



# LIGHTS CAMERA ACTION ANAHEIM!

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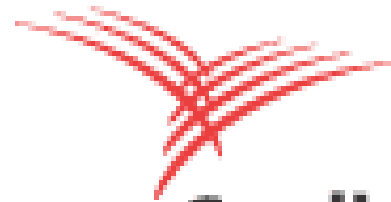
RETAIL BUSINESS CONFERENCE ANAHEIM, CALIFORNIA AUGUST 4-7, 2004



**CardinalHealth**



# Hot Topics



CardinalHealth



# Pharmacy Technology, Automation and Workflow Systems

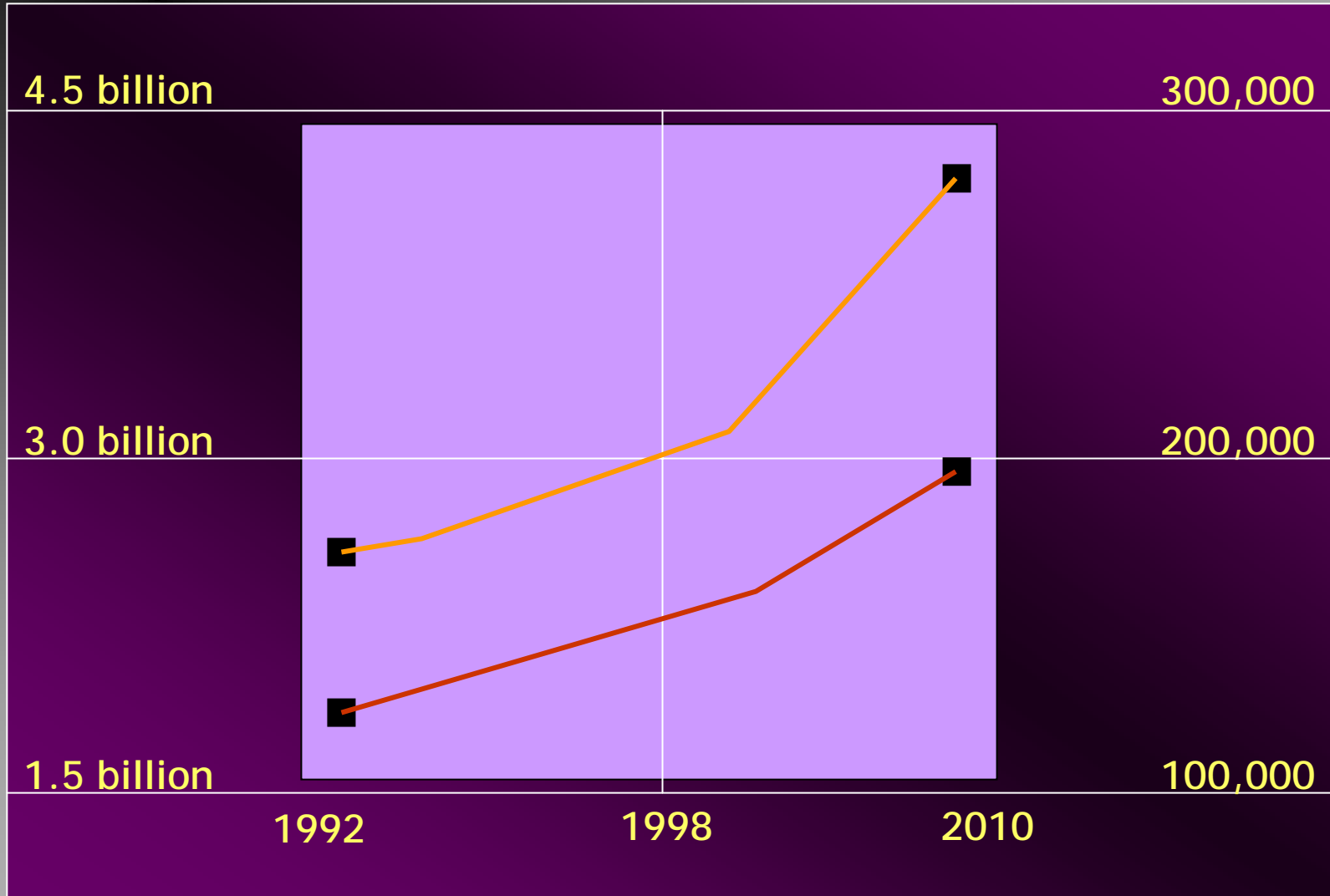
Christopher J. Thomsen  
The Thomsen*Group* Inc.  
Kansas City, MO



# Challenges

Prescriptions

Pharmacists



# Fact

The prescription volume challenges that we face in today's pharmacy will not be resolved by deploying additional personnel



# Fact

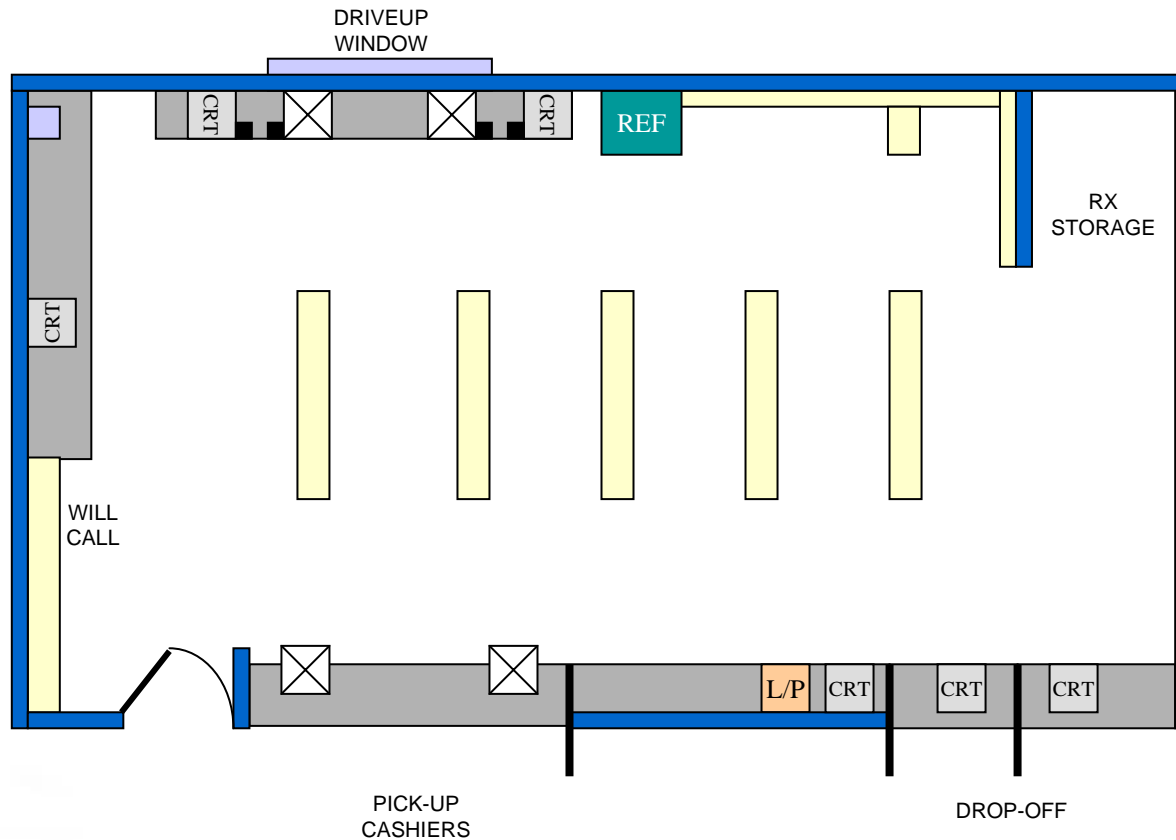
“Dispensing errors occur at a rate of 4 errors per day in a pharmacy filling 250 prescriptions daily.”

“51.5 million errors occur during the filling of 3 billion prescriptions each year.”

# Pharmacy Workspace, Design and Workflow



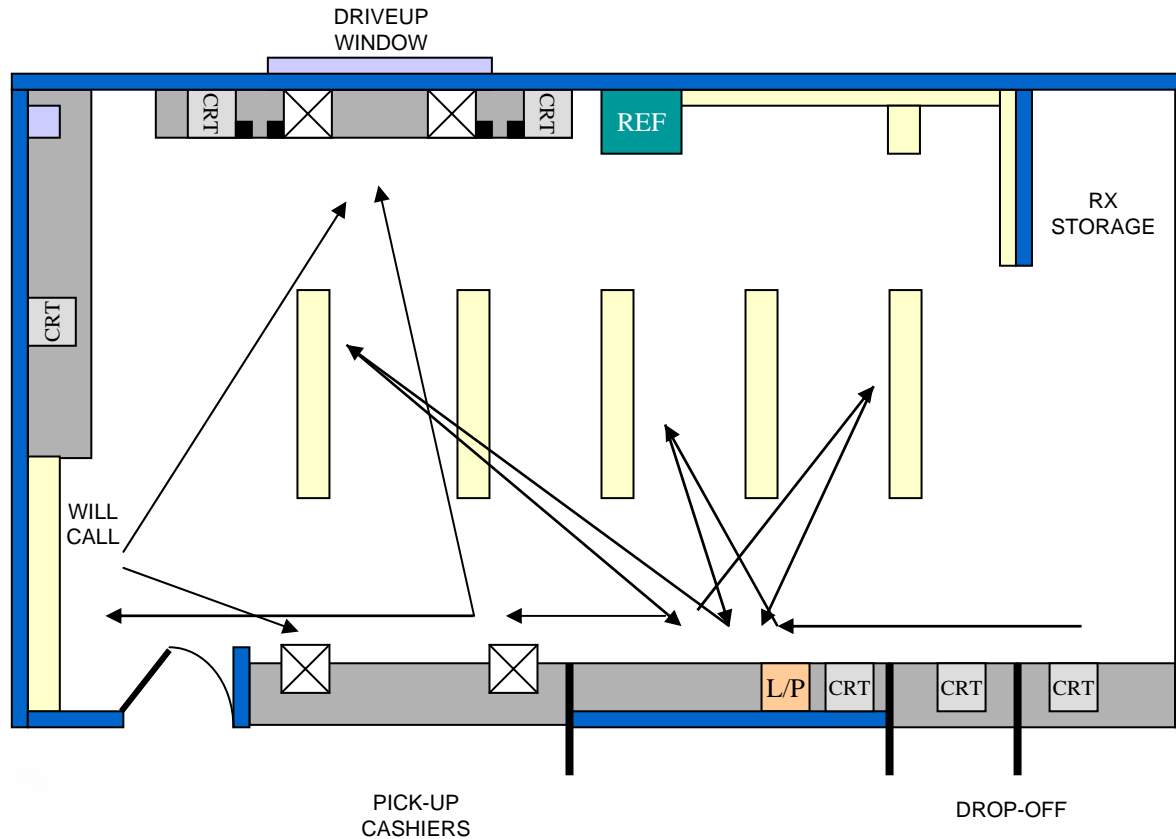
# Pharmacy Workspace



Determine current work spaces and layout of fixtures

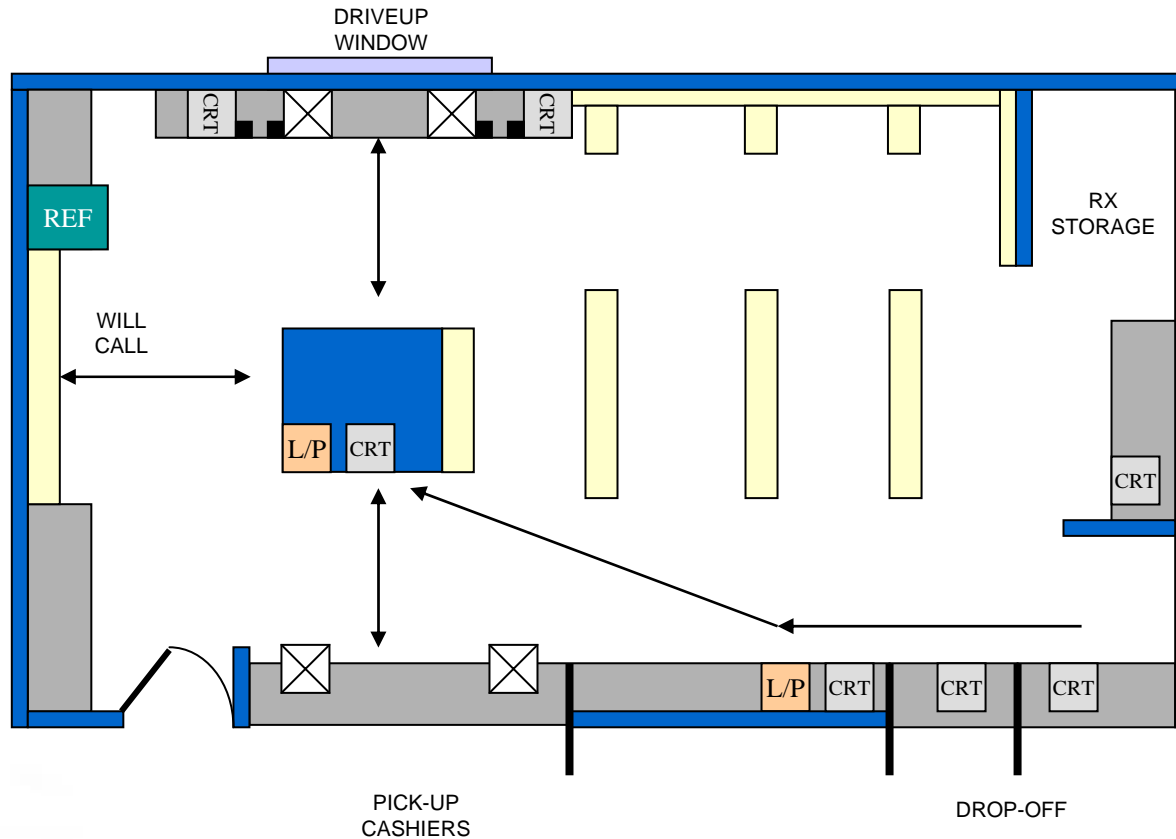


# Pharmacy Workspace



Determine flow of traffic and where work occurs

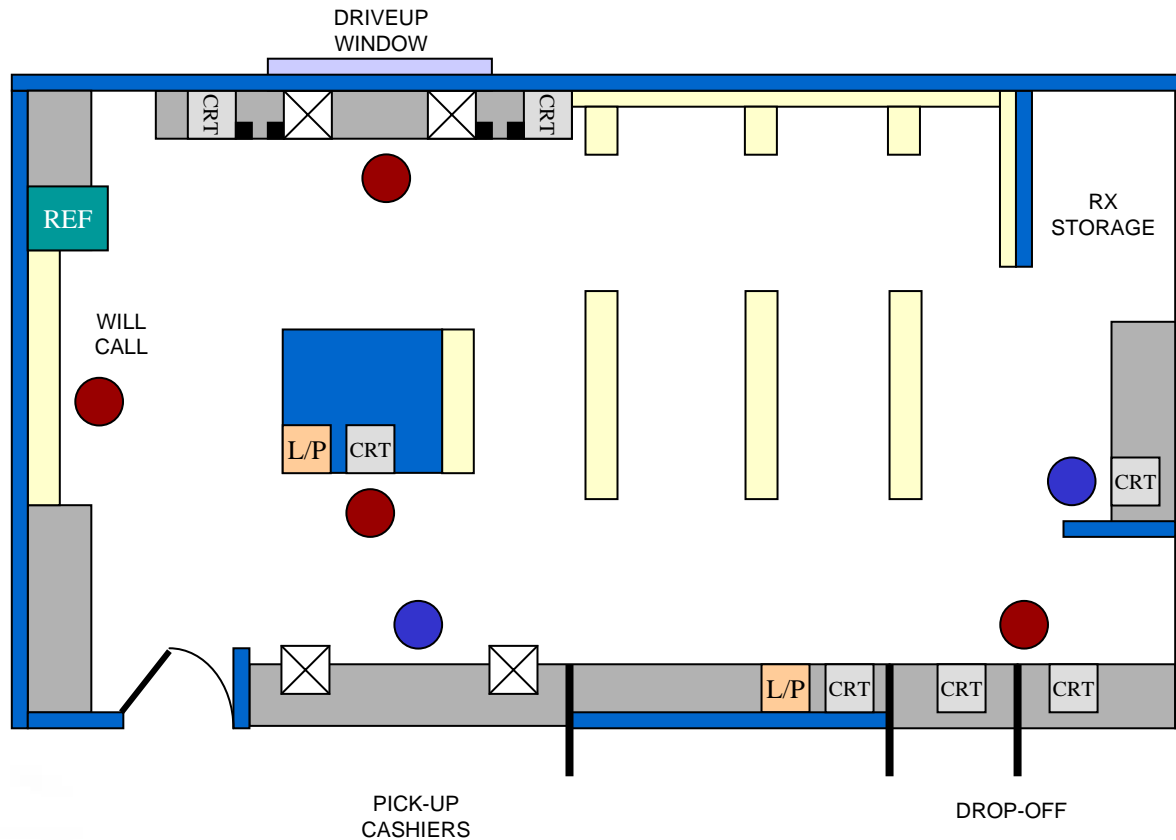
# Pharmacy Workspace



Adjust to reduce travel and increase efficiency



# Pharmacy Workspace



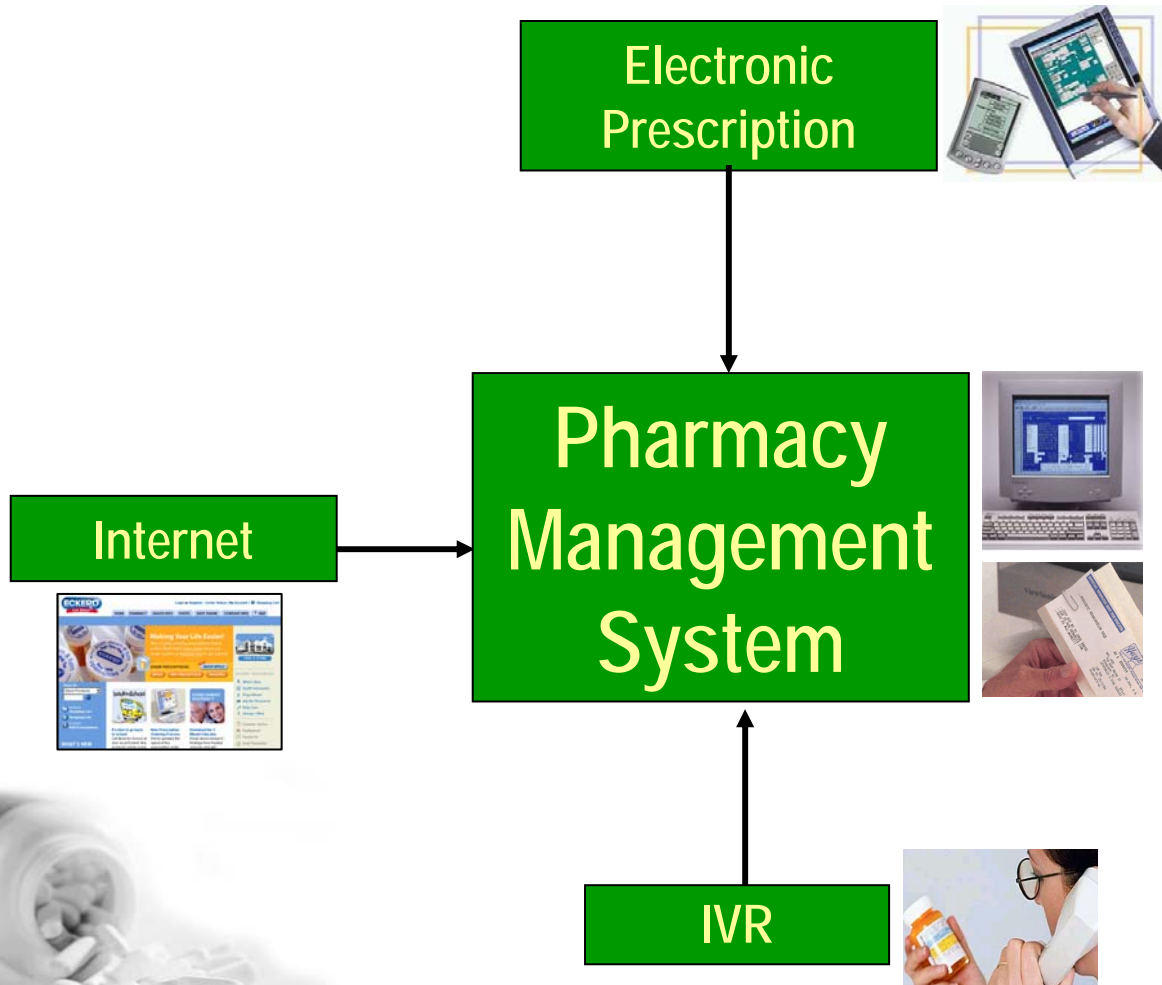
Establish clear and efficient responsibilities



# Basic Pharmacy Technology



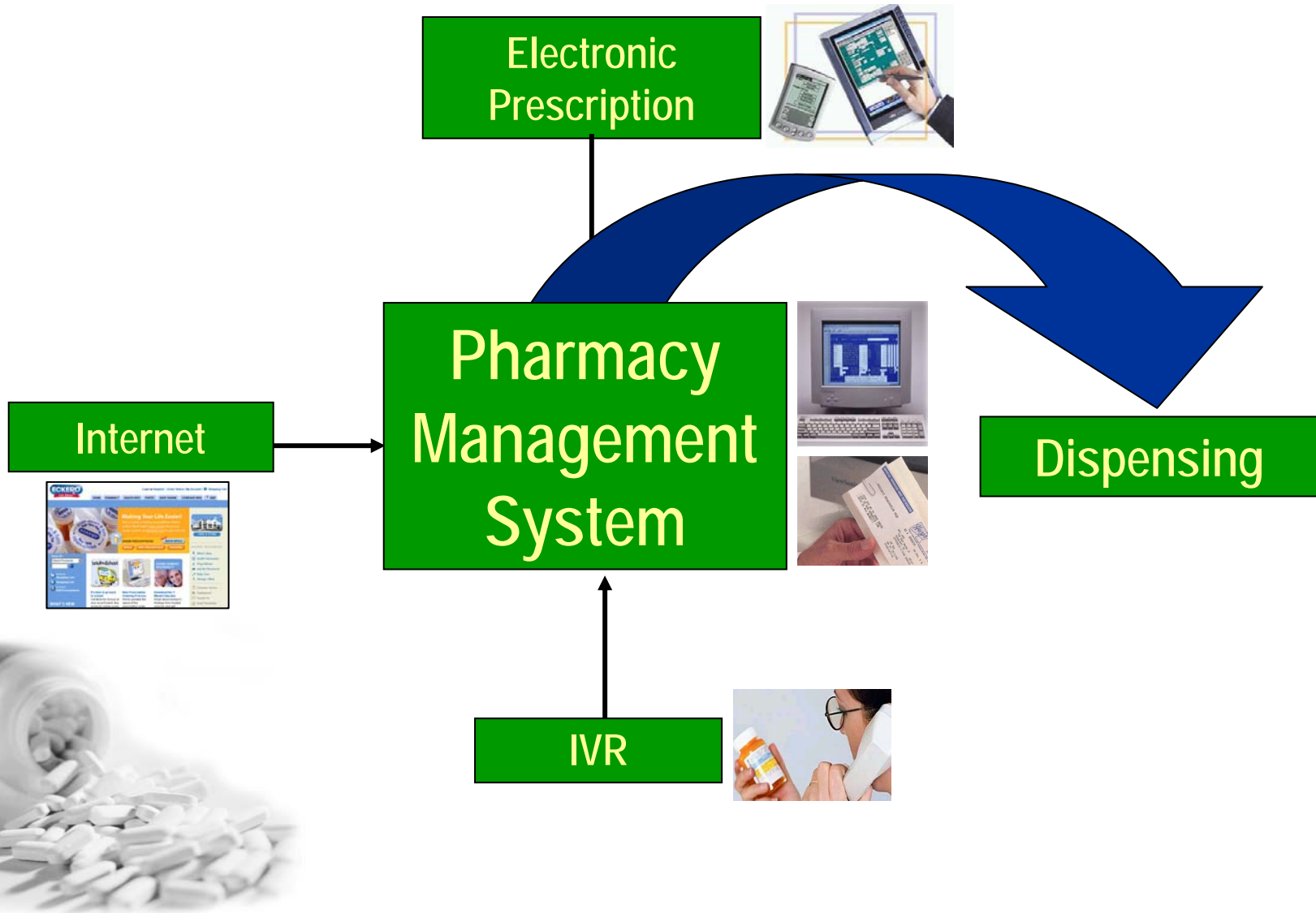
# Pharmacy Technology



# Dispensing Technology



# Pharmacy Technology



# Dispensing Systems

## Automated Counting



# Dispensing Systems

## Automated Counting



# Dispensing Systems Robotics



# Pharmacy Technology and Dispensing Systems

## Pharmacy technology:

- Facilitate order entry, processing and billing
- Provide access to patient and drug data
- Enhance information transmission and access

## Automated counting and robotics:

- Increase productivity and efficiency
- Eliminate manual labor from the process
- Enhance dispensing accuracy



# Market Research

## Surveyed 169 Pharmacists:

**4 major chains - 7300 stores**  
**13 regional chains - 1160 stores**  
**39 hospital outpatient pharmacies**  
**113 independent pharmacies**

**Pharmacy Management Systems**

**Counting and Robotics**

**Workflow Systems**

**Central Fill and Mail Order**

**The Future of Technology**



# Automated Counting

100% of the major chains  
85% of the regional chains  
73% of the independents  
92% of the hospitals

“have some kind of automated counting system”

100% of the regional chains and 78% of the independents, **without automated counting**, indicated that they plan to install some type of an automated pill counter within the next two years.



# Robotics

75% of the major chains  
31% of the regional chains  
14% of the independents  
36% of the hospital outpatient

“have one or more robots”

33% of the regional chains, 24% of the independents, **without robotics**, said they plan to install them in the next two years.



# Automated Workflow

25% of the major chains  
15% of the regional chains  
19 % of independents  
56 % of the hospitals

“have some type of an  
automated workflow system.”

55% of the regional chains and 61% of the independents, **without an automated workflow system**, plan to implement such a system over the next two years.



# Automated Workflow



# Defining Workflow

The term “**automated workflow**” has been used to define software modules or products that can improve productivity by **automating tasks or separating processes.**

**Automated workflow** can be further defined as dividing the tasks of the prescription processing into separate steps so that they can be **queued, performed and verified at different locations by different people.**



# Defining Workflow

The **automation of a work process**, in whole or part, occurs when documents, information and/or tasks are automatically passed from one participant to another for action...

...according to a **standardized** process or set of **procedural rules**.



# Defining Workflow

When was the last time that Boeing, General Motors or even McDonalds let their products be assembled by methods and processes determined by each employee?

Product quality and safety can only be achieved when the entire process is  
**standardized**



# Automating the Pharmacy Workflow Process



order entry



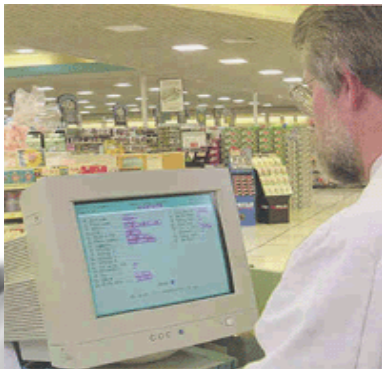
adjudication



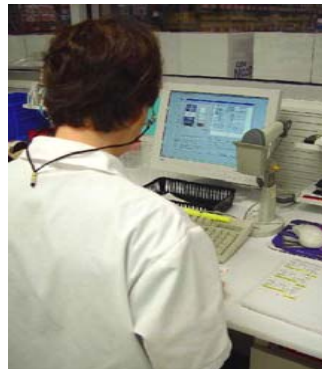
labeling



filling



verification



quality assurance



storing and billing



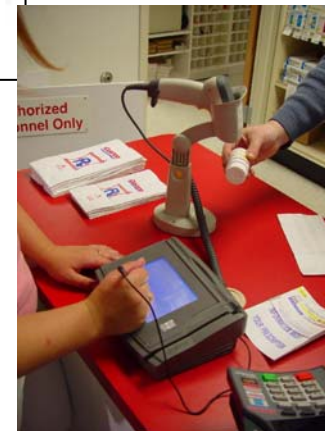
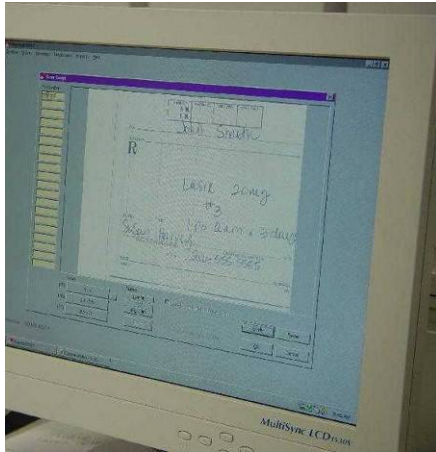
delivery validation



# Automated Workflow Systems



# Automated Workflow Systems



# Automated Workflow Study



**Pre Automation**



**Post Automation**

# Automated Workflow Study

## Order Entry



**Pre**

107 sec/Rx



**Post**

110 sec/Rx

# Automated Workflow Study

## Prescription Filling - Pre Installation



**Rx Staging (1)**  
**Rx Filling (2)**

29.54 sec/Rx  
127.38 sec/Rx

**Total Filling (1+2)**

**156.92 sec/Rx**

# Automated Workflow Study

## Prescription Filling - Post Installation



<b>Rx Staging (1)</b>	<b>28.37 sec/Rx</b>
<b>Rx Filling (2)</b>	<b>53.45 sec/Rx</b>
<b><u>Total Filling (1+2)</u></b>	<b><u>81.82 sec/Rx</u></b>

# Automated Workflow Study

## Prescription Verification



**Rx Verify**

NA

23 sec/Rx

**Verification Steps**

2 (visual)

6 (computer aided)

# Automated Workflow Study

## Pre and Post Prescription Filling Results

	<b>Pre</b>	<b>Post</b>
<b>Rx Volume</b>	526/day	542/day
<b>Time/All Rx</b>	2.62 min/Rx	1.36 min/Rx
<b>Time/Automated Rx</b>	NA	23.4 sec/Rx
<b>Pharmacist</b>	43%	7%
<b>Technician</b>	57%	93%
<b>Automation Capacity</b>		<b>40% of Total daily volume</b>

# The Real World

## Pharmacy A

To locate a prescription, 2 to 3 employees (techs/pharmacists) must drop what they are doing until they can **find that prescription** then get back with the customer - in the store or on the phone.

In our pharmacy, filling an average of 250 prescription per day, this issue costs us **about 4 hours of lost productivity per day.**

This means that our pharmacy is spending (losing) approximately **\$100\* per day to locate lost prescriptions.**

\*Note: Used a blended wage rate of \$25 per hour (\$40/hour for pharmacists and \$10/hour for techs)

# The Real World

## Pharmacy B

Pharmacists spend about 2 hours per day counting & pouring, but help-out when technicians have fallen behind.

The single biggest reason they fall behind is when the technicians are temporarily removed from their filling function to help **locate a lost prescription**.

We equate this to the difference between a pharmacist's and technician's wages for a total of two hours per day –

$$\begin{aligned} & \$40/\text{hour} - \$10/\text{hour} = \\ & \$30/\text{hour} \times 2 \text{ hours per day} = \\ & \mathbf{\$60 \text{ per day}} \end{aligned}$$

# Automated Workflow Study

## Front Counter and Will Call - Pre Installation



**Lost/Misplaced Rx  
Locating Rx in Will Call**

**Average 12 Rx/day – 9.6 min/Rx  
19.6 sec/Rx**

# Automated Workflow Study

## Front Counter and Will Call - Post Installation



**Lost/Misplaced Rx  
Locating Rx in Will Call**

Average 2 Rx/day – 6.2 min/Rx  
12.3 sec/Rx

# The Real World

## Pharmacy Involved in Study

Prior to installing the automated counting and the automated workflow system this pharmacy was spending an average of 115 .2 minutes per day (1.92 hours) to locate lost or misplaced prescriptions.

**Today, they have reduced that amount of time by almost 89% to an average of 12.4 minutes per day**



# Automated Workflow Systems



**Chaos**



**Order**



**Patient Care**



# Counseling and Errors

**83%** of the prescription errors in a community pharmacy are **discovered during patient counseling** and are corrected before the patient leaves the pharmacy.

# Technology and Safety

“Utilization of simple prescription technologies, like **bar codes** and **onscreen drug images**, can reduce medication dispensing errors by one full percentage point.”

**Will Call Technology**



# Will Call Technology Storage and ATM-Like



# Summary

At the end of the day a technology investment should result in...

**...improvements that have a measurable and positive return on:**

**Your bottom line**

**Your staff's morale and efficiency**

**Your patient's satisfaction and safety**



**Thank You!**



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