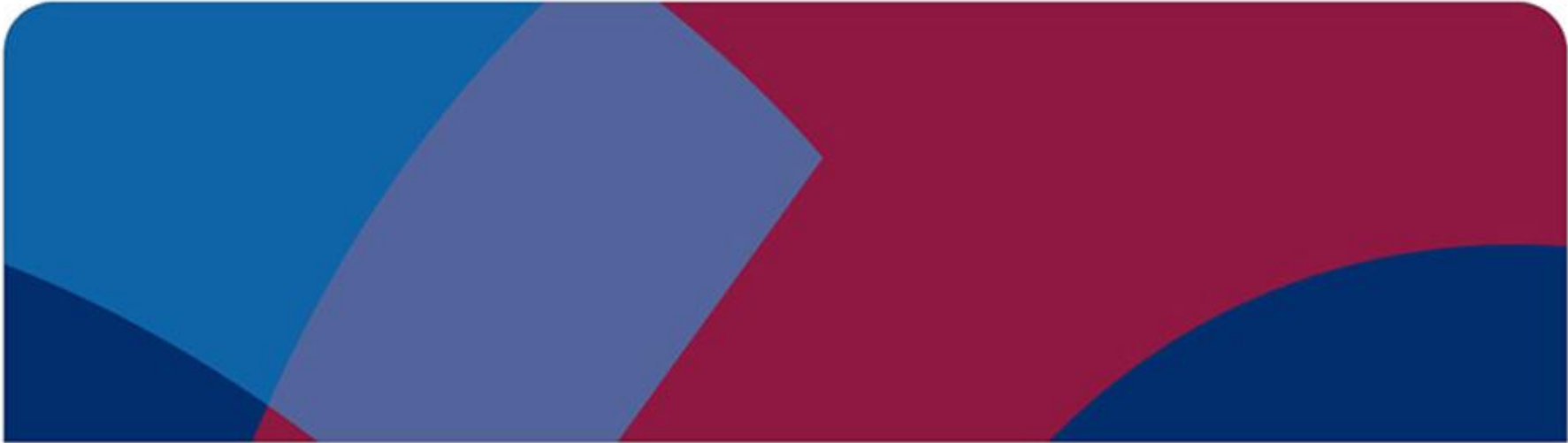




A Study on Automated drug dispensing system: Robotic Pharmacy

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Introduction

- As we entered the 21st century, there are many factors that influence the future practice of pharmacy & delivery of pharmaceutical care
- Today's health care providers are looking for new ways to improve the quality of patient care & cut costs, while enhancing employee retention & patient satisfaction

Introduction

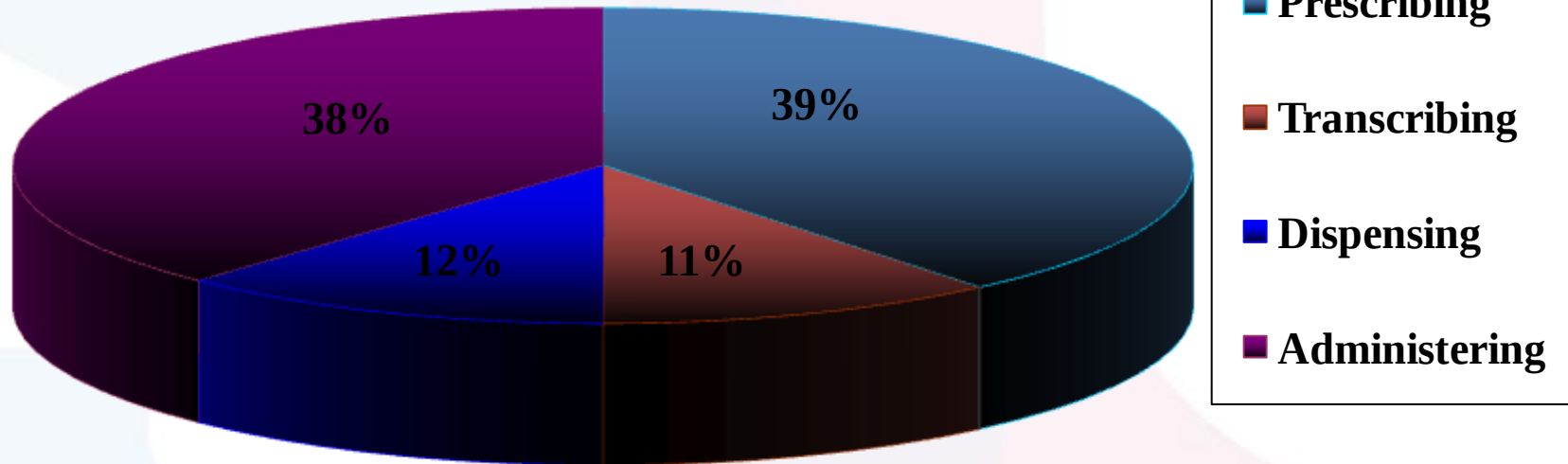
- Technological advances have led to automation, which is of particular significance to pharmacists.
- In pharmacy automation, the machines used to carry out work are controlled by a computer.
- It is very vital that the computer knows & responds to the purpose for which the system is executed.
- Automated systems also promise extra efficiency & accuracy.

Need of the Study

- Due to the potential hazards and high volumes, some hospitals and larger health care clinics utilize robotics to dispense medication.
- Robotic pharmacies are expanding rapidly within the hospitals and clinics. Several companies are servicing that market and the interest level will only increase.
- Larger hospitals have hundreds of beds and numerous divisions, and all the complexity basically means it can be difficult to keep track of medication's flow from pharmacy to patient.
- Automated systems mean such tracking can be made vastly more efficient.

Need of the Study

Major Areas for Medication Error



Medication Errors Reporting Program US

Review of Literature

- The automated drug distribution systems (ADDS) in use today – such as those manufactured by Omnicell, Inc. and Pyxis, Inc. – are predicated on a transformation in drug distribution originating in the United States in the early 1960's known as unit-of-use packages, or unit-dose systems.
- Unit-dose systems on the other hand, provide nurses with individually packaged and labeled doses at eight or more hour intervals and are ready to administer according to the administration schedule determined by the nurse (Simborg & Derewicz, 1975).
- Gaining widespread popularity, unit-dose systems substantially reduced the dramatic occurrence of errors, medication waste and the inappropriate use of nursing time (Hynniman, Conrad, Urch, Rudnick, & Parker, 1970; Riley, Derewicz, & Lamy, 1973; Shultz, White, & Latiolais, 1973).
- Building on this success, Johns Hopkins Hospital introduced an automated feature into the unit-dose system making the entire process, from physician prescription entry to hourly dose administration, computer-assisted (Simborg & Derewicz 1975, p. 342).

Objectives

- Study the recent trends of Robotic Pharmacy in the community.
- Benefits observed by the proper usage of the Robotic Pharmacy.
- To study the behavior/ feedback of the patients or the customer who comes under the usage of the robotic pharmacy

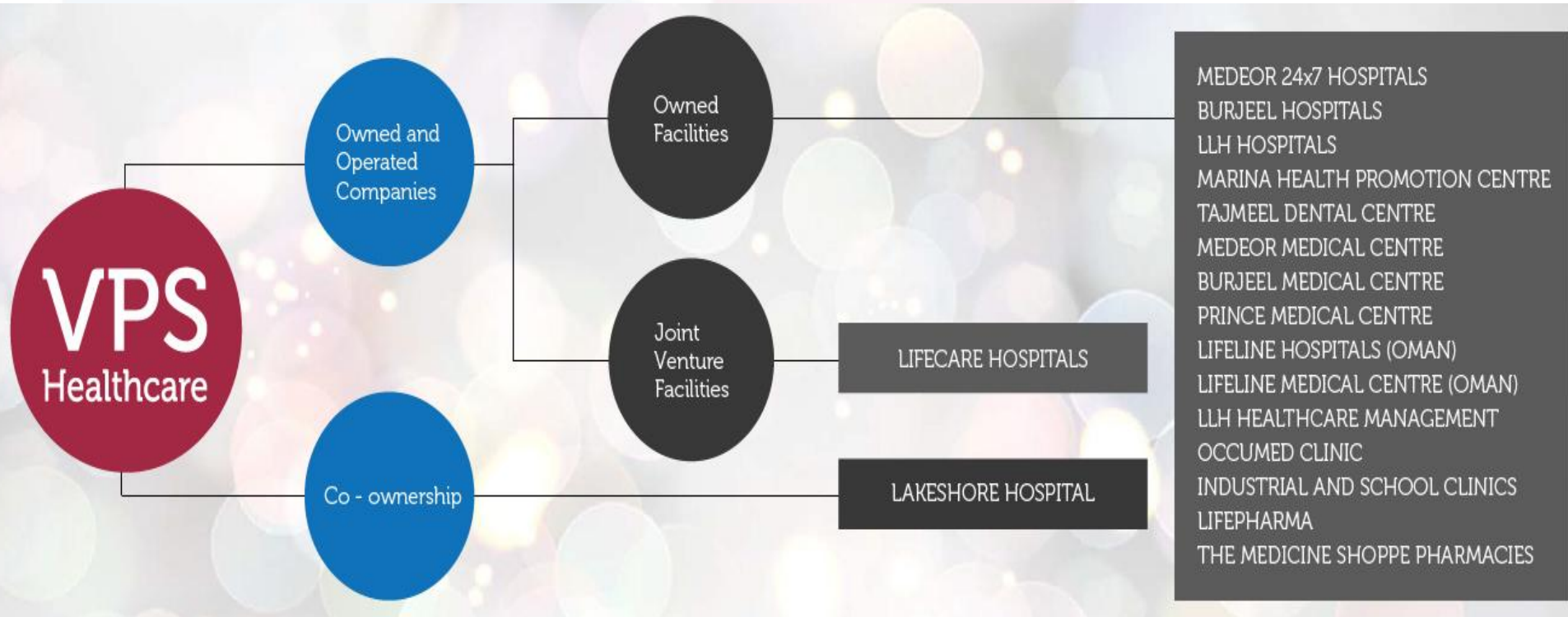
Methodology

- **Research Design**
 - Exploratory Research Design
- **Sampling Method**
 - Non-probability sampling method : Convient Sampling.
- **Data Collection (Primary and Secondary)**
 - A survey was done with the help of a structured questionnaire to collect data about Patient feedback regarding pharmacy.
 - The collection of data published literature both in scientific and non-scientific publications like news papers, journals, magazines etc.

About VPS Healthcare

- VPS Healthcare, an integrated Healthcare provider with network of hospitals, chain of medical centers, pharmaceutical manufacturing and pharmacy retail across the global healthcare arena.
- Dedicated team of over 7,500 employees, 750 Doctors including North American, European and Australian board certified are providing world class quality services complemented by personalized care.
- VPS Healthcare reflects a brand image of excellence in healthcare delivery system by serving around 3 Million patients per annum.

About VPS Healthcare



Medeor 24x7 Hospital

Medeor 24x7 Hospital

Abu Dhabi

**78
Bed
Capacity***

Cath Lab
Interventional
Capabilities

**Robotic
Pharmacy**

**Pediatric
Ambulance**



Medeor Pharmacy

- Medeor 24×7 Pharmacy is committed in delivering the highest level of satisfaction to patients. Our systems ensure that expired medicines never reach the patient by mistake.
- Often people consider Pharmacy as a means of storage and dispensing of medicines. But responsible pharmacy companies in Healthcare like Medeor 24×7 Hospital understand that they have a much larger role to play especially when the market is flooded with potent drugs, new drugs, costly drugs and non-conventional advanced drug delivery system.
- We are aware about the fatalities due medication-error, irrational drug therapy wrong handling of drugs, improper patient counseling, lack of quality assurance etc.

Medeor Pharmacy



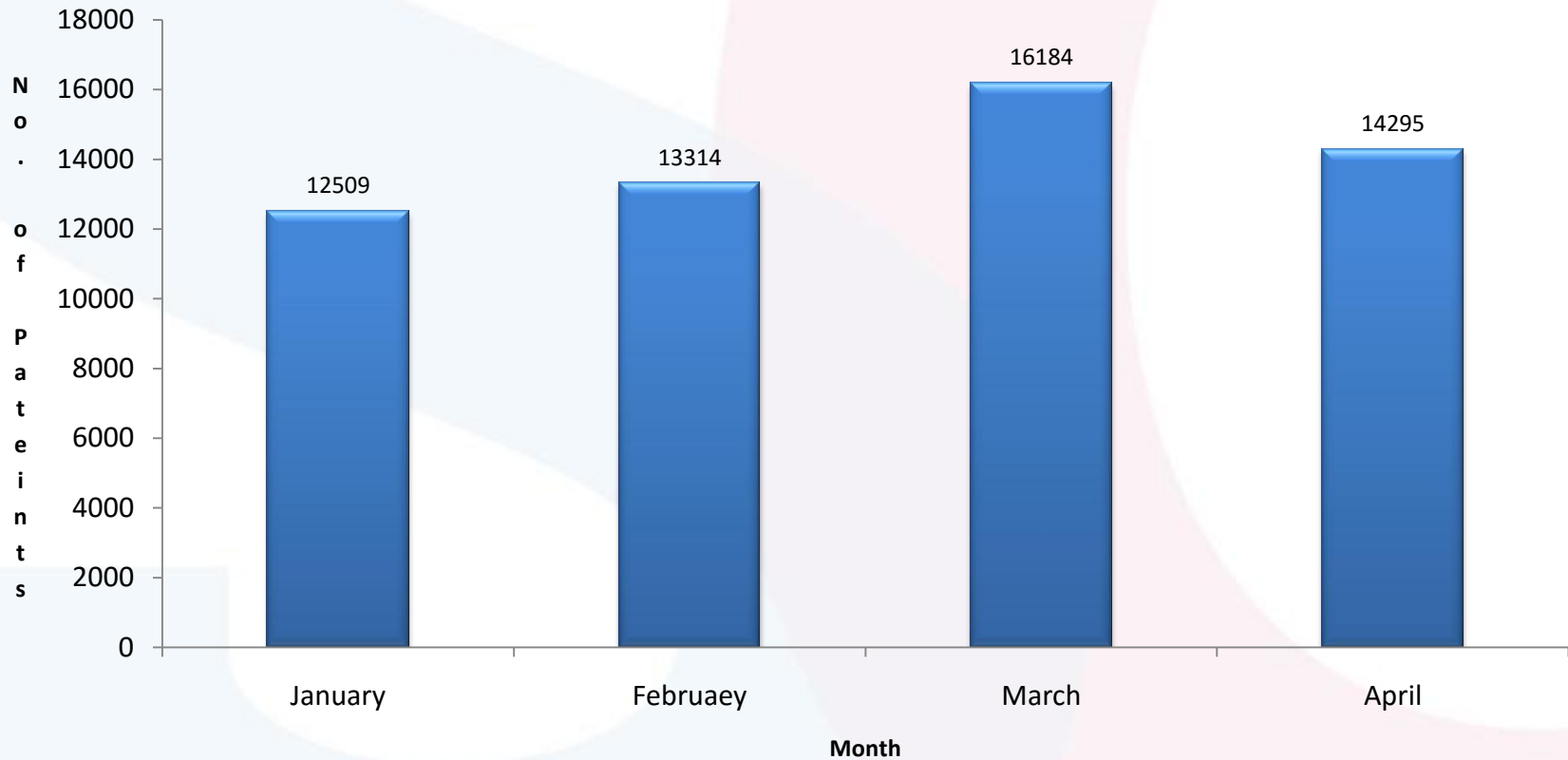
Recent trends in Robotic Pharmacy

- Making the most of systems
- The power of the internet
- Electronic prescribing and discharge
- Barcode medicine identification
- Automated dispensing
- Mobile technology
- Adherence monitoring

Advantages of Robotic Pharmacy

- Design Benefit
- Safety Advantage
- Reliability
- Return on investment
- Accuracy
- Affordability
- Quality
- Safety
- Speed
- Reduced chances of contamination
- Increase Efficiency

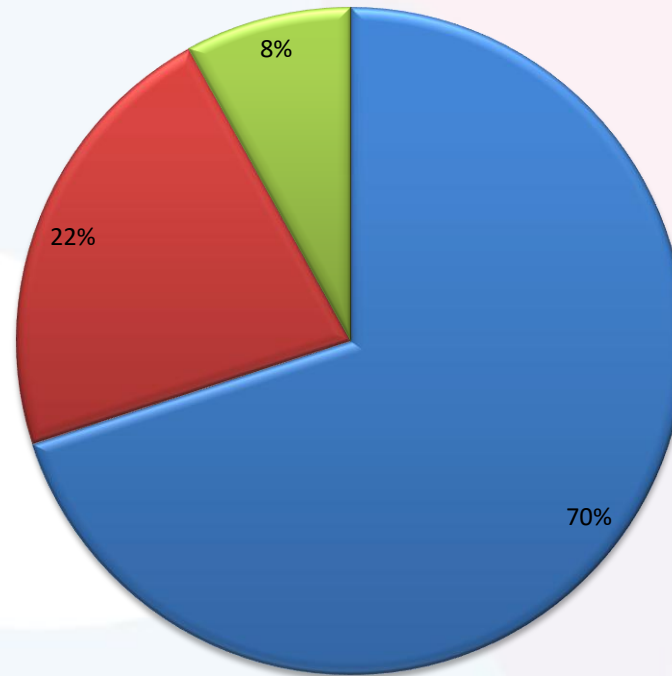
Monthly Patients in Medeor Hospital



From this graph in Medeor hospital average per day patient 470.

Utilization of Time Management

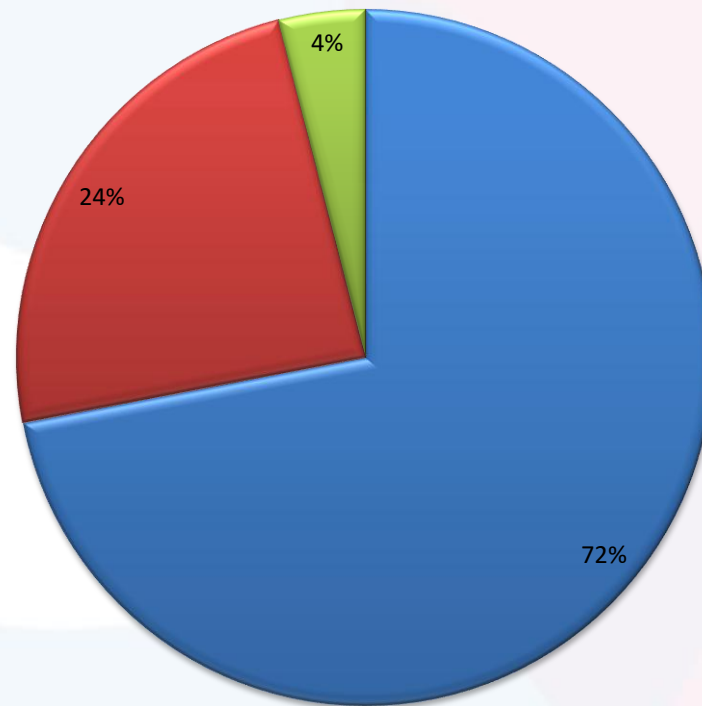
Time Management



- Excellent
- Good
- Average

Suitability / Convenience towards the pharmacy location

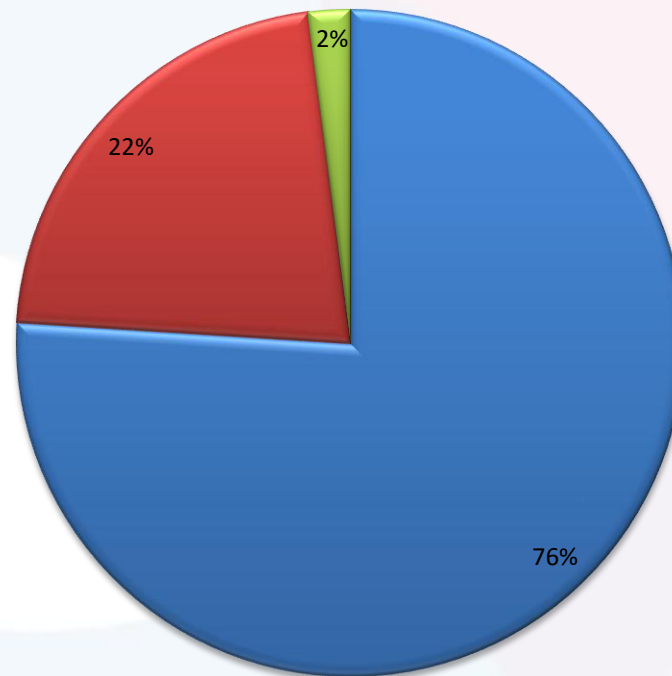
Pharmacy Location



- Excellent
- Good
- Average

Possibilities of error seen

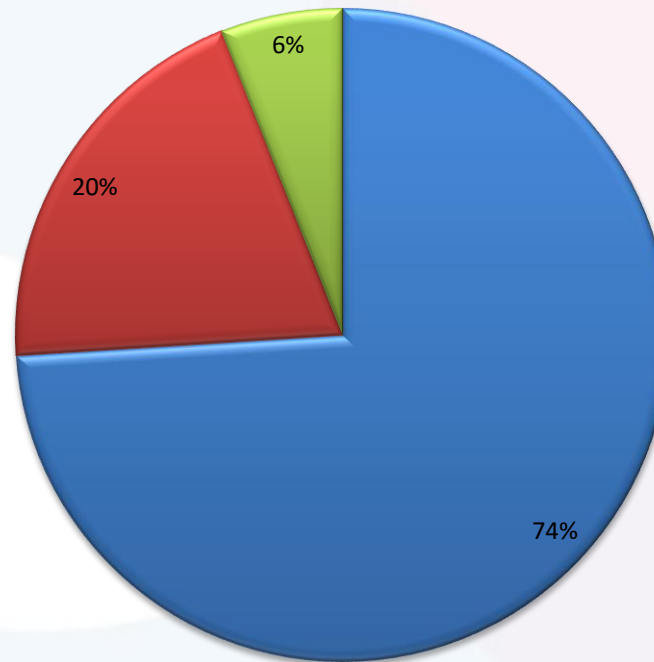
Possibility of Error



- Excellent
- Good
- Average

Satisfaction of the prescription report

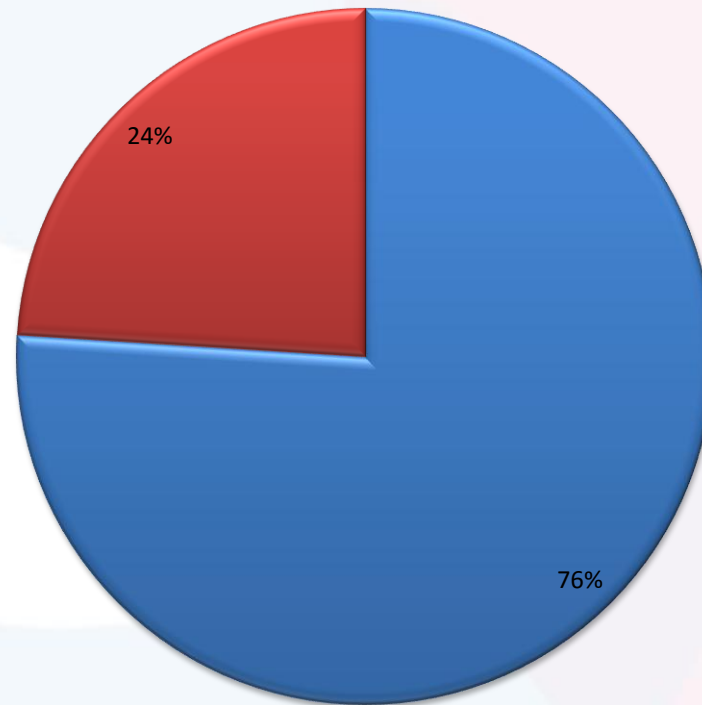
Prescription Report



- Excellent
- Good
- Average

Overall Contentment/gratification

Overall Contentment



■ Excellent
■ Good

Disadvantages of Robotic Pharmacy

- Dangers and fears
- Expense
- Expertise
- Return on investment (ROI)

Conclusion

- Pharmacists must view automation-induced productivity & efficiency as desired goals not threats to their work.
- Every change must be implemented with an understating that even good changes can create unexpected hazards
- The results of the study substantiate the claim that automation improves productivity and decreases utilization of pharmacist/technician time in the prescription dispensing process.
- As prescription volumes increased, it became more evident that automated dispensing is beneficial.

Recommendations

- The robot-type technology is of greater value when prescription volumes are greater than 400.
- On average, robotic dispensing machines lead to modest savings in personnel costs and slight increases in sales of over-the-counter drugs.
- The saving occurs only if the staffing level is adapted to the changed staffing needs.
- Robotic dispensing machines have advantages over the conventional storage system.

Recommendations

- **Automation reduces medication error by:**
 - Reducing complexity
 - Simplifying & standardizing processes
 - Avoiding overreliance on human memory
 - Improving efficiency

References

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THANK YOU