Pharmacy Safety and Occupational Health: Crisis and Disaster Management

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ABSTRACT

Objectives: To the Crisis and Disaster Management policy and procedures in pharmacy practice as a new initiative in Saudi Arabia. **Methods:** It was a narrative review of pharmacy practice's Crisis and Disaster Management policy and procedures. 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 guidelines of the policy draft by one member by the second member were reviewed and corrected. The third revision was by the occupational safety and health specialist. The topic emphasizes the Crisis and Disaster Management of the Pharmacy policy. **Results:** Crisis and Disaster Management in pharmacy practice indicates its preparation for an emergency position at a particular time, indicating its assets, competent pharmacy human resources, and related material. The Crisis and Disaster Management consisted of the General concept of crisis and disaster management and the Content of Pharmacy crisis and disaster management (Planning, Implementation, Execution, Training and Education, Exercise and test, Maintenance, and improvement). **Conclusion:** The Crisis and Disaster Management in pharmacy practice policy and procedures is a new initiative project for pharmacy career professionals. Crisis and disaster management in pharmacy practice improve public demand during healthcare emergencies and risk management decisions. In addition, it encourages pharmacists to participate in public voluntary and charitable activities at various places in healthcare institutions. Therefore, the Crisis and Disaster Management in pharmacy practice policy and procedures policy is highly recommended for implementation in the pharmacy business in Saudi Arabia.

Keywords: Crisis, Disaster, Management, Safety, pharmacy, Saudi Arabia.

INTRODUCTION

Pharmacy services are vital for hospitalized patients and the public.[1-5] It provides essential medicines and supplies for chronic and emergency conditions,[6] preventing drug-related mortality and mobility and voiding the unnecessary cost burden of healthcare services.[7-13] Pharmacy services are highly demanded in crises and disasters such as natural disasters and public health emergencies.[14,15] During crises, various challenges might occur, such as medication supply chain disruption, the high load of patients, destruction of pharmacy infrastructure, and offside communication and information about medication availability.[14,15] The national and international crises and disaster management are well documented.[14,15] The pharmacy crisis and disaster management planning or policy and procedures are critical for our public and society. It is rare to find

pharmacy crisis and disaster management policies and procedures published.[14-20] The authors, unfamiliar with any local, Gulf area, or Arabic countries, published reports about pharmacy crisis management policies and procedures. The current review aims to demonstrate the pharmacy crisis and disaster management strategies and processes as new initiatives in Saudi Arabia.

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 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 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,[21] the Ministry of Human Resources and Social Development,[22] the Ministry of Inferior (Civil of Defense) [14,15,23-25] and the General Organization for Social Insurance.[21-22] The Ministry of Labor (USA), National Fire Protection Association (USA),[23-34] Occupational Safety and Health Administration (USA),[35-43] 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).[44,45] 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 clinical pharmacist had taken more than ten national and international education courses about occupational safety and health. 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 and health specialist. The policy included the General concept for crisis and disaster management, Content of Pharmacy crisis and disaster management (Planning, Implementation, Execution, Training and Education, Exercise and test, Maintenance, and improvement). The Standards for Reporting Qualitative Research guided the reporting of the results of this review.[46,47]

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 (fft[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**

("pharmacy"[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]))

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 (fft[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**

("pharmacist"[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 (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

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]))

Search: **(pharmacist[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**

("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 randomizedc ontrolledtrial[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**

("pharmaceutical care"[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 randomizedc ontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmaceutical care[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**

("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 randomizedc ontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmaceutical care[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**

("pharmaceutical services"[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 randomizedc ontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

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**

("pharmaceutical"[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 randomizedc ontrolledtrial[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**

("pharmaceutical"[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 randomizedc ontrolledtrial[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmaceutical[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**

("pharmaceutical preparations"[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 randomizedc ontrolledtrial[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]

Search: **(pharmacy[Title/Abstract]) AND (crises[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**

("pharmacy"[Title/Abstract] AND "crises"[Title/Abstract]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmacy[Text Word]) AND (crises[Text Word])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice**

Guideline, Review, Systematic Review, Humans, English

("pharmacy"[Text Word] AND "crises"[Text Word]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmacy[MeSH Terms]) AND (crises[MeSH Terms])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

((pharmacy[MeSH Terms]) AND (crises[MeSH Terms])) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Translations

pharmacy[MeSH Terms]: "pharmacy"[MeSH Terms] OR "pharmacies"[MeSH Terms]

Warnings

(pharmacy[MeSH Terms]) AND (**crises**[MeSH Terms])

Term not found: crises

Search: **(pharmacist[Title/Abstract]) AND (crises[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**

("pharmacist"[Title/Abstract] AND "crises" [Title/Abstract]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmacist[Text Word]) AND (crises[Text Word])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

("pharmacist"[Text Word] AND "crises"[Text Word]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmacist[MeSH Terms]) AND (crises[MeSH Terms])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

((pharmacist[MeSH Terms]) AND (crises[MeSH Terms])) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Translations

pharmacist[MeSH Terms]: "pharmacists"[MeSH Terms]

Warnings

(pharmacist[MeSH Terms]) AND (**crises**[MeSH Terms])

Term not found: crises

Search: **(pharmaceutical care[Title/Abstract]) AND (crises[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**

("pharmaceutical care"[Title/Abstract] AND "crises"[Title/Abstract]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmaceutical care[Text Word]) AND (crises[Text Word])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

("pharmacist"[Text Word] AND "crises"[Text Word]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmaceutical care[MeSH Terms]) AND (crises[MeSH Terms])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

((pharmaceutical care[MeSH Terms]) AND (crises[MeSH Terms])) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Translations

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

Warnings

(pharmaceutical care[MeSH Terms]) AND (**crises**[MeSH Terms])

Term not found: crises

Search: **(pharmaceutical[Title/Abstract]) AND (crises[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**

("pharmaceutical"[Title/Abstract] AND "crises" [Title/Abstract]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmaceutical[Text Word]) AND (crises[Text Word])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

("pharmaceutical"[Text Word] AND "crises"[Text Word]) AND ((casereports[Filter]

OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmaceutical[MeSH Terms]) AND (crises[MeSH Terms])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

((pharmaceutical[MeSH Terms]) AND (crises[MeSH Terms])) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Translations

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

Warnings

(pharmaceutical[MeSH Terms]) AND (**crises**[MeSH Terms])

Term not found: crises

Search: **(pharmacy[Title/Abstract]) AND (disaster[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**

("pharmacy"[Title/Abstract] AND "disaster" [Title/Abstract]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmacy[Text Word]) AND (disaster[Text Word])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

("pharmacy"[Text Word] AND "disaster"[Text Word]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR

guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmacy[MeSH Terms]) AND (disaster[MeSH Terms])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

(("pharmacy"[MeSH Terms] OR "pharmacies" [MeSH Terms]) AND "disasters"[MeSH Terms]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Translations

pharmacy[MeSH Terms]: "pharmacy"[MeSH Terms] OR "pharmacies"[MeSH Terms]

disaster[MeSH Terms]: "disasters"[MeSH Terms]

Search: **(pharmacist[Title/Abstract]) AND (disaster[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**

("pharmacist"[Title/Abstract] AND "disaster" [Title/Abstract]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmacist[Text Word]) AND (disaster[Text Word])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

("pharmacist"[Text Word] AND "disaster"[Text Word]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmacist[MeSH Terms]) AND (disaster[MeSH Terms])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

("pharmacists"[MeSH Terms] AND "disasters" [MeSH Terms]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Translations

pharmacist[MeSH Terms]: "pharmacists"[MeSH Terms]

disaster[MeSH Terms]: "disasters"[MeSH Terms]

Search: **(pharmaceutical care[Title/Abstract]) AND (disaster[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**

("pharmaceutical care" [Title/Abstract] AND "disaster"[Title/Abstract]) AND ((casereports [Filter] OR clinicalstudy[Filter] OR clinicaltrial [Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmaceutical care[Text Word]) AND (disaster[Text Word])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

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Search: **(pharmaceutical care[MeSH Terms]) AND (disaster[MeSH Terms])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice**

Guideline, Review, Systematic Review, Humans, English

("pharmaceutical services"[MeSH Terms] AND "disasters"[MeSH Terms]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Translations

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

disaster[MeSH Terms]: "disasters"[MeSH Terms]

Search: **(pharmaceutical[Title/Abstract]) AND (disaster[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**

("pharmaceutical"[Title/Abstract] AND "disaster"[Title/Abstract]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR government publication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observational study[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

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("pharmaceutical"[Text Word] AND "disaster" [Text Word]) AND ((casereports[Filter] OR clinicalstudy[Filter] OR clinicaltrial[Filter] OR governmentpublication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **(pharmaceutical[MeSH Terms]) AND (disaster[MeSH Terms])** Filters: **Full text, Case Reports, Clinical Study, Clinical Trial, Government Publication, Guideline, Meta-Analysis, Observational Study, Practice Guideline, Review, Systematic Review, Humans, English**

("pharmaceutical preparations"[MeSH Terms] AND "disasters"[MeSH Terms]) AND

((casereports[Filter] OR clinicalstudy [Filter] OR clinicaltrial[Filter] OR government publication[Filter] OR guideline[Filter] OR meta-analysis[Filter] OR observational study[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Translations

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

disaster[MeSH Terms]: "disasters"[MeSH Terms]

RESULTS AND DISCUSSION

The pharmacy should policy and procedures for crises and disaster management.

General concept for crisis and disaster management

1. The pharmacy operation and services should be continued provided to the patient during crises and emergencies.

2. The pharmacy administration should share all concerns of pharmacy staff and specialties.

3. The pharmacist should be aware of strengths and weaknesses points during regular days and crisis or disaster situations.

4. The pharmacist should evaluate the internal resources during crisis and disaster situations.

5. The pharmacist should be concerned with external resources such as civil defense, medical emergency management, evacuation, and handling of hazardous materials.

6. The pharmacist should evaluate the hazardous resources and risk assessment.

7. The pharmacist should update all communication methods such as telephone, emails, website inside and outside the pharmacy department.

8. The pharmacist should get updated information about the pharmacy building based on the Saudi building code.

9. The pharmacist should evaluate the geographical location of the pharmacy and what's offices and facilities near the pharmacy building.

10. The pharmacist can lead and organize pharmacy crises and disasters by following general steps such as Safe evacuation through safe existing routes, Firefighter prevention, medical management, Hazard materials management, and Risk assessment and management.

11. The education and training program for crises and disaster situations should be conducted that includes all emergency response, communication measures, warning systems, threats, and related protection,

stopping the pharmacy operations or reducing it, the role of each pharmacy personnel, the role of emergency teams, evacuation procedures and ways, fire extinguisher's locations, first aid, response to physical, chemical, electrical threads and risk.

12. The pharmacist should rehearse education and training for all crises and disaster situations for all new staff, any update of crisis and emergency management plan, any update for personnel protective equipment, any changes or pharmacy building, and new equipment, and update of crisis management policy and procedures.

13. Pharmacy simulation education and training should done at least once annually, such as fire drills and evaluation, and each type of emergency response type to evaluate the effectiveness and weaknesses points of pharmacy staff and pharmacy crisis and disaster management plan.

14. The pharmacy crisis and disaster management should hold meetings to discuss the pharmacy's performance during crisis management drills. Was the drill done correctly? Did the pharmacy staff do the plan very well without any problems? Did the pharmacy know its role during the crisis and disaster situation? Did all pharmacy staff evacuate the building safely at the appropriate time? Did evaluation persons and case coordinators work properly? Did the team discuss the strengths and weaknesses points and matters for improvement? Through excellent planning and ready-for-response training, the pharmacy organization will be ready for any crisis and disaster management.

Pharmacy crisis and disasters management

1. The pharmacist should establish a pharmacy crisis and disaster management committee.

2. The committee consists of pharmacy managers, clinical pharmacists, pharmacists, pharmacy technicians, TQM pharmacists, medication safety specialists, pharmacist infection control, pharmacist safety and occupational health, pharmacy risk management.

3. The scope of pharmacy crisis and disaster management should be addressed; vision, mission, and goals should be identified.

4. The local and international crisis and disaster management should be implemented.

5. The program budget should be addressed.

Content of Pharmacy crisis and disasters management

The Pharmacy Crisis and Disaster Program consisted of the following.

Planning

1. The pharmacist should plan crisis and disaster management for the following reason.

2. The emergency might threaten the pharmacy staff's life, patients, and the public.

3. The crisis might stop the pharmacy operations and services that are provided to patients and the public.

4. The crisis might cause economic problems and threaten pharmacy places, equipment, and the pharmacy environment.

5. The planning for a crisis to get pharmacy workers ready for unexpected situations.

6. The pharmacist should address strategic and annual plans for crisis and disaster management.

7. The pharmacist should identify the risk sources and planning of risk assessment management.

8. Planning resources for crisis and disaster response as an emergency preparedness response plan includes policies and procedures before the crisis, such as committee crisis meetings, planning for response, educating and training the pharmacy staff, crisis drills, and all emergency equipment needed. In contrast, an emergency response is the natural response process during a crisis and disaster.

Implementations

The pharmacy's response to safety should follow the procedures.

1. Review all goals and objectives of the pharmacy occupational health safety program.

2. Review all seniors of all risk resources and procedures of responses.

3. Review the internal resources for pharmacy operations, such as environment management and equipment-related.

4. Review the external resources such as civil defense and the communication methods during the crisis, police officers, hospitals, and time for response during the crisis and recovery stage of disaster.

5. Review the quality of management standards such as CBAHI and emergency response codes.

6. Improve the safe evacuation for live cases, isolation, sheltering, and lockdown during crisis.

7. Improve the response of all emergency codes.

8. Coordinated with internal and external resources during the recovery stage of the crisis.

9. Educate and train the pharmacy personnel to be ready for crisis and disaster situations and relate their role.

10. Make stimulation still for pharmacy personnel.

11. Make risk assessment for all threats, such as,

12. Hazards agents, ergonomic hazards, physical hazards, chemical hazards, fire hazards, workplace violations, and psychological hazards.

Execution

The pharmacy staff should implement ten couloir codes as follows,

Red code, black code, silver code, blue code, orange code, brown code, pink code, gray code, yellow code, and write code as explained in Table 1.

Training and Education

1. The pharmacist should educate and train all staff pharmacy about crises and disasters.

2. All pharmacists should get annual education and training about crisis and disaster management.

Exercise and test

1. The pharmacy should have at least 2-4 exercises and tests about pharmacy crises and disaster management.

2. Reeducate the pharmacy staff and update the pharmacy system to resolve all the problems during the crisis and disaster situations.

Maintenance and improvement

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

CONCLUSION

The Crisis and Disaster Management policy and procedures in pharmacy practice are a part of the approach to the overall occupational safety performance of pharmacy systems. General concept for crisis and disaster management, Content of Pharmacy crisis and disaster management (Planning, Implementation, Execution, Training and Education, Exercise and test, Maintenance, and improvement) were essential for pharmacy crises and disaster

No	Table 1: National Emergency codes.		
	Ten different types of emergency codes are required by the Ministry of Health, including the following code.		
1.	**Code blue**	The code is called when any case needs cardiopulmonary resuscitation.	Various teams had members, including physicians, nurses, pharmacists, and social workers, responding to code. It can be the CPR team at Word, an ambulatory care clinic, or a critical care facility.
2.	**Code Red**	The code for fire, foiling down buildings, emergency, and any significant damage to buildings might induce filling down part of buildings at any place of health care facilities or pharmacy departments.	All pharmacy staff, patients, and visitors should be evacuated from the pharmacy building.
3.	**Black code**	The black code indicates that the pump in the pharmacy builds or threads of the presence of the pump reach by calling or receiving email or WhatsApp.	All pharmacy staff, patients, and visitors should be evacuated from the pharmacy building.
4.	**Yellow code**	It indicates a pump, explosion, or filing of a building or nuclear or outside the pharmacy building.	The pharmacy should be prepared for emergency medication and call all pharmacy staff for help with the preparation of drugs. The pharmacy staff should prepare all antidotes for the incidence and all medication related to the disease based on national or international guidelines and standards.
5.	**Orange code**	If there are chemical or radiological substances falling on the ground inside or outside the pharmacy department.	The pharmacy should clean and remove the substances according to national and international standards and regulations.
6.	**Brown code**	It indicates any abandoned electricity, water, or elevator at the pharmacy department.	The pharmacist responsible for safety procedures should operate the electricity or water waiting machine and call for an elevator company. All refrigerators should be checked for medication and will not be affected by stopping Them. The temperature match should be monitored and documented.

7.	Grey Code	It indicates if there are dust or snow storms, tornadoes, or floods outside the pharmacy building.	The pharmacist should evaluate pharmacy buildings' locations and follow civil defense instructions or crises, disaster management, and regulations. The pharmacist should protect their building from any water leak during storms, avoid all possible medications and medical supplies from water, and use insulation.
8.	While code	It indicates aggressive behavior or threatens nongun or a weapon.	The pharmacist should deal with patients properly to avoid any accidents or narcotics or control medication. The pharmacist should call the police directly.
9.	Silver code	It indicates some using guns or gunshots or threatening some people inside the pharmacy department.	The pharmacist should keep inside the rooms, hide at safe places, avoid any chemicals during gunshots, and call the police about the situation.
10.	Pink code	It indicates there is a stolen baby or a replaced babies another one inside the pharmacy building.	All the pharmacy workers, visitors, and patients should stop at the pharmacy building, record all names inside the building, and search for the hidden baby.

planning. The pharmacy disaster planning will protect the pharmacy staff and public from any emergency locally or internationally. Particular attention is paid to the fact that pharmacy Crisis and Disaster Management has been introduced into the pharmacy operating policies and procedures in the pharmacy occupational safety and health system of Saudi Arabia.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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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.

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.

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