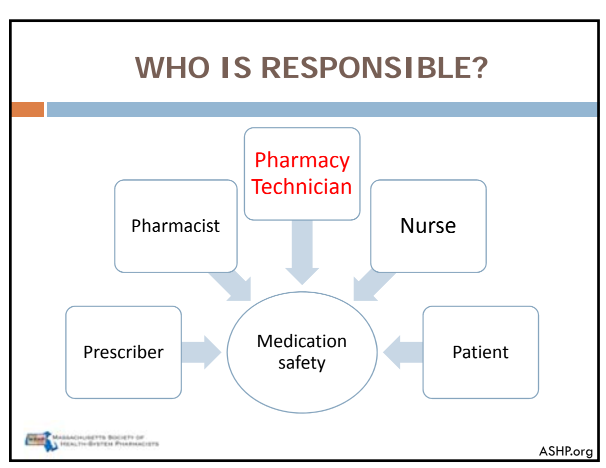
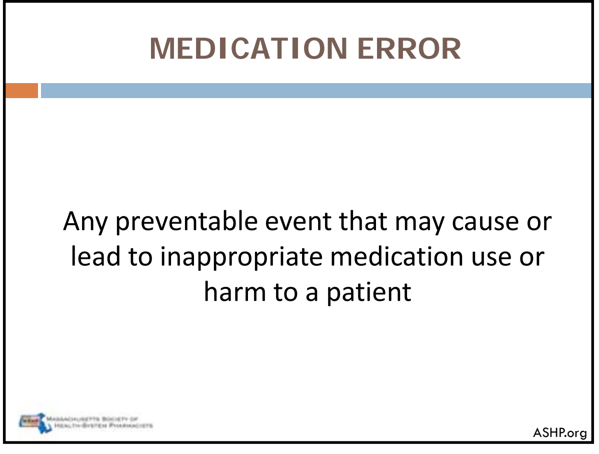

OBJECTIVES
Identify factors within pharmacy practice that may contribute to medication errors and describe the impact medication errors have on the healthcare system
Describe strategies for preventing medication errors from occurring and the role pharmacy technicians have in the implementation of medication safety
Describe the advantages and disadvantages of using automated dispensing machines as it pertains to pharmacy workflow and medication safety

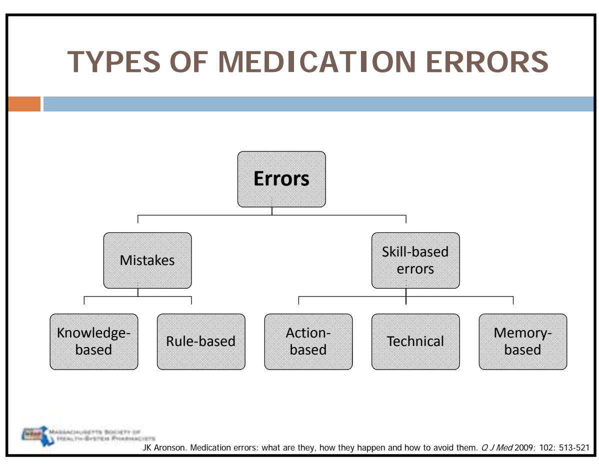

EYE OPENING CASE
Fatal dose of sodium chloride administered to 2 year old
InHEALTH
From tragedy, a mission
His daughter, 2, died of a medication error. Now, he promotes safety.

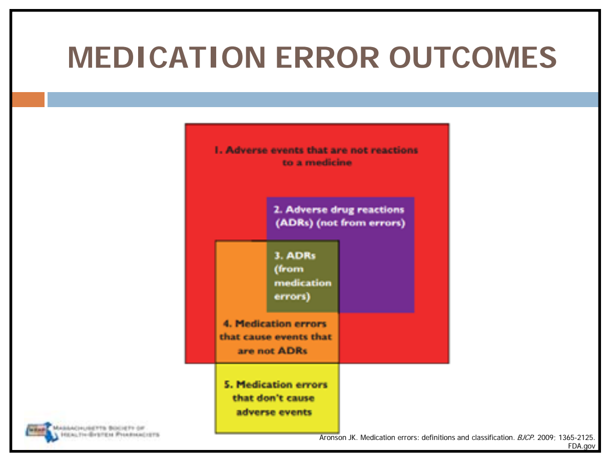

IMPORTANCE OF MEDICATION SAFETY
Massive increase in number and variety of available prescriptions
More patients taking multiple medications
Medication delivery process is shared amongst many healthcare providers
Medication errors can be life-threatening

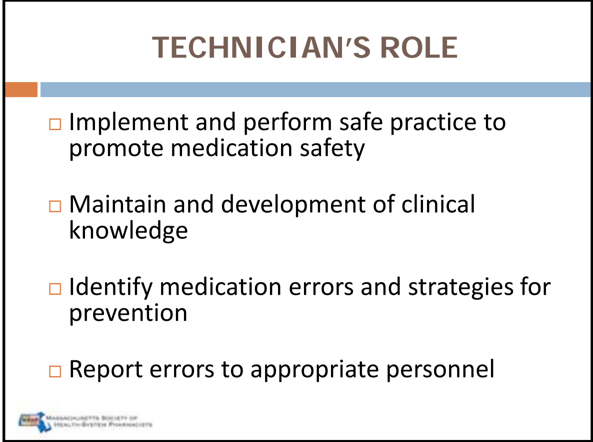

MEDICATION SAFETY PYRAMID
Patient
Influence
Information
Safe Culture
ASHP.org

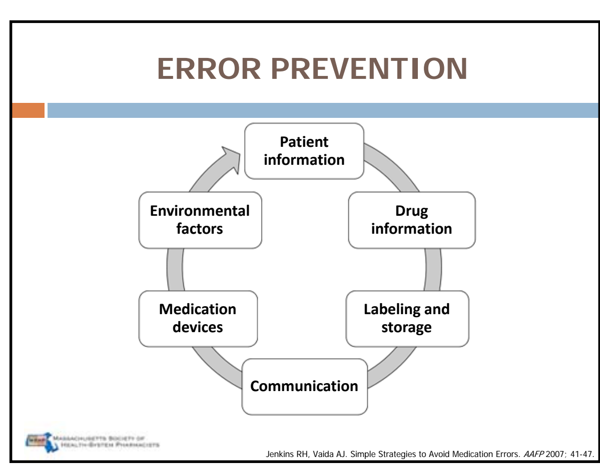

WHO IS RESPONSIBLE?
Pharmacy Technician
Pharmacist
Nurse
Prescriber
Medication safety
Patient
ASHP.org

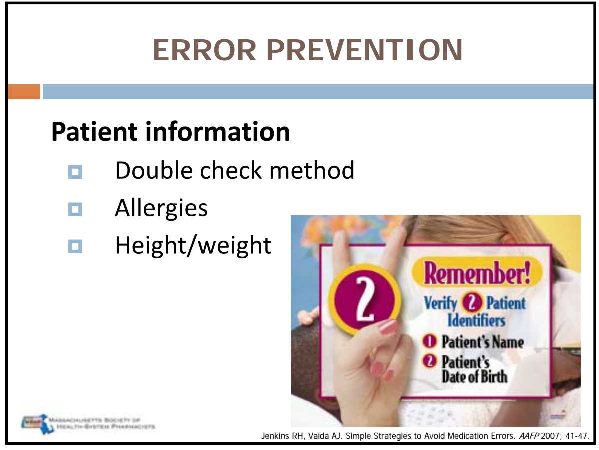

MEDICATION ERROR
Any preventable event that may cause or lead to inappropriate medication use or harm to a patient
ASHP.org

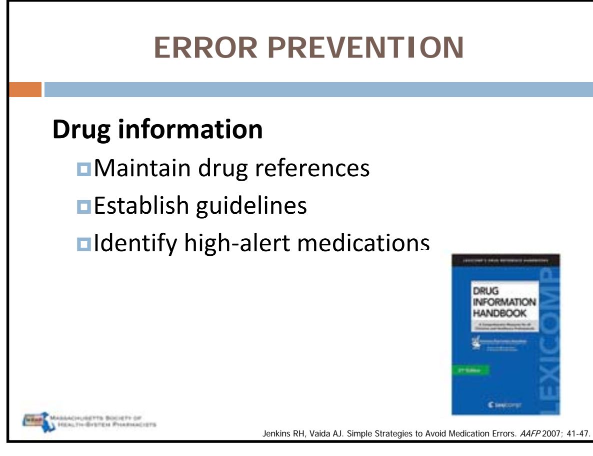

TYPES OF MEDICATION ERRORS
Errors
Mistakes
Skill-based errors
Knowledge-based
Rule-based
Action-based
Technical
Memory-based
JK Aronson. Medication errors: what are they, how they happen and how to avoid them. Q J Med 2009; 102: 513-521

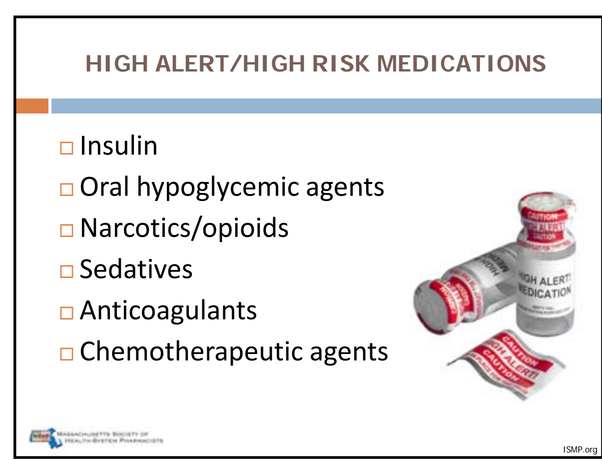

MEDICATION ERROR OUTCOMES
1. Adverse events that are not reactions to a medicine
2. Adverse drug reactions (ADRs) (not from errors)
3. ADRs (from medication errors)
4. Medication errors that cause events that are not ADRs
5. Medication errors that don't cause adverse events
Aronson JK. Medication errors: definitions and classification. BJCP. 2009; 1365-2125.
FDA.gov

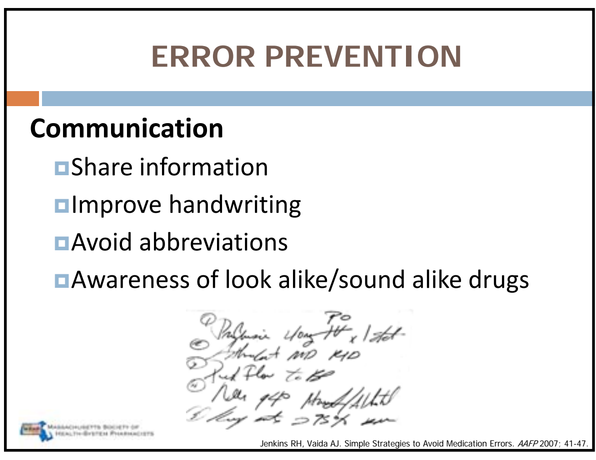

TECHNICIAN'S ROLE
Implement and perform safe practice to promote medication safety
Maintain and development of clinical knowledge
Identify medication errors and strategies for prevention
Report errors to appropriate personnel

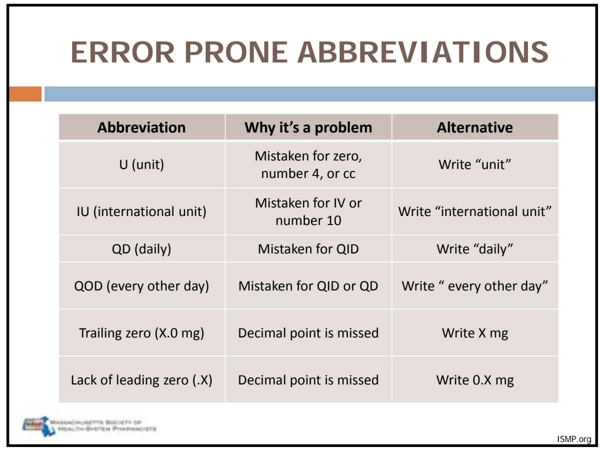

ERROR PREVENTION
Patient information
Drug information
Labeling and storage
Communication
Medication devices
Environmental factors
Jenkins RH, Vaida AJ. Simple Strategies to Avoid Medication Errors. AAFP 2007: 41-47.


ERROR PREVENTION
Patient information
Double check method
Allergies
Height/weight
Remember!
Verify 2 Patient Identifiers
1 Patient's Name
2 Patient's Date of Birth
Jenkins RH, Vaida AJ. Simple Strategies to Avoid Medication Errors. AAFP 2007: 41-47.

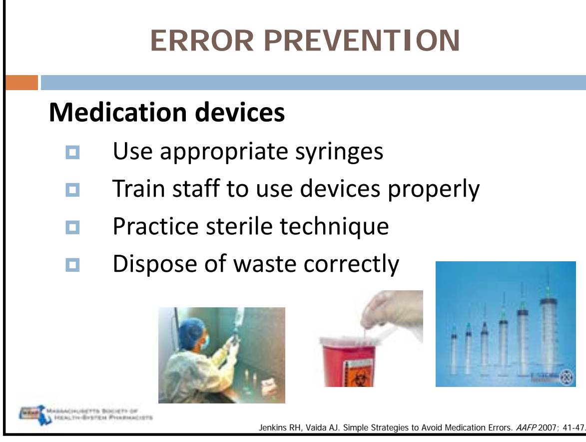


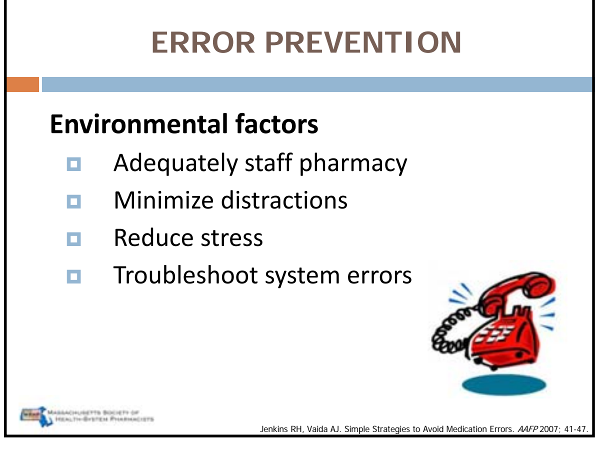


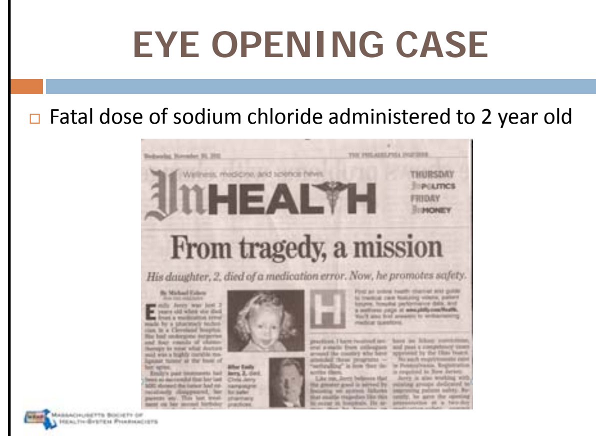


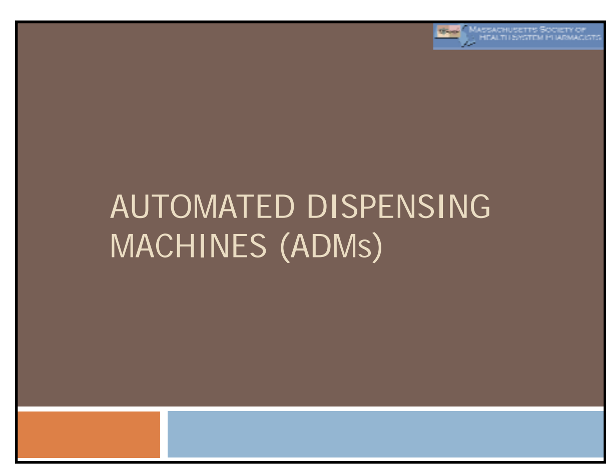


Abbreviation	Why it's a problem	Alternative
U (unit)	Mistaken for zero, number 4, or cc	Write "unit"
IU (international unit)	Mistaken for IV or number 10	Write "international unit"
QD (daily)	Mistaken for QID	Write "daily"
QOD (every other day)	Mistaken for QID or QD	Write " every other day"
Trailing zero (X.0 mg)	Decimal point is missed	Write X mg
Lack of leading zero (.X)	Decimal point is missed	Write 0.X mg





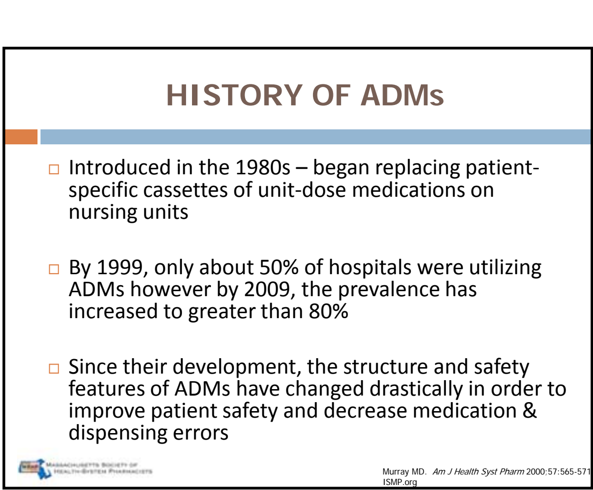


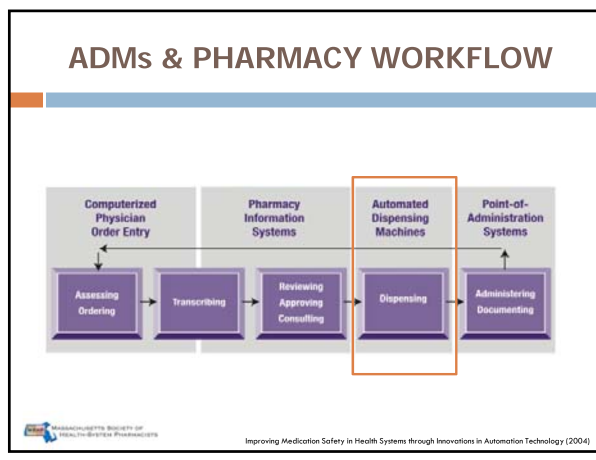


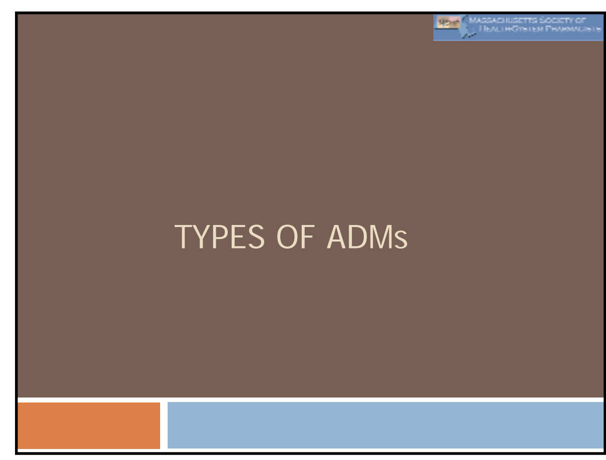
AUTOMATED DISPENSING MACHINES

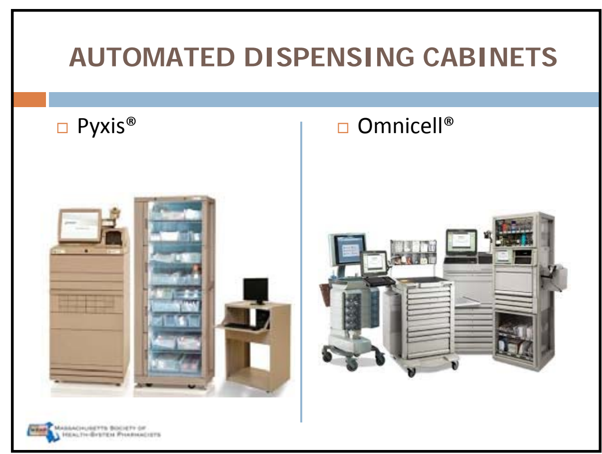
Decentralized medication distribution systems that provide computer-controlled storage, dispensing, and tracking of medications

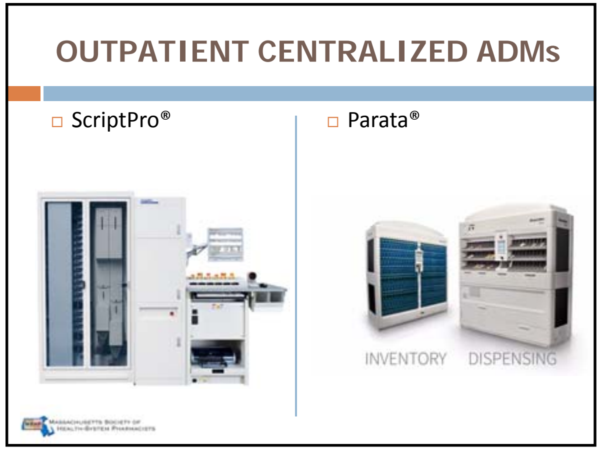
ISMP.org

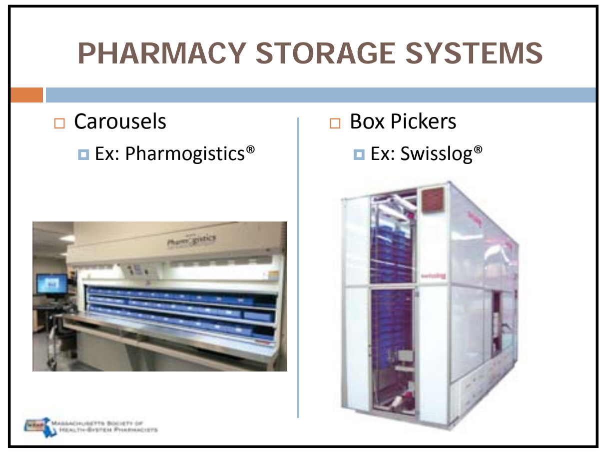












What are **advantages** to using automated dispensing machines?

ADVANTAGES OF ADMs

- Improve the efficiency of medication distribution
- Facilitate timely administration of medications
  - Enhance first dose availability for critically ill patients
- Secure medication storage on patient units
- Track & monitor drug usage patterns proactively
- Track narcotic and controlled substances electronically

What are **disadvantages** to using automated dispensing machines?

DISADVANTAGES OF ADMs

- Cost and installation
- Coordination of pharmacy technology and systems
- System failures
- Extensive multi-disciplinary staff education

ISMP GUIDANCE FOR SAFE USE OF ADMs

1. Provide ideal environmental conditions for the use of ADMs

Location of ADMs:

- Secure, easily accessible area with minimal distraction
- Close proximity to IV tubing, supplies, and refrigerated medications
- Adequately ventilated, temperature controlled, and well lit

Number of ADMs:

- Appropriate number of ADMs, towers, and computer consoles to efficiently service hospital or other type of institution

ISMP Guidance on the Interdisciplinary Safe Use of Automated Dispensing Cabinets (2008)

ISMP GUIDANCE FOR SAFE USE OF ADMs

2. Ensure security of ADMs

- Username and password/fingerprint protection
- Auto log-off
- Security clearance & user privileges
- System updates
- Remote locking of refrigerated items
- System in place for documentation of medication destruction and waste

ISMP Guidance on the Interdisciplinary Safe Use of Automated Dispensing Cabinets (2008)

ISMP GUIDANCE FOR SAFE USE OF ADMs

3. Utilization of Pharmacy-profiled ADMs

- Pharmacy-profiling functionality

4. Identify information that should appear on ADM screen

- Patient information and demographics
- Use of various types of icons (i.e. system failures, new orders)

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ISMP GUIDANCE FOR SAFE USE OF ADMs

5. Maintain adequate drug inventory

- P&T committee overview & approval
- Establish criteria for inventory (i.e. hazardous medications)
- Analyze reports to determine low usage medications
- Establish par levels

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ISMP GUIDANCE FOR SAFE USE OF ADMs

6. Select Appropriate ADM Configuration

- Individual compartment storage preferred
- In open drawers, limit similar medication types and "look-a-like"/"sound-a-like" medications
- Do not use open drawers for high risk agents, reversal agents, or medications prone to diversion

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ISMP GUIDANCE FOR SAFE USE OF ADMs

7. Define safe ADM restocking process

- Standardize restocking
- Select one medication at a time when restocking ADM
- Utilize barcode scanning
- Avoid multitasking
- Plan delivery times in conjunction with the workflow of the patient care area
- Use "blind counts" for narcotics

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ISMP GUIDANCE FOR SAFE USE OF ADMs

8. Develop procedures to ensure accurate withdrawal of medications from ADM

- Configure ADM to
  - Indicate location of the medication to be removed
  - Allow practitioner to remove medications for one patient at a time
  - Promptly report any discrepancies discovered

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ISMP GUIDANCE FOR SAFE USE OF ADMs

9. Establish Criteria for ADM System Overrides

- Establish list of medications that may be removed in emergent situations only
- Use process where the drug and dose are checked against patient's allergies and other medical conditions
- Establish procedure for documentation of medication override and rationale

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ISMP GUIDANCE FOR SAFE USE OF ADMs

10. Standardize Process for Transporting Medications from the ADM to patient's bedside

11. Eliminate process for returning medications directly to their original ADM location

- Utilization of return bins

12. Provide staff education and competency validation

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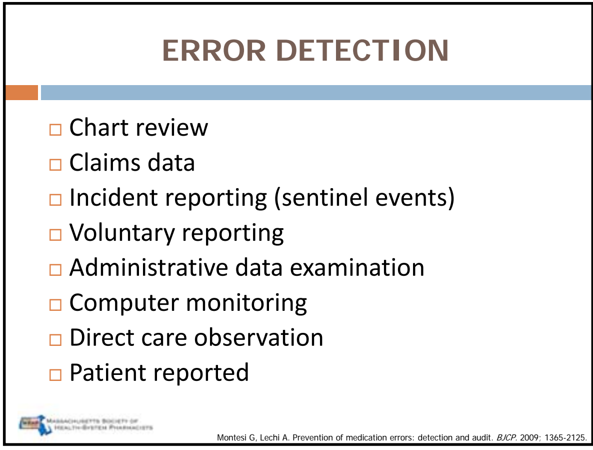
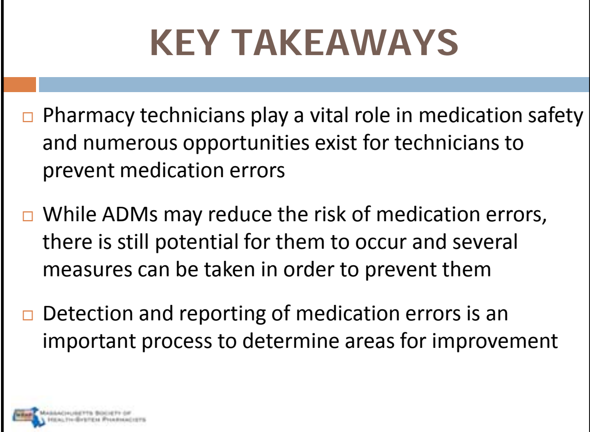
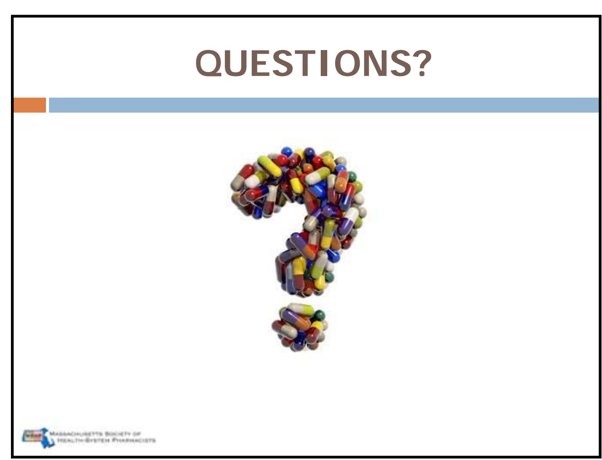
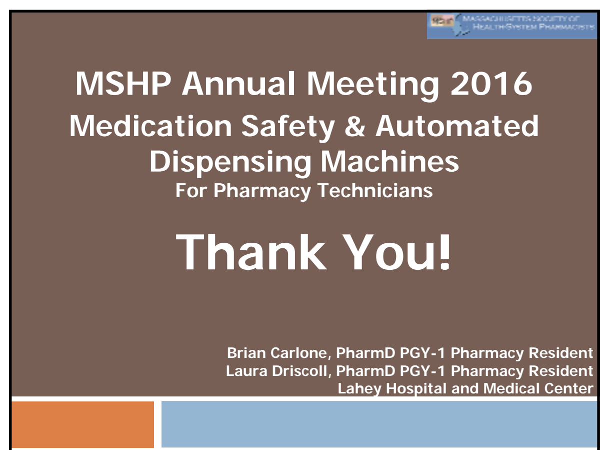

ERROR DETECTION
Chart review
Claims data
Incident reporting (sentinel events)
Voluntary reporting
Administrative data examination
Computer monitoring
Direct care observation
Patient reported
Montesi G, Lechi A. Prevention of medication errors: detection and audit. BJCP. 2009: 1365-2125.

WHERE TO REPORT?
ISMP
Institute for Safe Medication Practices

WHERE TO REPORT?
U.S. Food and Drug Administration
MedWatch: The FDA Safety Information and Adverse Event Reporting Program
Report a Problem
Safety Information
Stay Informed


KEY TAKEAWAYS
Pharmacy technicians play a vital role in medication safety and numerous opportunities exist for technicians to prevent medication errors
While ADMs may reduce the risk of medication errors, there is still potential for them to occur and several measures can be taken in order to prevent them
Detection and reporting of medication errors is an important process to determine areas for improvement


QUESTIONS?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