

Responding to
disasters

Guidelines for
pharmacy

2016

EMERGENCY



International
Pharmaceutical
Federation

Colophon

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Foreword

The world is seeing an increasing number of natural disasters as a result of global warming and climate change. This has resulted in more pharmacists requesting help when the unforeseen happens and an emergency strikes. In response to this increasing need, the International Pharmaceutical Federation (FIP), through its Board of Pharmaceutical Practice, set up a working group to determine how the federation could help pharmacists prepare and deal with natural disaster emergencies. The working group has, after an extensive consultation, produced this guideline document.

The purpose of this document is to enable pharmacy organisations help their members to prepare for emergency situations. It is organised around the four phases of an emergency:

- 1) Prevention (risk mitigation);
- 2) Preparation (readiness);
- 3) Response; and
- 4) Recovery.

This guidance poses the questions that should be considered at the national, regional and individual pharmacy levels during each of the four phases. It is not intended to answer all these questions but to raise awareness of what pre-planning to consider within the context of the pharmacist's role. The overall intent is to help pharmacists provide safe and effective care, even when bad things happen.

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Executive summary

Purpose	<p>The purpose of the working group is to:</p> <ul style="list-style-type: none"> • Determine the involvement of and impact on pharmacists during natural disasters to justify the development of strategies and directions for national organisations. • Develop comprehensive guidelines and instructions to help national pharmacy organisations and others develop, implement and support local and regional responses to a natural disaster. <p>The purpose of this reference paper is to specify requirements for emergency planning for pharmacists and pharmacy organisations in order to determine the need for FIP guidelines or policy statements. This is to ensure that in the event of a national incident, the pharmacy profession, governments and regulators will provide:</p> <ul style="list-style-type: none"> • Effective management through a planned and coordinated response in order to minimise the disruption to pharmacy services and reduce the risk to patient safety. • Effective support to affected pharmacists.
Scope	<p>This document applies to emergency preparedness of pharmacists for natural disasters at the levels of national associations, governments, industry, hospital, and of community pharmacies in order to maintain safety of staff as well as to continue to provide care to patients. It is designed to provide guidelines in the creation of emergency preparedness plans at the levels of mitigation, preparedness, response and recovery.</p>
Out of scope	<p>This document does not apply to emergency preparedness for pharmacists with respect to man-made disasters.</p>
Existing policies at global level	<p>There are existing policies on disaster management and emergency preparedness in the health care setting. The World Health Organization (WHO), for example, has formed an international health emergency workforce policy. At the request of the its member states, the WHO was to develop a plan for a more extensive global health emergency workforce that could be promptly and efficiently deployed, for service in countries that request or accept such assistance, for appropriate periods of time, and with adequate resources. The Global Health Emergency Workforce Report submitted to World Health Assembly in May 2015 contains a conceptual plan for a workforce established in order to respond to acute or protracted risks and emergencies with health consequences.¹</p>
Existing policies at local level	<p>Many local governments have created policies on disaster management and emergency preparedness in the health care setting. The purpose of this document is not to override current local protocols but to supplement existing policies so that they become more holistic and collaborative between government and health care organisations, and also to outline potential roles that pharmacists can engage in to increase the efficacy of medicines distribution and services in response to natural disasters.</p>
Emergency	<p>This document is intended to cover emergency preparedness for the following emergencies or incidents:</p>

- Natural disasters: Examples include floods, storms, cyclones, hurricanes, typhoons, snowstorms, tornadoes, ice storms, storm surges, heat and cold waves, earthquakes, volcanic eruptions, geothermal incidents, tsunamis and landslides.
- Outbreaks: Epidemics (disease outbreaks that become widespread and affect a whole region).

Phases of emergency

There are global differences in the way in which emergency management is broken down into different phases. For the purposes of this document the following terms are used to describe the four management cycles:²

- **R1. Reduction (risk mitigation):** Identifying and analysing long-term risks to human life and property from natural or non-natural hazards; taking steps to eliminate these risks if practical and, if not, reducing the magnitude of their impact and the likelihood of their recurring; in this document further referred to as “prevention/mitigation”.
- **R2. Readiness (preparedness):** Developing operational systems and capabilities before a domestic emergency happens; in this document further referred to as “preparation”.
- **R3. Response:** Actions taken immediately before, during or directly after a domestic emergency to save lives and property and to help communities recover.
- **R4. Recovery:** The coordinated efforts and processes used to bring about the immediate-, medium- and long-term regeneration of a community following a domestic emergency.

Levels of implementation of policies

Within emergency management planning, the actions that are required depend on where an individual or organisation is located and what is their applied professional role. For the purposes of this document, the following definitions have been applied:

- **National:** This is the level at which legislation is enacted. At this level, pharmacy organisations that manage the governance of pharmacy practice can plan and promote emergency planning.
- **Regional:** This is the larger local area where health care providers from across a region work together to prepare for and manage the emergency response. This can include regional chains and organisations for managing pharmacies in the hospital, community and industry settings.
- **Local:** The level at which individual pharmacies and pharmacists implement and manage the provision of pharmacy practice and care during an emergency. The response carried out will occur in specific hospitals, community pharmacies and industry institutions.

Themes in emergency management

The following six themes have been identified from research on the identification of the problems encountered by pharmacists who have undertaken emergency responses:³

- Planning
- Communication
- Pharmaceuticals/Medical material
- Human resources
- Transportation
- Pharmacy law

Special populations

The most vulnerable populations during a disaster include children, pregnant women, elderly people and patients with disabilities.⁴ Children in particular are at a higher risk of harm or death due to their unique physiological, developmental and psychological attributes.^{4,5} When creating emergency preparedness and disaster response plans, it is advisable to keep in mind factors that are of particular risk to these populations and to formulate strategies to minimise harm at all levels of planning.⁵

The “Pearls to consider” section includes items to consider when addressing these populations.

Using this document

Pharmacists from government, national pharmacy associations, hospital organisations, industry, and community organisations can use this document as a general guideline for items to include in both *immediate* and *impending* emergency preparedness plans.

To use this document, select your area of practice (i.e. government, industry, hospital or community). The section covering each area is a starting point for pharmacists from each level of practice to guide actions in the mitigation, preparation, response and recovery stages of emergencies.

Some of the roles and responsibilities mentioned for pharmacists throughout this document may be applicable to pharmacy technicians, depending on local legislation and training.

The “Pearls to consider” section provides several practical options. These serve as recommendations, and each plan should be customised to the demographic and area of practice accordingly.

1 National implementation

1.1 Government and pharmacy associations

Prevention/Mitigation

A. Risk analysis

A.1. Governments and national pharmacy organisations should conduct risk assessments at the national and regional levels. This risk assessment includes:

- Criticality or vulnerability assessment, all-hazards risk assessment
- Identification of any specific disaster/emergency that may occur, the likelihood of occurrence, and amount of time there is for a warning (immediate versus impending)^{6,7}
- Assessment of the national government's ability to provide aid
- Identification of the information that should be provided to regional pharmacists to incorporate into SOP of emergency management

Preparation

B. Expansion of pharmacy practice legislation

B.1. National governing bodies should consider providing authorisation under emergency, for expansion of pharmacists' scopes of practice.⁸

- The change in scope should be based on pre-existing training and the competency of pharmacists at the regional and national level.
- Government legislators should work in cooperation with colleges of pharmacy to determine the expansion of pharmacists' scopes of practice to meet emergency needs, if appropriate.

B.2. Legislation can include but is not limited to the following expanded pharmacist acts:

- Emergency prescribing rights for therapies that previously required physician prescription⁹
- Initiation and distribution of prescriptions for immunisation¹⁰⁻¹²
- Administering vaccines and other injectable medicines^{8,12,14}
- Refill authorisation for increased time periods^{10,13}
- Managing previously prescribed therapies and chronic disease treatments^{10,12}
- Triage, screening and point-of-care testing by pharmacists^{10,11,14,15}
- Screening and prescribing treatments for patients with minor ailments¹⁰
- Organisation, distribution and control of stockpiles^{12,16}
- Supplying and counselling patients on emergency prescription medicines¹⁶
- Administering first aid⁸

1.1 Government and pharmacy associations

- Authorisation to make therapeutic substitutions on previously prescribed medicines.⁹

B.3. Legislation may also waive certain requirements:¹⁷

- Temporary pharmacy licences can be provided to alternative locations in cases of emergency that require pharmacy relocation¹⁷
- Legislature related to size of space required, sanitation requirements, equipment requirements etc.¹⁷
- National medicines regulatory bodies may choose to provide new medicines to pharmacies to prevent shortages. Authorisation may be given for the importation of licensed medicinal products from other countries which are not yet licensed in the country where the medicines are to be used.¹⁴

C. Management of human resources and national stockpile pharmaceuticals

C.1. National pharmacist response teams:^{11,18}

- In nations where infrastructure permits, pharmacist response teams can be arranged and deployed
- Pharmacist teams can be part of pre-existing emergency response teams, and should include other health care professionals^{11,19}
- Pharmacists on these teams can provide alternative therapeutic plans based on resources that are available at the time of emergency^{12,18,20}
- Teams should be able to be deployed within a short time of declaration of an emergency/crisis to areas of need¹¹
- In collaboration with government, national, regional agencies, supply resources unavailable to local region²¹

C.2. National stockpile

- National governments, in cooperation with national pharmacist associations that are involved with pharmaceutical management, should ensure there is a sustainable capacity of services and products within stockpiles to meet the needs of regional emergency response in the event that regions request national aid²⁰
- Pharmacists involved in national stockpile management should ensure timely deployment of appropriate emergency supplies of medicines^{8,11}
- An example of an emergency medicine supply list can be found in the “Pearls to consider” section.

C.3. Organisation of distribution points²²

- In countries where the resources permit, regional government authorities may establish locations for distribution of medicines and performance of activities
- Activities to be performed by pharmacists at points of distribution (POD) may include national pharmaceutical stockpile distribution^{22,23}
- Pharmacists should be involved in the management of national

1.1 Government and pharmacy associations

- stockpile pharmaceuticals at each distribution point²⁴
- Pharmacists can dispense medicines at each distribution point, and provide education on the correct use and adherence to treatment being distributed
 - Distribution points can also be used as locations for pharmacists to provide mass vaccination administration and education²³⁻²⁵

Response

D. National organisations should provide transport route management for pharmaceutical delivery

D.1. Determine alternate routes or means of transport

- Government and pharmacy associations involved with pharmaceutical management should use international, national and local government information to determine appropriate routes for the transport of pharmaceuticals for the situation where disaster has left regular routes unusable⁷

E. Communication nationally and internationally

E.1. National organisations should identify mechanisms for appropriate means of communication to ensure delivery of timely information⁸

E.2. Governments, in cooperation with national and regional pharmacy organisations, should ensure all regions receive timely and continuous information using appropriate means of communication^{8,19}

- Alternative communication networks may be needed should previous methods of communication become inaccessible (such as using cell phones, fax machines, satellites or internet)^{26,27}
- National organisations involved in provision of pharmaceutical aid packages to regions that have requested additional aid, must provide clear information regarding the contents of each package and how regions may replenish their stores²¹
- Governments, in cooperation with national and regional pharmacy organisations, should coordinate and prioritise resources to be provided, based on the degree of need for each region affected⁷
- Government and national pharmacy associations, in collaboration with other national health care associations, should maintain open communication with the public at all times to maintain credibility and reduce unnecessary anxiety²⁸

E.3. Transparency of resource capacity

- National organisations must provide clear information to regions and municipalities regarding what national resources are available and the methods of accessing these resources
 - This can include resources such as national stockpiles and national response teams
- Governments in cooperation with national pharmacy associations

1.1 Government and pharmacy associations

should be transparent regarding limitations in capacity of resources available to regions

- Transparency must be provided with respect to sustaining primary resource allocation and response²⁹
- National organisations must be transparent regarding the amount of time from when an emergency is declared to when stockpile and materials will be deployed and received by areas in need
 - I.e. Based on route changes and methods of transportation, national associations should provide a minimum and maximum number of hours between when an emergency is declared, to when materials will be deployed, and when regions can expect to receive these packages

Recovery

F. Post-incident analysis²⁹

F.1. Application of changes to current standard operating procedures (SOPs)²⁹

- Information from national government and pharmacy associations should be provided to regional organisations for incorporation into SOPs after an emergency event has occurred
- National-level lessons learnt in emergency situations should be applied at the national and regional level
- Post-disaster analysis can reduce the risks of future disasters due to alternative causes that may arise (such as disease prophylaxis)²⁸

1.2 Industry/Manufacturers/Distribution

Prevention/Mitigation

- A. Risk measurement and analysis**
- A.1. Industry pharmacists should analyse the probabilities that risks of specific disasters or emergencies may occur⁶
1. Information regarding national and regional risks should be coordinated with national and regional government organisations
 2. Industry directors must remain informed on disaster risks for base material supply sites, distribution sites and pharmacies that the company supplies
 3. Risk identification should be disaster-specific
 - Refer to “Pearls to consider” section for disaster-specific tasks
- A.2. Risks should be identified based on their likelihood of occurrence, the impact they will have on the institution, and the warning time that may be available before the emergency occurs⁶
- These events can be further classified as immediate or impending³⁰
- A.3. Regional risks and impact stratifications should be added to emergency SOPs for appropriate preparedness protocols⁶

Preparation

- B. Industry pharmacy organisations should create, provide and promote guidelines for SOPs at both the manufacturer and distributor level**
- B.1. Industrial pharmacy SOPs should include
1. List of personnel with primary roles in the SOPs, and their responsibilities^{26,27,31} (which can include but are not limited to):
 - Preparedness coordinator³¹
 - Emergency planning team³¹
 2. Supply chain management information³²
 - Manufacturers should include location-based models in their SOPs to account for potential disruptions to transportation networks to distribution centres
 - Distributors must include a list of all manufacturing sources in their SOPs³²
 - In countries where regulation permits, distributors may include a list of alternative manufacturers they may pull from³²
 - Manufacturers should include a list of all distributors they provide
 3. Backup facility planning³²
 - Manufacturing organisations should consider confirming backup capacity for storage and manufacture of product at their contracted sites
 - In countries where regulations permit, industry SOPs may include

1.2 Industry/Manufacturers/Distribution

- agreements with distribution sites that guarantee warehouse stock (reserved inventory) regardless of the type of emergency²⁷
 - Products for which there may be an increased need during an emergency and that do not have short shelf-lives should be considered to be part of the stockpile that is based on the type of emergency^{20,32}
 - Consideration should be given to alternative methods for energy production, such as emergency generators²⁷
 - 4. Transportation disruption³²
 - The SOPs should include plans for alternative maritime or land transport in the instance that transportation by land or water is disrupted³²
 - Organisations may consider unconventional methods of transport during emergency events³¹
 - SOPs should include substitute delivery routes to partners and consumers in case regular routes are disrupted²⁷
 - 5. Communication disruption
 - SOPs should include alternative methods of communication in the instance that landlines are unavailable (such as using cell phones, satellite phones, amateur [ham] radio)^{26,27}
 - 6. Quality control³²
 - Pharmaceutical manufacturers' SOPs should include means of maintaining continuous quality and safety control of products in emergency circumstances³²
- B.2. Industry SOPs should include mandate for periodic SOP testing
1. Designated emergency planning teams should organise periodic emergency drills (practice emergency simulations) to assess effectiveness of SOPs^{26,31}
 2. Lessons learnt post-drill at the local level must be addressed and changed in SOPs to provide continual quality assurance^{25,29}
- C. Community outreach
- C.1. Mutual aid agreements²⁶
1. Industry organisations may establish agreements with local response agencies and regional response agencies, including regional hospital and community pharmacy organisations
 2. The type of assistance that will be provided requires clear definition

Response

- D. Pharmaceutical industry manufacturer sites and distribution sites must maintain communication regionally and nationally
- D.1. Regional industry organisations should maintain communication with government and national organisations to confirm accurate forecasts of numbers of vaccines and medicines required (number of people affected)³²

1.2 Industry/Manufacturers/Distribution

- D.2. All industry preparedness policies must be clearly communicated to stakeholders such as government and community planning committees³¹
- D.3. Real-time demand estimation and forecasting of need³²
Industry manufacturer and distributors should acquire up-to-date, dynamic forecasts of the demand for vaccines and other pharmaceuticals from national government and health organisations³²
- E. **Implementation of emergency SOPs**
 - E.1. Immediate emergency response
 - All staff are to carry out steps for immediate emergency response as per the SOPs of that company and region
 - E.2. Impending emergency response
 - All staff are to carry out steps for impending emergency response as per the SOPs of that company and region

Recovery

- F. **Post-recovery analysis**
 - F.1. Pharmacists should take note of lessons learnt from use of the SOPs in training/mock situations as well as in emergency situations
 - F.2. Summary of best practices within the SOPs should be highlighted
 - F.3. Post-disaster analysis can reduce the risks of future disasters due to alternative causes that may arise (such as disease prophylaxis)²⁸
- G. **Application of lessons to SOPs²⁹**
 - G.1. Provide information from lessons learnt from use of SOPs in training situations to regional organisations, for incorporation into SOPs after an emergency event has occurred

2 Regional/Local implementation

2.1 Hospital pharmacy

Prevention/Mitigation

A. Regional risk measurement and analysis

A.1. Regional hospital pharmacists should analyse the probabilities that specific disasters or emergencies may occur at the regional and local levels⁶

1. Information regarding potential disaster risks in the region should be coordinated with national and regional government organisations
2. Risk analysis should be specific for the type of disaster
 - Refer to “Pearls to consider” for tips on preparing the hospital pharmacy for disaster-specific scenarios

A.2. Risks should be identified based on their likelihood of occurrence, the impact they will have on the pharmacy, and the warning time that may be available before the emergency occurs⁶

- These events can be further classified as immediate or impending³⁰

A.3. Regional risks and impact stratifications should be added to emergency SOPs for appropriate preparedness protocols⁶

B. Local risk analysis

B.1. Hospital pharmacy directors at each hospital should stay informed about the history of, potential for, and news of immediate or impending natural disasters and accidents in the local area¹⁶

B.2. Pharmacy directors should ensure local hospital emergency SOPs are individualised and prioritised based on possible events of the local area

C. Local emergency drills (practice simulations)

C.1. The emergency planning team (defined in “Regional hospital preparation” — D.2) should plan and implement periodic emergency drills, as per the regional hospital pharmacy emergency SOPs guideline^{6,19}

C.2. Drills should be specific to the type of emergency, and use appropriate timelines as per real situations (For example, immediate versus impending)

Preparation

D. Regional hospital pharmacists should create, provide and promote guidelines for emergency SOPs

D.1. Hospital SOPs for *immediate* emergency should include:

1. List of personnel involved with immediate response that will be contacted
2. List of personnel should be prioritised based on factors that may be of use at times of acute emergency such as:
 - Proximity to the hospital³⁰

2 Regional/Local implementation

2.1 Hospital pharmacy

- Activities that can be provided by that staff member (technicians versus interns versus pharmacists etc.)³⁰
 - Resources they may be able to provide (transportation, trailers)³⁰
3. Disaster-specific actions³⁰
- Based on risk analysis for immediate emergencies (Section A.1), protocols should include immediate response measures for situations with less than 24 hours notice, for each specific region
 - Protocols should be prioritised for events requiring acute and immediate response

D.2. Hospital SOPs for *impending* emergency should include:

1. List of personnel with primary roles in the SOP, and their responsibilities^{6,29} (which can include but are not limited to):
 - *Directors of pharmacy*¹⁶
 - Remain informed on potential for disasters in the region
 - Compile and upkeeps pharmacy stockpile
 - Ensure contingency plan is in place to procure supplies in the event that stockpile depletes
 - Create a pharmacy emergency planning team
 - Create and maintains emergency contact information list^{6,33}
 - *Directors of pharmacy information systems*¹⁶
 - Ensure that backup electricity is available; alternative supplies of energy for emergency use
 - Ensure remote access to data and operating systems is available
 - Create and maintain list of staff requiring remote access, which systems to provide access to, and mechanism of access to these systems
 - Ensure proper backup of data and records³³
 - *Emergency planning teams*⁶
 - Prepare a list of emergency supplies/disaster kit to be stored on location (essentials such as food, first aid supplies)^{6,30}
 - Ensure staff are educated on SOP implementation, and receives training on items to be carried out^{6,20}
 - Determine critical functions to maintain during disaster⁶
 - Organise “emergency drills” (practice simulations)^{6,19}
 - Designate alternate location to continue administrative operations if original location of operations becomes inaccessible⁶
2. Pharmaceutical stockpile management
 - Should be specific to the region and population demographics
 - Should be consistent with other institutions’ emergency plans such as community and industry, within the same region or municipality and avoid redundancy³⁴

2 Regional/Local implementation

2.1 Hospital pharmacy

- Local stockpile plans should prepare for sustainability of patients¹³ for a minimum of 24 hours²¹
 - Medicines should be organised in a systematic way so that pharmacists and technicians can quickly and efficiently access appropriate medicines¹⁵
 - Medicines should be kept in alternative secure storage areas to reduce risk of stock being compromised
3. Communication management
 - SOPs should include alternative methods of communication in the instance that landlines are unavailable (such as using cell phones, fax machines, satellites, internet)^{26,27}
 - Ensure the plan for communication includes up-to-date and accurate contact lists of employees and affiliates¹³
 - Hospital pharmacists can consider the use of validated pictograms in humanitarian situations to provide medication information to patients, where language barriers may exist^{35,36}
 4. Protection of resources⁶
 - Hospital pharmacies should consider preservation of paper records, in the event that electricity is disrupted
 - Lists of suppliers and manufacturers, their contact information, and the account number should be stored
 - Pharmacy computer programming requires sufficient backups that are done routinely, prior to disaster
 - Fire extinguishers and smoke detectors are installed as per health and safety codes
 - For disaster-specific methods of resource protection, refer to “Pearls to consider”
 5. Staff protection
 - Pharmacists and health care professionals must be protected from potential health and safety risks that arise during disasters
 - Hospital pharmacy SOPs should include a list of protective equipment and steps for personal protection in times of emergency
 - SOPs may include safety precautions such as required or recommended immunisations;³⁷ personal protective equipment (PPE) including skin, eye, respiratory and hearing protection;³⁸ and measures for infection control
 - SOPs should also include safety checks for the wellbeing and mental health of staff before returning to work or continuing work post-disaster³⁹
- D.3. Hospital SOPs should include mandate for periodic SOP testing
1. Designated pharmacy emergency planning teams must organise periodic emergency drills to assess effectiveness of the SOPs^{6,19}
 2. Emergency drills must follow accurate timeframes for when medicines stockpiles will run out and when national aid (if available) will arrive

2 Regional/Local implementation

2.1 Hospital pharmacy

3. Lessons learnt post-drill at the local level must be addressed and changed in the SOPs to provide continual quality assurance^{25,29}
- E. Regional hospital pharmacists should promote uptake and implementation of expanded pharmacy legislations**
- E.1. Promotion of expanded pharmacist acts to local regions through:**
1. Provision of information to all municipalities on changes in practice legislation that will occur in emergency situations
 2. Providing training programmes where applicable
- F. Local hospital pharmacy personnel and affiliates should be informed of the tasks to be followed at their specific pharmacy in emergency situations**
- F.1. Pharmacy director**
- Ensures regional hospital pharmacy SOPs are individualised for the local hospital as needed
 - Ensures all pharmacy personnel are made aware of the hospital pharmacy's emergency plan, know their tasks involved with emergency response and are up to date on training for these tasks⁶
 - Ensures information regarding proper use of medicines in response to emergency is available to all health professionals at the hospital¹⁶
 - Ensures the hospital pharmaceutical stockpiles are coordinated with local preparedness plans (including community pharmacies and industry pharmacy)¹⁶
 - Develops relationships with pharmaceutical industry providers for potential donations or provisions and contracts for emergency pharmaceuticals^{6,14}
 - Selects predetermined location(s) for relocation in the event that pharmacy operations are not able to continue, or are unsafe³⁰
- F.2. Information systems directors**
- Ensure all tasks and requirements defined in emergency SOPs are maintained
 - Ensure all system requirements and backups are tested routinely
 - Ensure privacy and confidentiality of all information is maintained throughout the emergency response
- F.3. Emergency planning team**
- Ensures all pharmacy personnel are made aware of the hospital pharmacy's emergency plan, know their tasks involved with emergency response and are up to date on training for these tasks⁶
 - Provides training to staff to ensure all tasks involved in emergency response can be completed efficiently and competently
 - Plan and carry out periodic emergency drills, as per the regional hospital pharmacy emergency SOP guideline^{6,19}
- F.4. Pharmacists**

2 Regional/Local implementation

2.1 Hospital pharmacy

- Be well informed of the hospital's emergency SOPs and their place in the plan, specifically related to distribution, control of and use of pharmaceuticals
- Be informed on expanded scopes of practice in emergency situations
- Receive proper training regarding expansion of scope activities that may be required to be carried out as per expanded legislation
- Receive and maintain training for first-aid certification²⁶

Response

- G. Maintaining health records⁴⁰**
- G.1. Pharmacists and pharmacy personnel must maintain standards of confidentiality for patient records management, while remaining accessible for health care personnel⁴⁰
- G.2. Record keeping methods may need to be changed based on emergency circumstances⁴⁰
- G.3. Record keeping should be designed to be easy to record with maximum information and on durable material⁴⁰
- H. Regional management of transportation routes of pharmaceuticals**
- H.1. Regional hospital pharmacy organisations should communicate with governmental authorities regarding pharmaceutical transport route management
- H.2. Regional hospital pharmacy organisations must disseminate transportation information (including accurate estimates of delays) to local hospitals
- I. Local implementation of emergency SOPs**
- I.1. Immediate emergency response
- All pharmacy staff are to carry out the steps for immediate emergency response as per the SOPs of that hospital
- I.2. Impending emergency response
- All pharmacy staff are to carry out the steps for impending emergency response as per the SOPs of that hospital

Recovery

- J. Post-recovery analysis**
- J.1. Pharmacists should take note of lessons learnt from the use of the SOPs in training/mock situations as well as in emergency situations
- J.2. Summary of best practices within the SOPs should be highlighted
- J.3. Post-disaster analysis can reduce the risks of future disasters by identification of alternative approaches (such as disease prophylaxis)²⁸
- K. Application of lessons to SOPs²⁹**
- K.1. Information from lessons learnt from use of SOPs should be provided in training situations to regional organisations, for incorporation

2 Regional/Local implementation

2.1 Hospital pharmacy

into SOPs after an emergency event has occurred

L. Resuming operations

L.1. Short-term recovery operations

1. If unsafe to continue operations in the original hospital pharmacy environment, hospital pharmacy coordinators can consider relocating to temporary shelters or predetermined relocation areas^{30,41}
2. Debris and wreckage must be managed and removed⁴¹
3. Reparations and reconstruction should incorporate factors to mitigate previous inadequacies such as structural insufficiency or shortfalls in infrastructure⁴¹
4. In countries where it is available, hospital pharmacies should consider national and local disaster recovery assistance as needed⁴¹

L.2. Long-term recovery operations

1. Hospital pharmacy directors must consider psychological, demographic and economic impacts on staff and workflow⁴¹

2 Regional/Local implementation

2.2 Community pharmacy

Prevention/Mitigation

- A. **Risk measurement and analysis**
 - A.1. Regional community pharmacists should analyse the probabilities that risks of specific disasters or emergencies may occur at both the regional and local levels⁶
 - 1. Information regarding potential disaster risks in the region should be obtained from and co-ordinated with national and regional government organisations
 - 2. Should be disaster-specific
 - 3. Refer to “Pearls to consider” for tips on preparing for specific disaster situations
 - A.2. Risks should be identified based on their likelihood of occurrence, impact they will have on the pharmacy, and the warning time that may be available before the emergency occurs⁶
- B. **These events can be further classified as immediate or impending³⁰**
 - B.1. Regional risks and impact stratifications should be added to emergency SOPs for appropriate preparedness protocols⁶
- C. **Local risk analysis**
 - C.1. Pharmacy owners or pharmacists in charge should stay informed about the history of, potential for, and news of immediate or impending natural disasters, accidents in the local area¹⁶
 - C.2. Pharmacy owners or pharmacists in charge should ensure pharmacy emergency SOPs are individualised and prioritised based on possible events of the local area
- D. **Emergency drills (practice simulations)**
 - D.1. Emergency planning teams should plan and implement periodic emergency drills, as per the regional community pharmacy emergency SOP guideline^{6,19}
 - D.2. Drills should be specific to the type of emergency and use appropriate timelines as per real situations (e.g. immediate versus impending)

Preparation

- E. **Regional community pharmacists should create, provide and promote guidelines for emergency SOP**
 - E.1. Community SOP for *immediate* emergency should include:
 - 1. List of personnel involved in immediate response, and tasks for each person
 - 2. The list of personnel should be prioritised based on factors that may be of use in times of acute emergency such as:
 - Proximity to pharmacy³⁰
 - Activities that that staff member (technicians versus interns versus pharmacists etc.) is able to provide³⁰

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- Resources that the staff member may be able to provide (transportation, storage etc.)³⁰
3. Disaster-specific protocol³⁰
 - Based on risk analysis for immediate emergencies (section A.1), protocols should include immediate response measures for situations with less than 24 hours' notice, for each specific region
 - Protocol should be prioritised based on immediate need
- E.2. Community SOP for *impending* emergency should include:
1. List of personnel with primary roles in the SOP, and their responsibilities (which can include but are not limited to):
 - Pharmacy managers
 - Pharmacy technicians
 - Other staff
 2. Pharmaceutical stockpile management
 - Should be specific to the region and population demographics
 - Should be consistent with other institutions' emergency plans (such as hospital and industry), within the same region or municipality and avoid redundancy³⁴
 - Local stockpile plans should prepare for sustainability of patients¹³ for a minimum of 24 hours²¹
 - Medicines should be organised in a systematic way so that pharmacists and technicians may quickly and efficiently access appropriate medicines¹⁵
 - Medicines should be kept in alternative secure storage areas to reduce risk of stock being compromised
 3. Communication management
 - SOPs should include alternative methods of communication in the instance that landlines are unavailable (such as using cell phones, fax machines, satellites, internet)^{26,27}
 - The plan for communication should be up to date and have accurate contact lists of employees and affiliates¹³
 - Community pharmacists can consider the use of validated pictograms in humanitarian situations to provide medication information to patients where language barriers may exist^{35,36}
 4. Protection of resources⁶
 - Community pharmacies should consider preservation of paper records in the event that electricity is disrupted
 - Lists of suppliers and manufacturers, their contact information, and the account number should be stored
 - Ensure pharmacy computer programming has sufficient backups that are done routinely
 - Fire extinguishers and smoke detectors are installed as per health and safety codes
 - For disaster-specific methods of resource protection refer to "Pearls to consider"

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5. Staff protection
 - Pharmacists and health care professionals must be protected from potential health and safety risks that arise during disasters
 - Community pharmacy SOPs should create a list of protective equipment and steps for personal protection in times of emergency
 - SOPs may include safety precautions such as required or recommended immunisations;³⁷ personal protective equipment (PPE) including skin, eye, respiratory and hearing protection;³⁸ and measures for infection control
 - SOPs should also include safety checks for the wellbeing and mental health of staff before returning to work or continuing work post-disaster³⁹

- F. **Maintaining health records⁴⁰**
 - F.1. In impending disasters, patient medication information must be kept safe²⁸
 - F.2. Where possible, central databases of medication history should be maintained, and patients should be provided with paper-based summaries of their medication information²⁸

- G. **Regional community pharmacists should promote the implementation and uptake of expanded scopes of pharmacy practice in emergency situations**
 - G.1. Promotion to local regions through:
 1. Providing information to all municipalities on changes in practice legislation that will occur in emergency situations
 2. Providing training programmes where applicable

- H. **Local pharmacy personnel and affiliates should be informed of the tasks to be followed at their specific pharmacy in emergency situations**
 - H.1. Pharmacy owner or manager
 - Ensures regional community pharmacy SOPs are individualised for the specific pharmacy as needed
 - Ensures all pharmacy personnel are made aware of the pharmacy's emergency plan, know their tasks involved with emergency response and are up to date on training for these tasks⁶
 - Ensures information regarding proper use of medicines in response to emergency is available to all health professionals involved with the pharmacy¹⁶
 - Ensures the pharmaceutical stockpile is coordinated with local preparedness plans (including other community pharmacies and industry/suppliers)¹⁶
 - Develops relationships with pharmaceutical industry providers for potential donations or provisions and contracts for emergency pharmaceuticals^{6,14}
 - Provides training to staff to ensure all tasks involved in emergency response can be completed efficiently and competently

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- Plans and carries out periodic emergency drills, as per the regional community pharmacy emergency SOP guideline
- H.2. Pharmacy information systems administrators
- Ensure all tasks and requirements defined in the emergency SOP are maintained
 - Ensure all system requirements and backups are tested routinely
 - Ensure privacy and confidentiality of all information is maintained throughout the emergency response
- H.3. Pharmacists
- Be well informed of the emergency SOP and their place in the plan, specifically related to distribution, control of and use of pharmaceuticals
 - Be informed on expanded scopes of practice in emergency situations
 - Receive proper training regarding expansion of scope activities that may be required to be carried out as per expanded legislation
 - Receive and maintain training for first-aid certification¹⁶
 - Encourage self care¹²
 - Be able to compound medicines that may not be available to order¹⁵
 - Be informed in how to contact responsible agencies for aid in emergency situations

Response

- I. **Management and distribution of human resources and pharmaceuticals**
- I.1. Organisation of distribution points
1. Community pharmacists may be called upon for management and distribution national stockpile pharmaceuticals (at each location) upon receipt from national organisations
 2. Points of distribution (PODs) can be used as locations for mass vaccination administration, facilitated by trained pharmacists
- J. **Maintaining health records⁴⁰**
- J.1. Pharmacists and pharmacy personnel must maintain standards of confidentiality for patient records management, while remaining accessible for health care personnel⁴⁰
 - J.2. Record keeping methods may need to be changed based on emergency circumstances⁴⁰
 - J.3. Record keeping should be designed to be easy to make records with maximum information on durable material⁴⁰
- K. **Regional community pharmacy organisations should work with national government and pharmacy organisations for the management of transportation routes of pharmaceuticals**
- K.1. Regional pharmacy organisations should communicate with governmental authorities regarding transport route management

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- K.2. Regional pharmacy organisations (hospital, community and industry) must disseminate transportation information (including accurate estimates of delays) to local branches of community pharmacy
- L. **Local implementation of emergency SOPs**
 - L.1. Upon declaration of local response, pharmacy owners and personnel should implement emergency SOPs based on the severity of the situation
 - L.2. Implementation should follow immediate or impending response protocol as defined in the SOPs

Recovery

- M. **Post-recovery analysis**
 - M.1. Local pharmacies should document lessons learnt from use of the SOPs in training/mock situations
 - M.2. Local pharmacies should document lessons learnt from use of the SOPs in emergency situations
 - M.3. Pharmacy owners or managers should provide a summary of best practices within the SOPs, to regional pharmacy directors
- N. **Application of lessons to SOPs**
 - N.1. Local pharmacies should provide information from lessons learnt from use of SOPs in training situations to regional organisations, for incorporation into future SOPs
 - N.2. Local pharmacies should provide information from lessons learnt from use of SOPs in emergency situations to regional organisations for incorporation into future SOPs
- O. **Resuming operations**
 - O.1. Short-term recovery operations
 1. If it is unsafe to continue operations in the original pharmacy environment, pharmacy managers can consider relocating to temporary shelters or predetermined relocation areas^{30,41}
 2. Debris and wreckage must be managed and removed⁴¹
 3. Reparations and reconstruction should incorporate factors to mitigate previous inadequacies such as structural insufficiency or shortfalls in infrastructure⁴¹
 4. In countries where it is available, pharmacy owners should consider national and local disaster recovery assistance as needed⁴¹
 - O.2. Long-term recovery operations
 1. Pharmacy managers and owners must consider psychological, demographic and economic impacts on staff and workflow⁴¹

2 Regional/ Local application

2.3 Pearls to consider

Each natural disaster causes particular impacts. The size of the event can bring this impact from local to national or international level. Some disasters are called “slow onset events” where a warning period of the imminence of the event exists. Hurricanes are a good example. Other events, such as earthquakes or landslides, are sudden and occur without warning. In general, it is safe to assume that power will be out. Depending on the size of the disaster, the response period can last for many days.

A. Tips for preparing the pharmacy in case of specific disasters, before they occur:

1. Fire/Wildfire

- Ensure the pharmacy and surrounding area is resistant to burning. For example, reduce flammable material and use fire-resistant materials in the construction of the pharmacy.⁴²
- Ensure flammable compounds are in approved safety containers and stored appropriately.⁴²
- If the pharmacy is located uphill, ensure the downhill area is free of flammable debris and vegetation.³³
- Ensure water sources (e.g. fire hydrants, wells) are accessible for fire departments.^{33,42}
- Ensure continual property management, including of roof and gutters.³³

2. Flood

- Check with local authorities to see if the location is in a flood-prone zone and prepare accordingly.
- If the location is prone to flooding, the best long-term solution is to relocate the pharmacy to a safer location.
- If a flood is impending, elevate critical pharmacy utilities^{33,43} (pharmaceuticals, information technologies, electrical panels, hazardous chemicals, important equipment etc.) and relocate them from the basement.
- If relocation of critical pharmacy utilities from a basement is not an option, make sure the basement is waterproofed, has backup battery operated systems.⁴³ Consider installing drainage downspouts to ensure water moves away from the establishment,⁴⁴ and consider installing sump pumps in basement floor drains.⁴⁴
- Know the community’s flood evacuation plan.
- Ensure all important paper documents are stored in a waterproof or elevated locations.
- Be aware that contaminants carried by floodwater (e.g. oil, gasoline, raw sewage, chemicals, etc.) can enter buildings and will coat floors, walls and building contents.⁴⁵
- Water damaged buildings and their contents require thorough and careful clean-up, decontamination and restoration following a flood.⁴⁵
- Allergenic and toxigenic fungi can grow within inundated drywall, insulation, books, carpets and air ventilation systems, and can cause significant health problems to occupants of formerly flooded buildings long after a flood.⁴⁵

3. Tornado

- In areas prone to tornadoes, pharmacies can consider the construction of a “safe room” (according to the International Code Council [ICC] 500 storm shelter standard) within the pharmacy.⁴⁶
- If a storm shelter/certified safe room is part of the pharmacy, it must be easily accessible from all parts of the pharmacy.⁴⁷

- If it is not possible to incorporate a certified safe shelter into the pharmacy, windowless rooms in the basement of the pharmacy can be used as safe-area.
- Having the pharmacy at the lowest level of the building in regions of high tornado activity can be a safeguard.
- Pharmacy directors and managers should contact structural engineers to determine areas within the pharmacy that may provide protection during a tornado.⁴⁶

4. Earthquake

- Earthquake hazard is rated in seismic zoning maps. Depending on the level of expected ground motions, earthquake ground motions should be considered.
- An earthquake can cause significant damage due to the passage of the seismic waves and to ground movements, such as fault rupture (very unlikely), mass movement (landslides), and subsidence due to faulting or liquefaction. The likelihood of these hazards can be assessed in the preparedness phase.
- The passage of the seismic waves can damage the building itself and/or harm operational and functional components (OFCs) such as architectural, mechanical/electrical, and building contents.
- A building can resist the seismic shaking but failure of the OFCs can make it unusable. Examples of these are flooding due to broken water mains and sprinkler systems, falling of building contents, and power failures. Fires are often caused by earthquakes.
- The performance of structural building systems (e.g. seismic force resisting system, building design, quality of construction, irregularities, year of construction) are all important in assessing the seismic resistance of a building. The building should be up to the most recent earthquake resistance standards. If not, retro-fitting may be necessary if the installation is critical.
- Evaluation of the seismic resistance of these systems must be made. In general, all items that may be prone to falling (e.g. shelves, lighting fixtures, etc.) must be secured. Try to keep all heavy items on lower shelves.^{48,49}

5. Winter storm

- Ensure the pharmacy is equipped with battery-powered carbon-monoxide detectors.⁵⁰
- Ensure the pharmacy has backup electricity generators as well as extension cords that are long enough to run to utilities requiring electricity.⁵⁰
- Ensure alternative methods of transportation are available should the storm hit while at work.⁵⁰

6. Hurricane and post-tropical storms

- Hurricane regions can also be prone to flooding; follow the above tips for flooding preparedness.⁵¹
- Hurricanes can cause damage via wind, intense rain and ensuing flooding and storm surge near coasts.
- Wind can cause damage by its force, but also via flying debris.
- Ensure windows have impact-resistant glaze, or are laminated with thin film to prevent shattering of glass upon high wind impact.⁵¹
- If a hurricane is impending, you may also board windows with plywood.⁵¹
- Pharmacies in regions with frequent hurricanes should consider construction of pharmacy with certified storm-resistant windows.⁵¹
- Ensure roofs are inspected frequently and kept up to certification level.⁵¹
- The foundation of the pharmacy may also be bolted to the foundation of the building.⁵¹
- Remove items that may be prone to become flying debris in high winds near and around the outside of the pharmacy.⁵¹
- Consider energy backup generators as power outages are likely.

7. Heat wave

- If air conditioning is available, consider keeping one on hand at all times or constructing central air conditioning in the pharmacy.
- Fans can be used if surrounding air is at a lower temperature than your skin temperature. However avoid using fans if the temperature is greater than 35°C, as it will cause people to feel hotter.⁵²
- Stay out of the heat between 11:00 am and 3:00 pm.⁵²
- Keep cold drinks on hand at all times.⁵²
- Consider replacing window coverings with lighter curtains or blinds to reflect heat absorption.⁵²
- Consider turning off non-essential lighting or electrical appliances that generate heat.⁵²
- If in areas of long-term heat waves, consider external shading of windows using reflective paint.⁵²
- Make sure temperatures of refrigerators are sustained at proper levels to maintain their stabilities, and where possible keep all medicines in a temperature-controlled environment.
- Consider providing a work/rest regimen for all employees to prevent heat stress.⁵²

8. Volcano

- If evacuation is required:
 - Consider transporting essential stock off-site, away from the perimeter of the volcanic activity.
 - Turn off and disconnect appliances, gas, electricity and water before evacuating (if time permits).⁵³
- If evacuation is not required:
 - Ensure all windows and doors are locked.⁵³
 - Turn off all heating and air conditioning systems.⁵³
 - Consider moving all stock to an interior windowless room above ground, with access to a hard-wired telephone.⁵³
 - Ensure there is a working radio to keep up with safety updates.⁵³
- Volcanic ash is a potential risk during and after the volcanic eruption. In preparation:
 - Ensure all staff remain indoors, keeping all windows and vents closed until the ash has settled.⁵⁴
 - Use goggles and dust masks (or a damp cloth) at all times.⁵⁴
 - Protect electronics that might be dust sensitive.⁵⁵
 - If possible, clear roofs of ash if accumulation of more than 10 cm (4 inches) occurs.⁵⁵
 - Be aware of the health hazards associated with volcanic ash.

9. Cold wave

- Power outages are possible. Alternative power system for heating may be required.
- Consider isolating/blocking windows temporarily.
- Consider turning off non-essential electrical appliances that require electricity.

B. General items to consider:

1. Ensure the pharmacy has insurance to cover all (or most) disasters that are probable for the region in which the pharmacy is located.^{33,43} Insurance should cover costs of repairs due to damage caused by specified disasters and cover business continuity considerations.
2. Pharmacy owners should consider installing backup generators in case of emergency to ensure continuity of care and reduce the number of patients being turned away.⁵⁶
3. Post-disaster, pharmacy owners should ensure utilities such as electricity, gas and sewage systems, and professionals should inspect water lines for safety.⁴³

4. Pharmacy managers should consider medicines rationing and prioritisation of prescriptions to mitigate issues if drug shortages occur.⁵⁶
5. Pharmacies should anticipate medicines that are more likely to run out in times of emergency and make arrangements to avoid this.^{19,56}
 - Medicines refills generally surge before disasters strike. Pharmacists should prepare the pharmacy stock in these cases.¹⁰
6. Community pharmacies may consider drawing pharmacists from pharmacy schools where possible
 - Faculty pharmacists/pharmacy university teachers are skilled and readily available in times of emergency and can be flexible with their schedules to provide assistance.^{10,57}
7. Pharmacy directors, managers and owners should prioritise tasks to be completed based on severity of the situation and need of that task.⁵⁸
8. Periodic emergency preparedness drills (practice simulations) are a key to successful response in times of disaster.³⁴
9. Pharmacists should consider keeping an updated list of pharmaceutical suppliers and what each supplier can provide in times of need.¹⁹
10. Health records need to be maintained in times of emergency, while ensuring confidentiality and accessibility. Design record keeping methods to be easy to use with maximum information stored on durable material.⁴⁰
11. If health care cannot be provided (i.e. during limitations of capacity or lack of resources), pharmacists should still provide as much support and information to patients as possible, to prevent patients from feeling abandoned.⁴⁰
12. Times of emergency provide people with opportunities to take part in dangerous or unethical actions; situations and constraints can lead to conflicts among health care personnel.⁴⁰ In these scenarios, pharmacists must:
 - Use professional judgement and maintain quality of care to prevent provision or selling of expired, inappropriate or counterfeit drugs in times of emergency.⁴⁰
 - Maintain confidentiality of patient information.⁴⁰
 - Ensure legal and sincere consent for all acts.⁴⁰
13. Health care personnel may be at risk of violence in times of emergency.⁵⁹
 - This can occur both in and out of the health care facility that personnel may work at.⁵⁹
 - Looting of medical supplies is one of the most common types of violence documented,⁵⁹ and pharmacies should be prepared to safely store medicines while keeping staff out of harm's way.
 - Many incidents may be inflicted by patients or relatives of patients who are distressed.⁵⁹
 - In some cases, working and communicating with armed forces may be necessary to ensure safety of personnel and facilities.⁶⁰
14. Pharmacists must ensure that the quality of all stock being dispensed is appropriate for patient use, and must use professional judgement when medicines have been exposed to elements of disaster:
 - Pharmaceuticals exposed to heat may have reduced effectiveness. Lifesaving medicines must be replaced at the earliest convenience.⁶¹
 - Any medicines exposed to flood water or water of unknown origin can be contaminated and must not be dispensed.⁶¹
 - Medicines that require reconstitution must always be reconstituted using purified or bottled water.⁶¹
 - If electrical power has been lost and refrigeration is not constant, temperature-sensitive medicines can lose their efficacy. If refrigeration is lost for prolonged or unknown durations, these medicines must not be dispensed.⁶¹ Consider alternative storage methods such as a cold storage backup system in case of power loss.
 - Before compounding any medicines, pharmacists must ensure that the compounding area has been properly disinfected post-disaster.⁶²

C. Tasks that pharmacists may take part in during an emergency (other than regular pharmacy related tasks):

1. Triage of patients to assess medication or medical requirements and refer to physicians, or hospitals as needed.^{10,11,14,15}
2. Manage previously prescribed therapies to reduce visits to hospital emergency rooms.^{10,12}
3. Assess injuries of patients presenting to local shelters where pharmacists are stationed.¹⁰
4. Provide information to the community regarding medicines.¹⁰⁻¹²
5. Being alert for any declarations from government or responsible agencies during emergencies and knowing how to stay up to date with the latest news or aid available.

D. Example list of medicines to stock for emergency situations

1. Analgesics, non-steroidal anti-inflammatory drugs (NSAIDs)^{10,63,64}
 - Acetylsalicylic acid
 - Ibuprofen
 - Paracetamol
 - Morphine hydrochloride
2. Anti-Allergic drugs^{10,63}
 - Diphenhydramine
 - Chlorpheniramine maleate
 - Dexamethasone phosphate
3. Anti-infectives^{63,64}
 - Albendazole
 - Metronidazole
4. Antibacterials^{63,64}
 - Amoxicillin
 - Cloxacillin
 - Trimethoprim sulfamethoxazole
 - Tetracycline eye-ointment
5. Antifungals^{63,64}
 - Ketoconazole
 - Miconazole cream
 - Benzoic acid + salicylic acid
6. Antiseptics^{63,64}
 - Chlorhexidine
 - Polyvidone iodine
7. Respiratory tract related drugs⁶³
 - Salbutamol
 - Theophylline
8. Oral rehydration therapy/ Gastrointestinal related^{10,63,64}
 - Zinc sulfate
 - Aluminium hydroxide + magnesium hydroxide
 - Bismuth subsalicylate
 - Calcium carbonate
 - Loperamide

E. Example list of emergency supplies to include in an emergency kit^{6,15,20,30,48,53,58}

1. Blankets
2. Box cutter/knife/pocket knife
3. Bucket
4. Can opener
5. Cell phone/satellite phone with charger or solar charger
6. Dust mask
7. Electrical tape
8. Emergency contact list for utilities (electricity, gas, water)

9. Extra batteries
10. Fire extinguisher
11. First aid kit
12. Flashlight
13. Garbage bags
14. Goggles
15. Hammer
16. Hand-held drug information device or paper-based drug information
17. Local maps
18. Matches
19. Paper/Pen
20. Radio
21. Rope
22. Sanitation supplies
23. Scissors
24. Sleeping bags
25. Drinking water
26. Whistle
27. Strong work shoes

F. Paediatric characteristics and environmental conditions that may increase vulnerability of children^{4,65,66}

1. Increased minute ventilation leading to higher risk of respiratory infections and inhaled agents
2. Increased risk for dehydration and death from vomiting and diarrhoea
3. Increased body surface area leading to increased risk of hypothermia, skin exposure to dermal infections and absorbable toxins.
4. Lower thermoregulation ability leading to lower capacity to cope with extreme temperatures and hypothermia.
5. Malnutrition, lack of water and food
6. Lack of sanitation
7. Lack of health care services including vaccination
8. Overcrowding
9. Loss of shelter
10. Separation from parents or family
11. Pre-existing chronic health conditions

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List of abbreviations

CSR	Clinical study report
DFID, DEC	Department for International Development, Disasters Emergency Committee
DHL	Name of an international express delivery company
EMCT	Essential medicines coordinating team
HAC	Humanitarian action in crises
IHP, HPIC, IFRC	International Humanitarian Partnership, Health Partners International Canada, International Federation of Red Cross and Red Crescent Societies
LLS/SUMA	Humanitarian supplies management system
MoU	Memorandum of understanding
NGO	Non-governmental organisation
OCHA	U.N. Office for Coordination of Humanitarian Affairs
SOP	Standard operating procedure
UNICEF	United Nations Children's Emergency Fund
WR	WHO representative
WHO	World Health Organization

3 Appendix I: Provision of essential medicines in disaster management

PHASE 1

Description	Initial trauma phase, providing the immediate response needs. Depending on the disaster this can represent the first hours to two or three weeks (or longer in conflict situations). The priority is saving lives, preventing disease outbreaks and undertaking detailed assessments of need.	
Needs for essential medicines & vaccines	<ul style="list-style-type: none"> • WHO Interagency Emergency Health Kits (first aid, trauma, surgical, burn etc.). • Smaller kits to take into small towns, rural and peripheral areas. • Tetanus vaccines & other medical supplies and equipment. 	
	Responsibilities and activities	Key issues to remember
Coordinating partner (e.g. WHO)	<ul style="list-style-type: none"> • Identify lead donors and distribution partners and agree protocols (< 2 days). • Appoint pharmacist to lead joint WHO (lead) – UNICEF – ministry of health in-country essential medicines coordinating team [EMCT] (< 2 days). • Establish cold chain, customs clearance and ground logistics formalities (< 5 days). • Identify secure warehousing and implement inventory software (< 5 days). • Issue detailed list of approved essential medicines (< 2 days). • Identify buffer stocks likely to be required (< 5 days). • Establish health cluster (< 5 days). • Coordinate an assessment of detailed needs (for completion < 2 weeks). 	<ul style="list-style-type: none"> • Need to establish in-country list of EMCT contacts. • Access to WR is essential for key international partners coordinating donor country responses. • The identification of pharmacists with local knowledge is essential to support both the EMCT and the principal field based distribution centres. • Appoint suitably senior/appropriately positioned person to enable customs clearance. Review availability of corporate donated services for airport handling/customs clearance (e.g. DHL). • Establish and disseminate via the web WHO/national guidelines for international donors to quality control donations. Take into account local capacity to procure.

	<ul style="list-style-type: none"> Assess logistic supply chain to ensure distribution to disaster area — air/road/sea. 	
<p>Donor partners (e.g. IHP, HPIC, IFRC members etc.)</p>	<ul style="list-style-type: none"> International country-level donor-coordinating bodies need to liaise with each other and HAC Geneva and WHO Country Representative (< 2 days). Establish contact details and agree protocols for working with EMCT (< 2 days). Circulate initial list of essential medicines to potential donors & agree donor country protocols (< 3 days) Prepare and despatch health partners emergency health kits (< 2-5 days). Contact donor country representatives of potential distribution partners (< 2-3 days). Appoint distribution partner to undertake independent in-country audit/assessment. Send an initial assessor to review local arrangements (< 2 weeks). 	<ul style="list-style-type: none"> Immediate liaison with HAC and in-country WR is essential < 24 hours. Need standard broadcast communication and website templates. Arrangements for warehousing and shipping need organising. Ensure that contacts with HAC, regional office and WR are coordinated and in place. Approach principal funding agencies – (e.g. in the UK: DFID, DEC members). Articulation of needs (in standard formats). Float specific appeals for donations of medicines from local manufacturers. (When built, enable the web-based coordinating exchange mechanism).
<p>Distribution/Audit partners (e.g. in-country NGO)</p>	<ul style="list-style-type: none"> Identify medical/pharmacist coordinator and circulate in-country contact details to WHO. Agree protocols for working with EMCT. Identify the immediate additional requirement for essential medicines (< 5 days). Establish communication with health cluster & international (donor) NGOs. Establish MoU with all distribution partners who want to draw on donated medicines. 	<ul style="list-style-type: none"> Need to establish strategic and policy contact with donors through WHO and/or NGO head office/donor country representatives. Assess if the services of the UN Joint Logistic Centre can be justified. Implement tracking mechanisms (LLS/SUMA) to avoid duplication and no gaps. NGOs need to share stocks of medicines which are surplus to their short term need. Establish a specific cluster sub-group for essential medicines (as required).

	<ul style="list-style-type: none"> • Review availability of funding to help underwrite the costs of medicinal donations. • Review cold chain handling and availability of suitable receiving facilities. 	<ul style="list-style-type: none"> • Storage & inventory at point of delivery (warehouse with appropriate conditions). • Take care that the contents of kits are appropriate for the distributing teams.
Government of affected country	<ul style="list-style-type: none"> • Approve free transport of essential medicines for up to 20 weeks with international/flag carrier airlines. • Include donor partners as recipients for fund raising campaigns in donor countries. • Agree to liaise with WHO, OCHA and UNICEF and establish joint EMCT. • Establish programme to manage local donation of essential medicines. • Ensure that customs speedy clearance arrangements are instituted. 	<ul style="list-style-type: none"> • Log and channel all international donations direct from pharmaceutical companies through cluster. • Ensure that any local donations of medicines are coordinated with the EMCT and exclude doctors samples, expired or inappropriate medicines. • Channel local donations through competent bodies — i.e. local hospitals and hire (student) pharmacists to sort stocks. • Coordinate specific appeals for donations of medicines from local manufacturers.

PHASE 2

Description	Immediate relief phase: Three-week to four-month period following a disaster when humanitarian relief is the principal priority — meeting the initial medical requirements of the affected population and avoiding the spread of communicable diseases and scoping the future shape (as required) of essential medicines management.	
Needs for essential medicines & vaccines	<ul style="list-style-type: none"> • Appropriately requisitioned kits to meet specific needs; provision of certain chronic medicines if logistics and supply chains are disrupted. • Broader range of essential medicines to meet specific needs assessment and available medicines — the creation and maintenance of strategic buffer stocks in-country. • Tetanus and other vaccines (e.g. measles) to manage and reduce risk of communicable diseases among camps. 	
	Responsibilities and activities	Key issues to remember
Coordinating partner (e.g. WHO)	<ul style="list-style-type: none"> • Priority is to establish detailed list of required essential medicines and chronic medicines that may be required to prevent a secondary emergency from lack of availability. Circulate the needs to donors (asap). • Review any immunisation programme requirements. • Identify/assess inventories of essential medicines within other warehouses/stores. • Identify the need for training of pharmacists and store keepers. • Identify other skills/resource needs that might be provided by international corporate donors. • Coordinate the exit strategies of emergency teams from medical NGOs. 	<ul style="list-style-type: none"> • Ensure that the remaining stores of medical NGOs are passed on to others upon completion of any programmes. • Ensure close communication is maintained with all health agencies. e.g. immunisation, public health, hospital facilities, etc. • There will be the need to facilitate the field audit trips of international donor agencies. • Undertake ongoing action reviews to ascertain: if there are too many medicines; sufficient supply chains; unmanaged stores of supplies, etc. • Ensure that local and international medical NGOs are aware of the availability of international donations via the WHO and health cluster.

<p>Donor partners (e.g. IHP, HPIC, IFRC members etc.)</p>	<ul style="list-style-type: none"> • Arrange for an agreed programme of donations through the EMCT. • Identify any corporate expertise/resources that could complement donated medicines. • Undertake in-country initial audit of donations and meet Government, WHO and distribution partners (< 3-4 weeks). • Identify any particular unmet needs that might be met through a corporate or medical community CSR initiative. • Establish central inventory of supply chains from various sources in order to avoid duplication and minimise waste. • Implement a web based 'private' network to enable easy communication between donor networks and medical NGOs to: enhance needs assessment and to identify central/dispersed availability of essential medicines. 	<ul style="list-style-type: none"> • Ensure different and complementary roles and responsibilities of coordinating and distributing partners are well understood. • Enable a communication mechanism between all potential in-country NGO recipients. • Establish direct (daily) contact with EMCT, discuss potential donations and confirm all agreed donations by email. • Obtain approval of both ministry of health and WHO via EMCT as well as independent distribution partner. • Agree protocols for the handling, management and distribution of any future potential short dated medicines. • Take care that the contents of kits are appropriate for the distributing medical/paramedic teams.
<p>Distribution/Audit partners (e.g. in-country NGO)</p>	<ul style="list-style-type: none"> • Provide regular feedback on proscribing activity to health cluster & EMCT. • Communicate any particular needs for kits or specialist medicines to coordinating and donor partners. • Support donor partners with funding for programme expense recovery and/or transportation costs. • Provide feedback reports on distribution and coordination of essential medicines (re local stocks and donated medicines) and ensure that local partners are fully qualified and able to dispense medicines provided. 	<ul style="list-style-type: none"> • Maintain communication between donor country representatives/WHO of the distribution partners and donor partners. • Plan exit strategies for departing NGOs and ensure ongoing use of any residual stocks of medicines. • Review procurement to ensure "rational" purchases or use of donations for appropriate and sustainable ongoing medical treatment. • NGOs working in the field should subscribe to common practices regarding the sharing of information, inventory and best practice.
<p>Government of affected country</p>	<ul style="list-style-type: none"> • Communicate with EMCT regarding the need for any ongoing local donations of medicines from individuals and companies. • Determine future plans to assume full responsibility for any health service management undertaken by the international NGO community. • Education programme through the local in-country media re appropriate donations. 	<ul style="list-style-type: none"> • Ensure all warehouse inventories across different Departments/programmes are included in the strategic oversight of stocks by EMCT. • Ensure local donations exclude doctors samples, expired or inappropriate medicines. • Implement an education programme, in cooperation with local/national press, to solicit appropriate in-country donations.

PHASE 3

Description	Reconnection Phase: lasting for two to three months at the point that the international first response community has left and the domestic water and sanitation infrastructure is reconnected and re-enabled. A “spike” in incidence, infections and avoidable morbidity needs to be anticipated and prevented.	
Needs for essential medicines & vaccines	<ul style="list-style-type: none"> • Specific requirements of bilateral consortium programmes for medicines to treat water-borne diseases. • Special requirements as per the particular situation for particular treatments and vaccinations. • Requirement only for medium dated medicines (18 months) that complement and do not conflict with the need to resume local market procurement and distribution of medicines. • 	
	Responsibilities and activities	Key issues to remember
Coordinating partner (e.g. WHO)	<ul style="list-style-type: none"> • Undertake a risk management study and plan a preparedness response to the enablement of restored infrastructure and the lack of availability of key essential medicines. • Identify additional resources required to enable local health system partners to assume over full responsibility. • Identify any particular key vaccines/medicines that cannot be easily procured locally. 	<ul style="list-style-type: none"> • Communicate to local and international medical NGOs the availability of international donations via the WHO under a project collaboration agreement ensuring appropriate distribution, transparency and accountability.
Donor partners (e.g. IHP, HPIC, IFRC members etc.)	<ul style="list-style-type: none"> • Identify potential availability of on-going donor essential medicines programmes. • Establish a bilateral or consortium partnership programme(s) and potential pharmaceutical industry donors to meet immediate need. • Review options to ensure that medicines are provided within a sustainable model with local acceptance of responsibility upon termination. • Maintain the web based ‘private’ network to enable easy communication between donor networks and medical NGOs to: enhance needs assessment and to identify central/dispersed availability of essential medicines. 	<ul style="list-style-type: none"> • Establishing a sustainable exit strategy is an essential priority. • Agree specific and agreed protocols for future programmes. • Communication, communication, communication! • Uphold the drug donation policies and best practice established. • Ensure that donation programmes do not create dependency.

Distribution/Audit partners (e.g. in-country NGO)	<ul style="list-style-type: none"> • Review particular medical programmes to see if delivery could be extended. • Establish any appropriate bi-lateral or consortium partnership arrangements with donor partner(s). 	<ul style="list-style-type: none"> • Plan exit strategies and ensure the on-going use of any remaining supplies. • Review procurement to ensure “rational” purchases or use of donations for appropriate and sustainable on-going treatment. • NGOs working in the field should continue to subscribe to common practices re: the sharing of information, inventory and best practice.
Government of affected country	<ul style="list-style-type: none"> • Ensure standards for usage and waste management are applied in health facilities. • Work with partners to evaluate the overall effectiveness of donations as well as needs identification process. 	<ul style="list-style-type: none"> • Continued availability of government ministers to support and recognise the needs of the international donor community.

PHASE 4

Description	Rehabilitation, Rebuilding and Restructuring Phase: lasting four to 18 months. Priority is to restore the health system post disaster and seeking to scope and implement sustainable changes to improve the health delivery, before full development programme delivery.	
Needs for essential medicines & vaccines	<ul style="list-style-type: none"> • Specific requirements of bilateral consortium programmes procured for the coming six to 24 months. • Special requirements as per the particular situation. • Requirement only for long dated medicines that complement and do not conflict with the need to resume local market procurement and distribution of medicines. 	
	Responsibilities and activities	Key issues to remember
Coordinating partner (e.g. WHO)	<ul style="list-style-type: none"> • Establish and coordinate any longer term interim provision of medicines until local health system partners take over full responsibility. • Identify any particular key vaccines/medicines that cannot be easily procured locally. • Work on building national/local capability for procurement and distribution. • Enable a continuing coordinating process for strategic planning and coordination of essential mechanisms. • Coordinate the exit strategies of larger medical NGOs • Ensure the development and incorporation of lessons learned and best practices within broader lessons learned exercise and evaluation. • Ensure improper donations are safely disposed of and destroyed. 	<ul style="list-style-type: none"> • Arrange feedback consultation exercises/workshops from the whole health cluster body to determine lessons to learn. • Manage the orderly handover of EMCT responsibilities and ensure that inventory management needs are carefully managed. • Ensure that ongoing capacity building programmes are in place for the ongoing management of essential medicines. • Communicate to local and international medical NGOs the availability of international donations via the WHO under a project collaboration agreement ensuring appropriate distribution, transparency and accountability.
Donor partners (e.g. IHP, HPIC, IFRC members etc.)	<ul style="list-style-type: none"> • Identify potential availability of ongoing donor essential medicines programmes. • Establish a bilateral or consortium partnership programme(s) to meet longer term support – i.e. over six months in total. • Review options to ensure that medicines are provided within a sustainable model with local acceptance of responsibility upon termination. • Undertake secondary audit and either confirm details of potential CSR/review initial operations. 	<ul style="list-style-type: none"> • Establishing a sustainable exit strategy is an essential priority. • Agree specific and agreed protocols for future programmes. • Communication, communication, communication! • Uphold the drug donation policies and best practice established. • Ensure that donation programmes do not create dependency.

	<ul style="list-style-type: none"> • Identify corporate or medical community partner organisations. • Maintain the web-based “private” network to enable easy communication between donor networks and medical NGOs to enhance needs assessment and to identify central/dispersed availability of essential medicines. 	
Distribution/Audit partners (e.g. in-country NGO)	<ul style="list-style-type: none"> • Review particular medical programmes to see if delivery should be extended. • Establish any appropriate bilateral or consortium partnership arrangements with donor partner(s). • Provide feedback reports on distribution and coordination of essential medicines (re local stocks and donated medicines) and ensure that local partners are fully qualified and able to dispense medicines provided. 	<ul style="list-style-type: none"> • Plan exit strategies and ensure the ongoing use of any remaining supplies. • Review procurement to ensure “rational” purchases or use of donations for appropriate and sustainable ongoing treatment. • NGOs working in the field should continue to subscribe to common practices re the sharing of information, inventory and best practice.
Government of affected country	<ul style="list-style-type: none"> • Develop scope of work with support of partners to build/restore the national capacity for all functions associated with development, procurement, management of essential medicines. • Ensure standards for usage and waste management are applied in health facilities. • Work with partners to evaluate the overall effectiveness of donations as well as needs identification process. 	<ul style="list-style-type: none"> • Continued availability of government ministers to support and recognise the needs of the international donor community.

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