

Pharmacy Safety and Occupational Health: Education and Training

Yousef Ahmed Alomi *

BSc. Pharm, MSc. Clin Pharm, BCPS, BCNSP, DiBA, CDE
Critical Care Clinical Pharmacists, TPN Clinical
Pharmacist, Freelancer Business Planner, Content
Editor, and Data Analyst, Riyadh, SAUDI ARABIA.

Badriya Mufflih Alrasheedi,

Bsc. Diploma Health Security
General Administration of Security and Safety,
Ministry of Health, Riyadh, SAUDI ARABIA.

Mohannad Ali Abu-sabaa, Diploma Oc-
cupational Safety and Health

Risk Management Administration, General Admin-
istration of Security and Safety, Ministry of Health,
Riyadh, SAUDI ARABIA.

Naif Saleh Alamri, Bachelor of Engineering
Director General of the General Administration of
Security and Safety, Ministry of Health, Riyadh, SAUDI
ARABIA.

Abdulah Khalid Al-Otaibi, Bachelor of
Engineering Assistant Director General for Projects &
Safety Affairs, General Administration of Security and
Safety, Ministry of Health, Riyadh, SAUDI ARABIA.

Mohammed Hakami, Ph. D
Occupational Safety and Health Consultant, General
Administration of Security and Safety, Ministry of
Health, Riyadh, SAUDI ARABIA.

Correspondence:

Dr. Yousef Ahmed Alomi, BSc. Pharm, MSc.
Clin Pharm, BCPS, BCNSP, DiBA, CDE
Critical care clinical pharmacists, TPN clinical
pharmacist, Freelancer Business Planner,
Content Editor, and Data Analyst, P.O.BOX
100, Riyadh-11392, SAUDI ARABIA.

E-mail: yalomi@gmail.com
Mobile No: +966504417712

Received: 11-01-2023;

Accepted: 25-03-2023;

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www.ijpcs.net

DOI:
10.5530/ijpcs.2023.12.28

ABSTRACT

Objectives: To explore the occupational safety and health system education and training in pharmacy practice as a new initiative in Saudi Arabia. **Methods:** It was a narrative review of occupational safety and health policy and procedures in pharmacy practice. 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 occupational safety and health in hospital practice. The committee of pharmacy occupational safety and health 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 guidelines of the policy draft by one member by the second member were reviewed and corrected. The third revision was by the occupational safety specialists. The topic emphasizes the occupational safety and health system education and training of the Pharmacy policy. **Results:** The pharmacy occupational safety and health Education and Training consisted of various items. That has included program objectives, admission requirements, teaching and education methodology, and occupational safety and health Education and Training steps in pharmacy practice. The occupational safety and health education and training contained five models. For instance, Fire safety at pharmacy services, Pharmacy Crisis and Disaster Management, and Pharmacy Material Safety Data Sheet. Besides, the Pharmacy Safety and Occupational Health Surveillance and Monitoring and Quality Management of occupational safety and health. Each model describes the Module description, Learning Objectives, Module Outlines, and Competency items. **Conclusion:** The occupational safety and health system education and training in pharmacy practice is a new initiative for pharmacy career professionals. It will improve pharmacy occupational safety and health system skills and encourage all pharmacy staff (clinical, distributive pharmacist, and pharmacy technicians) to comply with occupational safety and health system regulations in different pharmacies in various healthcare organizations. Therefore, the occupational safety and health system education and training policy and procedures are required and mandated for pharmacy services in Saudi Arabia.

Keywords: Occupational safety, Pharmacy, Health, Policy, Education, Saudi Arabia.

INTRODUCTION

The pharmacy provides comprehensive medicine services to patients and the public.^[1-6] The foundation of pharmacy services consists of main building and store facilities.^[2,7,8] Besides the equipment for medicine and furniture with appropriate facilities for patients. The pharmacy staff includes pharmacists, clinical pharmacists, and technicians who prepare and distribute the medication.^[1,9-11] The prepared medicine can be regular and hazardous in the future.^[12-15] Therefore, the pharmacy staff should protect themselves and patients from hazardous medicine through all storage, preparation, and distribution steps.^[13-15] Sometimes, the pharmacy staff might accidentally be exposed to sharp needles, so they stick to protective measures. Some illnesses from patients might be exposed to infection transmission.^[16] They have protective

equipment for that. Besides, they are exposed to workplace violence, such as entirely done, angry customers, and frustrated prescriptions. They are a defensive system from all these violent incidents.^[15-19]

Moreover, the pharmacy services need to implement pharmacy crisis management and quality management systems to monitor and improve the pharmacy occupational safety system.^[14,19,20] The essential task should be ensuring the education and training for pharmacy occupational safety to prevent or reduce incidents from the concerns mentioned earlier.^[17,18,21,22] It is rare to find education and training specialized in pharmacy occupational safety. Most of the literature discusses general occupational safety and health for all healthcare professionals. The author needs to become more familiar with any report locally or internationally

about the situation. The current report aims to explore occupational safety and health in pharmacy practices, emphasizing education and training.

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 occupational safety and health system topics. The search period was from the 1960s until 06 December 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, repackaging units, pharmacy store, drug information center, and clinical pharmacy services. Moreover, the national and international guidelines of general occupational safety and health practice emphasizing pharmacy and healthcare settings were used as guides for writing the review. That includes guidelines from the Ministry of Building,^[23] the Ministry of Human Resources and Social Development,^[24] the Ministry of Inferior (Civil of Defense),^[25-28] General Organization for Social Insurance.^[29,30] The Ministry of Labor (USA), National Fire Protection Association (USA),^[31-36] Occupational Safety and Health Administration (USA),^[37-40] 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).^[41,42] The pharmacy safety and occupational health committee comprises experts, clinical pharmacists, occupational safety specialists, crisis and disaster management experts, and fire safety experts. The clinical pharmacist had taken more than ten national and international education courses about occupational safety and health. Some authors drafted the policy guidelines, and the other authors reviewed them. The occupational safety specialist and fire safety revised the draft. The policy included the five models. Fire safety at pharmacy services, Pharmacy Crisis and Disaster Management, Pharmacy Material Safety Data Sheet. Besides, the Pharmacy Safety and Occupational Health Surveillance

and Monitoring and Quality Management of occupational safety and health. Each model describes the Module description, Learning Objectives, Module Outlines, and Competency items. The Standards for Reporting Qualitative Research guided the reporting of the results of this review.^[43]

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

(“pharmacy”[Title/Abstract] AND “occupational safety”[Title/Abstract]) AND ((casereports[Filter] OR classicalarticle[Filter] OR clinicalconference[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR evaluationstudy[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR randomizedcontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (ff[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: (pharmacy[Text Word]) AND (occupational safety[Text Word]) 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

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Search: (pharmacy[MeSH Terms]) AND (occupational safety[MeSH Terms]) 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

((“pharmacy”[MeSH Terms] OR “pharmacies”[MeSH Terms]) AND “occupational health”[MeSH Terms]) AND ((casereports[Filter] OR classicalarticle[Filter] OR clinicalconference[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR evaluationstudy[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR randomizedcontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (ff[Filter]) AND (humans[Filter]) AND (english[Filter]))

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

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Search: (pharmacist[Text Word]) AND (occupational safety[Text Word]) 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

(“pharmacist”[Text Word] AND “occupational safety”[Text Word]) AND ((casereports[Filter] OR classicalarticle[Filter] OR clinicalconference[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR evaluationstudy[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter])

OR observationalstudy[Filter] OR practiceguideline[Filter] OR randomizedcontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))
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 (“pharmacists”[MeSH Terms] AND “occupational health”[MeSH Terms]) AND ((casereports[Filter] OR classicalarticle[Filter] OR clinicalconference[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR evaluationstudy[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR randomizedcontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Translations

pharmacist[MeSH Terms]: “pharmacists”[MeSH Terms]

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

Search: (**pharmaceutical care**[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**
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Observational Study, Practice Guideline, Randomized Controlled Trial, Review, Systematic Review, Humans, English

(“pharmaceutical care”[Text Word] AND “occupational safety”[Text Word]) AND ((casereports[Filter] OR classicalarticle[Filter] OR clinicalconference[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR evaluationstudy[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR randomizedcontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))
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Translations

pharmaceutical care[MeSH Terms]: “pharmaceutical services”[MeSH Terms]

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

Search: (**pharmaceutical**[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**
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OR observationalstudy[Filter] OR practiceguideline[Filter] OR randomizedcontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))
 Search: (**pharmaceutical**[Text Word]) AND (**occupational safety**[Text Word]) 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**

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Translations

pharmaceutical[MeSH Terms]: “pharmaceutical preparations”[MeSH Terms]

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

Search: ((**pharmacy**[Title/Abstract]) AND (**occupational safety**[Title/Abstract])) AND (**education**[Title/Abstract]) Filters: **Full text, Case Reports, Classical Article, Clinical Conference, Clinical Study, Clinical Trial,**

practiceguideline[Filter] OR randomizedc
ontrolledtrial[Filter] OR review[Filter] OR
systematicreview[Filter]) AND (fft[Filter])
AND (humans[Filter]) AND (english[Filter]))
Search: ((pharmacist[Text Word]) AND
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Case Reports, Classical Article, Clinical
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Evaluation Study, Government Publication,
Guideline, Meta-Analysis, Observational
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Humans, English

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Search: ((pharmacist[MeSH Terms]) AND
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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

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OR "education"[MeSH Terms])) AND
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Translations

pharmacist[MeSH Terms]:
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occupational safety[MeSH Terms]:
"occupational health"[MeSH Terms]

education[MeSH Terms]: "educational
status"[MeSH Terms] OR "education"[MeSH
Terms]

Search: ((pharmacist[MeSH Terms]) AND
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(training[MeSH Terms]) Filters: Full text,
Case Reports, Classical Article, Clinical
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Evaluation Study, Government Publication,
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Translations

pharmacist[MeSH Terms]:
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"occupational health"[MeSH Terms]
training[MeSH Terms]: "education"[MeSH
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Abstract])) AND (training[Title/Abstract])
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Publication, Guideline, Meta-Analysis,
Observational Study, Practice Guideline,
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Evaluation Study, Government Publication,
Guideline, Meta-Analysis, Observational
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Search: ((**pharmaceutical care**[MeSH Terms]) AND (**occupational safety**[MeSH Terms])) AND (**education**[MeSH Terms]) 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**

("pharmaceutical services"[MeSH Terms] AND "occupational health"[MeSH Terms] AND ("educational status"[MeSH Terms] OR "education"[MeSH Terms])) AND ((casereports[Filter] OR classicalarticle[Filter] OR clinicalconference[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR evaluationstudy[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR randomizedcontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (ff[Filter]) AND (humans[Filter]) AND (english[Filter]))

Translations

pharmaceutical care[MeSH Terms]: "pharmaceutical services"[MeSH Terms]

occupational safety[MeSH Terms]: "occupational health"[MeSH Terms]

education[MeSH Terms]: "educational status"[MeSH Terms] OR "education"[MeSH Terms]

Search: ((**pharmaceutical care**[MeSH Terms]) AND (**occupational safety**[MeSH Terms])) AND (**training**[MeSH Terms]) 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**

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OR evaluationstudy[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR randomizedcontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (ff[Filter]) AND (humans[Filter]) AND (english[Filter]))

Translations

pharmaceutical care[MeSH Terms]: "pharmaceutical services"[MeSH Terms]

occupational safety[MeSH Terms]: "occupational health"[MeSH Terms]

training[MeSH Terms]: "education"[MeSH Terms]

Search: ((**pharmaceutical**[Title/Abstract]) AND (**occupational safety**[Title/Abstract])) AND (**education**[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**

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controlledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (ff[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: ((**pharmaceutical**[Text Word]) AND (**occupational safety**[Text Word])) AND (**education**[Text Word]) 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**

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Search: ((**pharmaceutical**[MeSH Terms]) AND (**occupational safety**[MeSH Terms])) AND (**education**[MeSH Terms]) 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**

("pharmaceutical preparations"[MeSH Terms] AND "occupational health"[MeSH Terms] AND ("educational status"[MeSH Terms] OR "education"[MeSH Terms])) AND ((casereports[Filter] OR classicalarticle[Filter] OR clinicalconference[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR evaluationstudy[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR randomizedcontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Translations

pharmaceutical[MeSH Terms]: "pharmaceutical preparations"[MeSH Terms]

occupational safety[MeSH Terms]: "occupational health"[MeSH Terms]

education[MeSH Terms]: "educational status"[MeSH Terms] OR "education"[MeSH Terms]

Search: ((**pharmaceutical[MeSH Terms]**) AND (**occupational safety[MeSH Terms]**) AND (**training[MeSH Terms]**) 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**

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Translations

pharmaceutical[MeSH Terms]: "pharmaceutical preparations"[MeSH Terms]

occupational safety[MeSH Terms]: "occupational health"[MeSH Terms]

training[MeSH Terms]: "education"[MeSH Terms]

RESULTS AND DISCUSSION

Program objective

Upon completion of the pharmacy occupational safety and health system, the learner will be able to:^[1,14,22,32]

Integrate knowledge of pharmacy practice at healthcare organizations and occupational safety and health systems.

Practice pharmacy occupational safety and health system guidelines and apply the occupational safety and health system measures at all pharmaceutical care departments and units.

Determine occupational safety and health systems risk factors in pharmaceutical preparation and products.

Develop pharmacy plans for pharmacy occupational safety and health systems in all pharmacy settings.

Work independently as an accountant and occupational safety personnel, collaborating with occupational safety and health system teams and committees.

Develop and assess the pharmacy occupational safety and health system audit of the pharmacy practice.

Provide pharmacy occupational safety and health system education and training for pharmacy leaders and personnel.

Participate in the occupational safety and health system performance and activities through healthcare organizations and pharmacy services.

Required for admission

Any pharmacist has a bachelor's or Pharm D degree with preferably 1-2 years of experience. Besides, they have a valid license to practice basic computer literacy.

Program requirements

The program consisted of five weeks during the entire period. A total of 48 hr of didactic and clinical hours must be completed. Besides, the trainees should complete eight hours per shift.

Teaching and education method

There are various methods of teaching and education in pharmacy occupational safety and health systems. That included interactive lectures and discussions, presentations, weekly reading assignments, and group discussions.

Evaluation and Assessment

The program preceptor will evaluate and Assess trainees based on various methods. Completing the weekly activities, reading assignments, presentations, and daily discussions. The trainees do the program's final evaluation by the end of the training, the receptors evaluation, and the program evaluation.

The pharmacist was counseled following the coverage and methods for pharmacy occupational safety and health system training and coaching.

The occupational safety and health pharmacist coach assesses the understanding and exercise of the trainee through a digital survey with specific questions.

Discussed the outcomes of the evaluation survey with the trainee. Besides the goal that's wished for the trainee as explored in Modules 1-5.

Set up schedules for educational lectures and dialogue with trainees over the training period. Setup the lookup things to do based totally on the lookup lectures agenda.

Review the pharmacy occupational safety and health system things to do with trainees and correct them therefore.

The trainee corrects the errors of looking for things to do with the occupational safety and health pharmacist education preceptor.

The last evaluation of know-how and exercise of occupational safety and health education at every education is examined with a preliminary assessment.

Conduct a closing survey about trainee pride in the occupational safety and health pharmacist coaching application and discuss the effects with the trainee for future improvement.

The occupational safety and health pharmacist coaching preceptor revises all preceding evaluation effects before and after the education application and closing pride of lookup training. It updates the goal, objective, and things to do accordingly.

CONCLUSION

Covering education and training in pharmacy occupational safety and health systems is essential for all levels and types of pharmacy staff, including undergraduate and postgraduate pharmacists. The training program consists of 5 weeks of coaching with five modules: Fire safety at pharmacy services, Pharmacy Crisis and Disaster Management, and Pharmacy Material Safety Data Sheet. Besides, the Pharmacy Safety and Occupational Health Surveillance and Monitoring and Quality Management of occupational safety and health. Each module is explained by understanding the purpose, module outcomes, and competencies. Training and coaching in pharmacy occupational safety and health system coverage and strategy can be carried out efficiently and conveniently at the pharmacy site. The level and methods of training and education in pharmacy occupational safety and health systems have been surprisingly well received in the Saudi pharmaceutical business market.

ACKNOWLEDGEMENT

None.

MODULE 1: PHARMACY FIRE SAFETY.

| | | |
|----|---------------------|--|
| 1. | Module description | The pharmacy practice's fundamental fire safety in healthcare emphasizes pharmacy practice. Besides fire safety prevention, fire protection General Policy of Fire Safety at different pharmaceutical care departments and units. |
| 2. | Learning Objectives | After finishing the fire safety in pharmacy practice, the trainees should be able to. <ol style="list-style-type: none"> 1. Know the basic principle of fire assessment identification. 2. Understand the type of fire. 3. Familiar with the fire extinguisher usage. 4. Know the fire safety conditions and requirements for pharmacy. 5. Know the fire safety conditions and requirements for storage of medications. 6. Aware of Electrical installations and equipment. 7. Understand the Ventilation and air conditioning systems. |
| 3. | Module Outlines | <ul style="list-style-type: none"> • Fire assessment. • The type of fire. • The fire extinguisher usage. • Pharmacy Fire safety conditions. • Store fire safety conditions and requirements. • Electrical installations and equipment. • Ventilation and air conditioning systems. |
| 4. | Competency | By the end of the course, each trainee will be able to: <ol style="list-style-type: none"> 1. Explains the basic principles of fire safety in pharmacy practice. 2. Demonstrate fire extinguisher usage skills. 3. Exhibit the fire safety conditions and requirements for pharmacy and related store skills. 4. Apply the fire risk assessment at different locations in the pharmacy department. |

MODULE 2: PHARMACY CRISIS AND DISASTER MANAGEMENT.

| | | |
|----|---------------------|---|
| 1. | Module description | Its practice of pharmacy Crisis and Disaster Management. Prepare the pharmacy Crisis and Disaster Management, emergency code and response methodology, and intentional and national Crisis and Disaster Management laws and regulations. |
| 2. | Learning Objectives | After finishing the Pharmacy Crisis and Disaster Management, the trainees should be able to. <ol style="list-style-type: none"> 1. Know the general concept of pharmacy crisis and Disaster Management in various pharmacy settings. 2. Understand how to prepare for pharmacy Crisis and Disaster Management. 3. Know the emergency code and response methodology. 4. Aware of intentional and national Crisis and Disaster Management laws and regulations. |
| 3. | Module Outlines | <ul style="list-style-type: none"> • The general concept of pharmacy crisis and Disaster Management. • Preparation of pharmacy Crisis and Disaster Management. • The emergency code and response methodology. • The internal and national Crisis and Disaster Management laws and regulations. |
| 4. | Competency | By the end of the course, each trainee will be able to: <ol style="list-style-type: none"> 1. Exploring the concept of pharmacy crisis and Disaster Management. 2. Demonstrate preparation for Crisis and Disaster Management in pharmaceutical care services. 3. Apply intentional and national Crisis and Disaster Management laws and regulations. 4. Demonstrate the emergency code and response methodology. |

MODULE 3: PHARMACY MATERIAL SAFETY DATA SHEET.

| | | |
|----|---------------------|--|
| 1. | Module description | It is the principle of the Material Safety data sheet for all pharmacy-working environments and products. Besides, different pharmacy storage requirements and emergency response principles for all pharmacy materials, fluids, and any chemical substances or medications in the pharmacy setting. |
| 2. | Learning Objectives | <p>Learning Objectives</p> <p>After finishing the Pharmacy Material Safety Data Sheet model, the trainees should be able to,</p> <ol style="list-style-type: none"> 1. Know the foundation of the Pharmacy Material Safety Data Sheet. 2. Understand the division and content of the Material Safety Data Sheet material. 3. Know the emergency response for any chemical or substances in the pharmacy area. 4. Aware of various types of storage and transportation signs safety for pharmacy material. 5. Familiar with the pharmacy material requirement of occupational safety responses. 6. Exhibits of updated pharmacy material safety data sheet products. |

| | | |
|----|-----------------|---|
| 3. | Module Outlines | <ul style="list-style-type: none"> Pharmacy Material Safety Data Sheet content. An emergency response for all pharmacy material or medications. The storage and transportation signs safety for pharmacy material. The pharmacy material requirement of occupational safety responses. |
| 4. | Competency | <p>By the end of the course, each trainee will be able to:</p> <ol style="list-style-type: none"> Exploring the different divisions and content Material Safety Data Sheet material. Demonstrate an emergency response for any chemical or substances. Apply various types of storage and transportation signs safety for pharmacy material. |

MODULE 4: PHARMACY SAFETY AND OCCUPATIONAL HEALTH SURVEILLANCES AND MONITORING.

| | | |
|----|---------------------|--|
| 1. | Module description | It is the principle of Pharmacy Safety and Occupational Health Surveillance and Monitoring. Besides, Assessment of occupational safety settings at different pharmacy areas, daily, weekly, and monthly occupational safety monitoring, and risk assessment of Pharmacy Safety and Occupational Health. |
| 2. | Learning Objectives | <p>Learning Objectives</p> <p>After finishing the Pharmacy Material Safety Data Sheet model, the trainees should be able to.</p> <ol style="list-style-type: none"> Know the foundation of Pharmacy Safety and Occupational Health Surveillance and Monitoring. Understand the Assessment of occupational safety settings in pharmacy practice. Know the daily, weekly, and monthly Pharmacy Safety and Occupational Health elements. Aware of risk assessment of Pharmacy Safety and Occupational Health. Familiar with the risk response solution Safety and Occupational in pharmacy practice. Exhibits of risk response action of pharmacy Safety and Occupational. |
| 3. | Module Outlines | <ul style="list-style-type: none"> Assessment of occupational safety requirements at various area settings in pharmacy. Surveillances and Monitoring of the Pharmacy Safety and Occupational Health elements. The risk assessment of Pharmacy Safety and Occupational Health. Risk management plan of Safety and Occupational in pharmacy practice. |
| 4. | Competency | <p>By the end of the course, each trainee will be able to:</p> <ol style="list-style-type: none"> Exploring the Assessment of occupational safety setting in pharmacy practice. Demonstrate Surveillance and Monitoring of the Pharmacy Safety and Occupational Health. Apply Risk management tools in pharmacy occupational safety. |

MODULE 5: QUALITY MANAGEMENT OF PHARMACY OCCUPATIONAL SAFETY AND HEALTH SYSTEM.

| | | |
|----|---------------------|--|
| 1. | Module description | The principle of Occupational safety and health auditing and active surveillance of occupational safety and health system in pharmacy practice. Besides, quality management of the pharmacy Occupational safety and health performances with financial indicators. |
| 2. | Learning Objectives | <p>At the end of this course, the student should be able to:</p> <ol style="list-style-type: none"> Familiar with pharmacy occupational safety and health surveillance processes. Understand the national and international Occupational safety and health standards. Know the quality management of the occupational safety and health activities. Know health insurance and economic administration indicators of occupational safety and health activities. |
| 3. | Module Outlines | <ul style="list-style-type: none"> Pharmacy occupational safety and health surveillance processes. The national and international Occupational safety and health standards. The indicators of the pharmacy occupational safety and health activities. The health insurance and economic administration indicators of occupational safety and health activities. |
| 4. | Competency | <p>By the end of the course, each trainee will be able to:</p> <ol style="list-style-type: none"> Demonstrate the pharmacy occupational safety and health surveillance processes. Exhibit the national and international surveillance standards. Perform indicators of the pharmacy's occupational safety and health activities. Assess the efficacy of occupational safety and health activities in pharmaceutical care units. |

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

Funding

None

Consent for Publications

It does not apply to this review.

Ethical Approval


This research is exempted from research and ethical committee or an Institutional Review Board (IRB) approval.

<https://www.hhs.gov/ohrp/regulations-and-policy/decision-charts-2018/index.html>

ABBREVIATIONS

MOH: Ministry of Health; **KSA:** Kingdom of Saudi Arabia; **ASHP:** American Society of Health-System Pharmacists; **CBAHI:** Saudi Central Board for Accreditation of Healthcare Institutions; **FMS:** Facility and Management Safety; **NFA:** National Fire Protection Association ; **OSHA:** Occupational Safety and Health Administration; **NIOSH:** The National Institute for Occupational Safety and Health; **IOSH:** The Institution of Occupational Safety and Health.

ORCID ID

Yousef Ahmed Alomi  <https://orcid.org/0000-0003-1381-628X>

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