KSA-Self Assessments of Pharmacy Safety and Occupational Health

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ABSTRACT

Objectives: To explore the KSA-Self Assessments of Pharmacy Safety and Occupational Health as a new initiative project in Saudi Arabia.

Methods: It was a narrative review of KSA-Self Assessments of Pharmacy Safety and Occupational Health. Literature searched various databases, including PubMed, Medline, and Google Scholar. The search period is from the 1960s until 06 December 2023. The term is in full-text English and includes Case Reports, Classical Articles, Clinical Conferences, Clinical Studies, Clinical Trials, Evaluation Studies, Government Publications, Guidelines, meta-analyses, Observational Studies, Practice Guidelines, Randomized Controlled Trials, Reviews, Systematic Reviews, with Humans subject. All hospital or community pharmacy services are included in a search term. Besides, the National and international guidelines of general occupational safety and health in hospital practice. The committee of pharmacy accounting policy and procedures formulated and consisted of various expert members. That includes clinical pharmacists, occupational safety specialists, Crisis and Disaster Management, and fire safety experts. The self-assessment is based on guidelines based on occupational safety and health societies’ regulations. In addition to Institution Safe Medication Practice (ISMP) criteria and KSA-Self assessment of pain management drug safety. The policy draft by one member by the second member was reviewed and corrected. The third revision was by the occupational safety specialists. The topic emphasizes self-assessments of Pharmacy Safety and Occupational Health.

Results: The KSA Self Assessments of Pharmacy Safety and Occupational Health consisted of nine items. That has included Characteristics of Pharmacy Services, Pharmacy and warehouse building, Fire Safety, Crises and Disaster Management. Besides the Medication Information, Pharmacy Safety Practice, Patient/Family Education, Pharmacy staff competency and training, and Total Quality and Risk Management. Each element had various closed-ended questions scored using the 5-point Likert response scale system.

Conclusion: The KSA-Self Assessments of Pharmacy Safety and Occupational Health policy is a new initiative project in Saudi Arabia. The KSA-Self Assessments of Pharmacy Safety and Occupational Health policy improves the Pharmacy Safety and Occupational Health system foundations. In addition, it encourages pharmacists to adhere to Pharmacy Safety and Occupational Health regulations in different places in the public and healthcare organizations. Therefore, the KSA-Self Assessments of Pharmacy Safety and Occupational Health policy is highly recommended for pharmacy career professionals in Saudi Arabia.

Keywords: Occupational health, Self-assessment, Pharmacy, Safety, Saudi Arabia.

INTRODUCTION

The pharmacy services had various departments and programs such as ambulatory care, inpatient pharmacy, and IV admixture services. Besides, medication safety programs, anticoagulation programs, and pain management programs. Each service had various requirements for implementation to provide complete services to particular patients. There are multiple approaches to evaluating or assessing the services, such as total quality management standards and self-assessment tools.

One of the famous institutions, the Institution of Safe Medicating Practice (ISMP), released various tools to self-assess several aspects, such as medication safety at hospitals and community pharmacies. Besides, some publications, such as local literature, discussed the medical safety of pain management self-assessment.

Those tools are essential to determine a baseline of the actual situation and explore the weaknesses and strengths of the system. One of the programs critical to determining self-assessment was occupational safety and health in pharmacy practice, which is not addressed in the literature. Occupational safety and health are required to implement international and local elements such as fire safety and environment, pharmacy crisis and disaster management, material safety data sheets, and education and training in occupational safety. Each section must make a self-assessment to ensure compliance with occupational safety and health laws and standards. It is rarely found in the self-assessment of occupational safety in pharmacy practice. The authors are unfamiliar with previous research on this topic. The current review aims to declare pharmacy occupational safety and health self-assessment.
METHODS

It is a narrative review of pharmacy security and safety. The literature search was performed using PubMed, Medline, and Google Scholar databases about specific pharmacy practice accounting and financial system topics. The search period was from the 1960s until 15 May 2023. The searched terms were in full-text English. They included Full text, Case Reports, Classical Articles, Clinical Conferences, Clinical Studies, Clinical Trials, Evaluation Studies, Government Publications, Guidelines, meta-analyses, Observational Studies, Practice Guidelines, Randomized Controlled Trials, Reviews, Systematic Reviews, Humans, in the English language. The pharmacy services included inpatient, outpatient, or ambulatory care pharmacy, satellite pharmacy, extemporaneous preparation, repacking units, pharmacy store, drug information center, and clinical pharmacy services. Moreover, the national and international guidelines of general accounting and financial practice emphasizing pharmacy and healthcare settings were used as guides for writing the review. That includes guidelines from the Ministry of Building,[13] the Ministry of Human Resources and Social Development,[14] the Ministry of Inferior (Civil of Defense),[15–18] and the General Organization for Social Insurance.[18,19] The Ministry of Labor (USA), National Fire Protection Association (USA),[20–25] Occupational Safety and Health Administration (USA),[26–29] The National Institute for Occupational Safety and Health (USA), and the Institution of Occupational Safety and Health (UK). Besides some local and international quality management standards from CBAHI and Joint Commission with emphasis on Facility and Management Safety (FMS).[30,31] The pharmacy accounting policy and procedures committee was formulated and consisted of various expert members. That includes clinical pharmacists, occupational safety specialists, Crisis and Disaster Management, and fire safety experts. Self-assessment is based on guidelines based on occupational safety and health societies' regulations, Institution Safe Medication Practice (ISMP) criteria, and KSA-Self pain management drug safety literature assessment. The policy draft by one member by the second member was reviewed and corrected. The Standards for Reporting Qualitative Research guided the reporting of the results of this review.[32]

The search term methodology was done as follows:

Search: (pharmacy[Title/Abstract]) AND (occupational safety[Title/Abstract]) Filters: Full text, Case Reports, Classical Article, Clinical Conference, Clinical Study, Clinical Trial, Evaluation Study, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Randomized Controlled Trial, Review, Systematic Review, Humans, English


Translations

pharmacy[MeSH Terms]: “pharmacy”[MeSH Terms] OR “pharmacies”[MeSH Terms]

occupational safety[MeSH Terms]: “occupational health”[MeSH Terms]

Search: (pharmacist[Title/Abstract]) AND (occupational safety[Title/Abstract]) Filters: Full text, Case Reports, Classical Article, Clinical Conference, Clinical Study, Clinical Trial, Evaluation Study, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Randomized Controlled Trial, Review, Systematic Review, Humans, English


Transliterations
pharmacy[MeSH Terms]: “pharmacy”[MeSH Terms] OR “pharmacies”[MeSH Terms]
self assessment[MeSH Terms]: “self-assessment”[MeSH Terms]
occupational safety[MeSH Terms]: “occupational health”[MeSH Terms]

Search: ((pharmaceutical[Title/Abstract]) AND (self-assessment [Title/Abstract]) AND (occupational safety[Title/Abstract]) Filters: Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English

RESULTS AND DISCUSSION

The pharmacy services suggested following policies and procedures to implement KSA-Self assessment of pharmacy occupational safety and health.

CONCLUSION

The KSA-Self Assessments of Pharmacy Safety and Occupational Health is a new initiative for the overall performance of pharmacy occupational safety services. It is a significant equipment for the statistical administration of occupational injury prevention and works in pharmacy practice. It consisted of nine components: Characteristics of Pharmacy Services, Pharmacy and warehouse building, Fire Safety, and Crises and Disaster Management. Besides the Medication Information, Pharmacy Safety Practice, Patient/Family Education, Pharmacy staff competency and training, and Total Quality and Risk Management. The method can assess the pharmacy organization gap problems analysis and improve pharmacy occupational safety culture. The KSA-Self Assessments of Pharmacy Safety and Occupational Health are especially cautioned to put into effect in pharmacy occupational safety operation exercises in Saudi Arabia.
### Part 1: Characteristics of Pharmacy Services.

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>Comments</th>
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<tbody>
<tr>
<td>1.</td>
<td>Name of institution</td>
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<td>2.</td>
<td>Type of Pharmacy Services</td>
<td>○ Hospital Pharmacy ○ Community Pharmacy</td>
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<td>3.</td>
<td>Location</td>
<td>○ North ○ East ○ South ○ West</td>
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<td>4.</td>
<td>City</td>
<td>○ Riyadh ○ Taif ○ East Province ○ Aseer ○ Hail ○ Najran ○ Alqurayat ○ Makkah ○ Madina ○ Alhassa ○ Bisha ○ North border ○ Albaha ○ Qunfeth ○ Jeddah ○ Quseem ○ Heferalbatin ○ Tabuk ○ Jazan ○ Aljouf</td>
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<td>5.</td>
<td>Accreditation status</td>
<td>○ CBAHI ○ SCFHS ○ JCI ○ Canada</td>
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<tr>
<td>6.</td>
<td>Pharmacy human resources</td>
<td>○ No of pharmacy technicians: ○ No of Pharmacists: ○ No of the clinical pharmacist: ○ No of non-healthcare professionals:</td>
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### Part 2: Pharmacy and Occupational Safety Assessment.

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<tr>
<th>No</th>
<th>Statement</th>
<th>NA</th>
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<th>Comments</th>
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<tbody>
<tr>
<td>1</td>
<td>Pharmacy and warehouse building</td>
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<td>The pharmacy follows and implements the Saudi Building Codes.</td>
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<td>The pharmacy or drug store’s location meets the relevant law and regulation requirements.</td>
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<td>The Pharmacy building is made of non-combustible materials and resists fire for no less than (two hours).</td>
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<td>The area of the drug warehouse must not exceed (1000) square meters.</td>
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<td>The pharmacy and warehouse location is established over ground (not not-basement) or near dangerous places (stores of chemical and radioactive materials)</td>
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<td>The pharmacy’s electrical installations, extensions, and all electrical equipment must comply with the Saudi Arabian Standards and Metrology Organization.</td>
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<td>Distinctive instruction signs that indicate the location of the leading electrical and sub-keys, clarifying their scope and use.</td>
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<td>Backup electrical equipment is provided in pharmacies and warehouses for at least two hours in emergencies.</td>
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<td>There is periodic maintenance for all extensions, connections, and electrical appliances.</td>
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<td>The locations of the external air intakes for the air conditioner are not near sources at risk of fire.</td>
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<td>The main ducts of the air conditioner are through vertical or horizontal corridors made of non-combustible materials as a fire-retardant unit, with appropriate openings with fire-retardant doors to facilitate maintenance procedures.</td>
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<td>The ducts of the central ventilation and air conditioning system were equipped with smoke detectors that automatically turned off the entire device when smoke was detected and, at the same time, operated suction fans to expel the smoke outside.</td>
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<td>The temperature of all pharmacy areas should not exceed (25) degrees Celsius, and a thermometer should be placed to measure the temperature continuously.</td>
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<td>Periodic maintenance and check of all air conditioning devices in the pharmacy are performed.</td>
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<td>2</td>
<td>Fire Safety</td>
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<td>The occupational safety pharmacy section must submit a complete plan for safety and firefighting equipment and equipment to the competent civil defense department for review and approval of the appropriate equipment after inspecting the site.</td>
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The pharmacy and warehouse are provided with at least manual fire extinguishers at a rate of one dry chemical powder extinguisher (12 kg) per (50 meters), with a minimum number of (2) dry chemical powder extinguishers (12 kg) for each pharmacy section.

Each extinguisher must carry operating instructions and the last filling and maintenance date. Fire extinguishers are placed or hung in precise places and close to doors and exits, making them easy to reach and use when necessary.

The pharmacy and warehouse have an early fire detection device connected to red or blue external lighting and an external alarm bell that works when a fire occurs.

The pharmacy and warehouse shall be equipped with an automatic fire-fighting sprinkler network system, and an external nozzle network shall also be available (not less than two nozzles).

A certain number of emergency egress must be available to ensure its evacuation within a period of (three minutes) in the event of an emergency. Emphasize on handicap suitable emergencies exist.

There is no pharmacy or warehouse place or any furniture, barriers, equipment, or anything that would reduce the width of the escape exits or hinder their use.

The net height of escape routes (emergency exits) must not be less than (2.2) meters, and the width must not be less than (1.5) meters.

The walls, floors, and ceilings of escape routes must be of the same resistance (at least 2 hours of fire incident) as the building's walls and columns.

The potential risks in the pharmacy and warehouse must provide the necessary first aid materials.

All fire protection materials and equipment for pharmacy services are regularly maintained. There is daily, weekly, and monthly self-assessment of all fire protection and safety for pharmacy services.

### 3 Crises and Disaster Management
The pharmacy has a strategic and annual plan for crisis and disaster management.

The pharmacy followed the national crisis and disaster management guidelines.

The pharmacy had TEN MOH emergency codes posted at all pharmacy services sections.

The pharmacist thoroughly updates the pharmacy crisis and disaster management system, policy, and procedures.

Before crisis and disaster management, the pharmacy department should update all communication methods, such as telephone, emails, and websites inside and outside the pharmacy department.

### 4 Medication Information
All pharmacy staff know a classified list of hazardous medications in public places.

The medication is stored according to national regulations and laws.

The medical or chemical formulations should be prepared for pharmacy distribution. The pharmacy warehouses are to store the pharmaceutical containers only.

The Material Safety Data Sheet (MSD) is available for all chemical substances and medications.

The Material safety data sheet (MSD) is available for all pharmacy sections and departments.

All pharmacy staff are trained in the usage of MSD.

The Material safety data sheet (MSD) is updated for all chemical substances and medication at least annually.

### 5 Pharmacy Safety Practice
The pharmacy implements patient safety goals, emphasizing reducing patient and staff harm from falls and healthcare-associated infections.

There are appropriate pharmacy buildings for geriatrics and disabled patients.

The pharmacy implemented an infection control program at all pharmacy sections and departments.

The pharmacy implemented a pharmacy wastage and control program for chemical and non-chemical wastages at all pharmacy sections and

### 6 Patient/Family Education
Fire instructions are posted for all patients visiting the pharmacy.
There are instructions and posts on patient safety when falling.

There are instructions and posts on patient safety of associated infections.

The pharmacy organized an annual program for the public for medication occupational safety in houses.

7 Pharmacy staff competency and training

Occupational safety pharmacists remain available and responsible for occupational safety and health systems in pharmacy services.

The pharmacy services had a system to provide orientation about pharmacy occupational safety for all new pharmacy staff.

The pharmacy services had a system of competency assessment of pharmacy occupational safety for all pharmacy staff at least annually.

The pharmacy services had a system of education and training of pharmacy occupational safety for all pharmacy staff at least annually.

The pharmacy services had a system of education and training pharmacy occupational safety at IV admixture services.

The pharmacy services had a system of education and training pharmacy occupational safety at the Extemporaneous preparation area.

8 Total Quality and Risk Management

There is a formal job description for pharmacist occupational safety and policy and procedures of pharmacy occupational safety.

There are daily, weekly, and monthly safety inspections and tests.

There is an annual survey and assessment of pharmacy occupational safety.

There is a system of preventing and reporting incidents with complete occupational safety and health analysis.

The annual report of incidents of pharmacy occupational safety was presented to higher administration and all pharmacy staff.

*1= No activity had been implemented, 2= It was formally discussed and considered, but it was not implemented, 3= It is partially implemented in hospitals for some or all areas, patients, drugs, and staff, 4= It is fully implemented in the hospital for some areas, patients, drugs, and staff, 5= It is fully implemented throughout the hospital for all patients, drugs, and staff.

ACKNOWLEDGEMENT

None.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

Funding

None

Consent for Publications

Informed consent was obtained from all the participants

Ethical Approval

This research is exempted from research and ethical committee or an institutional review board (IRB) approval.


ABBREVIATIONS


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REFERENCES


