



PATIENT SAFETY IN THE PHARMACY WORKPLACE



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Disclosures

I have no actual or potential conflict of interest in relation to this program/presentation.

Objectives

- Describe the current pharmacy work environment and workforce trends in the United States
- Evaluate environmental factors in work environments known to contribute to errors
- Interpret results of ISMP Medication Safety Self Assessments in hospital and community pharmacy settings

OVER 5 BILLION PRESCRIPTIONS DISPENSED BY 2020...

Total number of retail prescriptions filled annually. Available at: <https://www.statista.com/statistics/261303/total-number-of-retail-prescriptions-filled-annually-in-the-us/>

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...131 MILLION MEDICATION ERRORS

Flynn EA, Barker KN, Carnahan BJ. National Observational Study of Prescription Dispensing Accuracy and Safety in 50 Pharmacies. J Am Pharm Assoc. 2003; 43: 191-200.

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Chicago Tribune

Pharmacies miss half of dangerous drug combinations

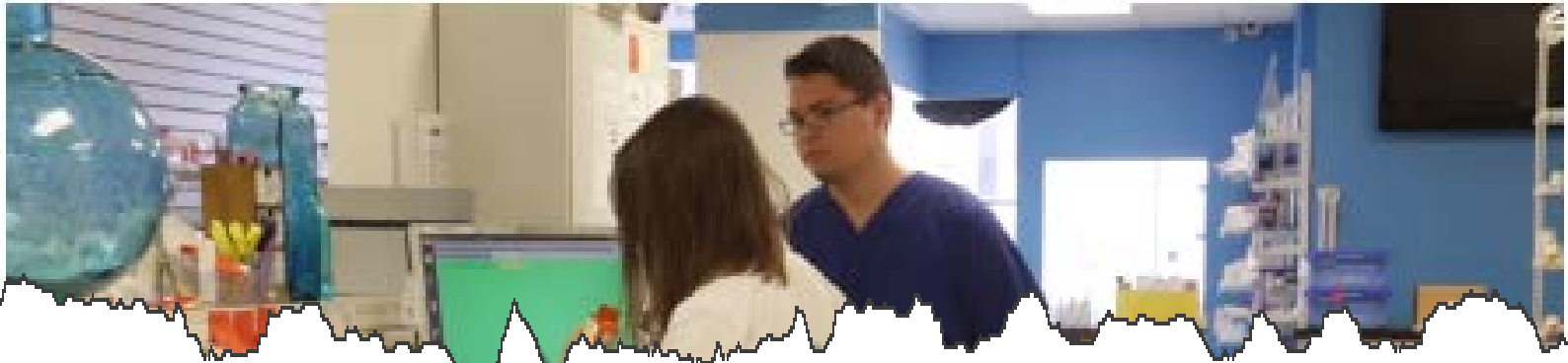


This Medicare Pharmacy in Chicago passed the test and did not dispense a potentially harmful drug pair.

Chicago
Tribune

Chicago Tribune

Pharmacies miss half of dangerous drug combinations



"A lack of access to complete patient information via electronic health records, a payment system focused on volume over quality time spent with patients, and performance metrics that pressure pharmacists to work quickly all contribute to a great deal of stress that can result in unintended patient harm..."

Thomas E. Menighan, EVP and CEO, American Pharmacists Association



Clarithromycin
an antibiotic

+



Ergotamine
treats migraines

Potentially fatal. Can cause gangrene or stroke by constricting blood vessels and decreasing flow of oxygen to the extremities and the brain.



Simvastatin
lowers cholesterol

+



Clarithromycin
an antibiotic

Potentially fatal. Can cause a severe breakdown in muscle tissue and lead to kidney failure.



Colchicine
treats gout

+



Verapamil
treats high blood pressure

Potentially fatal. Can cause breakdown of muscle tissue, loss of red and white blood cells and multiple organ failure.



Tizanidine
a muscle relaxant

+



Ciprofloxacin
an antibiotic

Can have a heavy sedative effect and lower blood pressure, leading to loss of consciousness.



**Norgestimate/
ethinyl estradiol**
an oral contraceptive sold under various names

+



Griseofulvin
an anti-fungal

Can lead to unplanned pregnancy. A secondary effect is that griseofulvin may lead to birth defects.

**A two-year
investigative report
on drug-drug
interactions
identified in 255
pharmacies.**

**52% of the
pharmacies
dispensed the
medication without
mentioning the
potential
interactions.**

Roe S, Long R, King K. (2016, December 15). Pharmacies miss half of dangerous drug combinations. *Chicago Tribune*. Available at: <http://www.chicagotribune.com/news/watchdog/druginteractions/ct-drug-interactions-pharmacy-met-20161214-story.html>. Accessed August 15, 2018.

American Pharmacist Association

House of Delegates 2018

- APhA supports **staffing models that promote safe provision of patient care** services and access to medications.
- APhA encourages the adoption of patient-centered quality and performance measures that align with safe delivery of patient care services, and **opposes the setting and use of operational quotas or time-oriented metrics** that negatively impact patient care and safety.
- APhA **denounces any policies or practices** of third-party administrators, processors, and payers **that contribute to a workplace environment that negatively impact patient safety**. APhA calls upon public and private policy makers to establish provider payment policies that support the safe provision of medications and delivery of effective patient care.

American Pharmacist Association

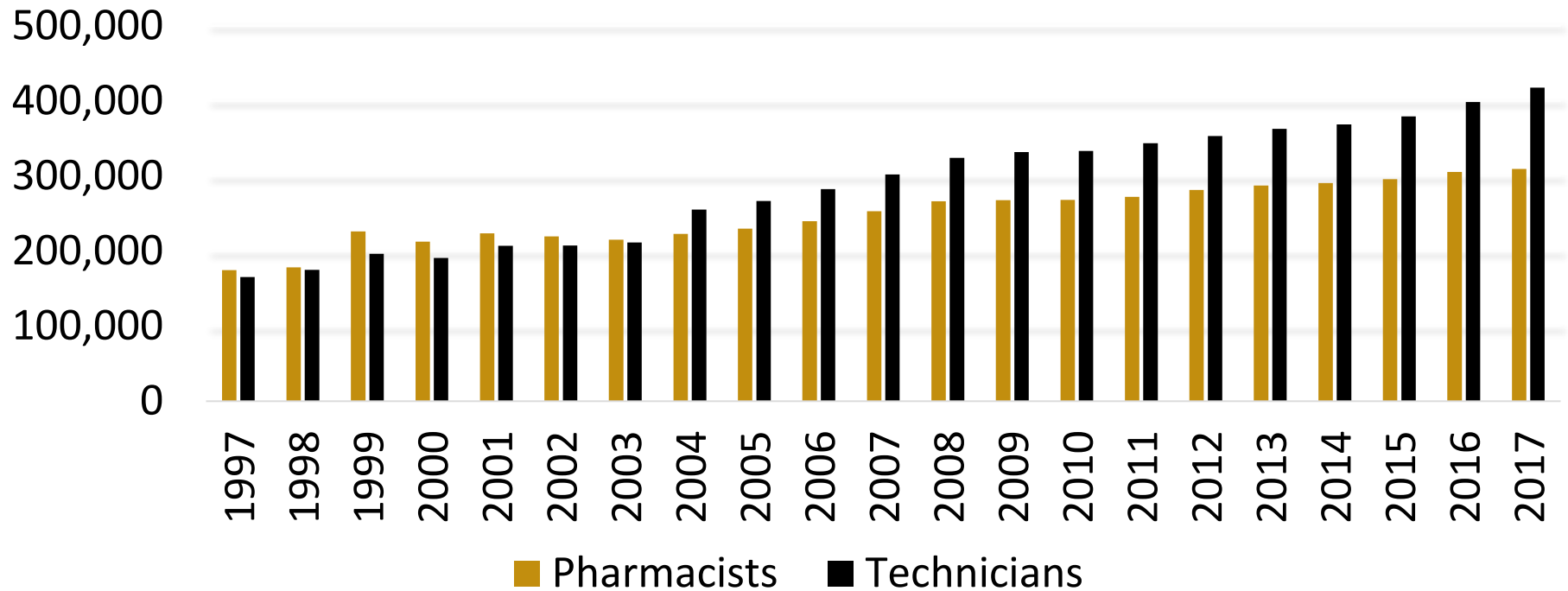
- APhA urges pharmacy practice employers to establish collaborative mechanisms that **engage** the pharmacist in charge of each practice, pharmacists, pharmacy technicians, and **pharmacy staff in addressing workplace issues that may have an impact on patient safety.**
- APhA **urges employers to collaborate with the pharmacy staff to regularly and systematically examine and resolve workplace issues** that may negatively have an impact on patient safety.
- APhA **opposes retaliation against pharmacy staff for reporting workplace** issues that may negatively impact patient safety.

Factors Affecting Patient Safety

- Pharmacy workforce, workload, and breaks
- Staffing and practice models
- Prescription guarantees
- Technology use
- Physical work environments
- Patient safety and safety culture assessments
- Medication error reporting

Pharmacy Workforce & Workload

- **US Bureau of Labor Statistics**
- **309,330 pharmacists (May 2017)**
 - 44% Community Pharmacy (+8.1% since 2013)
 - 24% Hospital (+9.3% since 2013)

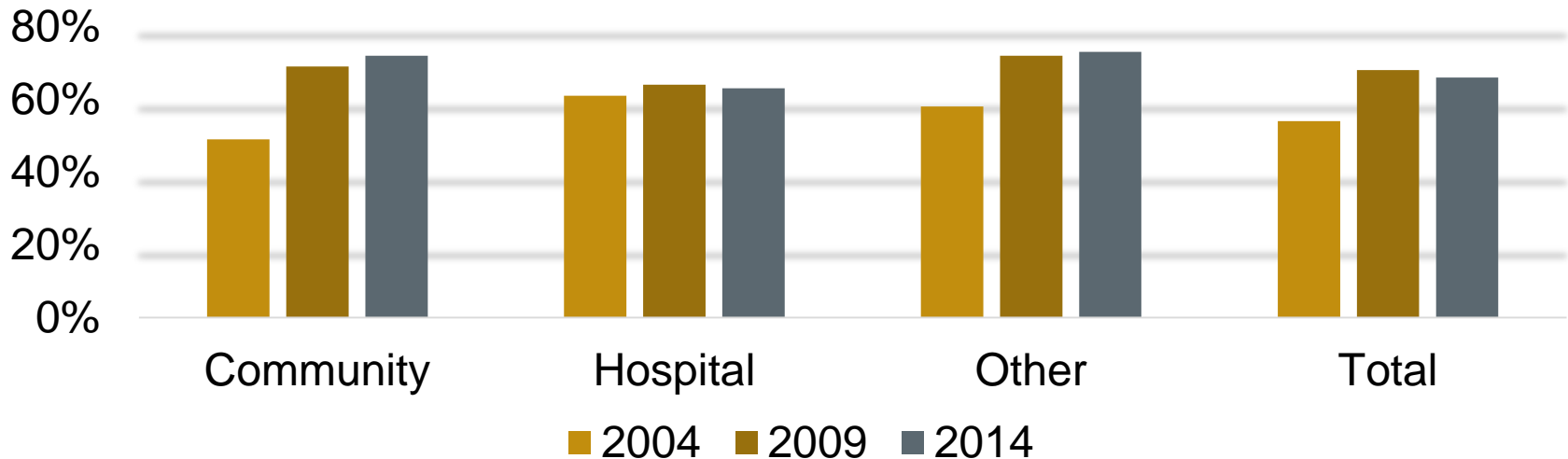


Pharmacy Workforce & Workload

■ Pharmacy Workforce Center

- prescription volumes are increasing
- pharmacists spending less time dispensing medications

Pharmacists Who Rated Workload as High or Excessively High



“ ...THERE HAS NOT BEEN A SUBSEQUENT INCREASE IN THE NUMBER OF TECHNICIANS OR SUPPORT STAFF TO ASSIST WITH DISPENSING, LEAVING ALL STAFF MEMBERS LESS TIME TO COMPLETE ... TASKS.”

Staff Breaks & Meal Periods

- National state boards of pharmacy have various regulations regarding breaks, meal periods, hours worked, and even number of prescriptions a pharmacist can fill
- “May” or “Shall” versus “Must”
 - **Arizona:** *pharmacists working more than 6 hours “shall be allowed during that time period to take a 30 minute meal break and one additional 15 minute break.”*
 - **Minnesota:** *pharmacy “shall not require a pharmacist, pharmacist-intern, or pharmacy technician to work longer than 12 continuous hours per day, inclusive of the breaks required.”*
- No current meal period or break regulations exist using the word “must”

Pharmacy Staffing & Practice Models

▪ Pharmacist-technician ratios

– No regulations

- 22 states (Community) 25 states (Institutional)

– 6:1 (technician:pharmacist) ratio

- Maximum ratio found in the United States
- Includes Indiana and Idaho

▪ Pharmacy technician scope of practice

– 23% technicians to assist or complete prescriptions transfers

– 28% “tech-check-tech” programs

Federal Aviation Administration. What's the only word that means mandatory? Here's what law and policy say about "shall, will, may and must." Available at: https://www.faa.gov/about/initiatives/plain_language/articles/mandatory/. Accessed August 15, 201.

National Association of Boards of Pharmacy (NABP). Survey of Pharmacy Law - 2017. Mount Prospect, IL: National Association of Boards of Pharmacy; 2016.
ASHP. Tech Check Tech. Available at: <https://www.ashp.org/Pharmacy-Technician/About-Pharmacy-Technicians/Advanced-Pharmacy-Technician-Roles/Tech-Check-Technician>. Accessed: 08/15/2018.

Prescription Guarantees

- **Domino's Pizza**
- Opened in 1960
- In 1984, guaranteed pizza delivery in 30 minutes or less – or it was free
- Emphasis of speed over safety



Janofsky M. Domino's ends fast-pizza pledge after big award to crash victim. New York Times. December 22, 1993.

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Prescription Guarantees

- Should not be used as marketing tool
- Institute for Safe Medication Practices (ISMP): emphasizing speed can lead to errors
- National Coordinating Council on Medication Error Prevention (NCCMERP): advocated for “elimination of prescription time guarantees and a strengthened focus on the clinical and safety activities of pharmacist within the community pharmacy setting”

Institute for Safe Medication Practices. ISMP Warns that Emphasizing Speed in Community Pharmacy Prescription Dispensing Can Lead to Errors. Available at: <https://www.ismp.org/pressroom/PR20110606.pdf>. Accessed August, 15 2018.

National Coordinating Council for Medication Error Reporting and Prevention. Statement Advocating for the Elimination of Prescription Time Guarantees in Community Pharmacy. Available at: <http://www.nccmerp.org/statement-advocating-elimination-prescription-time-guarantees-community-pharmacy>. Accessed August 15, 2018.

Pharmacy Technology

- May decrease pharmacy workload, improve efficiency, and reduce medication errors
- May introduce workflow interruptions or workarounds



Angelo, L.B., Christensen, D.B., and Ferreri, S.P. Impact of community pharmacy automation on workflow, workload, and patient interaction. *J Am Pharm Assoc.* 2005; 45: 138–144.

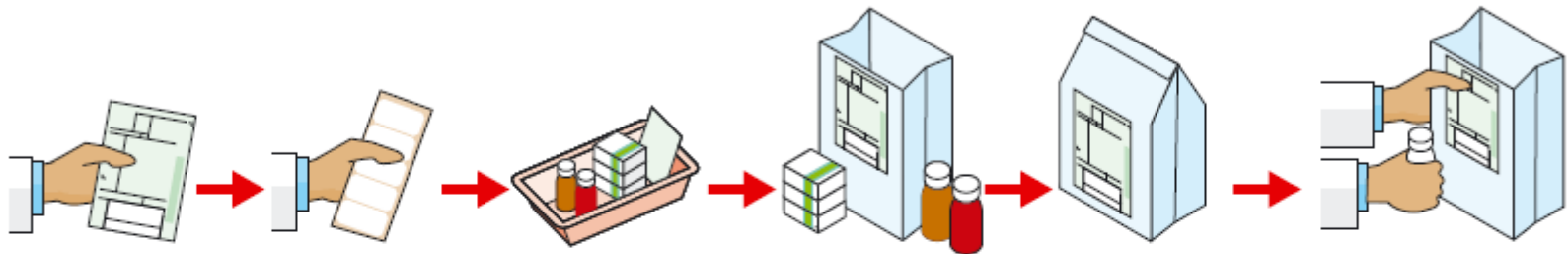
Flynn, E.A. and Barker, K.N. Effect of an automated dispensing system on errors in two pharmacies. *J Am Pharm Assoc.* 2006; 46: 613–615.

Walsh, K. E., Chui, M. A., Williams, S. M., Sutter, S.L., Sutter, J.G. Exploring the impact of an automated prescription-filling device on community pharmacy technician workflow. *J Am Pharm Assoc.* 2011; 51: 613 – 618.

Physical Work Environment

Stages in dispensing a prescription

Use design to minimise errors at each stage of dispensing a prescription for medicines.



1

Receipt of prescription and clinical check

- clinical checking
- medicine counter
- prescription reception
- use of computer
- access to internet
- access to patient records
- computer ergonomics

2

Creation of label

- printer position
- prescription holders
- location
- labelling machines
- type of printer

3

Medicines assembly

- place for interim storage
- use of robots

4

Accuracy check

- accuracy check

5

Storing dispensed medicines

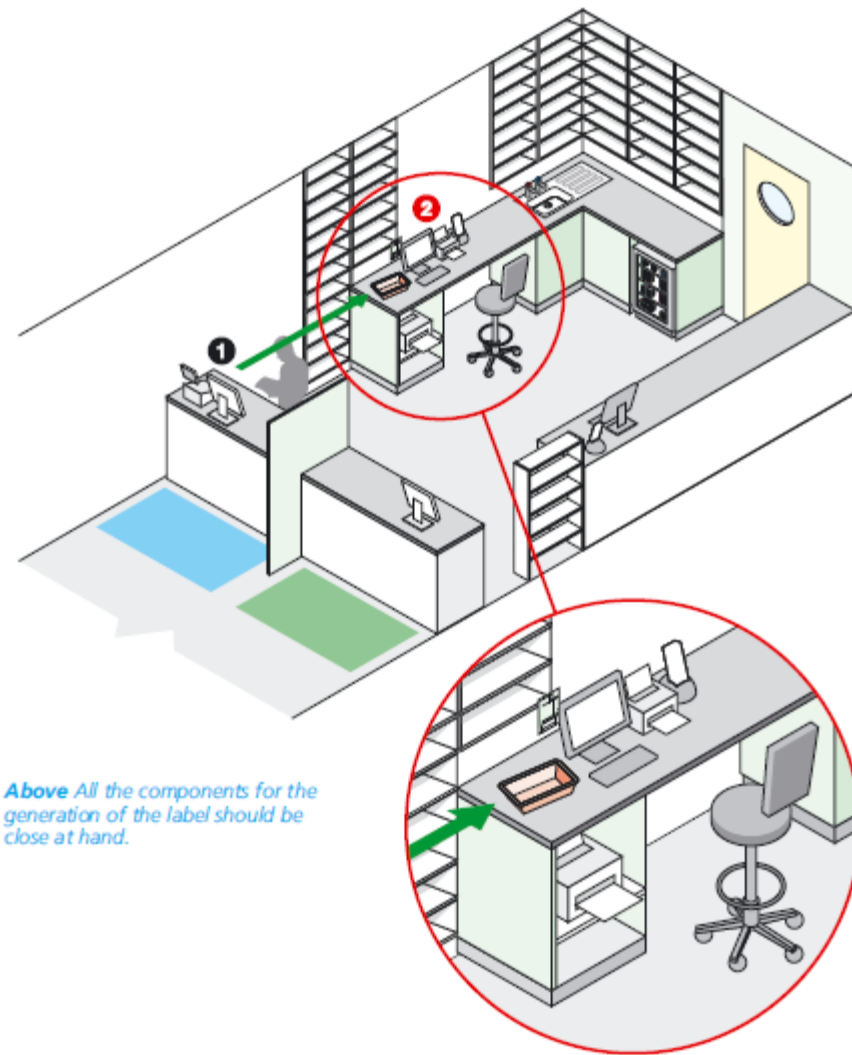
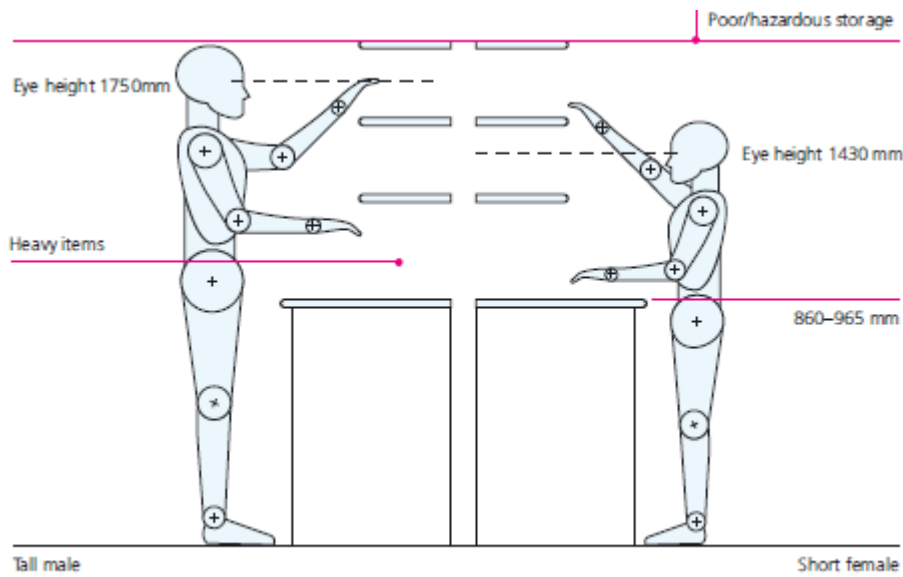
- storage for collection
- storage of omissions
- storage of completed prescriptions with queries

6

Medicines collection/ final accuracy check and patient counselling

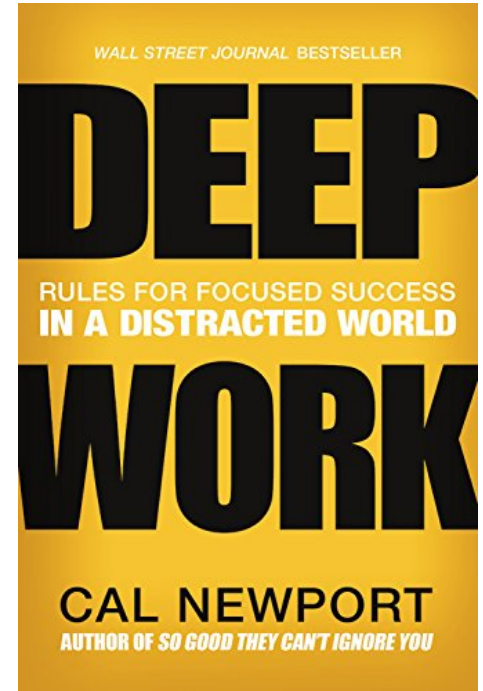
- prescription collection
- access to patient records
- use of computer for record keeping
- information leaflets
- patient counselling

Physical Work Environment



Physical Work Environment

- Environmental factors such as poor lighting, interruptions, cluttered workspaces have been associated with medication errors
 - Pharmacists are interrupted approximately 20 times per hour
 - It takes an average of **23 minutes** and **15 seconds** to return to a task



Buchanan TL, Barker KN, Gibson JT, Jiang BC, Pearson RE. Illumination and errors in dispensing. Am J Hosp Pharm 1991;48(10):2137–45.

Flynn EA, Dorris NT, Holman GT, Carnahan BJ, Barker KN. Medication dispensing errors in community pharmacies: A nationwide study. 46th Annual Meeting of the Human Factors and Ergonomics Society; 2002 10/2; Baltimore, MD: Human Factors and Ergonomics Society; 2002.

Flynn EA, Barker KN, Gibson JT, Pearson RE, Berger BA, Smith LA. Impact of interruptions and distractions on dispensing errors in an ambulatory care pharmacy. Am J Health Syst Pharm 1999;56(13):1319–25./15/18.

Mark G, Gudith D, Klocke U. The Cost of Interrupted Work: More Speed and Stress. Available at: <https://www.ics.uci.edu/~gmark/chi08-mark.pdf> Accessed: 08/15/18.

Physical Work Environment : USP <1066>

Illumination	<ul style="list-style-type: none">• Measure lighting levels / clean light fixtures• Illumination levels should be between 50-150 foot-candles• Magnifying glasses should be provided
Interruptions and Distractions	<ul style="list-style-type: none">• Workstations to reduce distractions• Checklists for critical tasks
Sound and Noise	<ul style="list-style-type: none">• Sound levels should be around 50 decibels (dBA)• Noise dampening / noise cancelling materials
Physical Design and Organization of Workspace	<ul style="list-style-type: none">• Clutter free workspaces• Adjustable countertops and workstations
Medication Safety Zone	<ul style="list-style-type: none">• Where critical work is performed• Should be standardized / have materials needed for task

Physical Work Environment



Patient Safety and Safety Culture Assessments

■ ISMP Self Assessments

- Hospital (2011) and community pharmacy (2017) settings
- Assessments measure degree of implementation of best practices for patient and medication safety
- Typically completed as a team
- Prioritize tasks

I. PATIENT INFORMATION

Core Characteristic #1
Essential patient information is obtained, readily available in useful form, and considered when dispensing, administering, and monitoring the effects of medications.

		A	B	C	D	E
1	Patient information (patient's full name [including suffix], address, home telephone number, alternate means of contact [e.g., email address or cell phone number], gender, date of birth, and allergies) is obtained and entered into the pharmacy computer system before dispensing prescriptions, and is updated at each encounter.					
2	FAQ The pharmacy has implemented policies and procedures and system enhancements to ensure that only one profile per person exists in its system.					
3	The pharmacy assesses and documents patients' preferred language for communication, health literacy, cultural influences relevant to medication therapy, and any hearing and/or visual impairments that may affect compliance with medication therapy.					
4	A current medication list, including prescription and over-the-counter (OTC) medications (with dose, frequency, and route) and immunizations (with vaccination dates), is obtained, entered into the pharmacy computer system, and updated at each encounter.					
5	A list of vitamins, herbal products, dietary supplements, homeopathic medications, and alternative medicines currently used by the patient is obtained, entered into the pharmacy computer system, and updated at each encounter.					
6	Basic information about comorbid and/or chronic conditions (e.g., diabetes, hypertension, renal or liver impairment, pregnancy, lactation) is obtained, entered into the pharmacy computer system, and updated at each encounter.					
7	The pharmacy takes steps to obtain patient weight when dispensing weight-based drugs, such as those used in chemotherapy treatment or pediatrics.					
8	When taking orders over the telephone, the prescriber (or authorized agent) is specifically queried about comorbid conditions, allergies, date of birth, patient weight (if applicable), and indication.					
	Recent clinical data such as blood glucose levels, liver enzymes, renal					

Patient Safety and Safety Culture Assessments

- **Agency for Healthcare Research and Quality (AHRQ) Surveys on Patient Safety Culture**
 - How does staff perceive patient safety culture
 - How much does work culture promote and support patient safety?
- **Available in a variety of practice settings:**
 - 2004: Hospital
 - 2012: Community Pharmacy
 - Others: nursing home, medical office, ambulatory surgery center

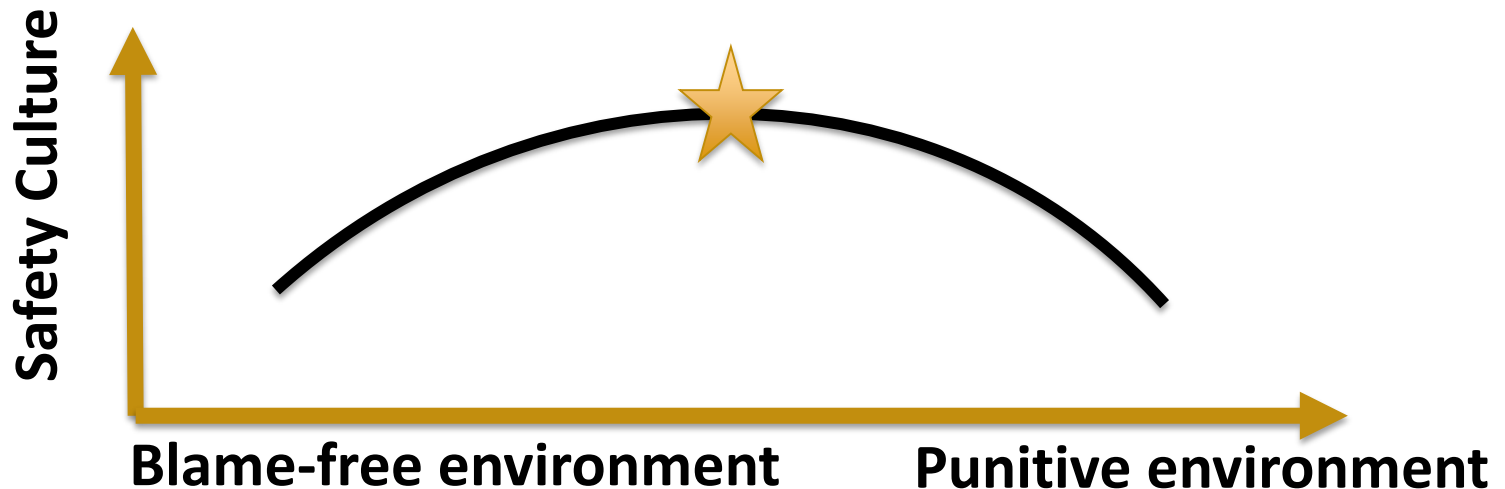
Patient Safety and Safety Culture Assessments

- **Hospital SOPS (2016; n= 447,584)**
 - 54% : staffing levels and work load were appropriate
 - 45% : errors were held against them
- **Community Pharmacy SOPS (2015; n= 1603)**
 - 44% : staffing levels and breaks were appropriate
 - 44% : did not feel rushed to complete work

Just Culture & Medication Error Reporting

▪ Just Culture

- acknowledgment of high-risk work
- a blame-free environment
- collaboration
- organizational commitment



Just Culture & Medication Error Reporting

- **Internal reporting systems**
 - Internal use (e.g. REDCap, homegrown programs)

- **External reporting programs**
 - ISMP National Medication Errors Reporting Program
 - FDA MedWatch
 - USP MeDMARX
 - The Joint Commission
 - State Reporting Programs
 - Indiana: Medical Errors Reporting Program

Summary of Key Points

- Prescription volumes continue to increase, while pharmacy support staff levels remain relatively stable.
- Physical and environmental factors, including breaks, can play a major role in maintaining patient safety.
- Conducting medication safety self-assessments in both community and hospital pharmacies may help instill a culture of safety
- Medication error reporting should be encouraged and efforts made to promote just culture practices
- Patient safety is impacted by the workplace of the pharmacist through several factors, thus it will take a multifaceted approach to improve patient safety.

KNOWING YOURSELF
IS THE BEGINNING OF ALL
WISDOM

- Aristotle

Where to begin?

- **AHRQ Surveys of Patient Safety Culture:**
<https://www.ahrq.gov/sops/quality-patient-safety/patientsafetyculture/index.html>
- **ISMP Medication Safety Self Assessments:**
<https://www.ismp.org/self-assessments>
- **USP <1066>:**
www.usp.org/sites/default/files/usp_pdf/EN/USPNF/gc1066PhysicalEnvironments.pdf
- **Indiana Pharmacist Alliance:** *<https://www.indianapharmacists.org/>*
- **Indiana Hospital Association Patient Safety Center:**
<https://www.ihconnect.org/patientsafety/Pages/default.aspx>
- **ISMP Newsletters:** *<https://www.ismp.org/newsletters>*



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