First Responder Module

Contents

ACRONYMS

ABC	Airway, Breathing and Circulation
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
AWC	Anganwadi Centre
AWW	Anganwadi Worker
CAB	Circulation, Airway and Breathing
CBO	Community Based Organization
CBRN	Chemical, Biological, Radiological and Nuclear
CEWS	Community Early Warning System
cm	Centimeter
CO	Carbon monoxide
CO_2	Carbon dioxide
CPR	Cardiopulmonary resuscitation
CSF	Cerebra Spinal Fluid
CSO	Civil Society Organization
CSO	Civil Society Organization
DCP	Dry Chemical Powder
DFID	Department for International Development
DRR	Disaster Risk Reduction
e.g.	Example given
EC	European Commission
etc.	Etcetera
EU	European Union
EWS	Early Warning System
FA	First Aid
FR	First Responder
GLOF	Glacial Lake Outburst Flood
HP	Himachal Pradesh
HRVA	Hazard Risk and Vulnerability Assessment
ICRC	International Committee of Red Cross
IFRC	International Federation of Red Cross and Red Crescent Societies
IGA	Income Generating Activities
IRC	Indian Red Cross
IV	Intra Venous
km	Kilometer

mm	Millimeter
MSK	Medvedev–Sponheuer–Karnik scale
NDMA	National Disaster Management Authority
NDRF	National Disaster Response Force
NFI	Non Food Item
NGO	Non Governmental Organization
NYK	Nehru Yuva Kendra
O_2	Oxygen
ORS	Oral Rehydration Salt
PFA	Psychological first aid
PHC	Primary health centre
PPT	Power Point Presentation
PSS	Psychosocial support
Q&A	Question and Answer
Rs.	Indian Rupees
SAR	Search and Rescue
SHC	Sub health centre/ Secondary health centre
SHG	Self Help Group
SIDA	Swedish International Development Cooperation Agency
UNDP	United Nations Development programs
UNHCR	United Nations High Commissioner for Refugee
UNISDR	United Nations International Strategy for Disaster Reduction
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
USAID	United States Agency for International Development
WASH	Water, Sanitation and Hygiene Promotion

COURSE DESIGN OF FIRST RESPONDER'S CAPACITY BUILDING PROGRAM

Total number of days: 05

Total number of hours: 23 hours 55 minutes

DAY 1

S.No.	Duration	Topic	Objective
Introductory Session (135 Minutes)			
1.	30 minutes	Introduction to the concept of First Responder – • Who can be a First responder? • Roles and responsibilities of a First Responder!	To have common understanding of first responder approach and the roles and responsibilities of a first responder in a complex situation
2.	30 minutes	Introduction of the participants	Mostly participatory with some guiding presentations
3.		Participatory objective setting exercise	
4.		Briefing the participants about the guiding principles and actual objective of the program	
5		Ice breaking activity and setting the expectations from the workshop and ground rules in a participatory manner	
6.	15 Minutes	Briefing the participants about relevance of Pre/ Post test exercise	Plenary
7.		Actual Pre/ post test	
8.	30 minutes	Disaster situation and scenario in Himachal Pradesh	Presentation
9.	30 minutes	Self-safety and protection during care giving.	Presentation on basic safety guidelines, followed by Q&A and reiteration of each point. Emphasize throughout this session on 'No Heroics'.

S.No.	Duration	Topic	Objective
Disaster Management (415 minutes)			
10.	20 Minutes	Disaster management Terms and their relationship	Question and answers Discussion using Power point animation on flood and fire to understand hazard, vulnerability, disaster and mitigation.
11.	30 Minutes	Introduction to different hazards and understanding roles and responsibilities of a first responder, through participatory training processes.	Basic briefing, followed by discussion in large group, followed reflection and Q&A.
12.	10 Minutes	What is earthquake?	Question and answers,
a.	20 Minutes	Understanding how earthquake happens and related terms. Understanding earthquake zone map of India	PowerPoint presentation
b.	10 Minutes	Do's and Don'ts	Video reinforced with messages
13.	10 Minutes	What is Flood, fact sheet and its causes	Power point presentation, Q&A
14.	10 Minutes	Do's and Don'ts	Video
15	30 Minutes	GLOF, Avalanche and Flash Flood	Presentation on basic concept, reasons of these hazards and impact. His session should have a personal experience sharing followed by Q&A.
a.	10 Minutes	Do's and Don'ts	Presentation
16.	20 Minutes	Landslide fact sheet and its causes	Power point presentation, Q&A
a.	10 Minutes	Do's and Don'ts	Video followed by discussion

DAY 2

S.No.	Duration	Topic	Objective
Day 2 (260 Minutes)			
17.	10 Minutes	Fire Accident fact sheet and its causes	Power point presentation, Q&A
a	10 Minutes	Do's and Don'ts	Video followed by discussion
18.	5 Minutes	Mass Casualty fact sheet and its causes	Power point presentation, Q&A
a.	15 Minutes	Road accident (the most common mass casualty)	Power point presentation, Q&A
b.	10 Minutes	Do's and Don'ts	Presentation followed by discussion
19.	90 Minutes	Basics of Early warning system. Basics of early evacuation and community mobilization. Role of a First Responder in reading the early warning signs and responding accordingly.	Classroom method, followed by demonstration and a situational simulation.
20.	60 Minutes	Role of a first responder in relief during an emergency; in relation to – • WASH • Shelter • Distribution and food and non food items	Classroom method, followed by example sharing, reiteration of important messages and QA.
21.	120 Minutes	Group work on responding to a disaster by a first responder	The group will be divided into 4 sub groups and each group will be given to prepare response mechanism in a community for – • Earthquake • Flash flood as a result of GLOF • A small scale fire accident in the community; and • A road accident with mass casualty*

Each group will have 75 minutes to prepare and 5 minutes to present. This will be followed by a participatory appreciation and correction session. The facilitators will play a major role in the last part of the session by emphasizing on the key actions by a first responder.

Group one: specialized training in Light Search and Rescue

S.No.	Duration	Topic	Objective
Light search and rescue (540 minutes)			
Day three (300 minutes)			
22.	30 Minutes	What is search and rescue?	Brainstorming, participatory session, followed by delivery of correct messages
23.	90 Minutes	Roles of a first responder in a light search and rescue mission.	PowerPoint presentation followed by scenario building and participatory group discussion, followed by presentation and mutual correction. Group work to establish the mutual roles of a team if FR in a light SAR mission.
24.	60 Minutes	Dos and Don'ts of a first responder in a light search and rescue mission	Brainstorming, followed by group debate and delivery and reiteration of correct messages.
25	120 Minutes	Prioritization of cases based on the principles of triaging	Explaining triage with help of PowerPoint presentation and printed papers, followed by situation wise prioritization through group work, presentation of the same in groups and mutual corrections.

S.No.	Duration	Topic	Objective
Day four (270 minutes)			
26.	120 Minutes	Transporting injured people to the nearest health facility or to safety	Power Point presentation about basic carrying practices. Demonstration and re-demonstration of different carrying practice for different kind of complications.
27.	120 Minutes	Using locally available materials for turning them into useful rescue gears.	Example building, brainstorming in a group. Demonstration and re-demonstration of different kind of knots. Group game for using locally available materials to respond to different complex scenarios.
28.	25 Minutes	Post Test Questionnaire	Individual exercise
29.	05 Minutes	Closure of the training	

Group Two: Specialized training in Emergency First Aid

S.No.	Duration	Topic	Objective
Emergency First Aid (600 minutes)			
Day four (330 minutes)			
22	20 Minutes	Short introduction to First Aid.	Classroom training, brainstorming sharing experiences, storytelling and Q&A
23	20 Minutes	Golden Rules Of First Aid	Classroom training, brainstorming sharing experiences, storytelling and Q&A
23	20 Minutes	Basics of rapid response	Classroom training, brainstorming sharing experiences, storytelling and Q&A
25	15 Minutes	Introduction with basic body parts useful in first aid	Classroom training, brainstorming/ group work and Q&A
26	15 Minutes	Important body functions – Circulation and Respiration.	Classroom training, brainstorming/ group work and Q&A
27	30 Minutes	Situational assessment	Classroom training and Q&A
28	45 Minutes	Casualty assessment	Classroom training and Q&A
29	45 Minutes	Assessing and managing vitals	Classroom training and Q&A
30	120 Minutes	Basic Life Support (resuscitation)	
a.	30 Minutes	First aid in Airway Obstruction	Classroom training, sharing experiences, film and Q&A
b	30 Minutes	What is Recovery position?	Classroom training, sharing experiences, film and Q&A
c.	60 Minutes	Principles and practice of Cardio Pulmonary Resuscitation	Classroom training, sharing experiences, film and Q&A

S.No.	Duration	Topic	Objective
Day five (300 minutes)			
31	90 Minutes	First aid in burns, scalds and bleeding.	Classroom training, sharing experiences, storytelling, video and Q&A
32	90 Minutes	Signs and symptoms plus First aid in - head and spinal injuries and injuries of extremities.	Classroom training, sharing experiences, storytelling, video and Q&A
33	90 Minutes	Actions in first aid for common problems – fractures, poisoning, bites, dehydration	Classroom training, sharing experiences, storytelling, video and Q&A
34	25 Minutes	Post Test Questionnaire	Individual exercise
35	05 Minutes	Closure of the training	

MODULE 1

Introduction to the concept of First Responder

Who can be a First responder?
Roles and responsibilities of a First Responder

Objective of this session - To have common understanding of first responder program and the roles and responsibilities of a first responder

Session Plan

Time	Topic	Methodology
15 Minutes	Who can be a first responder?	Classroom training through PowerPoint presentation
15 Minutes	What are the roles and responsibilities of a first responder?	Classroom training through PowerPoint presentation

Classroom training through PowerPoint presentation

- First responders will agree to be available on a short notice for community services
- Meet community-identified needs (community knows the best and provides best solutions for any problem for that particular community)
- Anyone from the community with enthusiasm and acceptance in the same community can become a first responder by completing the full training program. However, this training program will specifically target the frontline service providers and local volunteers organized through a mechanism or institution.

Criteria for selecting participants for this program

- Community frontline workers and other civil society or local collectives' personnel who have desire to serve community at the time of any emergency and have enough time to participate in training programs on first aid, search and rescue, disaster management etc.
- These people may include but do not limit to; Anganwadi workers, Anganwadi helpers, ASHA workers, ANM, NYK, Rotary club and Red Cross volunteers, Home guards, NGO

outreach workers etc.

• After receiving training these personnel will receive a certificate of completion of training from the training imparting authority.

Roles and responsibilities of first responders

• The first responders will be a link between the local authorities and community, primarily during disaster or any other emergency.

• As part of their local community team, first responders will carry out a quick assessment, develop community level planning for early warning and evacuation, ensure people's safety during an emergency, help in search and rescue, provide basic first aid services etc.

• A first responder will always take care of each other's safety and uphold the community's well being in the times of disaster.

• A first responder must provide assistance to all in need without asking or discriminating upon, based on caste, creed, religion, proximity, age, medical condition etc.

• A first responder will support in light search and rescue and will not undertake a full fledged search and rescue operation on their own; as this training does not offer to prepare then for a full search and rescue operation.

• A first responder in not a replacement to a public health service worker, a paramedic or a trained and certified first aider; however the first responders are expected to stabilize the patients in absence of trained and authorized personnel and bring them to safety under guidance of a trained service provider.

• A first aider must practice the principle of 'Do No Harm' at all times.

• The first responders will keep records on activities and report all their activities in this capacity with relevant local authorities.

Key Content

1. First responders are those members of the affected community who have survived, willing and capable to help others and trained to help the shocked, injured and trapped victims and are already near the scene of disaster. It is their timely help and services that can reduce the suffering and recovery period substantially e.g. If a person is bleeding a timely dressing can reduce blood loss, can make a lot of difference to the suffering and reduce re-

covery period significantly. If community people (especially the frontline service providers) are trained and imparted with skill of First aid, tracing, light search and rescue, early warning and evacuation; can make a lot of difference in the quality of services rendered.

2. It is pivotal to invest in first responders; as it would reduce the suffering of people at the community levels. Have more disaster preparedness at the community and in turn make the community more resilient to disasters and emergencies.

3.First responders are not one-time responders; they live in the community, represent the community and an active part of community's daily life. They are respected, deemed useful and carry specific important responsibility. They also act as a bridge between the community and either public services, local governance or civil society.

4. First responders go out into their own community and put what they have learnt into action. As they gain more and more experience of working with the community, they will bring that experience back into the classroom to share with others.

5. This is the learning by doing method: learn in the classroom, do in the community and bring back and share your experience with peers.

6.A first responder must –

a) Understand and represent the community

b) Be attentive to the needs; especially at the time of emergency of his/ her com munity at all times.

c) Ready to help others, including those requires special attention

d) Be accessible to take responsibility in times of disaster or conflict

e) Be fully informed about the 'Do no harm' principles

f) Record and report their activities during an emergency.

g) Communicate and cooperate with others working for/ in the same community.

Objectives of the training program

Introduction of the participants

Objective of this session -Give participants a chance to get to know each other and get comfortable with interacting together.

Session plan

Time	Topic	Methodology
10 Minutes	Get to know each other	Form pairs and introduce each other

Key Messages

1. Know the group you are working with
2. Helps to allocate work when you know interests, strengths and weakness of people working with you.

Activity

1. Each participant to select a partner, ideally someone they do not know, and ask about him/her
2. Introduce his/her partner to the group
3. Group can ask one question to the person who is being introduced

Participatory objective setting exercise

Objective of this session -To develop understanding of training program objectives and identify expectations from the training program and set ground rules for the entire program.

Session plan

Time	Topic	Methodology
5 Minutes	Participatory objective setting exercise	Q & A
10 Minutes	Briefing the participants about the actual objective of the program	Classroom training through PowerPoint presentation
5 Minutes	Ice breaking activity and setting the expectations from the workshop and ground rules in a participatory manner	Board game / polling booth

Key Messages

1. What are the objective of the training program
2. How expectations of participants will be addressed in the training program
3. What are the session in the training program and how they will address participants expectations

Topics for Discussion

1. Introduction of the master trainers and the facilitators and their background. This will ensure the credibility of the training and the trainers must deliver some of their life stories from emergency response to allow flow of discussion and set the one.
2. First responders are being trained across the state. These people would be equipped to respond to any emergency situation. This will give the first responders a sense of being a part of a state wide initiative and motivate further to deliver their best.
3. Overview of the sessions of the course for each day (as per the session plan).
4. The objective of the workshop to be spelled out by the participants; however the pro-

cess will be guided by the trainers and they should be skilled and practiced to direct the participants to arrive near the set objectives of this program.

5. Each table will be asked to write down set of rules they would like to observe which will facilitate smooth implementation of training program

6. Facilitator will write down agreed rules on flip chart and paste it on wall. If any one breaks the rule, training team will remind the group to observe the rules, which they made.

Actual objective of the training program:

- To enhance potential first responders' knowledge and skills of emergency preparedness and response.
- To identify potential people from within the pool of the first responder that could be trained in advanced 'light search and rescue' or 'Emergency First Aid'.
- To create a local cadre of first responder, equipped with skills on essential response skills during an emergency.
- To create a voluntary cadre of district disaster management authority at the community level.

Pre Test

Objective of this session -To assess the knowledge of participants before the training program and identify change in the knowledge after the completion of this training program

Session plan

Time	Topic	Methodology
05 minutes	Briefing the participants about relevance of Pre/ Post test exercise	Plenary
25 Minutes	Actual Pre/ post test	Classroom training through PPT

Key Messages

1. Importance of pre-test and post test ad how it affects certification and future deployment.

Contents

1. Each participant to complete a questionnaire. This will help to assess his/her current knowledge about training modules.
2. At the end of the training program, same questionnaire will be provided to the participants. This will help to assess change in the knowledge gained during the training program.

First Responder Training Course

From Date: .....to.....

Pre/ Post Test Questionnaire

Name of the participant : .....

Address : .....

State/ District : ...../ .....

Contact Number : .....

Email : .....

1. What is the full form of ABC in First Aid to deal with causality?

_____

_____

_____

2. What are the roles of a first responder in evacuating people in a flash flood situation?

_____

_____

_____

3. Who can be a first responder in a community?

_____

_____

_____

4. What are the main hazards in Himachal Pradesh?

_____

_____

_____

5. What is the difference between hazard and disaster?

_____

_____

_____

6. What are the triage colors and what are meaning of any 02 of them?

_____

_____

_____

7. What are Drop – Cover – Hold and which hazard is linked to this message?

_____

_____

_____

8. What is 'light search and rescue' and why it is necessary for the first responder to know about it?

_____

_____

_____

9. Should we try to rescue the most difficult to rescue people first – justify your answer?

_____

_____

_____

10. What is the difference between flood and flash flood?

_____

_____

_____

11. What is an Early Warning System and Evacuation plan?

_____

_____

_____

12. What are the roles of a first responder in an emergency situation?

_____

_____

_____

Exmained By

Verified By

Disaster and emergency situation in Himachal Pradesh

Objective of this session -To know and understand the risks and vulnerabilities of people of India and Asia in general and Himachal Pradesh in specific, in relation to natural disasters.

Session plan

Time	Topic	Methodology
30 minutes	Situational briefing of disaster portfolio in Asia and India and the risk and vulnerabilities of Himachal Pradesh in relation to natural disasters.	Fact sheet presentation/ Video clip/ followed by personal experience sharing and participatory discussion.

Key Messages

1. India as a country is vulnerable in relation to natural disaster due to its diverse terrain, complexity of problem, poor infrastructure, scale of damage and huge number of people affected.
2. Himachal Pradesh is prone to Earthquake, flood, flash flood, landslide, avalanche, forest fire, road accidents and other hazards.
3. The terrain of the state pose significant challenges to even the most trained group of responders to reach out and provide service during a disaster; which makes the roles of first responders, very important in saving lives and minimizing loss.

Content

Natural disasters in India, many of them related to the climate of India, cause massive losses of Indian life and property. Droughts, flash floods, cyclones, avalanches, landslides brought on by torrential rains, and snowstorms pose the greatest threats. Earthquakes, flooding, volcanic eruption, landslides, hurricanes etc might cause a natural disaster. In order to be classified as a disaster it will have profound environmental effect and/or human loss and frequently incurs financial loss*.

India is vulnerable, in varying degrees, to a large number of disasters. More than 58.6 per cent of the

* Goswami BN, Venugopal V, Sengupta D, Madhusoodanan MS, Xavier PK (2006). "Increasing trend of extreme rain events over India in a warming environment". Science. 314 (5804): 1442–1445.

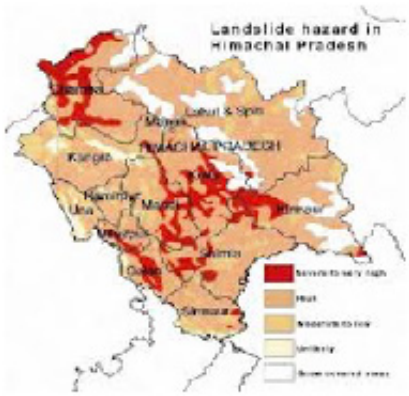
landmass is prone to earthquakes of moderate to very high intensity; over 40 million hectares (12%) of its land is prone to floods and river erosion; close to 5,700 kms, out of the 7,516 kms long coastline is prone to cyclones and tsunamis; 68% of its cultivable area is vulnerable to droughts; and, its hilly areas are at risk from landslides and avalanches. Moreover, India is also vulnerable to Chemical, Biological, Radiological and Nuclear (CBRN) emergencies and other man-made disasters.

Disaster risks in India are further compounded by increasing vulnerabilities related to changing demographics and socio-economic conditions, unplanned urbanization, development within high-risk zones, environmental degradation, climate change, geological hazards, epidemics and pandemics. Clearly, all these contribute to a situation where disasters seriously threaten India's economy, its population and sustainable development*. (Please see the earthquake and flood hazard maps in the respective sections).

The state of Himachal is prone to various hazards both natural and manmade. Main hazards consist of earthquakes, landslides, flash floods, snow storms and avalanches, draughts, dam failures, fires – domestic and wild, accidents – road, rail, air, stampedes, boat capsizing, biological, industrial and hazardous chemicals etc. The hazard, which however, poses biggest threat to the state, is the earthquake hazard.

The State has been shaken by more than 80 times by earthquakes having a magnitude of 4 and above on the Richter scale as per the recorded history of earthquakes. As per the BIS seismic zoning map five districts of the State, namely Chamba (53.2%) Hamirpur (90.9%), Kangra (98.6%), Kullu (53.1%), Mandi (97.4%) have 53 to 98.6 percent of their area liable to the severest design intensity of MSK IX or more, the remaining area of these districts being liable to the next severe intensity VIII.

* NDMA – India Vulnerability profile - http://www.ndma.gov.in/en/vulnerability-profile.html



Two districts, Bilaspur (25.3%) and Una (37.0%) also have substantial area in MSK IX and rest in MSK VIII. The remaining districts also are liable to intensity VIII.

Unfortunately, in spite of the probable maximum seismic intensities being high, the house types mostly fall under Category A, consisting of walls of clay mud, un burnt bricks or random rubble masonry without any earthquake resisting features. Now all such houses are liable to total collapse if intensity IX or more actually occurs in future and will have severe damage called "destruction" with very large cracks and partial collapses even in Intensity VIII areas. Also, the burnt-brick houses, classified as Category B, as built in Himachal Pradesh do not have the earthquake resisting features, namely good cement mortar seismic bands and roof typing etc. therefore, they will also be liable to severe damage under intensity IX as well as in VIII when ever such an earthquake would occur. This became quite evident even in M 5.7 Dharamshala earthquake of 1986.

Another form of the natural hazards in the state is the frequent occurrences of landslides. The hills and mountains of Himachal Pradesh are liable to suffer landslides during monsoons and also in high intensity earthquakes. The vulnerability of the geologically young and not so stable steep slopes in various Himalayan ranges, has been increasing at a rapid rate in the recent decade due to inappropriate human activity like deforestation, road cutting, terracing and changes in agriculture crops requiring more intense watering etc. Although widespread floods problems do not exist in the state because of topographical nature, continuing attention is necessary to reduce flood hazards in the state, more particularly the

flash flood hazard the incidences of which are increasing causing large-scale damage. Besides, with the increase of road connectivity and number of vehicles plying on these roads in the State, the number of road accidents and loss of precious human lives is increasing day by day.

Over the years the forest wealth of the State is being destroyed by the incidences of fire attributed to both anthropogenic and other reasons. The destruction of rich flora and fauna of the State due to forest fires will have serious repercussions on the ecological balance of the State. Besides, domestic fire incidents cause loss of property every day.

Hundreds of people are killed and many more injured in road accidents every year. Few parts of State have rail network also. That makes the state prone to rail accidents too. Pong, Bhakara and Chamera are the three large water reservoirs in the State. These reservoirs besides other river courses are used in the state for transportation purpose also. There is always possibility of boat capsizing during these transport activities. The cases of drowning and washing away in rivers/streams are very common in the State. Cases of snakebite and electrocution are significant during monsoon season*.

* State Disaster Management Authority of Himachal Pradesh – Hazard profile of the state - http://www.ndma.gov.in/en/himachal-pradesh-sdma-office

Self safety and protection during care giving

Objective of this session -After this session the first responders will be able to understand the importance of self-safety and how to keep safe all times during an emergency operation.

Session plan

Time	Topic	Methodology
30 minutes	Self-safety and protection during care giving.	Classroom training, sharing experiences, storytelling, video and Q&A

Key Messages

1. Control your emotions and don't over indulge.
2. No heroics during an operation
3. No compromise with your safety gears and procedures
4. Seek help from your fellow responders if you feel so.
5. Don't underestimate emotional or psychological burdens.

Content

Being a first responder it is utmost necessary that you must maintain your good health and safety at all time. Many times a first responder stretches its own limits and end up being a liability to the team after sometimes. The following points must be remembered and adhered at all times to ensure maximum safety of self and uninterrupted operation at the ground.

Responding to crises is more often than not an emotionally and physically challenging experience for everyone involved, regardless of which area of response they are involved in. This is especially so in the immediate aftermath of a crisis, but can also continue in a long-term response. Red Cross Red Crescent volunteers and staff who are part of the population directly affected by the crisis or critical event may have experienced loss of loved ones and loss of place themselves. Other responders who have come to help from other areas or countries are often away from their families and usual support networks. A common experience of all responders is that the initial enthusiasm and motivation to assist is chal-

lenged, as the work is more demanding, both emotionally and physically, than they were prepared for. They may experience sleep deprivation, anxiety over whether the help they are giving is adequate, frustration over things not happening the way they hoped they would and sadness or emotional reactions to the suffering witnessed. It is important to ensure that FRs are cared for and are offered the physical and psychosocial interventions.

Three aspects must always be taken care off –

1. Preparedness

a. Be well trained and adhere your training by words.
b. Be prepared – keep your go bag ready, keep your first aid kit well replenished, keep checking equipment etc. at least once a month (like strength of the roles etc.).
c. Adhere to the universal precautions and guidelines during an emergency.
d. Make sure that the protective gears are up to date and not compromised.
e. Have a well-established channel of communication and respect it.
f. Decide on a team leader from amongst the first responders in a community (this person should be the most experience and most accessible).
g. The situational assessment team should be decided beforehand and this team should be able to take a decision on transfer of medical emergency cases ad search and rescue cases. This group should involve the most experience and mature persons from the group; as decision taken by this group may put everybody in danger.

2. Physical well being

a. No heroics
b. If assessment shows an unknown risk – don't respond
c. If assessment shows a heightened level of risk – don't respond
d. If you do not feel up to the mark – don't respond
e. Check your gears and the clothing often – any breach in that may put you in danger.
f. When handling injured patients be adhered by the universal precaution rules and make sure that you don't end up catching an infection.
g. Beware of the sharp edges and object while rescuing or providing medical assistance to people.

h. If you feel tired, inform the team leader and take rest. Your stretching beyond limit will end up making it two sick people.
i. Don't forget to carry the essentials tools and medicines for your protection
j. Don't avoid any medical condition

3. Psychological well being

a. Do try to keep your life as normal as possible.
b. Do let the beneficiaries talk about their emotions and express themselves in games and drawings.
c. Do allow yourself to be part of a group of people who care.
d. Don't bottle up feelings.
e. Don't avoid talking about what happened with other FR
f. Don't expect the memories to go away – the feelings will stay with you for a long time to come
g. Don't wait to share your burn out status with the team leader

4. General well being, awareness and acceptance

a. Do take time out to sleep, rest, think and be with those important to you.
b. Do drive more carefully
c. Do be more careful around in the community
d. Do take every opportunity to review the experience.
e. Don't expect the beneficiaries to understand you in the emergency situation
f. Don't judge people
g. Don't pass any remark or comment which are generic in nature
h. Don't sympathize with the community – they need your empathy and compassion

MODULE 2

Introduction to disaster management

Objective of this session - To make participants understand disaster management terminology.

Session Plan

Time	Topic	Methodology
20 minutes	Disaster management Terms and their relationship	Question and answers Discussion using Power point animation on flood and fire to understand hazard, vulnerability, disaster and mitigation.

Key Messages

Hazard, vulnerability, capacity and risk/disaster are interrelated terms. Elimination of hazard, reduction in vulnerability and increase in capacity of the communities can reduce the impact or even can prevent disaster.

Content - Definitions

Hazard: A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
Example: Cyclone, Earthquake, Drought, etc.

Vulnerability: The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.
Example:

1. Houses on coast in cyclone prone area.
2. Villages situated in flood prone area.

Disaster: A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Risk: The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Capacity: The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals
Mitigation – The lessening or limitation of the adverse impacts of hazards and related disasters.

Mitigation Measure: Measures aimed at reducing the risk, impact or effects of a disaster or threatening disaster situation.
Disaster risk reduction – The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, reduced vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Early warning system – The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.

Preparedness – The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from the impacts of likely, imminent or current hazard events or conditions.

Prevention – The outright avoidance of adverse impacts of hazards and related disasters.

Public awareness – The extent of common knowledge about disaster risks, the factors that lead to disasters and the actions that can be taken, individually and collectively, to reduce

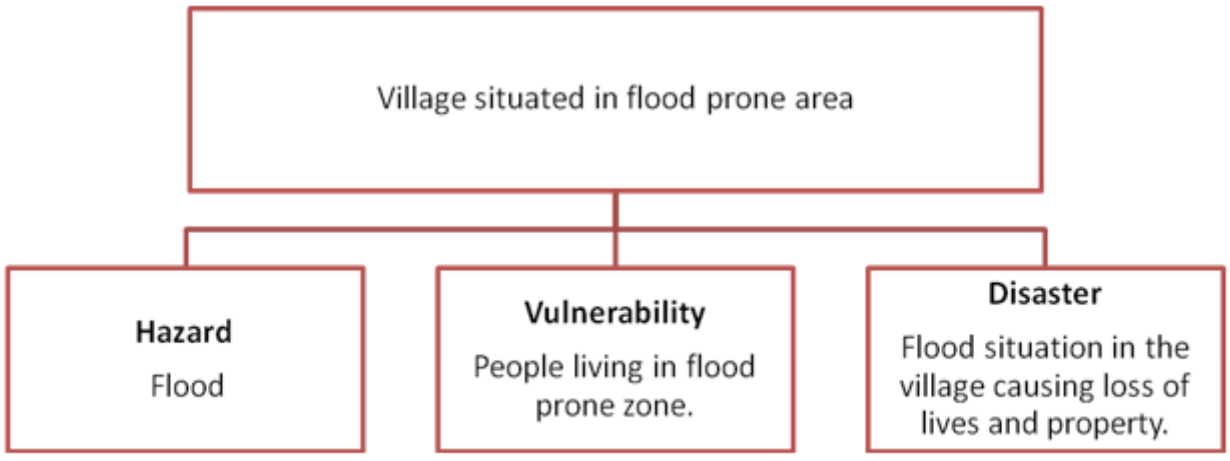
exposure and vulnerability to hazards.

Resilience – The ability of a system, community or society exposed to hazards to resist, absorb, adapt to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions; the positive side of vulnerability.

Risk – The probability of an event and its negative consequences. Vulnerability – The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Relationship between various terms:

Example:



Different disaster contexts and comparative study of these contexts to understand the needs of affected people

Objective of this session - To make participants understand that each disaster context is peculiar in nature and requires tailor made response to address needs of the affected people.

Session Plan - Specific session plan in relation to each hazard element is given in each section. Facilitator should choose the relevant disasters from the content below for FR training based on the hazard profile and vulnerability of a particular geography district/state.

Basic and Common Content

Role and responsibilities of First responders in a Disaster Response

- Always be prepared to respond to any incidence posing threat to life of people using FR skills.
- Do your best to preserve life of individuals before the medical assistance has reached.
- Keep your knowledge updated
- Participate in refresher courses and mock drills
- Get familiar with the District/ Block Disaster Response/Contingency Plans
- Ensure that your contact details are updated at a state/ central database

Maintenance of the First Responders

- District Disaster Management Authorities may organise refresher course for FRs. FRs should ensure that they participate in these trainings to refresh their knowledge.

Communication

- In times of disasters information sharing is a challenge. The First Responders should gather information from all the available secondary sources about the occurrence of di-

saster /incident and act immediately.
- The gathered information should be shared with the fellow FRs through the available means as well as with the local government officials.
- First Responder Service component

Following are the service components of First Responders

-First Aid
- Light Search and Rescue
- Psychosocial support
- Support in Evacuation
- Transportation of the injured to safety

First Responders' Tools

FRs will be using following tools to deliver services as a first responder and at the later phase of the operation:

- First Aid kit
- Visibility vest/ jacket etc.
- Safety gear; especially for search and rescue

Earthquake

Session Plan

Time	Topic	Methodology
10 Minutes	What is earthquake?	Question and answers,
20 Minutes	Understanding how earthquake happens and related terms. Understanding earthquake zone map of India	PowerPoint presentation
10 Minutes	Do's and Don'ts	

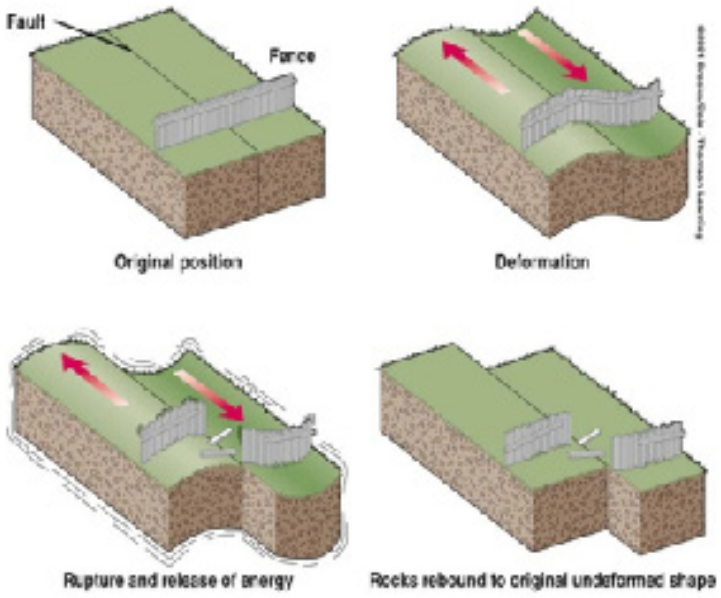
Content

What is Earthquake?

An earthquake is a series of vibrations on the earth's surface caused by the generation of elastic (seismic) waves due to sudden rupture within the earth during release of accumulated strain energy.

Tectonics plate's theory:

North America and other continents seem to stay at the same location year after year. Actually however continents are moving slowly in relative to one another. In the past 200 million years the contents have moved. The theory of tectonic plates accounts for this move. According to this theory, the continents and ocean floors are part of around 30 plates. Each plate partly consists of crust (the outermost layer of the earth), partly of mantle (a thick layer of hard rocks), the plates slide on asthenosphere. The layer of mental is so hard that it floats even though it is solid. 200 million years ago continents were part of single land mass called Pangaea. Pangaea broke apart in two parts viz. Laurasia and Gondwanaland. Intern Lauracia and Gondwanaland broke apart. One piece of Gondwana land i.e. India joined Asia. [Play Video]



How energy is stored in rocks and released?

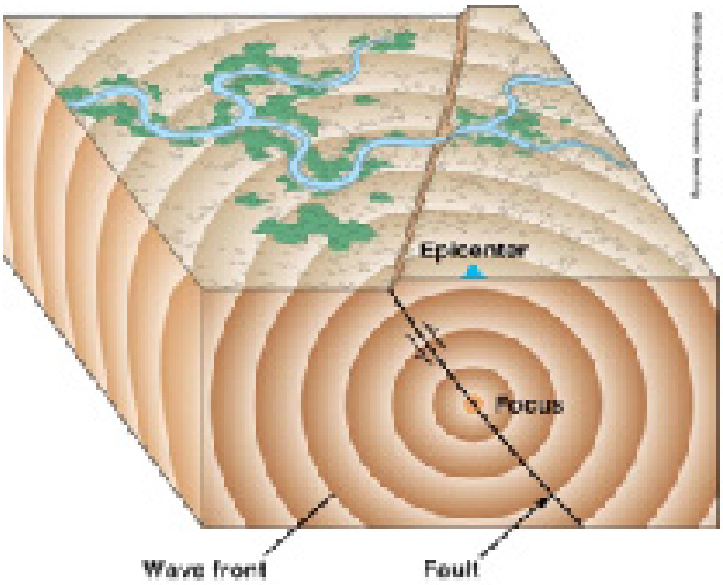
• When plates moves, rock along the fault line bend until the strength of the rock is exceeded.
• Rupture occurs and the rocks quickly rebound to an un-deformed shape
• Energy is released in waves that radiate outward from the fault

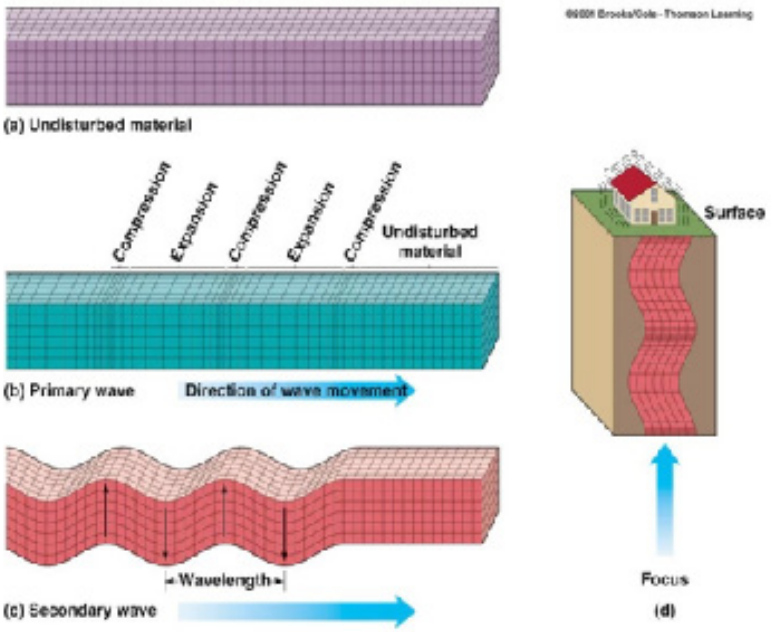
What is focus? -
The point within Earth where faulting begins is the focus, or hypocenter

What is epicentre?
The point directly above the focus on the surface is the epicentre

What are Seismic waves?

Seismic waves are the waves of energy caused by the sudden breaking of rock within the earth or an explosion. They are the energy that travels through the earth and is recorded on seismographs.


Epicenter
Focus
Wave front
Fault


(a) Undisturbed material
Compression
Expansion
Compression
Expansion
Compression
Undisturbed material
(b) Primary wave
Direction of wave movement
Wavelength
(c) Secondary wave
Surface
Focus
(d)

Types of Seismic Waves:

The two main types of waves are body waves and surface waves. Body waves can travel through the earth's inner layers, but surface waves can only move along the surface of the planet like ripples on water. Earthquakes radiate seismic energy as both body and surface waves.

Body waves:

Traveling through the interior of the earth, body waves arrive before the surface waves emitted by an earthquake. These waves are of a higher frequency than surface waves.

P or Primary waves
- These are fastest waves.
- Travels through solids, liquids, or gases
- These are Compressional wave which moves material in the same direction as wave movement.

S or Secondary waves
- These waves are slower than P waves.
- S waves travels through solids only.
- These are shear waves, which moves material perpendicular to wave movement.

Surface waves

- Surface waves travels just below or along the ground surface.
- These are slower than body waves and as rolling and side to side movement.
- These waves especially damages buildings.

Earthquake Hazard zoning of India:

- Zone 5 covers the areas with the highest risks zone that suffers earthquakes of intensity MSK IX or greater. The state of Kashmir, Punjab, the western and central Himalayas, the

Northeast Indian region and the Rann of Kutch fall in this zone.

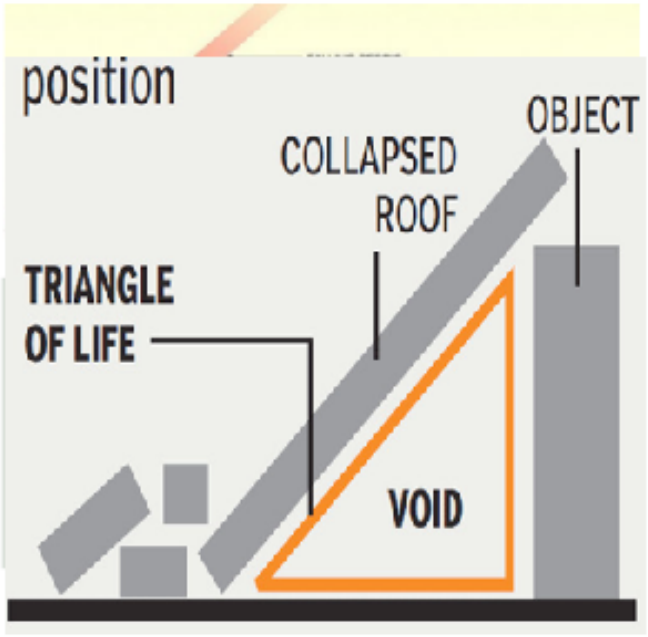
- Zone 4 is called the High Damage Risk Zone and covers areas liable to MSK VIII. The Indo-Gangetic basin and the capital of the country (Delhi), Jammu and Kashmir falls in Zone 4. In Maharashtra Patan area (Koyananager) also in zone 4. However, East Delhi or the Yamuna side Delhi is considered to be a earthquake prone area.

- Zone 3 is classified as Moderate Damage Risk Zone, which is liable to MSK VII. The Andaman and Nicobar Islands, parts of Kashmir, Western Himalayas fall under this zone.

- Zone 2 is liable to MSK VI or less and is classified as the Low Damage Risk Zone.

Do's and Don'ts

1. If you are in your house then stay there without panicking and drop down under the strong table. Cover your head with one hand and hold on to the table with the other. DROP – COVER – HOLD.
2. If you are on your bed or in the school then you can use pillow or school bag to cover your head.
3. If you are outside then stay away from the buildings, trees, electric pole and other such tall fixtures.
4. If you are in a vehicle then park your vehicle on the side of the road and go to an open place.
5. Never use an elevator during the earthquake. You may use the stairs. But be careful and do not panic.
6. During the earthquake things may fall or break but don't be afraid.
7. You must also check yourselves for scratches or wound after the earthquake.



Recently, a new theory called 'Triangle of Life' came into existence and challenged the age – old 'Drop – Cover – Hold' theory.

According to Triangle of life theory - when buildings collapse, the weight of the ceilings falling upon the objects or furniture inside tends to crush them, but the height of the object that remains acts as a kind of roof beam over the space or void next to it, which will tend to end up with a sloping roof over it. This space for survival is termed as 'the triangle of life'. The larger and stronger the object, the less it will compact; the less it compacts, the larger the void next to it will be. Such triangles are the most common shape to be found in a collapsed building, which may help save lives.

One other major difference is – this theory does not promote climbing down the stairs as the stairs and the building shakes in different frequencies and might crush the climber between the gaps.

However, this theory faced major controversy, as most of the injuries and fatalities happen in an earthquake, from falling objects and this model does not provides any protection against falling objects.

Flood

Session Plan

Time	Topic	Methodology
10 minutes	Flood fact sheet and its causes	Power point presentation, Q&A
10 minutes	Do's and Don'ts	

Content

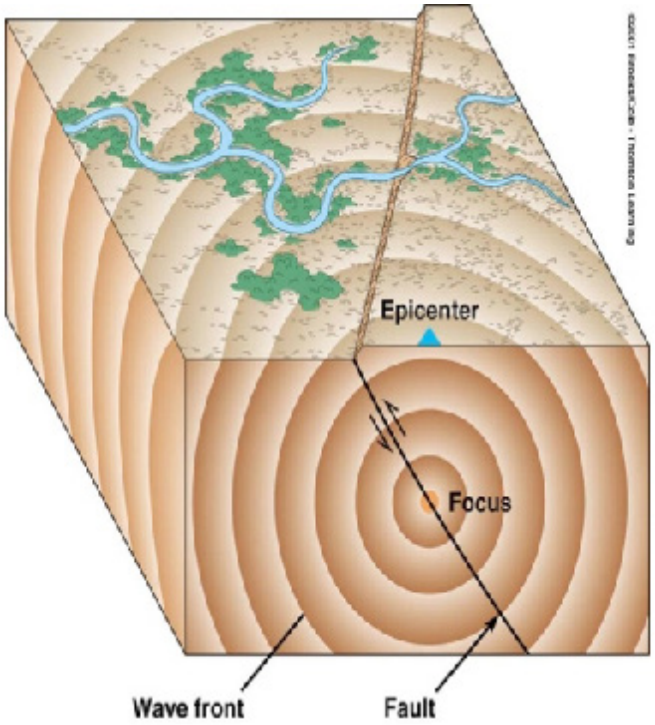
Facts:

Floods have been a recurrent phenomenon in India and cause huge losses to lives, properties, livelihood systems, infrastructure and public utilities.
India's high risk and vulnerability is highlighted by the fact that 40 million hectares out of a geographical area of 3290 lakh hectares is prone to floods.
On an average every year, 75 lakh hectares of land is affected, 1600 lives are lost and the damage caused to crops, houses and public utilities is approximately Rs. 1805 crores, due to floods*.
The frequency of major floods is more than once in five years.
Floods have also occurred in areas, which were earlier not considered flood prone.

Causes of Flood:

Eighty per cent of the precipitation takes place in the monsoon months from June to September. The rivers bring heavy sediment load from the catchments. These, coupled with inadequate carrying capacity of the rivers are responsible for causing floods, drainage congestion and erosion of river – banks.
Cyclones, cyclonic circulations and cloud burst cause flash floods and lead to huge losses.
The fact that some of the rivers causing damage in India originate in neighboring countries, adds another complex dimension to the problem

http://www.ndma.gov.in/en/news-letter/66-citizens-corner/natural-disaster/floods/490-informatioan.html



Do's and Don'ts

1. Try to get above the level of water.
2. If flood – water enters inside the house, then be very careful and watch out for any insects or any dirt from the drains.
3. It is neither safe to play in that water nor to drink it. Play or drinking in that water could lead to infections or diseases.
4. If any of the electrical switches are wet, you may get a shock.
5. Keep food away form flood – water too so that it doesn't get infected.
6. Be careful about the standing water even after the flood. Check TV or radio to know what places are safe to go after the floods and where we can get any help.

GLOF, Avalanche and Flash Flood

Session Plan

Time	Topic	Methodology
30 Minutes	GLOF, Avalanche and Flash Flood	Presentation on basic concept, reasons of these hazards and impact. His session should have a personal experience sharing followed by Q&A.
10 Minutes	Do's and Don'ts	Presentation followed by Q&A

Content

Glacial Lake Outburst Flood (GLOF)

A glacial lake outburst flood (GLOF) is a type of outburst flood that occurs when the dam containing a glacial lake fails. The dam can consist of glacier ice or a terminal moraine. Failure can happen due to erosion, a buildup of water pressure, an avalanche of rock or heavy snow, an earthquake or cryoseism, volcanic eruptions under the ice, or if a large enough portion of a glacier breaks off and massively displaces the waters in a glacial lake at its base.

A glacial lake outburst flood is a type of outburst flood occurring when water dammed by a glacier or a moraine is released. A water body that is dammed by the front of a glacier is called a marginal lake, and a water body that is capped by the glacier is called a sub-glacial lake. When a marginal lake bursts, it may also be called marginal lake drainage. When a sub-glacial lake bursts, it may be called a jökulhlaup.

A jökulhlaup is thus a sub-glacial outburst flood. Jökulhlaup is an Icelandic term that has been adopted into the English language, originally referring only to glacial outburst floods from Vatnajökull, which are triggered by volcanic eruptions, but now is accepted to describe any abrupt and large release of sub-glacial water.

Avalanche:

An avalanche (also called a snow slide or snow slip) is a rapid flow of snow down a sloping surface. Avalanches are typically triggered in a starting zone from a mechanical failure in the snowpack (slab avalanche) when the forces on the snow exceed its strength but sometimes only with gradually widening (loose snow avalanche). After initiation, avalanches usually accelerate rapidly and grow in mass and volume as they entrain more snow. If the avalanche moves fast enough some of the snow may mix with the air forming a powder snow avalanche, which is a type of gravity current.

Slides of rocks or debris, behaving in a similar way to snow, are also referred to as avalanches. The remainder of this article refers to snow avalanches.

There is no universally accepted classification of avalanches—different classifications are useful for different purposes. Avalanches can be described by their size, their destructive potential, their initiation mechanism, their composition and their dynamics.

Most avalanches occur spontaneously during storms under increased load due to snowfall. The second largest cause of natural avalanches is metamorphic changes in the snowpack such as melting due to solar radiation. Other natural causes include rain, earthquakes, rock fall and icefall. Artificial triggers of avalanches include skiers, snowmobiles, and controlled explosive work. There are mainly three types of avalanches as followings –

- Slab Avalanche
- Powder snow Avalanche
- Wet snow Avalanche

Cloud Burst:

It is highly concentrated rainfall over a small area lasting for a few hours. It can spark off flash floods and landslides leading to large – scale deaths.

Clouds grow from high winds that generate strong convection currents, which form clouds called 'cumulonimbus clouds' that bring down rain with great ferocity.

Hilly areas are more prone to flash floods as steep hills favor the formation of these clouds that results in heavy and torrential rainfall in small geographic areas for varied duration of time.

Flash floods:

Eventually GLOF and Cloud burst and to an extent Avalanche lead to flash floods and landslide (see the net chapter) of different type and intensity. Thus being a first responder, it is most important to know, understand and prepare for flash flood and landslide and be ware of different causes of it, that the intensity and damage pattern can be guessed, identified and acted upon.

Flash flood is a rapid flooding of geomorphic low-lying areas: washes, rivers, dry lakes and basins. It may be caused by heavy rain associated with a severe thunderstorm, hurricane, tropical storm, or meltwater from ice or snow flowing over ice sheets or snowfields. Flash floods can occur under several types of conditions. Flash flooding occurs when it rains rapidly on saturated soil or dry soil that has poor absorption ability. The runoff collects in gullies and streams and, as they join to form larger volumes, often forms a fast flowing front of water and debris.

Flash floods most often occur in normally dry areas that have recently received precipitation, but they may be seen anywhere downstream from the source of the precipitation, even many miles from the source

The United States National Weather Service gives the advice "Turn Around, Don't Drown" for flash floods; that is, it recommends that people get out of the area of a flash flood, rather than trying to cross it. Many people tend to underestimate the dangers of flash floods. What makes flash floods most dangerous is their sudden nature and fast-moving water. A vehicle provides little to no protection against being swept away; it may make people overconfident and less likely to avoid the flash flood. More than half of the fatalities attributed to flash floods are people swept away in vehicles when trying to cross-flooded intersections. As little as 2 feet (0.61 m) of water is enough to carry away most SUV-sized vehicles.

In the history of Indian the most deadly flash flood has been recorded in 2014 in the Indian state of Uttarakhand that killed at least 5700 people. In June 2013, a multi-day cloudburst centered on the North Indian state of Uttarakhand caused devastating floods and landslides becoming the country's worst natural disaster since the 2004 tsunami. The reason the floods were on such a larger scale than the regular floods the state usually received was because of the debris of the building of dams upstream. The debris blocked up the rivers, causing major overflow. Over 95% of the casualties occurred in Uttarakhand; however Himachal Pradesh, a part of Nepal and Tibet were also affected. As of 16 July 2013, according to figures provided by the Uttarakhand government, more than 5,700 people were "presumed dead." This total included 934 local residents.

Destruction of bridges and roads left about 100,000 pilgrims and tourists trapped in the valleys leading to three of the four Hindu Char Dham pilgrimage sites. The Indian Air Force, the Indian Army, and paramilitary troops evacuated more than 110,000 people from the flood ravaged area.

Dos and Don'ts in a GLOF, Avalanche or flashflood situation:

• Activate the Early Warning System, as soon as possible and help the community people evacuate, fast.
• Watch for the following signs:

- o Unusually hard rain over several hours
- o Steady substantial rain over several days
- o Rains in conjunction with a spring thaw
- o A monsoon or other tropical system affecting your area
- o A Weather report
- o Water rising rapidly in streams and rivers

• In case of an avalanche, look out for survivors and use your search and rescue skills in finding and rescuing survivors and use your first aid skills in stabilizing people.
• Warn the trekkers, hikers and mountaineers about loose snow or avalanche or GLOF vulnerability of the region.
• If you live very close to snowy mountains and trained in snow handling, try to create small and local avalanche to avoid the bigger ones.
• In case of an avalanche –

- o Move sideways.
- o Try to float above the snow and swim in the direction of the avalanche, as hard as possible.
- o Create air pockets by expanding your chest and putting both hands on your mouth for better chances of survival.
- o Cover and save your head.

• In hilly terrain, flash floods can strike with little or no advance warning. Distant rain may be channeled into gullies and ravines, turning a quiet stream into a rampaging torrent in minutes. Never camp on low ground next to streams since a flash flood can catch you while you're asleep.
• DO NOT DRIVE THROUGH FLOODED AREAS! Even if it looks shallow enough to cross. The large majority of deaths due to flash flooding occur with people driving through flooded areas. Water only a foot deep can displace a 1500 lb. vehicle! 24" of water can

easily carry most automobiles! Roads concealed by water may not be intact.

• If the vehicle stalls, leave it immediately and seek higher ground. Rapidly rising water may engulf the vehicle and its occupants and sweep them away. Remember it's better to be wet than dead!

• Do not allow children to play around streams, drainage ditches or viaducts, storm drains, or other flooded areas!

• Be especially cautious at night. It's harder to recognize water danger then.

• Don't try to outrace a flood on foot. If you see or hear it coming, move to higher ground immediately.

• When hiking, follow these steps:

o Wait for everyone in the crew to arrive at stream, and make a determination to cross.

o Do not walk through a flowing stream on foot where water is above your an kles.

o When walking through or on rocks or logs over a stream, Loosen pack buckles so if you fall you can easily get away from your pack and it will not drag you under

o Wait for everyone to cross before continuing (in case the last person needs as sistance).

• Be familiar with the land features where you live, work, and play. It may be in a low area, near a drainage ditch or small stream, or below a dam. Be prepared!

• Stay tuned to Weather Radio for the latest statements, watches and warnings concerning heavy rain and flash flooding in your area, report it to the National Weather Service.

Landslide

Session Plan

Time	Topic	Methodology
20 Minutes	Landslide fact sheet and its causes	Power point presentation, Q&A
10 Minutes	Do's and Don'ts	Video

Content

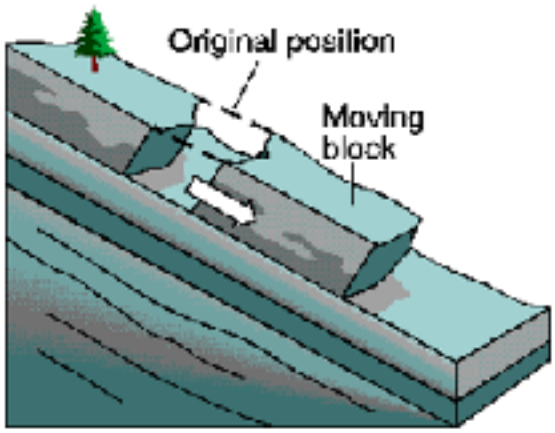
What is landslide?

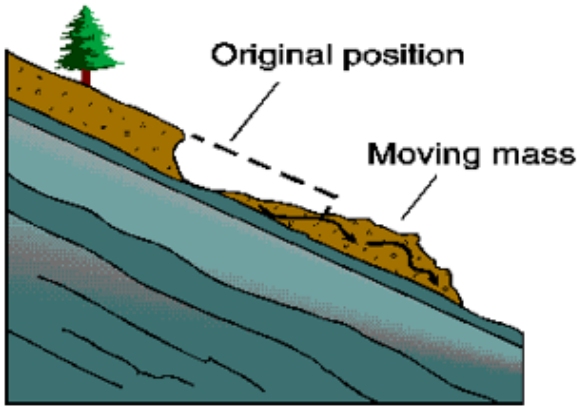
Landslides are downward and outward movement of slope materials such as rock debris and earth, under the influence of gravity.

Landslide Risk

Landslides are one of the natural hazards that affect at least 15 per cent of the land area of our country—an area which exceeds 0.49 million km2. Landslides of different types are frequent in geo dynamically active domains in the Himalayan and Arakan – Yoma belt of the North – Eastern parts of the country as well as in the relatively stable domains of the Meghalaya Plateau, Western Ghats and Nilgiri Hills. In all, 22 states and parts of the Union Territory of Pudducherry and Andaman & Nicobar Islands are affected by this hazard. The phenomenon of landslides is pronounced during the monsoon period.

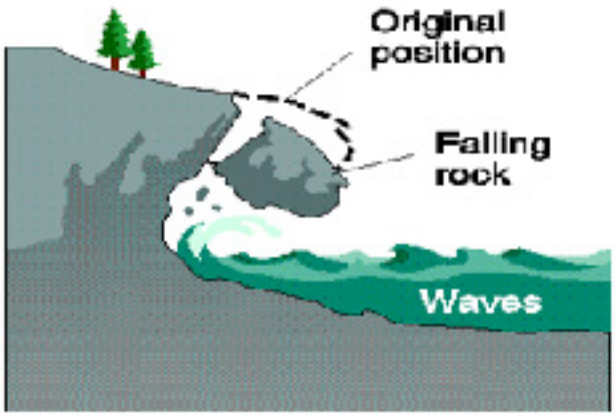
Slides: the downward movement of material along one or more failure surfaces characterizes Slides. They occur parallel to planes of weakness and occasionally parallel to slope.

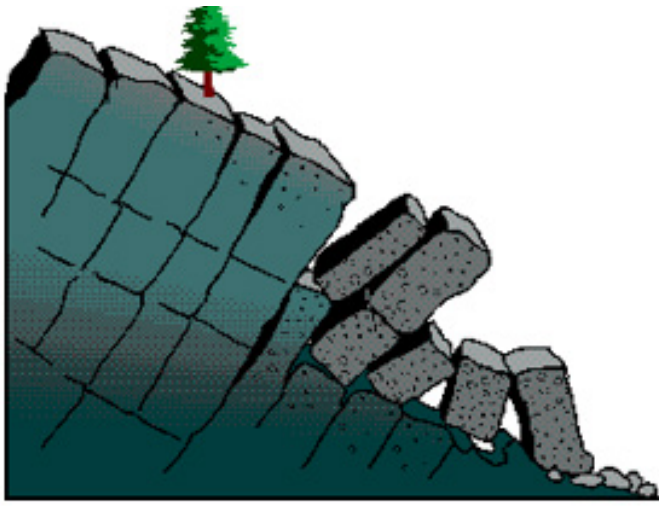




Flows: Flows are similar to slides but differ in the fact that they are characterized by high water content and move similar to viscous fluid.

Falls: Falls are movements in which masses of rock or other material fall freely from cliff or steep slope through the air, and may bounce and roll. Earthquakes commonly trigger this final type of movement.





Topple: Topple is the end-over-end motion of rock down a slope. In this, mass rotates forward about some pivot point. If a toppling mass pivots far enough, a fall may result.

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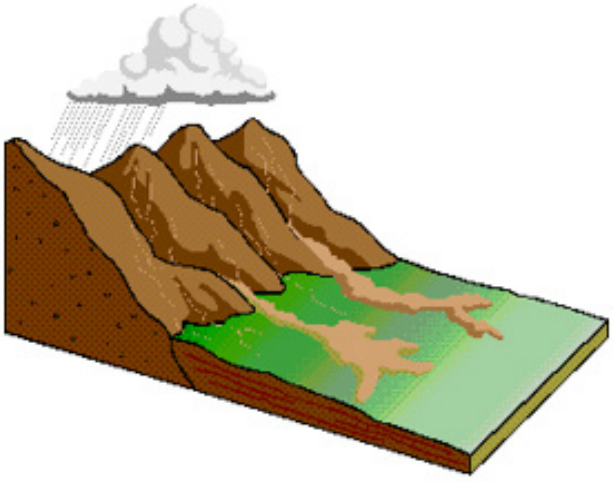
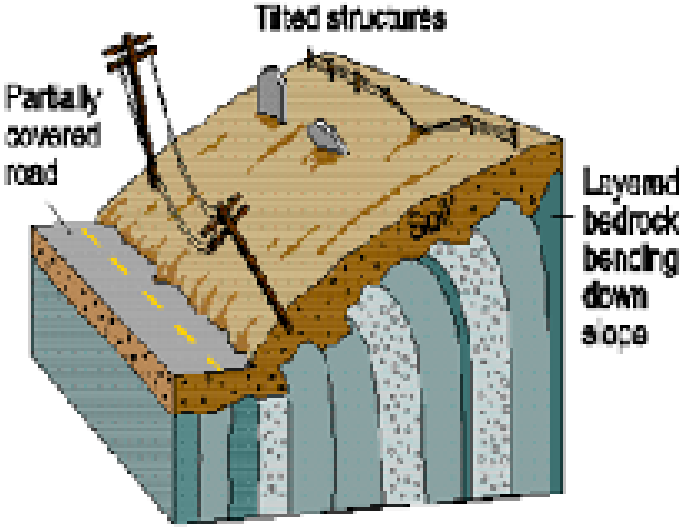
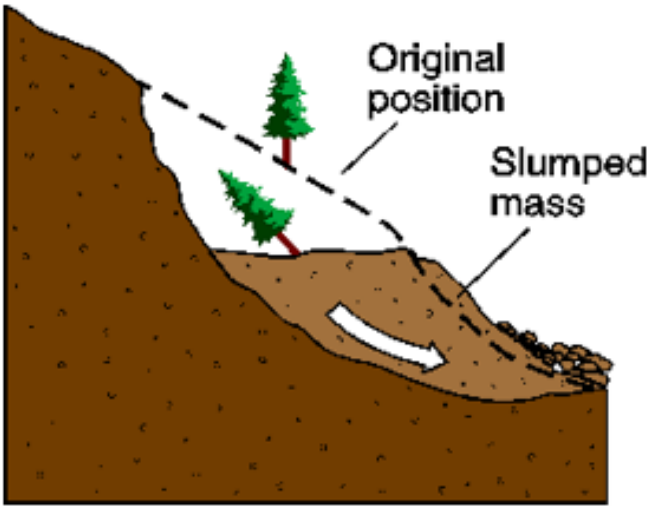




Creep: This is the gradual movement of slope materials down the slope.



Slump: Slump is a complex movement of materials on a slope. The surface of rupture is concave upward, and the mass rotates along the concave shear surface.

Causes of mass movement

1. Geometrical changes (undercutting, erosion, stream incision, artificial excavation leading to changes in slope height, length or steepness)
2. Unloading (erosion, incision, artificial excavation)
3. Loading (addition of material, increase in height, etc) including un-drained loading.
4. Shocks and vibrations (artificial, earthquakes, etc). Associated processes:
    a. Liquefaction
    b. Remolding
    c. Fluidization
    d. Air lubrication
    e. Cohesion-less grain flow
    5. Drawdown (lowering of water in lake or reservoir)
    6. Changes in water regime (rainfall, increase in weight, pore pressure).

Internal changes in stability conditions

1. Progressive failure (following lateral expansion or fissuring and erosion)
2. Weathering (freeze-thaw, desiccation, reduction of cohesion, removal of cement)
3. Seepage erosion (Solution, piping etc.)

Do's and Don'ts

1. Be very causious and alert during intense cloud burst and continuous rain fall.
2. Make the adequake arrangements for drain and keep the drain clean and free from any kind of obstructions.
3. Your should be familiar with your neighbourhood. The appearance of buldgeing ground, tilted trees, cuts in the ground or sloping of the ground in one direction could be signs of landslide.
4. If landslide occurs then quickly call your municipality, police and fire brigade. And warn you neighbours quickly and evacuate the area.
5. During landslide, quickly move away from the path of the landslide and run to safer and higher ground.
6. If escape is not possible, turn into a tight ball and cover your head.
7. After the landslide with the help of local authorities or police try to assist people who might have trapped or injured in the area. But be careful there may be a danger of another landslide.

Fire Accidents

Session Plan

Time	Topic	Methodology
10 Minutes	Fire accident fact sheet with focus on forest fire	Power point presentation, Q&A
10 Minutes	Do's and Don'ts	Video

Content

Fire is a necessity to us in our day-to-day civil life. However, if not managed, controlled and taken care off properly, the same fire can destroy everything and claim lives and properties. In this section, we will discuss about two types of fire accidents and their sub types –

1. Domestic and general fire accidents
2. Forest fire

It is important to know that fire is a chemical reaction and it is combination of three things (triangle of fire) – Fuel, Oxygen and Heat; and cutting any of these will weaken and eventually kill the fire. Some more information is important to know about fire –

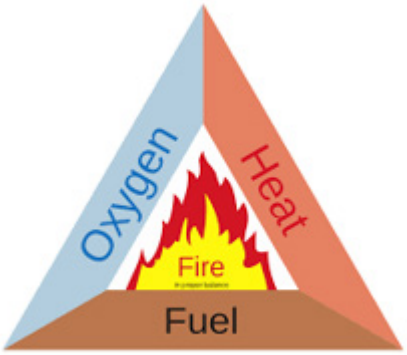
Fire produces:
1. Smoke
2. Toxic gases
3. Heat and light

Classification of Fire –

- Class A – e.g. paper, wood and cloth
- Class B – Flammable liquid e.g. Petrol, diesel and Kerosene
- Class C – Flammable gases e.g. LPG, Hydrogen and Methane
- Class D – Metal Fires e.g. Aluminum and Magnesium
- Class E – Electrical Fires

Fire extiguishing methods –

- Cooling - To lower down temperature.
- Smothering – To cut O_2 supply.
- Segregation – To remove flammable material



Types of Fire Extinguishers –

- Sand
- Water CO_2
- Foam
- Carbon Dioxide (CO_2)
- Dry Chemical Powder (DCP)
- Halon

The majority of fire accidents happen due to failure of electrical safety measures, leakage in the cooking gas and irresponsible smoking. In a residential area it may cause a small scale class A accident to a multi house fore accidents; however in a forest man made causes especially no. 2 and 3 cause major destruction of the ecosystem and forest flora and fauna. Himachal Pradesh particularly is very prone to man-made forest fire, which is often aggravated by pine trees, prolonged dry weather and the terrain structure. In the next section, we will talk specifically about the dos and don'ts in case of a fire accident and desired actions taken for prevention of and during a forest fire.

Dos and Don't:

1. Crawl on the floor and get away form the smoke.
2. Don't play with fire.
3. Whenever you are going out, Switch off all the lights and take out plus of all the electrical appliances. Also switch off the regulator of the gas cylinder.
4. If house catches fire, you should be prepared to run out of the escape route calmly. All members of the house should know escape route.
5. Crackers can also cause fire accidents. Childers should always burn crackers in presence of their parents.
6. If one ever catches fire, one must remember three things. Stop, drop and roll.
7. In case of fire, immediately contact fire brigade by dialing 101 on phone.
8. In case of a forest fire – try to escape the scene as soon as possible and run in the opposite direction of the wind (FIRE SPREADS IN WIND'S DIRECTION).
9. Keep your house and surroundings clean on dry eaves and flammable items; especially if you stay close to a forest slope and especially during summer and dry winters.
10. Sometimes burning a small area around you before the fire approaches, is a clever idea as the fire run short of fuel and halt there; however, only trained people may do it.
11. Do not try to fight a large-scale fire. Always escape.
12. Try and understand the nature of fire and beware of gas leakages, electrification and toxic gases.
13. Do not try to put off the fire on an LPG cylinder. Let the fire brigade handle it. However, you should know that an upright cylinder with fire on its mouth is not that dangerous but a rolling cylinder or a cylinder with fire on its base; is a ticking bomb. Sometimes, if a large amount of water (more than 60 liters) directly on the opening, in most cases the fire dies.
14. Provide basic first aid to first-degree burns and stabilize moderate to sever cases, until help arrives.

Mass casualty

Session Plan

Time	Topic	Methodology
05 Minutes	Mass casualty fact sheet and its causes	Power point presentation, Q&A
15 Minutes	Road accidents	Power point presentation, Q&A
10 Minutes	Do's and Don'ts	Presentation followed by discussion

Content

With the economic development many hazards are being induced in the communities and their surrounding environment. Also it is raising social pressures, intensifying struggle for the existence and further development and deepening cracks in social structure due to disagreements and differences. This has shown a spurt in incidences like road accidents, rail accidents, air crash, and conflicts (riots, terrorist and Naxal attacks) in last few decades. These incidences many times results in mass casualties in small geographical areas and needs immediate assistance to preserve lives of the injured (refer First Aid module) and for the identification of dead bodies (refer prioritization section on Light Search and Rescue module).

The first responder being local people has an important role to play in the incidences of road accidents, local fights etc. In such situations, first responders can play an important role in reducing loss and restoring lives.

However, responding to any mass casualty especially in cases of road accidents, the first responder must carry their identity cards and some acknowledgement from the training authority, that endorses them to at least stabilize and transport the victims to safety.

In this section we will take the example of road accident and discuss in detail about the causes, terrain linked vulnerabilities and first responders' role.

Road Accidents:

India accounts for approximately 15 percent of the global road accident fatalities, so it's

vital that steps are taken to try and improve road safety across the country. One serious road accident in the country occurs every minute and 16 die on Indian roads every hour. 1214 road crashes occur every day in India. Two wheelers account for 25% of total road crash deaths. 20 children under the age of 14 die every day due to road crashes in the country. 377 people die every day, equivalent to a jumbo jet crashing every day*.

Road accident is a very frequent phenomenon in Himachal Pradesh and claims many lives and properties due to mass casualties caused by road accidents. The state has hilly terrain and due to having large tourist attractions, the state received large number of people from Delhi, Chandigarh and other nearby big cities. Most of these tourists travel by buses and cars, which account for most number of road accidents in 2014 – 2015**.

In 2014, 258 people died alone in Himachal Pradesh due to Bus accidents out of total 946 that died due to accidents. However, only 09 pedestrian, bi cyclists and passerby died in 2014***. This calls for serious preparedness and local response in the state.

The first responders will be able to help stabilize the casualties, prioritize the cases and stabilize the victims, till help arrives. They will also be able to help the professional responders (fire fighters, rescuers etc.) in managing the crowd, transportation of the victims and managing dead bodies.

The road accident cases may vary from single person injury to 100 of injured people. There is also a possibility of one-vehicle accidents to mass accidents involving numerous vehicles. There can also be possibilities of gas leakage, fire accidents dues to collision, mass death and drowning of victims. Thus a group of first responder needs to be trained in basic emergency first aid, light search and rescue and prioritization and transportation of victims. At all points during a road accident, the first responder needs to remind him/ herself and the group member not to get into the trap of heroism and be strong psychologically (they may expect the unexpected and may have to face gross, real life visuals).

*Source: National Crime Records Bureau, Ministry of Road Transport & Highway, Law commission of India, Global status report on road safety 2013

**RADMS – Himachal Pradesh 2014 – 2015.

***https://data.gov.in/catalog/stateut-wise-details-road-accident-deaths-mode-transport

Dos and Don't:

1. Call the police and/or Ambulance
2. Do not touch; turn the victims if you are not trained in first aid.
3. Blood loss is bad; stop any bleeding as soon as possible but keep the wounds sanitary as much as possible. If sterile dressings are not immediately available, use clean cloths but sanitary napkins would be best option.
4. If you think that the victim needs Cardiopulmonary Resuscitation (CPR) but you don't know how to give, call the ambulance or someone who has the knowledge, they will assist you over the phone.
5. Do not give accident victims anything to eat or drink including water.
6. Give the victim assurance that help is on the way.
7. Do not try to put them in auto or car to take them to hospital this may damage more.
8. Talk to them, calm them down,
9. Keep talking do not let them sleep.
10. In case there is no sign of help (Ambulance or Police) or taking too long and you think that these victims need immediate help, you can carry them in a taxi, car even auto if nothing is available but remember following points
    a. Do not bend the patient
    b. Do not make them sit or walk
    c. When transferring into car/taxi make sure head and back are fully supported.
    d. Do not let any part of the body hang in the air.
11. Do the same thing when carrying them out from vehicle.
12. Support the professional responders in crowd control.
13. Be alert and keep your and your team's safety as the top priority.
14. Help prioritize the case, as per the principles of triage.
15. Provide psychological first aid to your shaken teammates, the victims and the relatives and friends of the dead or critically injured victims.

Community Early Warning System and Evacuation Planning

Objective - To develop a first responder's idea on community led early warning system, its relation with evacuation planning and a first responder's role in development and execution of both.

Session Plan

Time	Topic	Methodology
10 Minutes	Understanding a community led early warning system.	Discussion using Power point presentation, followed by Q&A.
30 Minutes	Principles and practices of a successful EWS.	Presentation led by discussion
30 Minutes	Evacuation planning and execution of an inclusive evacuation.	Presentation and Group work
20 Minutes	Roles of a First Responder during execution of an evacuation based on EWS.	Moderated and guided discussion

Content

Community Led Early Warning System (CEWS)

Early Warning System is a set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss. When community is in the centre of development and execution of an Early Warning System it is termed as a Community Based (with higher ownership – may be termed as Community Led) Early Warning System (CEWS).

To fully grasp the definition of a CEWS it is useful to start by defining the terms 'EWS,' 'early,' 'warning,' 'system,' 'end-to-end system' and 'community' in that order.

An EWS represents the set of capacities needed to generate and disseminate timely and meaningful warning information that enables at-risk individuals, communities and or-

ganizations to prepare and act appropriately and in sufficient time to reduce harm or loss (adapted from UNISDR 2009 and others).

Early signifies prior to the arrival of a hazard or threat — while there is still time to reduce potential harm or loss, or prevent a disaster. A warning is the message (using signs, words, sounds or images) that announces an imminent danger.

A system is an ordered and standardized compilation of elements that remain in constant fluctuation with movement in multiple directions. An end-to-end warning system is a complete set of components that connects those who need to hear messages to others who compile and track the hazard information of which messages are composed.

Community in this guide represents a network of social interaction that may be exposed to multiple social and/or physical impacts from one or more hazards/ threats, often, but not exclusively, related by place (i.e., village, neighborhood, watershed, etc.).

Based on the terms above, a CEWS is understood to be an effort by or with, but not for, a community to systematically collect, compile and/or analyze information that enables the dissemination of warning messages that when actionable can help the community (or others 'downstream') reduce harm or loss from a hazard (or threat) event (or process).

To be effective, early warning systems for natural hazards need to have not only a sound scientific and technical basis, but also a strong focus on the people exposed to risk, and with a systems approach that incorporates all of the relevant factors in that risk, whether arising from the natural hazards or social vulnerabilities, and from short-term or long-term processes.

More commonly known by the term community-based EWS, the generic adaptation 'CEWS' permits a useful distinction between community-based and community-driven systems. An EWS can be based in a community without being owned or driven by that community. The most lasting impact, however, occurs when a community has a strong understanding of the EWS. An ideal EWS is an integrated one, capitalizing on the strengths of national and local levels without confused signals or competition. The ideal is a local government man-

dated to work with communities, with information owing in both directions (here the first responders can take up the responsibility of coordination at the community level).

EWS are only as good as the actions they catalyze; action is an essential part of any warning system. If a warning is sounded, and no one takes the action that the warning was intended to trigger, then the warning system failed. Just as warning systems are called 'EWS,' we can refer to this action as 'Early Action'.

Principles and Practices of a CEWS

1. Integrate within DRR — EWS is not a stand-alone: EWS are not successful or sustainable as independent stand-alone efforts. When an EWS is considered appropriate, it should be designed and set up within a larger DRR and management effort. Setting up an EWS at any level without clear links to other disaster risk reduction/management efforts and entities will inevitably result in inefficient or unsustainable products and less effective impact (loss of life and livelihoods).

2. Aim for synergy across levels; community, national etc.: Just as EWS should not be extracted and isolated from a more integrated DRR program, EWS at any level will thrive when other levels are also active and functioning. It is the synergy between these levels that will provide the greatest protection for lives and livelihoods.

3. Insist on multi-hazard EWS: An EWS, a system of systems, should centralize information, responses and warnings, about all hazards that are pertinent to a given level/entity with careful attention to resilience and vulnerability. This does not mean that the central EWS agents themselves engage in all components for all hazards, but that they compile, understand and fertilize ideas across sub-systems in a manner that encourages synergy and limits wasteful replication.

The advantages of 'multi-hazard EWS' are many. The most important is that multi-hazard EWS, by definition, are developed on the basis of a systematic analysis and prioritization of a set of threats and hazards to which a country or community is exposed. This

means time has been to systematically consider many and identify those that are most damaging and most manageable by an EWS effort. This integrated and holistic analysis puts the EWS on a more sturdy foundation

4.Systematically include vulnerability: Risk is a function of two elements: hazards and vulnerability. For this simple reason, if our aim is to reduce risk, we cannot think about EWS for hazards in isolation of EWS for vulnerability. Both hazards and vulnerability must be given importance in EWS. Historically, EWS focus their attention on monitoring and warning about hazards and threats. The neglect of vulnerability in EWS is one of the most important weaknesses identified across the globe. Resilience is hereby recognized as the positive side of vulnerability, and can therefore systematically replace each use of that term without changing the meaning.

5. Design EWS components with multiple functions: Given that disasters are not always the primary preoccupation of at-risk com- munities, EWS sustainability depends on proposing system components that serve multiple purposes within a community. Across the globe, disaster risk reduction/management agents are regularly surprised with the priorities high- lighted by the at-risk communities they support. Rather than a recent deadly tsunami or periodical floods that take five or so lives each year, poor communities in developing countries give greater importance to daily survival, food security and meeting primary and socio-cultural needs (such as school costs, medical costs, water, baptisms or funerals) each month. It is therefore important for EWS efforts to understand and address local communities priorities and needs.

There are two main techniques that can be used to address EWS concerns and daily needs simultaneously: income generating activities (IGAs) and multi- purpose equipment; both are described below:

a) The development of IGAs can be directly linked to the EWS. It has been found that when an activity is organized to raise money in a sustain- able manner by at-risk community members or volunteers, they are able and willing to reserve a portion of that money to finance the EWS effort while benefitting from the majority of the income to meet local daily needs in ways they themselves have proposed.

b) Any part of the EWS that is added to the process at each (but especially the community) level must serve more than one purpose simultaneously. This could include communication equipment that serves purposes beyond early warning to call for meetings, or evacuation shelters that also serve as schools or places of worship. Multi-functionality does not always have to imply regular use by the communities served; linking warning functions to systems that serve scientific or any other on-going use can have the same effect.

6. Accommodate multiple timescales: In order to take advantage of longer-lead times to prepare and to manage changing climate risks associated with climate variability and change, it can be useful to incorporate multiple-timescales of early warning information into EWS. To be relevant, when using multiple timescales of forecast information, it is important to understand that the set of actions that make sense locally hours before an extreme event begins may be very different from the set of actions make sense long before, for instance when a seasonal forecast indicates enhanced flood risk for a coming rainy season. This is because the further in advance a forecast is made, the less certainty and detail it provides. Therefore, different types of actions will be appropriate for different timescales of forecast information.

7. Embrace multiple knowledge systems: Just as science is important to ground and render EWS valid, other knowledge systems are crucial to keep EWS alive and sustained. The strongest and most relevant EWS will capitalize on as many knowledge systems as can be tapped. Literature on the subject generally speaks of three knowledge systems: transmitted, experiential and empirical. While individuals, households and communities 'own' the first two (often called indigenous, local or folk know- ledge), empirical knowledge is generally reserved for the institution of science.

8. Account for evolving risk and rising uncertainty: Unfortunately, all types of knowledge discussed above have started to fail under multiple global pressures. First of all, globalization and modern development have resulted in changed livelihoods and less communication between and across generations such that messages from the past are no longer considered relevant or a priority to the new generation. Although technology and telecommunications has enabled access to endless information sources through the Internet and social media, these changes may accentuate the rift and push knowledge of the past

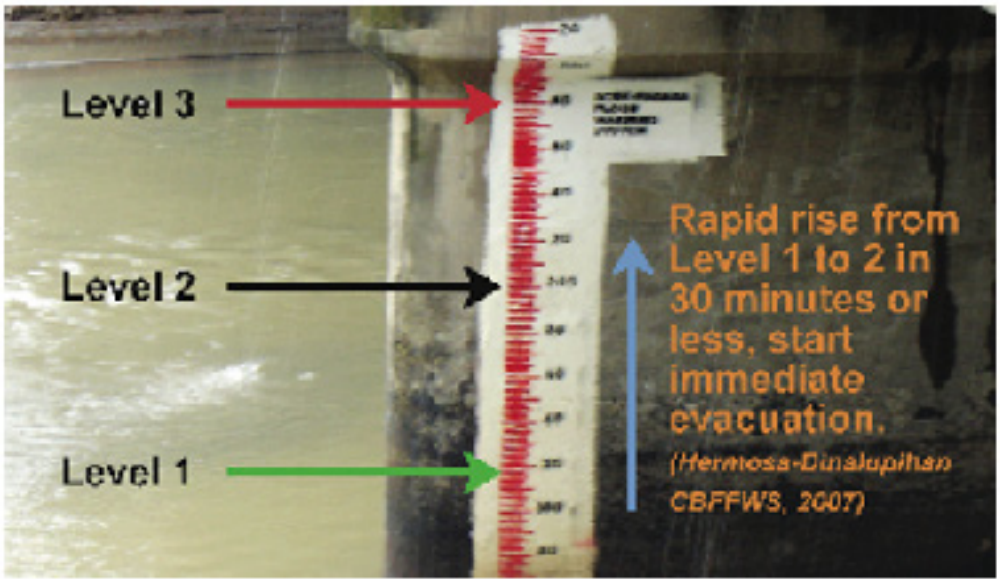
further out of sight.

9. EWS without borders: target the full vulnerability and hazard-scape: Hazards know no borders: they do not respect administrative, cultural or linguistic boundaries; they do not distinguish between a rebel zone or an IDP camp. A disaster risk reduction/management practitioner must think like a hazard, and target the full hazard-scape, regardless of pre-conceived and socially constructed boundaries.

10. Target and reach disadvantaged and vulnerable groups: This principle refers to the population groups that are within the physical hazard-scape discussed above. EWS must always include disadvantaged groups as a key focus, during every component and at every level. The term disadvantaged is chosen instead of vulnerability to include a wider group at-risk (exposed and/or vulnerable). It is not useful in disaster risk reduction/management to isolate gender because those disadvantaged or marginalized are not strictly women, children, older persons and persons with disabilities. Depending on the hazard, they also may include the homeless, semi-illiterate; those working at night on a river, youth playing near the river, single-headed households (whatever their gender), or very simply the least economically secure.

Nearly every community has a group of people that are, for whatever intentional or unintentional reason, marginalized. It may be visitors—tourists, or seasonal and permanent immigrants to a community. Given that they do not listen to local radio stations or are unable to understand the local language and pick up cultural clues from their neighbors, they become marginalized during an imminent hazard. They must all be accounted for in early warning: identified, included, engaged or at the very least, warned.

11. Build partnership and individual engagement: all the first responder in a community must work in a group along with the local authorities to provide optimum support to the community.



Relation between an EWS and Evacuation Planning

CEWS is incomplete without an evacuation plan, which is developed in a participatory manner involving all the community members, vulnerable or at risk of a hazard. Generally the CEWS focuses on a single indicator and single alert through various channels across the community through multiple points, which are also linked to multiple evacuation routes, leading to one or many evacuation sites. This is also important that the same community will have different signs and different plans for different hazards.

For example, a community may have three evacuation routes linking 1000 households in three hamlets, leading to two evacuation sites, towards the highlands in the case of flood. The same community will have separate plans for landslide with different evacuation routes and different evacuation sites. However, in both cases the roles of a first responder and the vulnerability profile of people (like pregnant women, people with disability etc.) will not change.

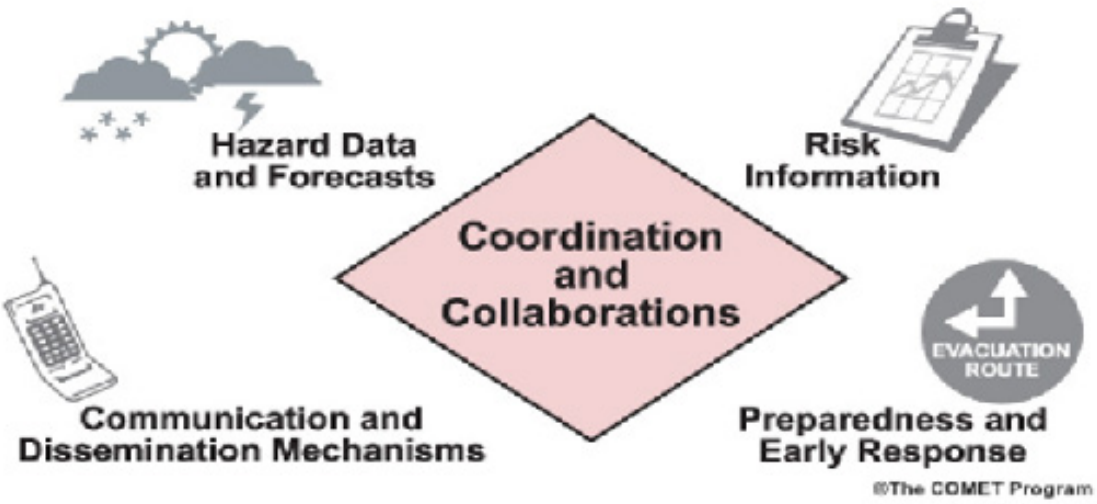
The problem occurs, when a flash flood and landslide occur at the same time; which is the case in most of the time. This awareness leads community to make plans for multiple hazards with multiple evacuation routes and evacuation sites for the same hamlets. The

EWS also create multiple warning mechanisms, addressing different difficulties. So, for a single community the EWS for flood may include but not restricted to –

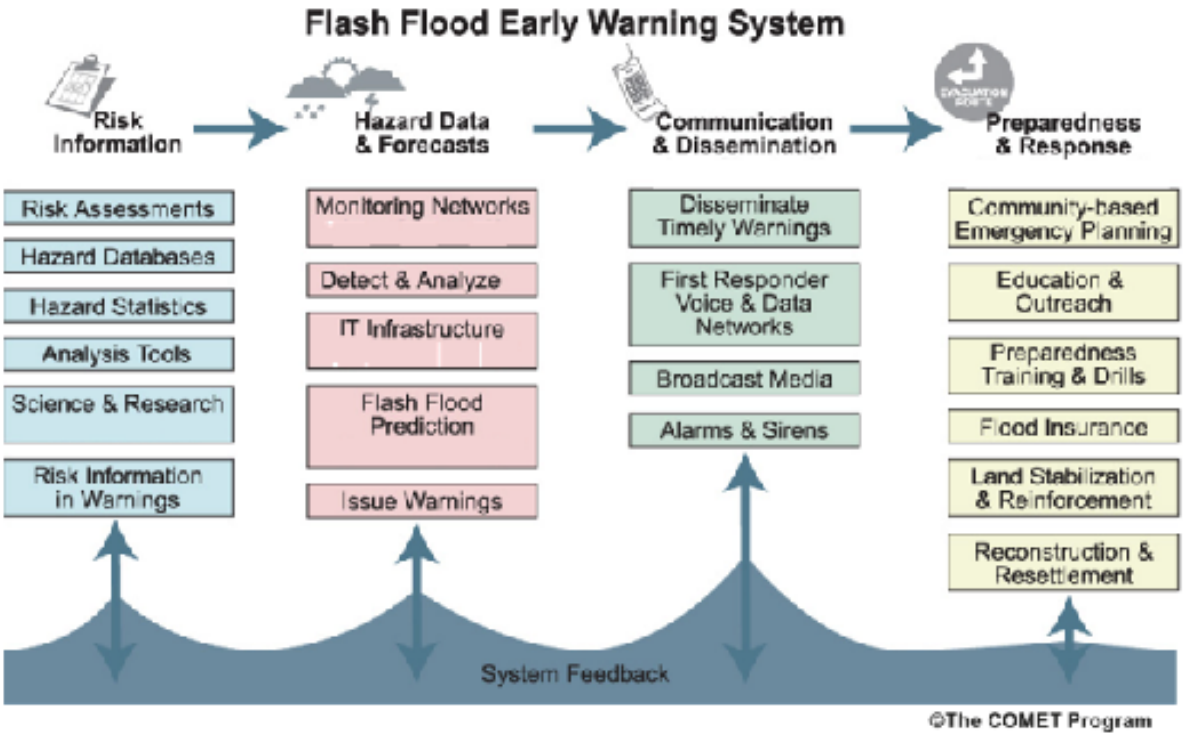
- Multiple points of measuring the river's level.
- Multiple watchdogs (here the first responders) keeping eye on the same measuring unit.
- Multiple points of sending out messages (in the same hamlet, there can be alert station in three different corners with a minimum distance of 150 meters).
- Multiple modes of alert – siren, mike, mobile calls, bells, manual shouting, relay messaging etc.
- The first responders and responsible community members need to take special care of the most vulnerable people like people with disability, old people, pregnant women, very small children etc.
- For people with disability; the alert system and the messenger need to be aware about the complexities. Like the same message will not work for a visually impaired, a deaf and mentally disable person. So the message has to be given in a manner that is understood or relayed to all.
- The messaging and evacuation are linked but the ultimate goal is to ensure safe evacuation and bring people to safety.
- In a population of 50 – 150 (depending on the population density); there should be at least two people with complete understanding of the evacuation route and evacuation site.
- For very scarcely dense places there should be at least two people trained from within a lane of houses or from a group of closely dwelling households.

Evacuation preparedness

Evacuation planning and preparedness is a part of the CEWS and success of the evacuation process often parks the success of a CEWS in most scenarios. The evacuation preparedness is based on four major aspects of the EWS, which are –



A successful development, monitoring, preparedness and execution of this plan without confusion lead to greater safety and least loss in any community. Below, a process of a flash flood EWS preparedness and execution is given; this also highlights the roles of a first responder at various stages.



The evacuation plan should be simple and understood by all. Any ambiguity and confusion may claim lives. Each house may develop it's own plan. The hamlets or cluster of household, coordinated by a first responder must have a plan with an alternate route drawn on it. The evacuation plan must be visibly hung in a public place that everybody in the community saw it and know about it. The evacuation routes to be marked on the map in bright colors and the dangerous path must be marked in RED color. In reality the same color codes may be used as signage to mark the evacuation route and the assembly point. The easiest and simplest plan for a group of houses or a household is given as an example.

A list of things to be prepared beforehand and kept for carrying during an evacuation is as following (this list is suggestive and may include items as per the local context; please make sure the carry along bag should not be very bulky that slows down the evacuation process) –

Content of the 'ready to go bag':

Water: pack at least 1.5 liters of drinking water per person per day.
Food: pack some ready to eat food in your bag to keep self-sufficient in the immediate aftermath of an incident. This may include some biscuit, Grams (Chana), Peanuts, Jaggery (Gur) etc.
Musk: Optional but carry a Towel (Gamcha) or a piece of long cloth (Dupatta) to tie on your face and mouth to protect you from dust, during an earthquake.
Light: a good torch is an essential component of your bag. Select an emergency torch with extra batteries.
Radio: information is crucial during any crisis. Tune in to emergency radio broadcasts via a portable AM/FM radio receiver. You don't need to carry tis, if your mobile phone has FM radio enabled.
Clothing: keeping warm and dry is essential. Select light and compact items as space is at a premium in your Go Bag. Layers of clothing are more versatile. Travel ponchos are a good choice to keep you dry.
First Aid: Your first aid kits contents should reflect your training and ability and must include at the very least wound cleansing and dressing supplies, eyewash and burn treatment bandages.
Communication: telephone networks, including mobile networks, may become disabled or overwhelmed locally during an emergency. Carry a whistle or a small drum in your bag.
Miscellaneous: pack an emergency mobile phone charger (to connect when service resumes) and additional spare batteries for other tools.
Documents: pack copies of your IDs and other important documents, local maps, keys, prescriptions, some money and essential contact information that you may not have access to if you evacuate your home. Pack these items in a waterproof document pouch.
The bag: choose a medium sized backpack that can hold all your survival gear. The bag needs to be waterproof, or you can line your backpack with a light- weight dry sack or plastic. You can make your bag easier to find in the dark by sticking photo-luminescent (glow in the dark) tape or attaching a photo luminescent and reflective safety armband to the handle.

Role of a First Responder

1. Understand the concept of CEWS and Evacuation planning and help your respective communities or set of households, develop one.
2. Undertake a vulnerability mapping in your locality and identify people with special needs during alert and/ or evacuation.
3. Occasionally engage your community in mock drill to check the level of preparedness.
4. Ensure that the EWS is accurate and readable from a distance.
5. Ensure the evacuation route(s) are marked and clear at all time.
6. Keep checking the effectiveness of the alert mechanisms.
7. Make sure you have a 'ready to go bag' and motivate and help others to do the same.
8. Take care of the cultural nuances while making the evacuation plans. (Though these are evil practices but please make sure there is no confusion or bitterness about different caste and religions' people act together/ if it is not at all possible; ensure separate planning and execution – remember you do not have time and energy to deal with these issues during an evacuation).
9. Coordinate with other first responder, service providers and volunteers.
10. Make sure a steady flow of information during an event of hazard.

Role of a first responder in relief

Objective - To develop a first responder's idea on basic relief activities in priority sectors (namely WASH, shelter and Food and NFI distribution) and roles of first responders in these processes

Session Plan

Time	Topic	Methodology
30 Minutes	Basic relief activities in WASH and roles of FR	Presentation led by discussion
10 Minutes	Basic relief activities in Shelter and roles of FR	Presentation led by discussion
20 Minutes	Basic relief activities in Food and Non Food Item Distribution and roles of FR	Presentation led by discussion

Content

Humanitarian relief interventions are carried out immediately following natural disasters, wars, protracted crises or epidemics. The purpose of these interventions is to ensure the survival of the affected population, guided by the principles of humanity, neutrality, impartiality and independence. As part of this session we will mainly talk about

1. WASH,
2. Shelter
3. Food and nutrition security with some discussion o Non food relief items

The fourth important element of Health is broadly left out here, as we expect the first responders to provide stabilization and first aid support to the victims; with some amount o health promotion, which are covered under emergency first aid section of this guide.

Water, Sanitation and Hygiene (WASH):

Water and sanitation are critical determinants for survival in the initial stages of a disaster. People affected by disasters are generally much more susceptible to illness and

death from disease, which to a large extent are related to inadequate sanitation, inadequate water supplies and inability to maintain good hygiene.

Outbreaks of diarrheal diseases, including dysentery and cholera, are common in emergencies. Fecal-oral diseases may account for more than 40 % of deaths in the acute phase of an emergency, with greater than 80 % of deaths pertaining to children under the age of two years. There is a risk of infectious disease outbreaks following natural disasters and conflicts, many of which are directly related to WASH*.

The main objective of WASH programs in disasters is to reduce the transmission of fecal-oral diseases and exposure to disease-bearing vectors through the promotion of good hygiene practices, the provision of sufficient quantities of safe drinking water, the reduction of environmental health risks and the furthering of conditions that allow people to live with good health, dignity, comfort and security.

During the Immediate Emergency Relief phase, within the first hours or days, effective short-term measures are applied to alleviate the emergency situation quickly until more permanent solutions can be found. Apart from salvage and rescue, protective measures, shelter and provision of food and non-food items (NFI), the essential WASH services needed at this stage include quick, adequate and equal access to clean and safe water, instant and safe excreta disposal and the distribution of hygiene items.

Important measures for effective humanitarian relief in the WASH-sector include the provision of clean water in sufficient quantities and adequate basic sanitation solutions. In case of unsafe water resources, central water purification units need to be installed or water filtering or chlorination solutions on household level need to be applied. Furthermore the distribution of hygiene kits, jerry cans, the carrying out of accompanying hygiene promotion activities and the establishment of supporting community structures need to be considered.

In order to ensure a safe environment and to avoid contamination of water sources, the safe management of the feces needs to be organized using appropriate methods such as septic tanks, dislodging and disposal at safe disposal sites or ecological wastewater treatment sites.

*DFID 2012 report and European Union report on Disaster standards 2012.

Prior to any WASH program a proper (rapid) assessment is required in order to be able to respond adequately within a given local context. To increase acceptance of the envisioned WASH intervention, particular emphasis should be given to so aspects such as potentially sensitive issues regarding sanitation (including use, operation and maintenance), menstrual hygiene management, gender-specific WASH requirements to reduce vulnerability to sexual and other forms of violence as well as hygiene related issues that imply certain levels of behavior change. Comparable to WASH development programs the equitable participation of women and men, children, marginalized and vulnerable groups in planning, decision-making and local management is key to ensuring that the entire affected population has safe and easy access to WASH services, and that services are appropriate.

WASH hardware solutions should be based on locally appropriate technologies and designs, ideally using locally available materials. However, providing sufficient water and sanitation facilities will not, on its own, ensure their optimal use or impact on public health. In order to achieve the maximum benefit from a response, it is imperative that disaster-affected people have the necessary information, knowledge and understanding to prevent water- and sanitation-related diseases and to mobilize their involvement in the design and maintenance of those facilities.

Roles of First Responder during WASH relief:

- Do he preliminary assessment of WASH needs and support the team of experts or the emergency (24 hours or 72 hours) assessment team in understanding the actual needs.
- Ensure safe drinking water supply to affected families.
- Ensure that the water sources are not contaminated – if so, immediate inform the people and discourage them from drinking or using that water.
- Help the community people in undertaking household water treatment (straining, solar heating, sedimentation and Chlorine treatment).
- Ensure proper sanitation facility of the community people, during the relief phase.
- Ensure safety of women and children, during usage of these facilities; especially at night (voluntary watchdog model, well lit and separate sanitation facilities fro men and women etc.)
- Ensure logical level of hygiene during relief.

- Help the experts put up water plants.
- Help the WASH teams in making lists, plans and actual distribution of water.

Shelter:

During the decade 2000–2010 the aver- age death toll from disasters was 98,000 and 226 million were affected each year. In 2012, 53 percent of the people affected by disasters lived in developing countries while 1.8 per cent lived in developed countries*.

In 2012, at the Rio+20 conference on the environment, the United Nations Environment Program (UNEP) reported that while there had been some progress with disaster response since 1992 there was a further deterioration with disaster impact.

The following trends are anticipated:

- Annual totals of disaster casualties are dropping;
- Property losses from disasters are increasing at a rapid rate;
- Large urban disasters are anticipated;
- There is a significant rise in the annual number of hydro-meteorological disasters while the number of reported earthquakes is not on a rise.

However, the number of disasters that are currently being recorded may be due to improved reporting.

The crux of the situation demands more, better and affordable shelters for world's most poor people in the most difficult to reach areas. The phenomenon of aging, urbanization, climate change, population explosion etc. demand more shelters for people and disasters make the situation more complex by destroying the available ones.

As part of relief, temporary and/ or permanent sheltering is a matter of priority and dire need. The following roles are expected from a first responder during a disaster relief, in relation to shelter –

*Leoni, B. Ed. (undated) Disaster Through a Di erent Lens. Behind every e ect, there is a cause. A guide for journalists covering disaster risk reduction. UNISDR, Geneva.

Roles of First Responder during Shelter relief:

• Do he preliminary assessment of shelter needs and support the team of experts or the emergency (24 hours or 72 hours) assessment team in understanding the actual needs.
• Support homeless people to take shelter in the un-impacted buildings in the same community (especially Govt. buildings like community centers, Panchayat Bhawan, AWC, PHC etc.)
• Try to engage the community people in establishing make shift shelters for the homeless people, who could not be accommodated in the local buildings.
• Support the Shelter experts in putting up temporary shelters, especially in digging, tying and area selection (based on terrain knowledge).
• Ensure shelter safety by creating reasonable barricade around the shelters.
• Support the experts with local knowledge in case permanent structures are proposed. The local knowledge will support them to take right decision for all the affected people. The support could be provided in relation to –

- o Local terrain knowledge
- o Type of surface
- o Water availability
- o Local customs and rituals (in relation to placement of window, side of door, open area, placement of sanitation facilities, kitchen etc.)
- o The wind structures and wind – direction based ventilation etc.

• Support the teams in enlisting the people in need of shelter and prioritize them based on their situation and vulnerabilities.

Food and Non Food Item (NFI) Distribution:

Food and critical non-food items distribution is one of the most important elements of relief. In most cases safe drinking water and food is considered to be the most relevant and immediate support, during relief phase. In this section, food and NFI, both will be marked as commodity since, the process and distribution mechanism are very similar and the intended beneficiaries are also the same.

The Ideal Distribution System should be safe (organized in such a way that the system is free of threat to all who use it, with particular attention to women and the vulnerable) and easily accessible (distribution points are close to where people live and are located in places which do not restrict the access of particular groups. The timing of distributions should suit the intended beneficiaries) to the intended beneficiaries.

Inform the beneficiaries, beforehand. They must know what they should receive, how much, when and how. The beneficiaries themselves can be the best monitors and controllers of the distribution process. The beneficiaries should be able to see the distribution process for themselves. Involve them directly; don't let information on the distribution process come to them only through their leadership. Ensure the participation of the community (women and men) at all levels of the distribution process.

In the early stages of an emergency there will probably be a period when it will not be possible to register or issue ration cards. However, you will have to distribute commodities in that period. Effective distribution is possible without ration cards.

The provision of plastic sheeting, tents and other shelter material is very important for the structuring of refugee sites. The distribution of shelter material reduces the fluidity of the population. Once it is issued, the population can settle.

The family, as a natural unit, is the target of distribution. This applies to food and non-food items. However this does not mean that you always have to hand the ration to each family directly, in some situations this can also be done more effectively through groups of families or other community structures.

Irregularities in the distribution cycle undermine the confidence of the beneficiaries and increase their need to circumvent the system. Aim to have at least 1 distribution site per 20,000 people; especially in camps.

You should aim to have a distribution system, which allows beneficiaries to collect rations close to where they live and at regular intervals of about one month. For dispersed populations people should not have to travel more than 5 to 10 km to distribution sites. In

camps, the people should not have to travel far to the distribution sites. Depending on the situation, and having met site selection criteria, the centre should be located as close as possible to the beneficiaries, and not more than 5 km away.

Distribution of dry uncooked rations in bulk is usually the most desirable. Avoid mass cooked food distribution for the general ration. In the distribution system, plan to have a minimum of 2 staff per 1,000 beneficiaries. Avoid payment in kind for distribution workers. It makes monitoring difficult. In times of shortages, vulnerable people may be deprived of the commodities in order to pay staff. In the early stages of a new program, particularly in large emergencies, effective control over distribution may not be possible. However, from the start, each action you take should contribute to a process whereby stable control is progressively established.

The first responders have important roles to play in the whole distribution cycle, some of the key roles are as following (non restrictive) –

• In assessing the situation and propose food and dry food items as per the local food habit.
• Help decide on the amount/ quantity and help with family listing.
• Decide on the local practices and add very small locally relevant things in the distribution package (exp – due to local interventions a box of Sindoor was added into the hygiene box during the 2009 Koshi flood in Bihar, which improved the usage of the Hygiene pack; especially among women).
• Help in documentation during actual distribution
• Help in crowd control and queue based distribution
• Help in packing and unpacking the materials
• Manage warehouse and propose local stores etc.
• Help in clustering for distribution and context specific distribution inclusion or inclusion based on the community and its preferences.
• Help know the local norms and practices and maintain maximum integrity at all times.

Role of a first responder in relief

Objective - After this session the group members will be able to understand a more life like disaster situation and their roles in those respective situation as first responders.

Session Plan

Time	Topic	Methodology
15 Minutes	Explaining the group work and scenario building	Power point presentation, Q&A
75 Minutes	Group work	Working in group and preparing presentations with available props. The facilitators will mentor the groups and encourage them to make innovative presentations.
30 Minutes	Presentation by the groups and Q&A	Presentation followed by discussion

Content

This session is self-explanatory; however, the facilitators will have to do some preparation in relation to creating short situations based on the guide provided as part this session. Please remember the following points, before organizing and initiating the group work –

1. The group will be divided into 4 sub groups and each group will be given to prepare response mechanism in a community for –
    a. Earthquake
    b. Flash flood as a result of GLOF
    c. A small scale fire accident in the community; and
    d. A road accident with mass casualty

2. Each group will have 75 minutes to prepare and 5 minutes to present. This will be followed by a participatory appreciation and correction session.

3. The facilitators will play a major role in the last part of the session by emphasizing on the key actions by a first responder.
4. The facilitators will reemphasize the roles of first responders, dos and don'ts in specific hazards and the safety
5. A copy of each respective hazard section to be provided to the respective groups.
6. The group should have the following group rules –

a. Each group needs to chose a leader or main presenter
b. Each group should have one person dedicate for documentation and making the presentation
c. Groups may come out with innovative presentation formats; like
    i. Skit
    ii. Role play
    iii. Simulation and situational response
d. Everyone in a group should participate

7. The presentations; based on its content and innovativeness, will be assessed by all the other groups and the facilitator and each group should be given feedback and the actions need to be corrected after each presentation.

Scenarios

The proposed scenarios are suggested as followings –

The Earthquake scenario:

There was a moderate earthquake at 9:30 am this morning. Now it is 9:55 am and the situation is confusing. Number of old and mud buildings have collapsed and the earthquake led to a large landslide, on the far mountainside of the village. There are reports that people are trapped inside the collapsed house and the school building has also collapsed and there are students trapped inside the building. The Health post people are still not back from the weekly holiday, since today is Monday morning and there phones are not reachable, as the earthquake affected the mobile towers and phone landlines. The radio has just announced that a 7.2 Richter scale earthquake impacted major parts of Himachal Pradesh at 9:28, this morning. There are injured people everywhere and people are confused and looking for each other.

What will you do as a first responder, in this situation?

The Flash Flood Scenario:

Torrential rainfall has been happening, since last two weeks and there was a flood like situation in the village (as it borders river _____). There were occasional cases of small to moderate land slide and some mudslide in the northern part of the village. However, this afternoon around 2:30 pm, there was an early warning, on the radio a bout a flash flood due to a GLOF on the upper Himalayan lake (around 120 km from the village) and within next 10 – 12 minutes the village was hit by a huge flash flood by the river and some newfound streams, which washed away the market area. At 2:50 pm, half of the village is under water; however, 90% of the people were taken to safe places due to activation of the EWS and following the evacuation plans. Some people are missing and some families have evaporated. The market area attracted many tourists, who were roaming around in the market in a lazy afternoon; which signals an alarming situation. Presently there are at least 500 panicked, homeless and resource-less people, some 20 – 30 injured people and 5 unconscious people.

As a group of 4 – 5 first responders, what will be your role?

The Fire Accident Scenario:

The local Secondary Health Care Centre (SHC) caught fire, today at 1:00 am. People are suspecting it as a result of short circuit; since the electricity came back around 12:45 am and the flames were visible around 1:00 am. By the time, the first responders organized themselves and reached there, it was 1:10 am and the whole building, including the dispensary aught fire. Today, it is windy and the wind direction is from the river, to the village and the SHC falls, in between. The nearest fire station is around 30 km away. There are nurses and a paramedic, inside the SHC and there is reportedly one very sick 82 years old patient and a pregnant woman. The hospital guard and another maintenance staff developed first-degree burn on their hands, trying to get the medicines out from the store. Suddenly an explosion happens from the pantry and the west side of the building turns into a fireball.

What will you do as a group of first responders?

The Road Accident Scenario:

Torrential rainfall has been happening, since last two weeks and there was a flood like situation in the village (as it border river _____). A tourist bus carrying around 20 people skidded and toppled by the village side around 6:00 pm in the evening. As a first responder you reach there and find that there are dead bodies on the road, severely injured people and people with minimal injuries (who are supporting other). Around six people went missing as they were thrown into the jungle side and some people are trying to search them. The police and the ambulance services have been informed and hopefully, they will reach the scene in 15 – 30 minutes.

What will you do as a first responder?

MODULE 3

Light Search and Rescue and Roles of a First Responder

Objective - To develop a first responder's idea on light search and rescue, their roles in a light search and rescue mission and clarity on the dos and don'ts during, before or after a search and rescue mission.

Session Plan

Time	Topic	Methodology
30 Minutes	Understanding light search and rescue – basics.	Discussion using Power point presentation followed by FAQ and Q&A.
60 Minutes	Roles of a first responder during a search and rescue mission.	Brainstorming, debate – followed by Power-Point presentation.
30 Minutes	Dos and don't during a light search and rescue mission	Presentation and Group work, ended by a quiz.

Content

The search and rescue function is really two separate activities:

Search: To look through (a place, an area, etc.) carefully in order to find something missing or lost.
Rescue: To free or deliver from confinement.

Light search and rescue is defined as searching for victims after a disaster and rescuing them from lightly damaged structures or slightly dangerous situation. We have to keep in mind that the first responder mechanism is not neither a duplication nor a replacement for a full-fledged search and rescue team. However, they may assist the search and rescue team by doing preliminary size up and rescuing people in their local capacity with help of their locally available equipment.

Essentially a light search and rescue operation will have three phases, namely – Planning (which will assess the needs and risk, assess resources and size up the situation using all the local indicators), search operation (focusing on locating potential victims, locating en-

trapment and pre deciding on search methodologies) and rescue operation (focusing on crating a safe rescue environment, triaging and stabilizing patients and removal of victims).

Roles of first responder in all these three stages of light search and rescue:

Role of a first responder in planning –

1. Plan to choose the right tools for undertaking a LSAR operation.
2. Plan to act within the golden day (for medical emergencies golden hour) that may increase the chances of survival of 80% victims by 80%.
3. A first responder must assist the search and rescue team or may undertake the planning exercise based on their knowledge in assessing needs and risks. Needs and risks are determined to some extent by the types of occupancies in the local area. Type of occupancies in this case does not just refer to houses. It also refers to any place where people might be during a disaster, including –

    a. Apartments, condominiums, and mobile homes.
    b. Industrial, commercial, or office space.
    c. Schools.
    d. Places of worship.
    e. Hospitals and nursing homes.
    f. Airports.

4. The first responder is also responsible for assessing and planning based on –
    a. What does this mean in terms of population density?
    b. What does it mean for the kinds of rescue efforts that may be required?
    c. What are the implications for rescuer safety?

5. The first responder must assess or assist the team in assessing (based on his/ her local knowledge) the resources available and mobilize resources for the LSAR operation. The resources may include but not limited to –
    a. Personnel (who are these people, they are like availability – based on different timeslots, their skills or hobbies that can be useful for the SAR operation etc.)

b. Equipment (locally available, location, accessibility, their usage in different structure etc.)
c. Tools (type of tools with their availability, trained personnel to operate those tools and usefulness based on the type of (L)SAR operation proposed.

6. The first responder is most useful in sizing up the situation as they have adequate local knowledge and basic knowhow of the size up mechanisms and indicators. Size up is a continuous analysis of facts that forms the basis for decision making and planning. Rescues must be planned and carefully executed to ensure the success of the rescue and the safety of the rescuer. Like size-up for other disaster operations, search and rescue size-up continues throughout the disaster response. It includes seven steps:

a. Gather facts: Consider the types of structure and construction, location, and severity of damage, as well as environmental conditions and hazards, the probable number of victims, and their conditions. Because the search and rescue situation continually changes, gather facts about the situation on a continual basis and revise plans as needed.

b. Assess damage to the building: There are no hard and fast rules for assessing damage. However, the damage categories; namely light, moderate and heavy, help the FR decide to enter or not into the building.

c. Identify your resources: This has already been covered above.

d. Establish the rescue priorities: Once resources have been identified, the rescuers must determine what the priorities are for the situation at hand. For example, in a certain building there may be water rising, with victims trapped inside. In that case, the priority becomes getting out those victims who can be easily reached and removed without putting any rescuers at risk.

e. Develop a rescue plan: Next, the FR team may decide specifically how they are going to complete the tasks that they have determined are the highest priorities. In the example just cited, the plan might be, "A, you and B do a quick search of the first floor. C and D, gather up all the loose 2 x 4 lumber you can find and break it into lengths of 3 feet and 6 feet.

E, you will keep in voice contact with A and B when they go inside". The FR team leader is responsible for coordinating and executing this plan.

f. Conduct the rescue: Once the plan has been developed, the FR team puts it into action and begins the rescue.

g. Evaluate your progress: This is the most important step from a safety standpoint. The FR must continually monitor the situation to prevent any harm to the FR team. Also, they determine if their plan is working, and if not, how it can be changed to make it work.

Role of a first responder in an evacuation –

Evacuation is the organized withdrawal from an area for purposes of protecting the safety of the area's inhabitants. In the event that evacuation becomes necessary, a FR must follow these steps as guidelines to ensure safety and organization –

1. Determine whether there is a need for total or partial evacuation.
2. Select an area that is free of hazards and easily accessible.
3. Communicate to everyone involved the need to evacuate and the locations of shelters.
4. Designate routes from the area to be evacuated to the area of relocation. Consider alternatives.
5. Be sure to inform emergency management personnel about the evacuation to avoid unnecessary duplication of effort and risk.

Role of a first responder in a search operation

Once the decision is made to initiate search operations within a specific structure or area, FR must systematically inspect the area for victims. This involves two processes – 1) locating potential victims and sizing up them by categories of needs, operational difficulties and survival chances etc. and 2) locating the areas of entrapment and their types (pancake voids, individual voids etc.). Once this estimation is done and the escape routes are decided, the FR teams may adhere to the following procedure –

1. Call Out: Begin the search by shouting something like, "If anyone can hear my voice, come here." If any victims respond, give them further directions such as "Stay here" or "Wait outside" (depending on the condition of the building). Be sure to ask victims for any information they may have about building damage or about others trapped in the building.

2. Be Systematic: Use a systematic search pattern to ensure that all areas of the building are covered. For example:

a. Bottom-Up/Top-Down: Searching from the bottom of the building up and/or from the top down is well suited to multi-story buildings.

b. Right Wall/ Left Wall: Moving systematically from one side to the other is well suited to single-floor structures and avoids repetition.

4. Listen Carefully: Stop frequently and just listen for tapping sounds, movement, or voices.

5. Triangulate: Triangulation enables a FR to view a single location from several perspectives. Three rescuers, guided by victim sounds, form a triangle around a designated area and direct flashlights into the area. The light shining from different directions will eliminate shadows that could otherwise hide victims.

6. Use The Buddy System: Working together, two FR can search a structure more effectively and provide an additional measure of safety to each other. Buddies should also use a web belt to connect one another, especially in dark or smoke-filled areas.

7. Mark Searched Areas: Marking searched areas prevents duplication of efforts and identifies where rescuers are and have been. Make a single diagonal slash on or next to the door just before entering. Make an opposite slash (creating an "X") when all occupants have been removed and the search of that area is finished.

8. Document Results: Keep complete records both of removed victims and of victims who remain trapped or dead, then report this information to emergency agencies when they reach your

Role of a first responder in a rescue operation

First responder may perform or assist other SAR member in performing these basic and main rescue activities, which include –

1. Creating a safe rescue environment: Creating a safe rescue environment may involve lifting objects out of the way, using tools to move objects, shoring up walls, and removing debris.
2. Triaging or stabilizing victims.
3. Victim removal: Search and rescue teams will remove victims immediately from moderately damaged buildings to a safe zone. Medical teams will remove victims from lightly damaged buildings, after head-to-toe assessment and treatment.

Creating a safe environment and following all the procedures and precaution by the book is the main concert at this stage. A little deviation of the standards and procedure may put the FR, other SAR members and the victims' lives in danger.

Dos and don'ts during a light search and rescue mission, which must be observed by a first responder

Do's

1. Plan well (know your equipment, tools and resources very well).
2. Use your contextual understanding and work as a part of a big team.
3. Follow orders from the experiences SAR team members by words.
4. Be prepared to see shocking things.
5. If you are not feeling well – let others know about it.
6. Be Patient.
7. Work in a buddy system and cover each other.
8. Keep a constant communication with other team members.
9. Follow only recommended procedures for lifting and carrying.
10. Learn to use local material to be used as rescue gears.

11. Listen to the victim in trap as well when he/ she is out. They can give you the best information about the situation.

Dont's

1. No heroics, at any point of time.
2. Don't overlook even most simple unusual thing.
3. Don't work against the plan.
4. Don't panic
5. Don't start doing it if you don't feel upto the mark.
6. Don't try to remove debris on your own. It should only happen once an experienced SAR member told to do so. In that case make a human chain and pass on the debris quickly.
7. Don't enter any unstable structure.
8. Never put your own safety in jeopardy. You can only be valuable as a rescuer if you remain healthy and uninjured.

Prioritization of cases during a search and rescue mission

Objective - The participant will be able to appreciate the severity of condition and whether the causality should be given first aid, treated on spot or moved to the hospital immediately.

Session Plan

Time	Topic	Methodology
10 Minutes	Why prioritize?	Discussion followed by FAQ and real life experiences.
30 Minutes	Triaging and prioritization through triage	Presentation followed by situation briefing and brainstorming.
20 Minutes	Recognizing international color codes of Triage	Presentation and Rapid Group work, ended by a quiz.

Key Messages

1. Prioritization helps to sort patients into those who need critical attention and immediate transport to the hospital and those with less serious injuries
2. This step can be started before transportation becomes available

Content

It is important to understand the intent of danger, injury, and shock; also the chances of survival, rescue or quick recovery by a trapped or injured person (s). This session will deal with two specific topics a) prioritizing a case for rescue and b) prioritizing a case of medical emergency and understanding triage system.

Prioritizing case for rescue:

Light search and rescue means:

- Making rescue decisions based on two objectives:
    - To ensure rescuer safety; and

- To rescue the greatest number of people in the shortest amount of time.

• Rescuing lightly trapped victims first.
• Avoiding damaged structures or situations that are clearly unsafe to anybody, including first responders.

This clearly lays the foundation for light search and rescue prioritization. The first responder must avoid any heroics during a light search and rescue operation and go by the principles of –

1.Rescue lightly trapped victims first
2.Rescue victims with a fair chance of survival
3. Rescue anybody trapped due to a small opening (as suffocation is a major reason of death of potentially survivor during any emergency).
4. Give priority to people with lower resilience like people with disability, pregnant women, small children, aged people etc.
5. Please do not enter any place with stagnated water and possibility of electrification.
6. If there is an unconscious victim with signs of electricity shock; please wait for professionals. In case professionals can't reach that place, take adequate safety and try to move that person with the help of equipment, which are not a conductor of electricity like dry wood, dry bamboo etc.
7. Do not enter any severely damaged structure.
8. Assess the situation and ensure self-safety before rescuing a person/ a group on a slope.
9. Help each other and keep communicating with another group of first responders.
10. The first responders must form at least two teams, with one team ensuring the safety of the other.

Prioritize case for medical assistance:

Cases should be prioritized based on their situation, consciousness, visible wound, stability and awareness of the situation. The prioritization will have to be performed as per the Triage norms (as below) but the first responders are not advised to a color code on the victims. The FR need to know about the color code, as they may work in close collaboration with the NDRF or a trained medical unit, where they might be of better help, if they understand triage codes.
Triage is to judge the severity of the victim's condition, prioritize and decide on best pos-

sible approach beneficial to the individual within constrains of time and professional attention at that place.

International guidelines for Triage (color coded)

RED	Immediate Care: Most urgent and high survival if attended immediately.
YELLOW PRIME	Beyond Care: Regardless of urgency has poor survival rate.
YELLOW	Urgent Not Immediate Care: Can wait 45 to 60 minutes after stabilization.
GREEN	Minor Care; can wait until others have been attended.
BLACK	Dead

Category	RED	YELLOW PRIME	YELLOW	GREEN	BLACK
Priority	Transfer immediately to a referral hospital with a medical escort in an equipped ambulance	Transfer only, after evacuating all Red victims, with a medical escort in an equipped ambulance	Transfer to a referral hospital in ambulance with first aid escort	Transfer to an appropriate health care facilities by available vehicles without escort	Transfer to morgue
Urgency	Most urgent (Fluids, intubation, Fasciotomy)	Urgent (constant, Intensive care)	Urgent (IV line, Drug, immobilise fractures)	Not urgent (Splint or dressing)	Non-Urgent
Condition	Shock/hypoxia present/imminent	Deep shock, needs exceed available resources	Stable for 1 hour, can wait at field	Stable till end of response	No pulse or respiration No blood pressure or heart beat
Injuries	Life-threatening	Catastrophic	Systemic effects, not yet life threatening	Localized	Fatal
Potential for Survival	High after immediate care & transportation	Very poor	High after support treatment	Good	None

Transportation of injured people

Objective - To introduce participants to some common prescribed methods of safe handling and transportation of casualties. The session has a specific focus on safe handling of critical casualties with spine injury.

Session Plan

Time	Topic	Methodology
20 Minutes	Some common and safe methods to carry a victim	Classroom training, Role Play, and Q&A
20 Minutes	Stretcher and its safe use for critical victims	Classroom training, Role Play, and Q&A
20 Minutes	Transporting a casualty with spinal injury	Classroom training, Role Play, and Q&A

Key Messages

1. To maintain an open airway.
2. To resuscitate the casualty if necessary.
3. To prevent further injury (Keeping head and spinal damage in mind).
4. To arrange urgent and safe removal to hospital.

Content

After appropriate First Aid has been given the following principals of transport must be kept in mind.

- The position assumed by the casualty or in which he has been placed, must not be disturbed unnecessarily.
- Throughout the transport a careful watch must be kept on
- The general condition of the casualty.
    - Any dressing that may have been applied.
    - Any recurrence of bleeding.

• The transport must be safe, steady and speedy.

Some common Methods to carry:-

Though it is challenging for a single First-Aider to transport a casualty, certain methods will facilitate the task and can be very effective. These are the Cradle, the Human Crutch, the Pick-a-Back, and the Fireman's Lift-and-Carry.

If one or two First Responders available

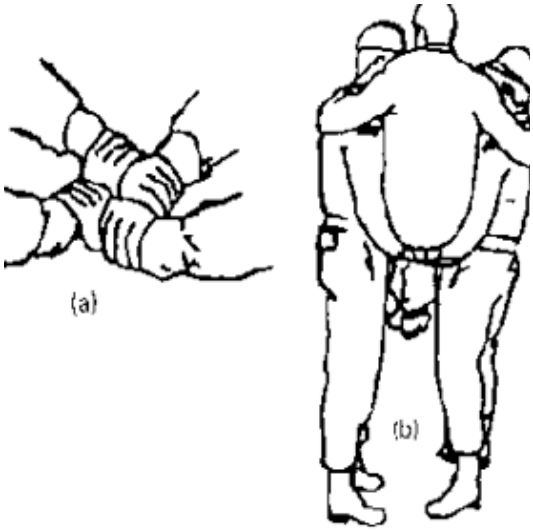
CRADLE

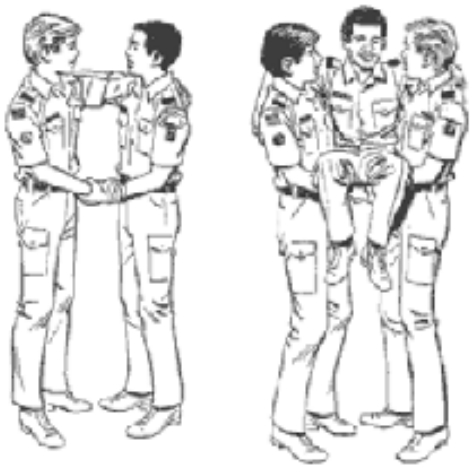
HUMAN CRUTCH

PICK A BACK

THE FIREMANS LIFT AND CARRY

Removal and transportation methods two or more first responders can use

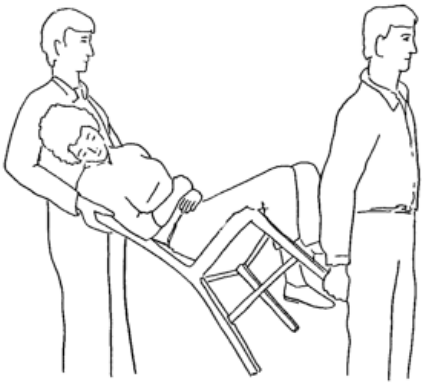




Four Handed Seat - Using one or both arms uses this method when the casualty can assist the First Aiders. It requires two people.

Two – handed seat

Fore-and-Aft Method: This method is mostly used to carry a casualty, unable to assist the bearers by using his arms.



Kitchen Chair Carry: This method is best used for a lightweight casualty over a short distance.

Stretchers

Ordinary stretcher

Loaded stretcher

Carrying a loaded Stretcher

Depending on the availability of manpower one can decide whether the stretcher is to be carried by four or two persons.

Lowering a loaded stretcher:

(a) "Lower Stretcher" the four bearers will stoop, gently lower the stretcher to the ground and rise together.
(b) Hand Carriage by Two Bearers: "Hand Carriage by Two Bearers - "Lift Stretcher" will pick the stretcher steadily together keeping the stretcher at a straight level.

To Load an Ambulance

(a) "Lower Stretcher" the four bearers will stoop, gently lower the stretcher to the ground and rise together.
(b) Hand Carriage by Two Bearers: "Hand Carriage by Two Bearers - "Lift Stretcher" will pick the stretcher steadily together keeping the stretcher at a straight level.

Rotate the stretcher, so that the head is loaded first in the ambulance.

Head is carried in first

The stretcher is lowered with its head one pace from the door of the ambulance. The casualty will be loaded head first while loading, take side pace to the ambulance raising the stretcher evenly to the level of the berth to be loaded. The front bearers place the runners in the grooves and then assist the rear bearers to slide the stretcher into its place and secure it. If slings have been used they should be kept with their stretcher.

Transport a Case of Spinal Injury

Injuries to the spine can involve one or more parts of the back and/or neck: the bones (vertebrae), the discs of tissue that separate the vertebrae, the surrounding muscles and ligaments, or the spinal cord and the nerves that branch off from it.

The most serious risk associated with spinal injury is damage to the spinal cord. Such damage can cause loss of power and/or sensation below the injured area. The spinal cord or nerve roots can suffer temporary damage if they are pinched by displaced or dislocated discs or by fragments of broken bone. If the cord is partly or completely severed, the damage may be permanent.

Vertebrae (back bones) protect the spinal cord; injury to a vertebra or to an inter-vertebral disc may damage nerve roots that emerge from the spinal cord or damage the cord itself.

The Casualty could be either conscious or may be unconscious.

To assess gently tap the shoulder and observe by gently asking the question to see the response, if casualty response indicates consciousness.

If you suspect neck injury place rolled-up blankets, towels, or items of clothing on either side of the casualty's head and neck, while you keep her head in the neutral position. Continue to support the casualty's head and neck throughout until emergency medical services take over.

For an Unconscious Casualty

Steps

• Kneel behind the casualty's head. Grasp the sides of her head firmly with your hands over the ears. Steady and support her head in the neutral head position, in which the head, neck, and spine are aligned.
• If necessary, open the casualty's airway using the jaw thrust method - Place your hands on each side of her face with your fingertips at the angles of her jaw. Gently lift the jaw to open the airway. Take care not to tilt the casualty's neck.

• Transport the casualty with spinal injury with special care to neck, head and spine from hard plank or stretcher as stated above to the ambulance.
• Emergency Method for loading fractures of the spine when there is no blanket under the casualty and none is available -

o Open out the casualty jacket and roll it firmly so that the rolls are close to each side.
o Place the casualty on the stretcher adopting the same procedure as described for the standard Method except that the bearers grasp the rolled up jacket and/or the clothing and /or bandage round the casualty's thigs instead of the rolled edges of the blanket. When the clothing is insecure, a broad bandage must be placed round the body just below the shoulder for the bearers to grasp.
o In the case of cervical injuries, place firm supports such as rolled-up blankets or sandbags on each side of the head to steady it.
o Place a folded blanket in the hollow above the heels so as to relieve pressure on them.
o Wrap the casualty.

• If he is to be carried over rough ground, reduce his body movements to a minimum by binding him firmly but not too tightly to the stretcher, with broad bandages. These should be applied round the pelvis, thighs and calves, and round the body and arms, just above the elbows.
• On reaching shelter, do nothing further until the arrival of medical aid. The above method of transportation of spinal injury case is to be used only if hard board is not available.

Using locally available materials for rescue and transportation

Objective - To introduce participants to some locally and readily available materials, which could be otherwise used as lifesaving aids. This session will also focus on using locally available tools for rescue operations.

Session Plan

Time	Topic	Methodology
20 Minutes	Removal of victims	Classroom training, demonstration and Q&A
20 Minutes	How to transport patients with help from house furniture's	Classroom training, demonstration and Q&A
20 Minutes	Using local equipment and tools for rescue operations.	Classroom training, demonstration and Q&A

Content

Removing Victims

Basically, there are two main methods of removal that rescuers can employ to get victims out of a structure. They are:

1. Self-removal or assist
2. Lifts and drags

We have already discussed in detail about these methods and developed some understanding about transportation of injured victims to safety. Here, we will discuss about this in detail and link it to usage of locally available materials to perform these, without harming the victims.

Self-Removal Or Assist

Ambulatory victims may be able to get out, with or without assistance, once obstacles are removed. Even when a victim is capable of self-removal, provide assistance and support as the victim vacates the area to avoid the possibility of additional injury.

Lifts And Drags (discussed in previous section)

If a victim cannot get out on his or her own, size up the situation to determine the most appropriate means of removal. The extrication method selected depends on the number of first responder available, the strength and ability of the first responder, the condition of the victim, and the general stability of the immediate environment.

One - Person Arm Carry (discussed in previous section)

If you are physically strong, you may be able to lift and carry a victim by yourself. Reach around the victim's back and under the knees, and lift. The victim may be able to assist by placing an arm around your shoulder.

One-Person Pack-Strap Carry

To accomplish this carry:

1. Stand with your back to the victim.
2. Place the victim's arms over your shoulders and grab the hands in front of your chest.
3. Hoist the victim onto your back by bending forward slightly, so his or her feet just clear the floor.

Two-Person Lift:

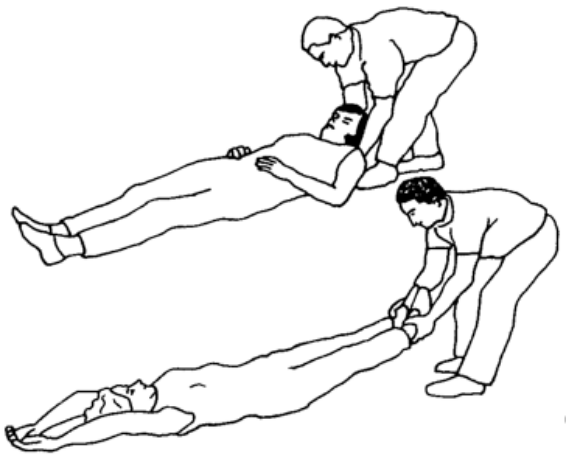
The two-person lift is also called the "Georgia Street Carry."

1. FR 1: Squat at the victim's head and grasp the victim from behind around the midsection. Reach under the arms and grasp the victim's forearms.
2. FR 2: Squat between the victim's knees, facing either toward or away from the victim. Grasp the outside of the victim's legs at the knees.

(See the picture in 'transporting a patient' section)

Drag

Drag the victim out of the confined area by grasping either under the arms or by the feet and pulling across the floor. Remember to use safe lifting procedures. Both dragging techniques are shown in the figure below. One rescuer can also use the blanket drag (shown in the figure on the following page) by wrapping the victim in a blanket, squatting down and grasping an edge of the blanket, and dragging the victim across the floor. By carefully assessing the situation and the victim's physical condition, then using correct removal techniques, FRs can remove entrapped victims safely.



Removal of victims using locally available equipments and house furniture:

Chair Carry

This technique requires two rescuers:

1. Place the victim in a straight-back chair (e.g., a wooden kitchen chair).
2. FR 1: Facing the back of the chair, grasp the back uprights.
3. FR 2: With your back to the victim's knees, reach back and grasp the two front legs of the chair.
4. Tilt the chair back, lift, and walk out.

Blanket Carry

The blanket carry requires at least six rescuers to provide stability to the victim, with one person designated as the lead person.

1. Lay a blanket next to the victim.

2.Tuck the blanket under the victim, and roll the victim into the center of the blanket.
3. Roll up the blanket edges toward the victim, to form tube-like handles on each side of the victim.
4. With three rescuers squatting on each side and grasping the "handle," the lead person checks the team for even weight distribution and correct lifting position.
5. The lead person calls out, "Ready to lift on the count of three: one, two, three, lift."
6. The team lifts and stands in unison, keeping the victim level, and carries the victim feet first.
7. To lower the victim, the lead person calls out, "Ready to lower on the count of three: one, two, three, lower."

Improvised Stretchers

A variety of materials can be used as improvised stretchers, which can be carried by two rescuers. For example, your instructors will demonstrate how to make a stretcher from poles and jackets.

A victim with suspected spinal injury (if at all has to be moved) must be moved with the help of a wooden plank (in the villages a 'Chowki' may act as a solid wooden plank and the person must tied to the Chowki with Saree or so in at least three places, to immobilize body movements. Holding the head of an unconscious victim and moving very slowly can restrict the head movements.

Using local equipments and tools for rescue operations:

Rescue tools may be anything that can be used to find and reach victims or to move large objects out of the way. Tool and equipment requirements will vary somewhat depending on the type of disaster and rescue requirements. Identify probable tool and equipment requirements during planning so that appropriate tools and equipment will be more readily available

when needed.

Leveraging And Cribbing

When a large object such as a collapsed wall or heavy debris needs to be moved in order to free victims, leverage and cribbing may be used.

Leverage is obtained by wedging a lever (pole or other long object) under the object that needs to be moved, with a stationary object underneath it to act as a fulcrum. When the lever is forced down over the fulcrum, greater force is obtained to lift the object.

A crib is a framework of wooden or metal bars used for support or strengthening. Box cribbing means arranging pairs of wood pieces alternately to form a stable rectangle. In a disaster situation, debris may be available to use for cribbing.

Leveraging and cribbing are used together by alternately lifting the object a little (using the lever) and placing cribbing materials underneath the lifted edge to stabilize it. The process should be gradual: "Lift an inch crib an inch." When leveraging and cribbing one end of an object, make sure that you are not creating an unstable condition at the other. You may have to leverage and crib both ends.

When sufficient lift is achieved, remove the victim, reverse the procedure, and lower the object. Never leave an unsafe condition.

Removing Debris

When you must remove debris in order to locate or extricate victims, a "human chain" may be used. Have volunteers line up so that they can hand debris from one person to the next, away from the rescue site. The chain should be located so as not to impede victim removal or restrict any path of travel. Wear leather gloves to protect your hands. Your hands are your most important rescue tools.

Locally used ropes or the local farming equipments can also be of use, in these situation based on 'what situation demands'. Some illustration of boats using local materials are given below -

List of Basic Search and Rescue Equipment

Here is a list of the top 30 items as mentioned in the Compilation of minimum equipment list of a Light Search and Rescue personnel. The original list is extensive and contains more than 100 items, however the first 30 items are most relevant (adjusted for Indian situation) –

1. Compass
2. Flashlight, Torch or Headlamp
3. Water in a bottle (minimum 1 liter)
4. Knife, multipurpose (or equivalent)
5. Raincoat
6. First aid kit, personal
7. Matches
8. Food, 1 day's worth
9. Whistle
10. Spare batteries for light
11. Notepad with pencil or pen

12. Cup, drinking
13. Gloves (warm and waterproof)
14. Mirror, signal
15. Sunglasses
16. Shelter material
17. Spare bulb for light
18. Nylon cord, at least 25 ft
19. Trash bag, large (min. qty. varied)
20. Helmet
21. Fire starter (Kerosene etc.)
22. Wet Tissue Paper (in case there is no water for cleaning)
23. Sleeping bag
24. Candles
25. Insect/ Mosquito repellent (carry some patches as well)
26. Sleeping pad
27. Water purification tablets
28. Flagging material
29. Headgear and ear protector for cold weather
30. Watch

MODULE 4

Introduction to Emergency First Aid

Objective - Participants will learn what is first aid and why is it performed? They will also learn in the aim of first aid and will be introduced to its basic concepts. After the session participants are expected to know well the 'golden rules' in first aid.

Session Plan

Time	Topic	Methodology
20 Minutes	Short introduction with First Aid.	Classroom training, brainstorming sharing experiences, storytelling and Q&A
20 Minutes	Golden Rules Of First Aid	Classroom training, brainstorming sharing experiences, storytelling and Q&A
20 Minutes	Basics of rapid response	Classroom training, brainstorming sharing experiences, storytelling and Q&A

Key Messages

1. First aid is an application of skills to preserve life, Prevent deterioration and Promote recovery.
2. It is a vital skill, that requires learning
3. Golden rules of First aid includes Safety first, perform tasks in a logical order.

Content

First aid sometimes referred to as EMERGENCY AID is the first skilled [acceptable] assistance given to a victim (sick or injured) on the occurrence of accident or sudden illness in order to preserve life, prevent further injury and relive suffering until qualified medical care is available.

To be effective at any form of true first aid you need to obtain some training or instruction. The following basic first aid instructions are designed to assist you in learning the

skill.

First aid is an application of skills and techniques, in a logical and prioritized sequence. You need to learn first aid as you will not be able to guess the priorities. You can say 'first aid is just common sense', but it is so much more.

The scope of first aid is to apply a consistent set of standards, and treatment, in a logical order. Victim assessment by a first aider is to identify injuries, treat, and transport victims.

GOLDEN RULES OF FIRST AID

• Do the first thing first; this includes assessing the situation for any immediate danger, quickly and methodically without panicking, giving priority to the most urgent situation / condition.
• Remove the victim from the cause of injury or the cause of injury from the victim.
• Resuscitate the victim, if necessary and carry out general treatment of unconsciousness.
• Loosen all tight clothing or materials around the victim's neck waist, wrist, etc.
• Arrest bleeding, cover all wounds, burns or scalds and immobilize all fractures.
• Do not allow people to crowd a victim and do not move a victim unless you really have to (dangerous environment, risk of falling debris, explosion etc)
• Reassure the victim and get help as soon as possible
• Improvise all necessary materials, which are not readily available.
• Guide against or treat for shock
• Dispose/transport the victim properly.

Principles of First Aid

The key guiding principles and purpose of first aid, is often denoted by 3 Ps –

1. Prevent further injuries
2. Preserve life
3. Promote recovery

Rapid Responses to Disasters and duties of rescuer

When disaster strikes, individuals within the affected community and neighboring communities are the first to respond. Preparedness can make the difference between life and

death.

A damage assessment survey should follow three key principles:
a. Look: Make a thorough visual inspection of the damage-affected area;
b. Listen to all sources of information - the community, government records, and media reports;
c. Understand the gravity of the dangers and the suffering of victims as well as the capacity to respond.

The first job of a rescuer is to remain calm and assess the area to determine the extent and particulars of the damage identify any hazards or obstacles to rescue, and gauge whether further damage is likely. The information collected will be crucial in planning the best approach to rescue. Rescuers can get this information by speaking with local leaders and residents within the locality. It is important that appropriate help as per assessment is called. It is important to understand that first aid has limitations and does not take place of a professional medical treatment.

The first actions by First Aiders: DR. CAB

D – Danger assessment for self and victim
R – Responsiveness of the victim
C – Check and assess for pulse
A – Assess and ensure clear airway
B – Check if person is breathing

Structures and functions of body

Objective - This session familiarizes participants on structure of human body that may be most prone to injury or needed for first aid access on a victim. The session provides basic information on respiration and circulation.

Session Plan

Time	Topic	Methodology
15 Minutes	Introduction with basic body parts useful in first aid	Classroom training, brainstorming/ group work and Q&A
15 Minutes	Important body functions – Circulation and Respiration.	Classroom training, brainstorming/ group work and Q&A

Key Messages

1. Skeleton provides support to the body and protection to the vital organs.
2. Oxygen is essential for the support of life and is obtained from the air we breathe.
3. Heart circulates blood through the body, which carries blood and important nutrients for life.

Content

The Human Body Frame

The skeleton forms the supporting framework of the body and consists of separate bones joined together by means of cartilage, ligaments and muscles
The bones in different parts:

- Head and face: Skull, two cheek bones and lower jaw bone
- Body: Backbone or spine, the ribs and breast bone
- Upper limbs: Arm, forearm (long bones), palm (short bones)
- Hip: The pelvis

• Lower limbs: Thigh and leg ; long bones, feet - short bones

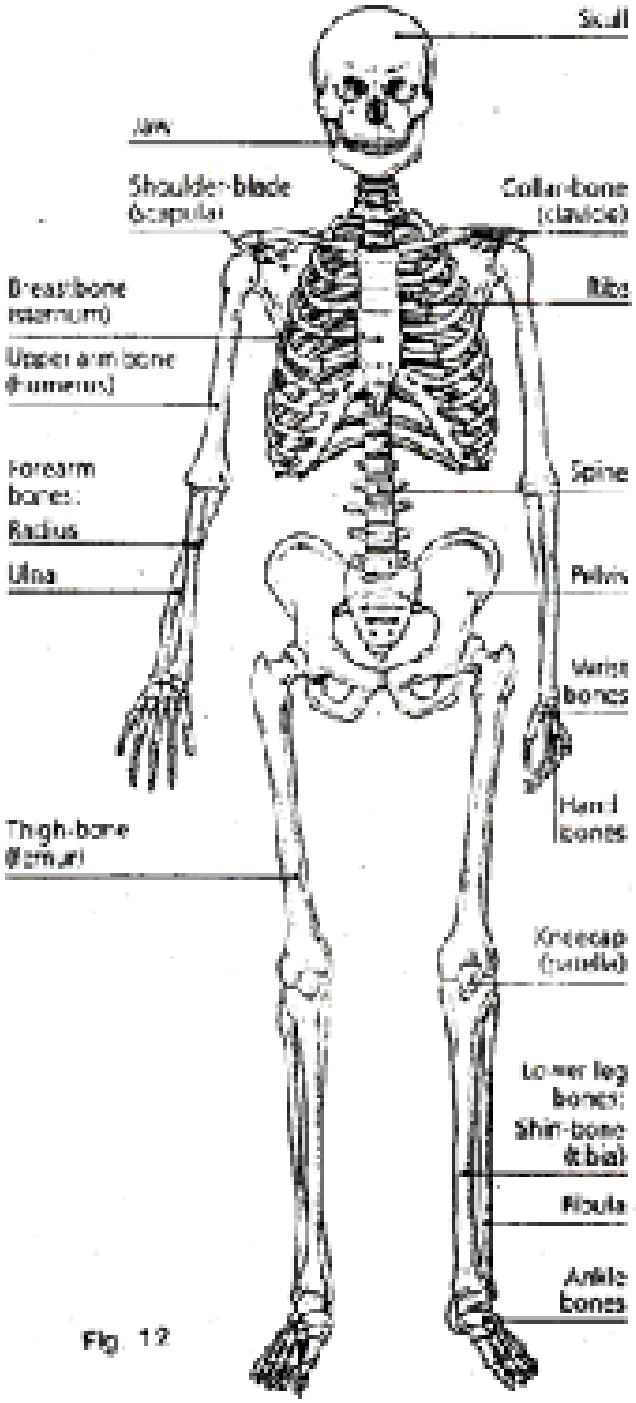


Fig. 12

Some important body parts to know:-

The Skull - The bone of the head forms the skull and protects the brain inside. Injury to the head causes bleeding from blood vessels inside the closed box; the blood is unable to escape and gets collected and presses the soft brain tissue. This leads to headache, irritability, and unconsciousness; and may cause death. To avoid this it is important to place all persons of head injury under care of medical supervision at the earliest.

The Back Bone or Spine (Vertebral Column): It consists of thirty-three small rounded pieces of bones. There is a central canal through which the spinal cord passes and carries nerve impulses to and from the brain. If there is any injury, one vertebra may be displaced thus the spinal cord is pressed or cut causing paralysis extremely important to handle with care all persons who have suffered severe injury to their back or neck.

The Ribs & Breast Bone (Sternum): This is called the thoracic cage, which protects the heart and the lungs. An injury of the rib should be taken seriously and requires urgent hospitalization.

Tongue: The tongue is the muscular organ, which lies on the floor of the mouth; it assists in tasting, and swallowing of food. In an unconscious casualty, by falling back on the throat, the tongue tends to obstruct it and thus prevent breathing.

Trunk and its Contents: Inside the body, the arched muscular partition (diaphragm) divides the trunk into two cavities-the upper, the chest (thorax) and the lower (abdomen).

The chest contains the heart, the lungs, major blood vessels and the food pipe.

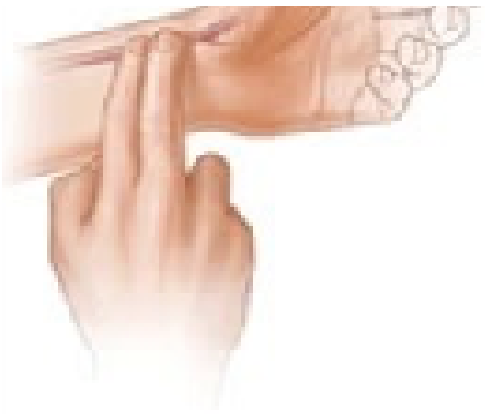
The lower cavity is bounded above by the diaphragm, below by the pelvis, behind by the lower spine and in front and sides by muscular walls of abdomen. It contains several important organs - liver, spleen, stomach, pancreas (behind the stomach), intestines, kidneys and the urinary bladder and reproductive organs.

Functions of the Body

The body consists of distinct parts called organs and their special work is called function. The essential functions of the life such as respiration, circulation, digestion, excretion, etc. are carried on by a set of organs of closely related parts called as a system (e.g. the digestive system which includes the mouth, the gullet, the stomach, the liver, the pancreas and the intestines).

'2' important organs and their function - Lungs and Heart:-

Oxygen is essential for the support of life and is obtained from the air while we breathe. It is carried to the lungs through the air passage into the blood stream and is circulated throughout the body by heart to the tissue level where exchange of gases takes place and oxygen is absorbed. Oxygen along with the glucose from the digested materials is carried by the blood stream to the tissues to supply for their growth, repair and to produce heat and energy.



Feeling the pulse at the wrist
(Average pulse rate in adults – 72/min.)

During the process of inspiration the chest cavity expands creating a negative pressure, which inflates the elastic lungs, which are two in number and are situated in the chest cavity on either side of the heart. When the chest and abdominal muscles relax the chest cavity becomes smaller and the lungs go back to their normal position due to their elasticity. Interference with the respiration may cause serious consequences like asphyxia and unconsciousness due to lack of oxygen and increase in Carbon dioxide accumulation.

The heart is a muscular organ situated at the centre of the chest cavity with slight deviation to the left side. It acts as a pump to circulate blood. When the heart beats impure blood is passed into the lungs where it is purified. During the process of purification, it

gives up carbon dioxide and takes a fresh quantity of oxygen. The pressure in the blood vessels (arteries and veins) varies with the beating of the heart. This pressure exerted on the arteries known as the 'Blood Pressure' and is recorded by the blood pressure instrument or a rough estimate made by feeling the pulse.

Blood is made of cells and a liquid portion called plasma, which contains proteins, enzymes and other important ingredients. An average adult has a blood volume of five to six liters, which keeps on circulating in the system and carries oxygen from the lungs to all parts of the body and collects the waste products which are partly excreted by the kidneys and the lungs, whenever blood comes in contact with some external material it tends to solidify forming a clot to stop further bleeding.

Assessment in First Aid

Objective - In this session participants would be introduced to some important rules of assessing casualty, its process and points that need to be remembered while doing it. After the session participants will be able to recognize signs and symptoms of condition that requires immediate support.

Session Plan

Time	Topic	Methodology
30 Minutes	Situational assessment	Classroom training and Q&A
45 Minutes	Casualty assessment	Classroom training and Q&A
45 Minutes	Assessing and managing vitals	Classroom training and Q&A

Key Messages

1. Signs in casualty can be seen, felt and heard.
2. Signs and symptoms help in an assessment.
3. Where possible history taking from the victim either supports or confirms made assessment

Content

ASSESSMENT: To understand the problem of the victim a methodical way to use a system is known as Primary and Secondary survey. This is vital and should be used in all emergency situations so you will not forget. Victims have to be dealt with in a methodical prioritized fashion.

This site will be set out with life threatening situations and work towards more minor occurrences. We will start with accidents and then medical emergencies. First in each will be immediately life-threatening conditions followed by life threatening and then to po-

tentially life threatening, and onto minor. It should be borne in mind that some conditions, which are thought minor and commonplace, such as a simple faint, are in fact potentially life threatening, unless dealt with correctly

Following a disaster, the typical situations requiring First Aid are:

- Breathing and/or circulation problems;
- Severe bleeding;
- Shock;
- Fainting;
- Unconsciousness
- Fracture;
- Head injury

The aims of First Aid are to:

- Preserve life
- Prevent the worsening of the casualty's medical condition
- Promote recovery
- Provide safe transportation to the nearest health care facility

Important Points to be remembered by First-Aiders

1. First-Aiders must always remain calm and assess the situation first before rushing to help the victim.
2. First Aiders must ensure to remove any dangers from the casualty, or remove the casualty from dangers, and prevent the crowding of casualties by bystanders.
3. It is important that the First-Aiders -call for appropriate help as per the assessment of the situation.
4. As most first aid treatment does involve touching the victim, it is very important that the First-Aider gains their permission, so as to avoid causing offence or distress.
5. It is important to understand that first aid has its limitations and does not take the place of professional medical treatment.
6. First Aiders should also take care to listen to any remarks or requests a casualty makes.

7. The First Aider's responsibility ends when the casualty is handed over to the care of a competent health provider.

When faced with a casualty, a First Aider must quickly determine the most appropriate course of action. The First Aider must assess the casualty and the area to gather all relevant information based on the history of the event leading to the injuries and the casualty's signs and symptoms.

DIAGNOSIS: This is the way of finding out the state of the casualty, this is made on the basis of the signs, symptoms and history of the condition.

SIGNS: Signs of a condition are the physical variation from normal, which can either be seen, felt, smelt or heard.

•Signs that can be seen include;
- o Irregular or unnatural movements
- o Swelling
- o Tenderness
- o Bleeding
- o Discoloration
- o Bleeding and wounds
- o Broken bones in the case of open fracture
- o Deformity etc.

• Signs which can be felt include;
- o High or low body temperature
- o Deformity
- o Dampness etc.
- o Signs which can be smell include
- o Smell of alcohol
- o Odour of Acetone (pear drops)
- o Smell of burns
- o Smell of solvents such as kerosene
- o Smell of fumes, etc.

• Signs which can be heard include;
    o Crepitus [grating bones]
    o Noisy breath
    o Speech, etc

• SYMPTOMS: Symptoms of a condition are the feelings or sensation which the victim experiences. The victim sometimes may complain of these feelings. Examples of symptoms are:

- •Pain
- • Anxiety
- • Thirst
- • Dizziness
- • Weakness
- • Nausea
- • Heat
- • Cold
- • Headache etc.

• HISTORY: History is any information relating to an incident/accident or illness. This information can be obtained by asking questions related to the incident from the victim [if conscious], or from a passer-by or from those who witness the incident. Remember history should include prior to the incident as well. This is important, as if the victim has a pre-existing illness, it may change the treatment regimen you adopt. The sources of history are not only from the victim, victim or those who witness the incident. Other sources of history

How to assess a casualty

Once the First Aider has established that the casualty is breathing and has a strong pulse, he or she can assess the casualty for imminent threats and injuries. Whether the casualty is conscious or unconscious, the assessment should proceed as follows

Assess scene safety

Approach the patients with care, making sure that there is no danger to you, the patients, or any bystanders. Be aware of hazards from electricity, gas etc.

Patient's assessments
Carefully shake the patient's shoulder and shouts:
"Hello can you hear me?"
If the victim responds:

1. Leave the victim in the position in which you found him, provided there is no further danger.
2. Try to determine what is wrong with the victim.
3. Call for help if needed.
4. Reassess the victim regularly

The key principle to assessment of a patient is often denoted by the acronym ABC. This stands for:

- Airway
- Breathing
- Circulation

Change from "A–B–C" to "C–A–B." A major change in basic life support is a step away from the traditional approach of airway–breathing–chest compressions (taught with the mnemonic "A–B–C") to first establishing good chest compressions ("C–A–B"). There are several reasons for this change.

- Most survivors of adult cardiac arrest have an initial rhythm of ventricular fibrillation (VF) or pulse less ventricular tachycardia (VT), and these patients are best treated initially with chest compressions and early defibrillation rather than airway management.

- Airway management, whether mouth–to–mouth breathing, bagging, or endotracheal intubation, often results in a delay of initiation of good chest compressions. Airway management is no longer recommended until after the first cycle of chest compressions — 30 compressions in 18 seconds. The 30 compressions are now recommended to precede the 2 ventilations, which previous guidelines had recommended at the start of resuscitation.

- Only a minority of cardiac arrest victims receive bystander CPR. It is believed that a significant obstacle to bystanders performing CPR is their fear of doing mouth–to–mouth breathing. By changing the initial focus of resuscitation to chest compressions rather than airway maneuvers, it is thought that more patients will receive important bystander intervention, even if it is limited to chest compressions.

Airway: The airway is the series of passages that carries oxygen to the lungs. In an unresponsive patient the tongue may fall back into the throat and block the airway. This is the most common cause of airway obstruction in an unresponsive patient. Tilting the head back and lifting the chin can open the airway.

These actions draw the tongue forward away from the back of the throat.

Breathing: While keeping the airway open, check whether the patient is breathing normally. If the patient is not breathing you must breathe for him. We will show you how to do this later; for now, look, listen and feel for breathing.

Agonal Breathing For several minutes after cardiac arrest, a patient may take infrequent gasps or air. This process is called 'agonal breathing'. This is not normal breathing and the patient requires immediate CPR

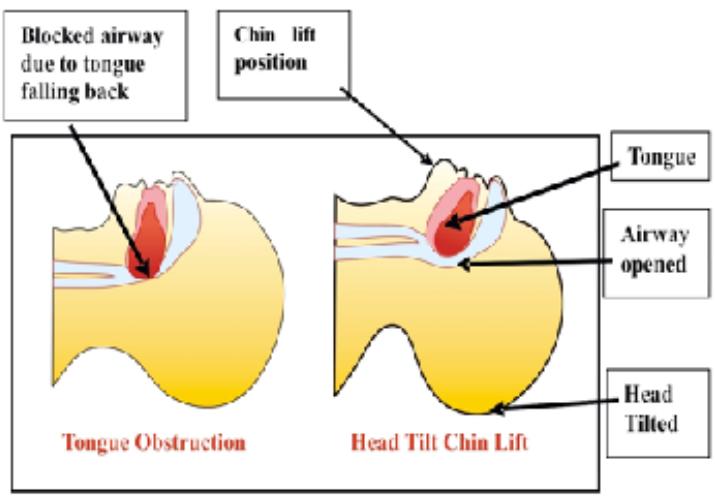
Circulation: At first responder level, the absence of breathing most likely means that the patient's heart has stopped. Task at this point is to restore circulation. Chest compressions are required to pump the blood, particularly to the brain. Patients should be placed lying flat on their back on a firm surface. Once these matters have been attended to, the casualty's other injuries can be treated.

If an unconscious casualty is not breathing, it may be due to one of the following causes:

- The head is tilted forward;
- The tongue is blocking the air passage due to the loss of muscular control in the throat;
- Saliva is lying in the back of the throat and blocking the airway due to impaired reflexes;
- There is a foreign body in the throat blocking the airway (e.g. vomit, dentures and weeds).

Opening the airway in an adult

It is essential to establish a clear airway immediately to ensure the survival of the casualty. Open and clear the airway using the chin lift position.



- Ensure the patient is on his back; if necessary roll him onto his back.
- Place one hand on his forehead and gently tilt the head back.
- Place the fingers of your other hand along the line of the jaw.
- Lift the chin using the fingers.
- These combined actions, called "head tilt chin lift", will open the airway.
- Once breathing starts, place the patient in the Recovery Position.

Checking for breathing

Breathing: While keeping the airway open, check whether the patient is breathing normally.

Agonal Breathing For several minutes after cardiac arrest, a patient may take infrequent gasps or air. This process is called 'agonal breathing'. This is not normal breathing and the patient requires immediate CPR

CPR will be discussed in the following chapter.

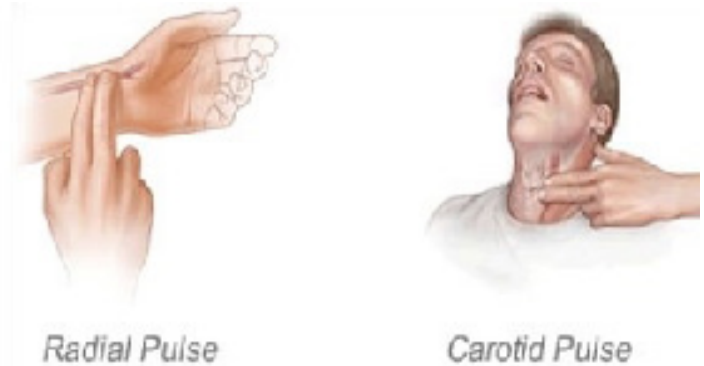
When the casualty is breathing independently place the person in the Recovery Position.

Look, Listen and Feel for any sign of respiration:

• Look for the rise and fall of the chest. If the casualty's chest fails to rise, assume the airway is not fully open. Adjust the position of the head and jaw and look again;
• Listen for breathing sounds;
• Feel the air coming out of the nose or mouth.

Checking for circulation

The only reliable way of establishing lack of circulation is to check the pulse at the neck (carotid pulse). Placing the fingertips gently on the voice box and sliding them down into the hollow between the voice box and the adjoining muscle can feel this pulse. (The pulse at the wrist is unreliable).



The carotid arterial pulses are usually examined with the patient supine and the trunk of the patient's body slightly elevated. The patient's chin should be elevated to allow easy palpation and yet not enough to tighten the neck muscles. Checking the carotid pulse is not always an accurate method of confirming the presence or absence of circulation.

Ask "Are you all right"

Agonal gasps are common in the first few minutes of a cardiac arrest (present in up to 40% of victims) and are associated with higher survival, if recognized as a sign of cardiac arrest (and treatment is begun).

Agonal gasps are an indication for starting CPR immediately.
Therefore, first aid providers should begin CPR if the victim is unconscious (unresponsive) and not breathing normally.

(*) CPR is discussed in later in this module.

Basic life support (Resucitation)

Objective - This session will help participants understand about Cardio Pulmonary Resuscitation:

- What it is?
- Why is it done?
- When to do it?
- How to do it?

Session Plan

Time	Topic	Methodology
30 Minutes	First aid in Airway Obstruction	Classroom training, sharing experiences, film and Q&A
30 Minutes	What is Recovery position?	Classroom training, sharing experiences, film and Q&A
60 Minutes	Principles and practice of Cardio Pulmonary Resuscitation	Classroom training, sharing experiences, film and Q&A

Key Messages

1. Airway obstruction in unconscious victim must be assessed and removed if possible.
2. CPR is an emergency procedure which is performed in an effort to manually preserve intact brain function until further measures are taken to restore spontaneous blood circulation and breathing in a person.
3. In a CPR press down on the sternum at least 2 inches (5-6 cm) at a rate of at least 100 per minute (nearly 2 compressions each second) but no more than 120 per minute.
4. In a drowning victim the priority should be upper airway management and rescue breaths to begin with the CPR.

Content

This module includes basic life support (BLS) and basic paediatric life support (BPLS) for each situation.

Airway obstruction

Foreign body airway obstruction (FBAO) is one of the more common life threatening emergencies that is seen and can be treated by the lay public.

Guidelines

Combination of back blows followed by chest compression should be used for clearance of FBAO in conscious infants ≤1 year old

• Chest thrusts, back blows or abdominal thrusts are equally effective for relieving FBAO in conscious adults and children >1 year old
• These techniques should be applied in rapid sequence until the obstruction is relieved; more than one technique may be needed in conscious adults and children >1 year old

Signs of choking include:

• Coughing, either forcefully or weakly
• Clutching the throat with one or both hands
• Inability to cough, speak, cry or breathe
• Making high-pitched noises while inhaling or noisy breathing
• Panic
• Bluish skin color
• Sometimes, the person may cough weakly or make high-pitched noises, which indicates he or she is not getting enough air to stay alive.

Common Causes:

The most common cause of choking in adults is airway obstruction caused by food. In infants and children, reported cases of choking occur while eating or with non-food items such as coins or toys during games.

Action:

Foreign bodies may cause either mild or severe airway obstruction. It is important to ask the conscious victim "Are you choking?"

For adults and children >1 year old

If the victim shows signs of mild airway obstruction: Encourage continued coughing, but do nothing else. Aggressive treatment, with back blows, abdominal thrusts and chest compression, may cause potentially serious complications and could worsen the airway obstruction. Victims with mild airway obstruction should remain under continuous observation until they improve, because severe airway obstruction may develop.

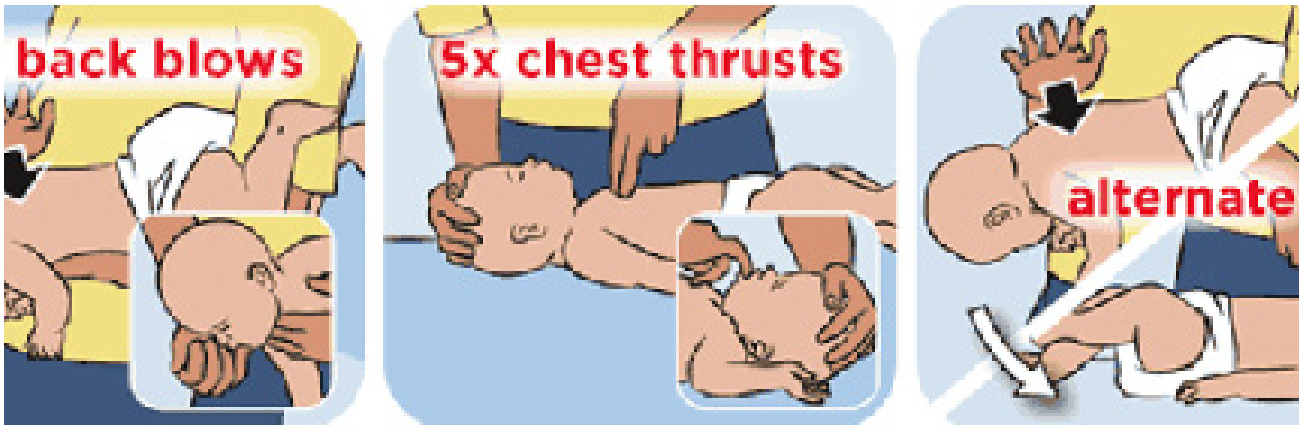
If the victim shows signs of complete airway obstruction and is conscious: Apply up to five back blows as follows: 1. Stand to the side and slightly behind the victim. 2. Support the chest with one hand and lean the victim well forward so that when the obstructing object is dislodged, it comes out of the mouth rather than further down the airway. 3. Give up to five sharp blows between the shoulder blades with the heel of your other hand. 4. Check to see if each back blow has relieved the airway obstruction. The aim is to relieve the obstruction with a blow/slap, not to necessarily give all five.

If five back blows fail to relieve the airway obstruction, give up to five abdominal thrusts as follows: 1. Stand behind the victim and put both arms around the upper part of the abdomen. 2. Lean the victim forward. 3. Clench your fist and place it between the umbilicus and the lower rib area. 4. Grasp this hand with your other hand and pull sharply inwards and upwards. 5. Repeat up to five times. 6. If the obstruction is still not relieved, continue alternating five back blows with five abdominal thrusts.

If the victim becomes unconscious: 1. Support the victim, while carefully lowering him or her to the ground. 2. Immediately call for medical support. 3. Begin cardiopulmonary resuscitation (CPR) at the compression part of the sequence.

For infants (≤1 year old)
If the victim shows signs of mild airway obstruction: Continue to watch the infant, but do nothing else. Aggressive treatment with back blows and chest compression may cause potentially serious complications and could worsen the airway obstruction. Victims with mild airway obstruction should remain under continuous observation until they improve, because severe airway obstruction may develop.

If the victim shows signs of complete airway obstruction and is conscious: Apply up to five back blows as follows: 1. Lay the infant face down along your arm with the head lower than the body. Support the infant in a head downward, prone position, to enable gravity to assist removal of the foreign body. 2. A seated or kneeling rescuer should be able to support the infant safely across his or her lap. 3. Support the infant's head by placing the thumb of one hand at the angle of the lower jaw, and one or two fingers from the same hand at the same point on the other side of the jaw. Do not compress the soft tissues under the chin. 4. Give up to five sharp blows between the shoulder blades with the heel of your other hand. 5. Check to see if each back blow has relieved the airway obstruction. The aim is to relieve the obstruction with a blow/slap, not to necessarily give all five.



If five back blows fail to relieve the airway obstruction, give up to five chest thrusts as follows:

1. Turn the infant into a head downward, supine position. This is achieved safely by placing the free arm along the infant's back and encircling the back part of the head with the hand. Support the infant along your arm, which is placed down (or across) your thigh. 2. Find your landmarks, two fingers below the nipple line. 3. Give chest thrusts (compress approximately 1/3 of the depth of the chest). These are similar to chest compressions but sharper and delivered at a slower rate. 4. Repeat up to five times. 5. If the obstruction is still not relieved, continue alternating five back blows with five chest thrusts.

If the victim becomes unconscious or is found unconscious: 1. Support the victim, while carefully lowering him or her to a firm surface. 2. If medical support has not arrived or been called, immediately call for medical help. 3. Open the airway. 4. Give 2 to 5 rescue breaths. During the first attempts at rescue breaths, if a breath does not make the chest rise, reposition the head before making the next attempt. 5. Begin cardiopulmonary resuscitation (CPR) at the compression part of the sequence.

Aftercare and referral for medical examination: After successful treatment for FBAO, foreign material may nevertheless remain in the upper or lower respiratory tract and cause complications later. Victims with a persistent cough, difficulty swallowing or the sensation of an object being still stuck in the throat should be referred for a medical examination. Another reason for medical examination is the possibility of serious internal in- juries resulting from abdominal

thrusts or injury to the airway from the object that was lodged and removed.

CPR

Cardio Pulmonary Resuscitation (CPR) should begin immediately if the victim is not breathing normally, or unconscious (unresponsive).

C. Cardio
P. Pulmonary
R. Resuscitation

Essential when both breathing and heart beat are affected.
Steps: 1. Thumping the heart region.
2. External Cardiac Compression.
3. Mouth-to-Mouth respiration.

If two First Aiders are available one does ECC 30 times followed by the other mouth-to-mouth respiration twice, repeat. If there is only a single First Aider, ECC 30 times followed by mouth-to-mouth respiration twice – given by the same person.
If you are not able, or willing to give rescue breathes, perform compression-only CPR. Compression¬ only CPR will maintain blood flow to the brain and has proven to be effective.

Guidelines

• For untrained or minimally trained first aid providers treating an adult victim, compression-only CPR should be used.
• For formally trained first aid providers (and professionals) treating an adult victim, compressions with breaths should be provided
• Every effort should be made to shorten the time until compressions and to minimize any interruptions in compressions
• For infants and children with cardiac arrest, the preferred method of CPR is compressions with breaths
• For infants, children and drowning victims who are unresponsive and not breathing,

breaths should be given before compressions (Either two or five breaths may be given).

• Professional rescuers may be taught to do a pulse check, but this should not increase assessment time and is preferred to be done with the breathing check

• Professional rescuers should check for pulse and if unsure as to whether the pulse is present, they should act as if the pulse is absent

• For adults, the compression rate may be at least 100 per minute and not exceed 120 compressions per minute

• For adults, the depth of compression may be at least 2 inches (5-6 cm)

Actions:

For the unconscious victim

• Make sure you (and any other first aid providers), the victim and any bystanders are safe. Check the victim for a response by gently shaking his or her shoulders and asking loudly: "Are you all right?"

If the victim responds

• Leave the victim in the position in which you found him or her, provided there is no further danger.

• Try to determine what is wrong with the victim and call for help if needed.

• Reassess the victim regularly.

If the victim does not respond

• Shout for help, turn the victim onto his or her back and then open the airway using head tilt and chin lift.

• Place your hand on the victim's forehead and gently tilt his or her head back, and consider keeping your thumb and index finger free to close the victim's nose if rescue breathing is required (this later step

may vary by National Society).

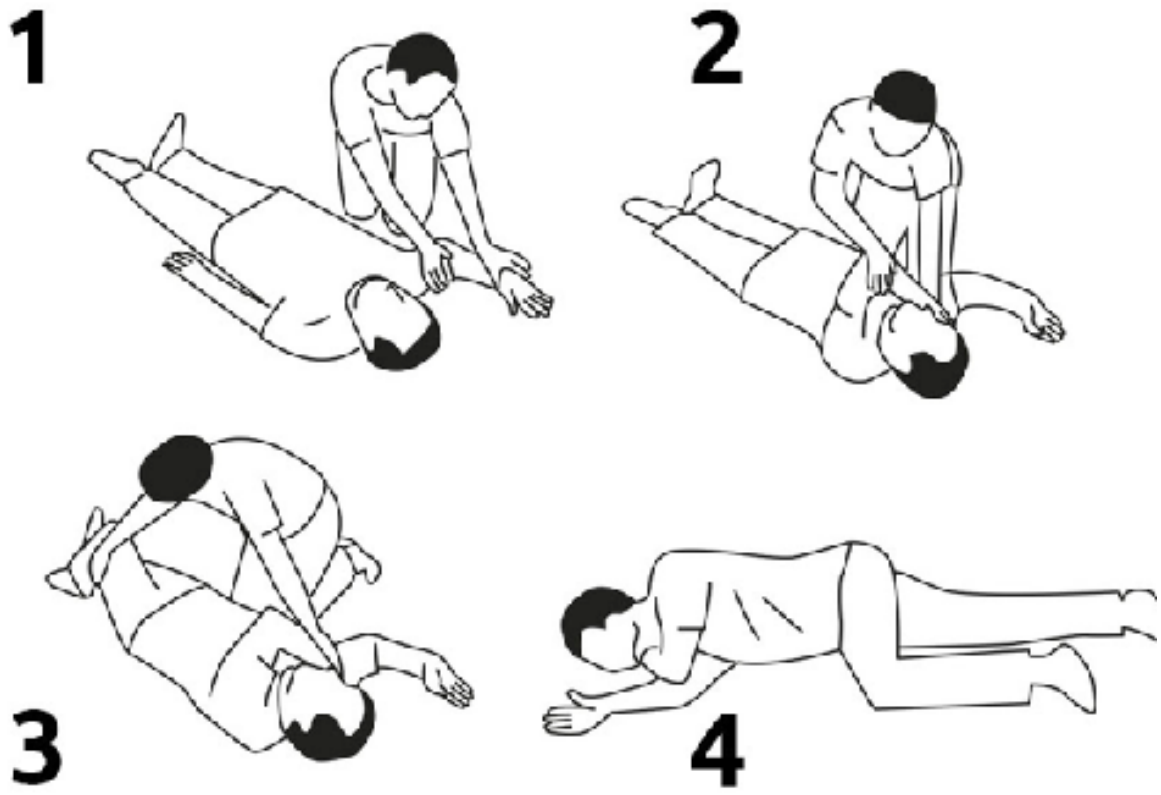
• With your fingertips under the point of the victim's chin, lift the chin to open the airway. (AS in the picture)

• Keeping the airway open, look, listen and feel for normal breathing.

• Look for chest and/or abdominal movement and listen at the victim's mouth for breath sounds or feel for air on your cheek.

• For professional rescuers, a simultaneous pulse check can be done.

Note: In the first few minutes after cardiac arrest, a victim may be barely breathing or taking infrequent, noisy gasps. Do not confuse this with normal breathing. Look, listen and feel for no more than 10 seconds to determine whether the victim is breathing normally. If you have any doubt whether breathing is present, assume it is not. Similarly, for professional rescuers if un- certain as to the presence of a pulse, assume one is not present.

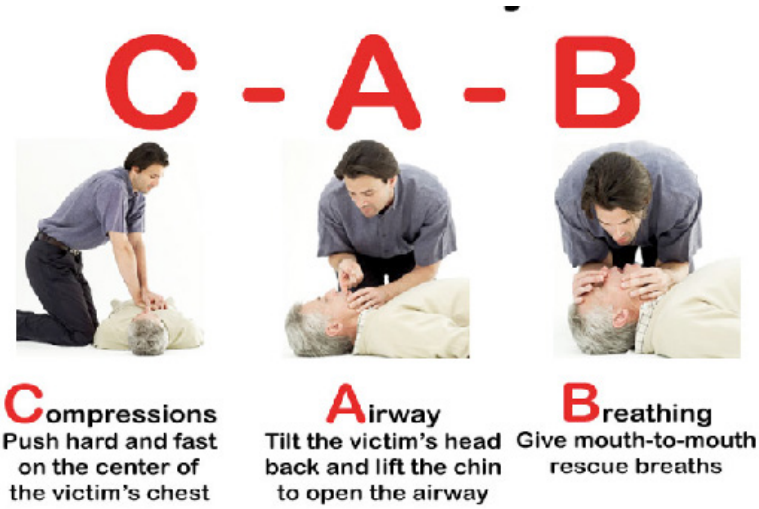


If the victim is breathing

• Turn the victim into the recovery position, if suspected cervical spine injury. (As in the picture)
• Send or go for help.
• Continue to check if the victim is breathing normally.

If the victim is not breathing (for lay rescuers and with no pulse for professional rescuers)

• Send someone for help and start chest compression
• Kneel by the victim's side.
• Place the heel of one hand in the centre of the victim's chest.
• Place the heel of your other hand on top of the first hand and ensure that pressure is not applied over the victim's ribs. Do not apply any pressure over the upper abdomen or the bottom end of the bony sternum (breastbone).
• Position yourself vertically above the victim's chest and, with your arms straight, press down on the sternum at least 2 inches (5-6 cm) at a rate of at least 100 per minute (nearly 2 compressions each second) but no more than 120 per minute.
• After each compression, release all the pressure on the chest without losing contact between your hands and the sternum; compression and release should take equal amounts of time.



Combine chest compression with rescue breaths

• After 30 compressions, open the airway again using head tilt and chin lift.
• Consider pinching the soft part of the victim's nose closed, using the index finger and thumb of your hand that is on the victim's forehead
• Allow the mouth to open, but maintain chin lift.
• Take a normal breath and, making sure you have a good seal, blow steadily into the victim's mouth while watching for the chest to rise, taking about 1 second as in normal breathing; this is an effective rescue breath.
• Maintaining head tilt and chin lift, take your mouth away from the victim and watch for the chest to fall as air passes out.
• Take another normal breath and blow into the victim's mouth once more, for a total of two effective rescue breaths.
• Do not attempt more than two breaths each time before returning to chest compressions. Without delay, return your hands to the correct position on the victim's chest and give 30 more chest compressions. Count out loud.
• Continue with chest compressions and rescue breaths in a ratio of 30:2.
• Stop to recheck the victim only if he or she starts to move around and clearly wakes up; otherwise, do not interrupt resuscitation.

Note: If your initial rescue breath does not make the victim's chest rise as in normal breathing, then before your next attempt, check the victim's mouth and remove any obstruction and recheck that there is adequate head tilt and chin lift (as described in the care of a foreign body airway obstruction above). If more than one rescuer is present, rescuers should change over performing CPR every 1–2 minutes to prevent fatigue. Ensure that chest compressions are not interrupted during the changeover of rescuers.

For compression-only CPR
• If you are unable or unwilling to give rescue breaths, give chest compressions only.
• If chest compressions only are given, these should be continuous, at a rate of at least 100 per minute.
• Stop to recheck the victim only if he or she starts to move around and clearly wakes up; otherwise, do not interrupt resuscitation.
• Continue resuscitation without interruption until qualified medical help arrives and takes

over, or if the victim starts to breathe normally.

If the victim is not breathing and has a pulse (for professional rescuers):
• Send someone for help
• Kneel by the victim's side.
• Consider pinching the soft part of the victim's nose closed, using the index finger and thumb of your hand that is on the victim's forehead.
• Allow the mouth to open, but maintain chin lift.
• Take a normal breath and, making sure you have a good seal, blow steadily into the victim's mouth while watching for the chest to rise, taking about 1 second as in normal breathing; this is an effective rescue breath.
• Maintaining head tilt and chin lift, take your mouth away from the victim and watch for the chest to fall as air passes out.
• Continue delivering breaths at a rate of 1 breath per 5 seconds.
• Periodically recheck for pulse and if the victim begins to breathe and/or move around, perform a complete reassessment.

Note: If your initial rescue breath does not make the victim's chest rise as in normal breathing, then before your next attempt, provide care of a foreign body airway obstruction.

Resuscitation of children (and victims of drowning) after recognizing a cardiac arrest (a victim that is unresponsive and not breathing), first aid providers should perform the following
• Give two to five initial rescue breaths before starting chest compressions. Take a normal breath and, making sure you have a good seal, blow steadily into the victim's mouth while watching for the chest to rise, taking about 1 second as in normal breathing; this is an effective rescue breath.
• Maintaining head tilt and chin lift, take your mouth away from the victim and watch for the chest to fall as air passes out.
• If alone (sole rescuer), perform CPR for approximately 1 minute before going for help. Compress the chest by approximately one-third of its depth.
• For a child <1 year old, use two fingers; for a child >1 year old, use one or two hands as needed to achieve a compression of adequate depth.
• Continue giving 30 compressions followed by 2 breaths.

• Stop to recheck the victim only if he or she starts to move around and clearly wakes up; otherwise, do not interrupt resuscitation. If more than one rescuer is present, rescuers should change over, performing CPR every 1-2 minutes to prevent fatigue and use a ratio of 15 compressions and 2 breaths. Ensure that chest compressions are not interrupted during the changeover of rescuers. The same steps of five initial breaths and 1 minute of CPR by a sole rescuer before getting help may improve outcomes for victims of drowning. This modified form of CPR should be taught only to those who have a specific duty of care for potential drowning victims or to professional rescuers (e.g., lifeguards).

If the victim is not breathing and has a pulse (for professional rescuers)
• Kneel by the victim's side.
• Consider pinching the soft part of the victim's nose closed, using the index finger and thumb of your hand that is on the victim's forehead
• Allow the mouth to open, but maintain chin lift.
• Take a normal breath and, making sure you have a good seal, blow steadily into the victim's mouth while watching for the chest to rise, taking about 1 second as in normal breathing; this is an effective rescue breath.
• Maintaining head tilt and chin lift, take your mouth away from the victim and watch for the chest to fall as air passes out.
• Continue delivering breaths at a rate of 1 breath per 3 seconds.
• Periodically recheck for pulse and if the victim begins to breathe and/or move around, perform a complete reassessment.

Note: If your initial rescue breath does not make the victim's chest rise as in normal breathing, then before your next attempt, provide care of a foreign body airway obstruction.

Drowning process resuscitation

Maintaining an open airway to allow oxygen to reach some functional lung tissue and minimizing aspiration obstruction of the airway improve resuscitation outcomes. Several methods to remove water, debris and vomitus from the upper respiratory system (oropharynx) have been introduced, debated, and included in drowning process resuscitation protocols over time. In the drowning process resuscitation, upper abdominal thrusts pose

a greater risk of precipitating stomach and food pipe regurgitation and subsequent aspiration. Upper abdominal thrusts do not expel sufficient water from the airway or lungs to assist in resuscitation. In addition, upper abdominal thrusts may delay and complicate the start of effective cardiopulmonary resuscitation (CPR). During the drowning process, the priority is to establish an airway and provide ventilations.

Positioning of body

• Several studies and consensus opinions have supported the following for positioning:
• The victim should be in as near a true lateral position as possible, with the head dependent to allow free drainage of fluids.
• The position should be stable, and any pressure on the chest that impairs breathing should be avoided.
• It should be possible to turn the victim onto the side and return to the back easily and safely, having particular regard to the possibility of cervical spinal injury.

Actions

• Drowning process resuscitation must have as the priority upper airway management and early rescue breathing.
• In-water resuscitation consisting of airway and ventilation management should not be attempted in deep water by a single rescuer without flotation support. In this case, the priority should be rescue to shore.
• For unconscious or recovering victims, or during transport of drowning victims, the victim may be in as near a true lateral position as possible, with the head dependent to allow free drainage of fluids.
•In a submersion victim, manual methods should only be used when the mouth and wind pipe is blocked by vomitus or debris that is preventing ventilation.

First Aid in emergencies

Objective - This is perhaps the lengthiest and the most interesting sessions. Participants are introduced to some very important commonly occurring accidents and health issues in a crisis. After this session they will be able to take useful decision on an approach to a victim/ casualty for safe handling and quick transportation for professional help.

Session Plan

Time	Topic	Methodology
90 Minutes	First aid in burns, scalds and bleeding.	Classroom training, sharing experiences, storytelling, video and Q&A
90 Minutes	Signs and symptoms plus First aid in - head and spinal injuries and injuries of extremities.	Classroom training, sharing experiences, storytelling, video and Q&A
90 Minutes	Actions in first aid for common problems – fractures, poisoning, bites, dehydration.	Classroom training, sharing experiences, storytelling, video and Q&A

Key Messages

1. First aid providers are not expected to make diagnosis but should be aware of basic life threatening issues in even of crisis and have knowledge of basic life saving skills.
2. Control of bleeding is a core first aid skill
3. Cooling with normal running water in burns is the best start
4. Immobilization of bone and nearest joints is important to prevent further injury and shock

Content

Injuries
- Burns
- Bleeding
- Head and spinal injuries
- Injured extremity
- Wounds

Burns

Burns are injuries that result from dry heat like fire, flame, a piece of hot metal, the sun, and contact with wire carrying high tension electric current or by lightning or friction. Scalds are caused by moist heat due to boiling water, steam, oil, hot tar, etc.
Immediate cooling of thermal burns (chemical, electrical, etc.) with cold tap water, which has been a common remedy for many years, is the best way to start.

Action Guidelines
- Burns must be cooled with cold water (15-25°C [59-77°F]) as soon as possible, and the provider should continue to cool the burn until pain resolves.

- First aid providers should avoid cooling burns with ice water for longer than 10 minutes, especially if burns are large (>20% total body surface area).
- Ice should not be applied to a burn
- Because the need for blister debridement is controversial and requires equipment and skills that are not consistent with first aid training, first aid providers should leave burn blisters intact and cover them loosely
- To treat skin or eye exposure to acid or alkali, first aid providers must immediately ir-

rigate the skin or eye with copious amounts of tap water
• All electrical burns should have a medical evaluation.

Bleeding

Control of bleeding is a core first aid skill.

Guidelines

• First aid providers must control external bleeding by applying direct pressure
• The use of pressure points and elevation is not recommended

Raise the limb to reduce bleeding and apply pressure bandage

• When direct pressure fails to control life-threatening bleeding or is not possible (e.g., multiple injuries, inaccessible wounds, multiple victims), tourniquets should be used in special circumstances (such as disaster, war-like conditions, remote locations or specially trained first aid providers)
• Cooling of the distal limb should be considered if a tourniquet needs to remain in place for a prolonged time.

General Management

• Calm the casualty and call for ambulance
• Remove any non-embedded foreign objects like glass, stones, etc if you can see them easily Apply direct pressure to the wound with a sterile dressing or a clean cloth piece.
• Handle the injured part as gently as possible.
• Make the patient lie down.
• If the wound is on a limb and there are no broken bones, raise the limb. If bleeding contin-

ues, do not take off the original dressing, but add more pads and bandage firmly.

Management of Severe Bleeding

• Put on disposable gloves if available.
• Remove or cut clothing to expose the wound;
• Apply direct pressure over the wound with the fingers or palm, over a clean piece of cloth or over a sterile dressing or non-fluffy clean pad;
• Raise and support the injured limb above the level of the casualty's heart to reduce blood loss.

Apply direct pressure over the wound with your fingers or palm, over a clean piece of cloth or over a sterile dressing

Ensure that pressure bandages are not too tight; press the fingernails to check the blood supply

• Handle the limb very gently if there is a possibility of fracture; Help the casualty to lie down on a blanket, if available, to protect from the cold.
• Support legs so that they are above the level of the casualty's heart (to avoid shock);
• Secure the dressing with a bandage that is tight to maintain pressure but not so tight that it impairs circulation; If further bleeding occurs, apply a second dressing on top of the first.
• If blood seeps through this dressing, do not remove both dressings and apply a fresh one ensuring that pressure is applied accurately to the point of bleeding; Check the circulation beyond the bandage;
• Support the injured part in a raised position using a sling and/or bandaging; Call for medical

help.
• Monitor and record the casualty's vital signs – responsiveness level, pulse, and breathing. Watch for signs of shock, and check the dressings for seepage.

Head and spinal injuries

Minor head injury and concussions are common in children, youth and adults. Concussion has many signs and symptoms, such as dizziness or nausea on recovery; loss of memory of any events that occurred at the time or immediately preceding, the injury and mild, generalized headache. Some of these overlap with other medical conditions. Loss of consciousness is uncommon in most head injuries, and if it lasts longer than 30 seconds, it may indicate more significant internal head injury. Although the evidence is questionable as to the ability of first aid providers to identify a spinal injury, they should have a high index of suspicion based on events that have occurred and treat as if a spinal injury was present.

Guidelines

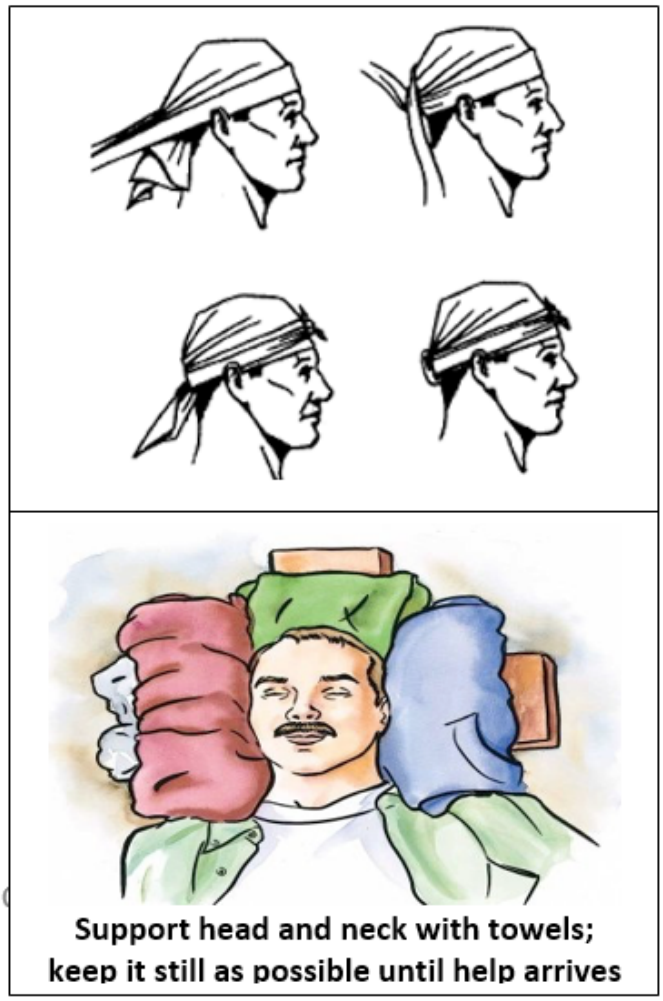
Concussion
• Persons with concussion should rest, both physically and cognitively, until their symptoms have resolved both at rest and with exertion
• Any person who sustains a concussion should be evaluated by a health care professional, ideally with experience in concussion management, and receive medical clearance before returning to athletics or other physical activity
• Persons with a concussion should never return to any physical activity while symptomatic at rest or with exertion

Head injury
• Any head trauma with loss of consciousness greater than 1 minute must have emergency medical evaluation and care.
• Victims of minor closed head injury and brief loss of consciousness (1 minute) should be evaluated by a healthcare professional and be observed.
• Observation should be done in the office, clinic, emergency department, hospital or

home under the care of a competent caregiver.

• Victims of minor closed head injury and no loss of consciousness may be observed in the home, under the care of a competent caregiver.

• Attention should be paid to airway and breathing in all victims with a head injury.



Signs and symptoms of Head Injuries

• Changes in level of consciousness and behavior
• Severe pain in the head
• Blood or clear fluid coming from the ears or nose.
• Bleeding from the Scalp
• Unusual bumps on the head
• Fits
• Problem of breathing or seeing.
• Nausea or vomiting
• Unequal pupil size
• Slow a or fast pulse
• Weakness or an inability to use a leg or arm
• Bruising of the head, especially around the eyes behind the ears/ nose.

First Aid in Head injury

• If bleeding, apply pressure bandage
• Attention should be paid to airway and breathing in all victims with a head injury
• Treat for shock and keep a careful watch on the pulse, breathing, color of skin, lips and

nails

• Transport the casualty to hospital in recovery position taking Special care for Head & Neck

Spinal injury

• Considering the serious consequences of spinal cord injury, most experts agree that spinal motion restriction should be the goal of early treatment of all victims at risk of spinal injury. First aid providers should restrict spinal motion by manual spinal stabilization if there is any possibility of spinal injury

• Because of the absence of any evidence supporting the use of immobilization devices in first aid and with some evidence suggesting potential harm even when these devices are used by health care providers, first aid providers should not use spinal immobilization devices unless specifically trained Spinal immobilization devices may be used by specially trained providers or in remote locations where extrication is necessary

• First aid providers cannot conclusively identify a victim with a spinal injury but should suspect spinal injury if an injured victim has any of the following risk factors:

- Age ≥65 years old
- Driver, passenger or pedestrian, in a motor vehicle, motorized cycle or bicycle crash
- Fall from a greater than standing height
- Tingling in the extremities
- Pain or tenderness in the neck or back
- Sensory deficit or muscle weakness involving the torso or upper extremities
- Not fully alert or intoxicated
- Other painful injuries, especially of the head and neck
- Children <3 years old with evidence of head or neck trauma
- First aid providers should assume all victims with a head injury may have a spinal cord injury.

Some symptoms of damage to the spine or vertebrae

• Pain in the neck or back at the injury site;

• This may be masked by other, more painful injuries.

• Rescuer should keep the spine aligned! Avoid any twists in the normal curve of the spine.

When the spinal cord is damaged, there may be:
• Loss of limb control; movement may be weak or absent;
• Loss of sensation, or abnormal sensations such as burning or tingling, in the limbs. The casualty may say that limbs feel stiff, heavy, or clumsy;
• Loss of bladder and/or bowel control;
• Breathing difficulties.

First Aid
The First Aider should aim to:
• Prevent further injury;
• Ensure the airway is clear to facilitate breathing in an unconscious casualty;
• Arrange urgent removal to hospital.

If a First Aider suspects neck or spine injury, he or she should immobilize the casualty. Place rolled-up blankets, towels, or items of clothing on either side of the casualty's head and neck while keeping the casualty's head in the neutral position and continuing to support the casualty's head and neck throughout until emergency medical services take over.

1. Reassure the casualty and advise him/her not to move;
2. Kneel behind the casualty's head. Grasp the sides of the casualty's head firmly, with your hands over the ears. Do not completely cover the ears – the casualty should still be able to hear you. Steady and support head in the neutral head position, in which the head, neck, and spine are aligned. This is the least harmful head position for a casualty with a suspected spinal injury;
3. Continue to support the casualty's head in the neutral position until emergency medical services take over, no matter how long this may be. Get help to monitor and record vital signs, such as the responsiveness level, pulse, and breathing;
4. Examining the casualty for any other injury on the body;
5. If casualty is moving his or her limbs because of pain, before preparing to transport the casualty, put bandages on the legs to immobilize them so it will be easier to use the Log - Roll technique, which can be used on a conscious or unconscious casualty;
6. If the airway is blocked in an unconscious casualty and you cannot open the airway using the jaw thrust technique, use the Log-Roll technique.

Log-Roll Technique

This technique should be used if you have to turn a casualty with a spinal injury. Ideally, you need five helpers but the move can be done with three. While you support the casualty's head and neck, ask your helpers to straighten the limbs gently Then, ensuring that everyone works together at the same time, roll the casualty. Keep the casualty's head, trunk, and toes in a straight line at all times. Support the casualty's neck and head and lower the casualty onto a hard plank or hard stretcher and transport to the ambulance.

Injured extremity

While not always life-threatening, extremity injuries have the potential for loss of the limb. In addition, extremity fractures are often painful, and there may be associated bleeding. Such bleeding can be internal at the fracture site, or external in the case of open fractures; if large bones are involved, such as the femur or pelvis, the associated bleeding can be life threatening. Lastly, depending on the position of the extremity and the nature of the injury, there may be challenges for moving the victim. The goals of treating extremity fractures are to preserve the extremity, to limit pain and bleeding and to seek further medical assistance.

Guidelines

- First aid providers should assume that any injury to an extremity can include a potential bone fracture and manually stabilize the injured extremity in the position found.
- A sprained joint and soft-tissue injury should be cooled, preferably with a cold therapy that undergoes a phase change. Cold should not be applied for >20 minutes

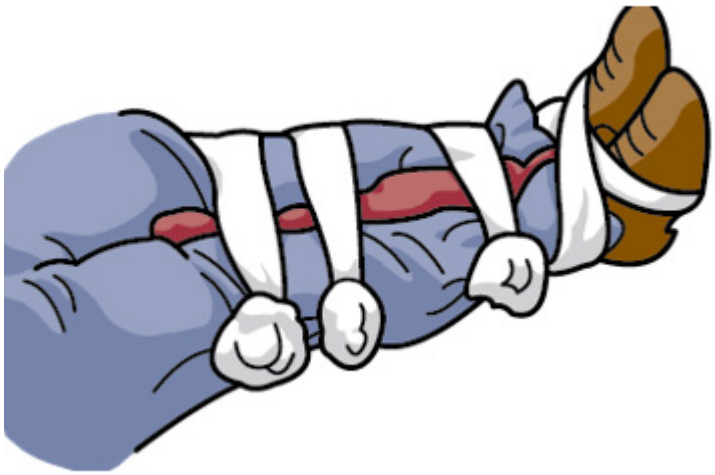
Signs and symptoms of Injuries to Bones

- Pain at the spot of fracture and/or around it or pain on gentle pressure over the spot.
- Swelling of the area and discoloration.
- Loss of normal movements of the part.
- Loss of normal shape.
- Sometimes the muscles will pull up the lower free ends causing apparent shortening of the limb.
- Irregularity of the bone: If as in the leg bone, the break is under the skin, the irregular outline of the bone can be felt easily.
- When one end of the broken bone moves against the other, a crackling sound is heard.

Actions

- Provide support to the injured area
- Expose the site of the injury
- Treat any wounds
- Immobilize effectively
- Reassure and monitor

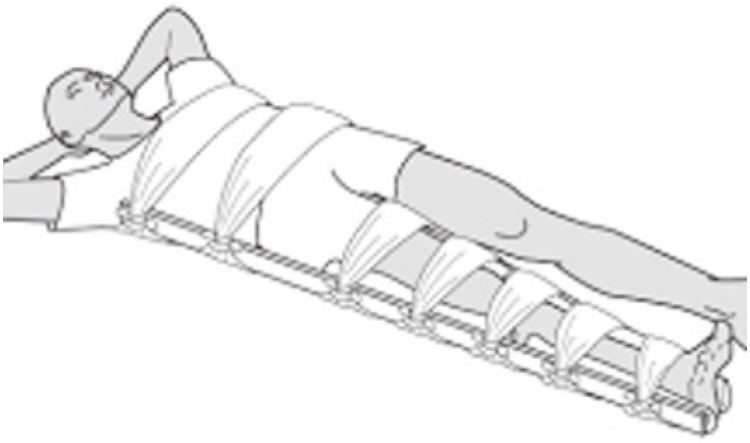
Steady and support the injured part immediately, so that no movement is possible. This stops further injury and helps to stop the bleeding. This can be done by bandages or by using splints (support) where available.



Using Bandages

Usually it is enough to use the other (uninjured) limb or the body of the patient as the splint (support). The upper limb can be supported by the body, the lower limb by the other limb (Provided that also is not fractured) most fractures (except forearm) can be immobilized thus. Do not apply bandage on the site of fracture.

The bandaging should be fairly firm so that there is no movement of the fractured ends; but not too tight in which case the circulation of blood to the area will be stopped. If there is further swelling of the injured area the bandage is too tight therefore loosen the bandages slightly.



Using splints

A strip of rigid material used for supporting and immobilizing bone.

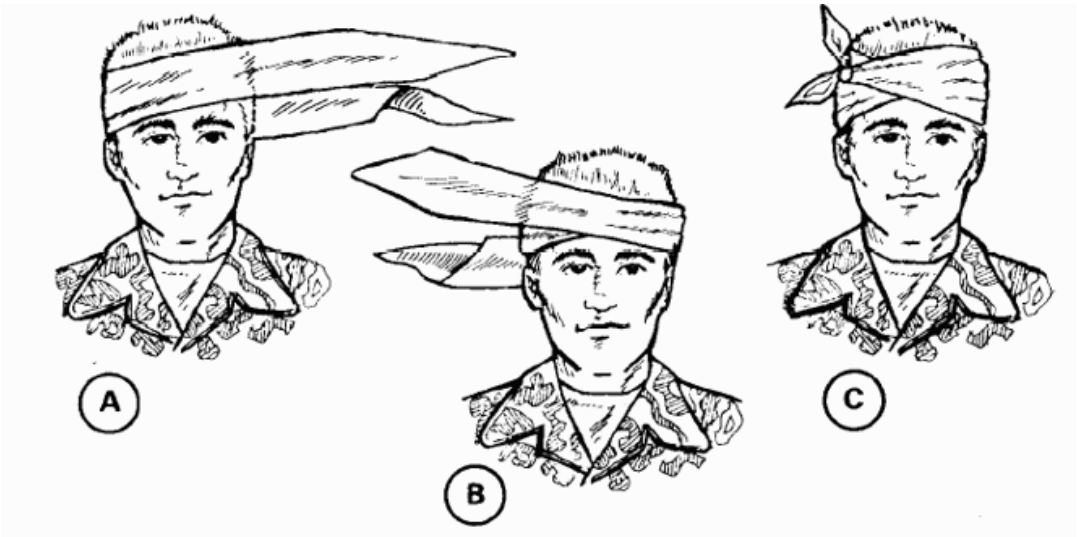
It could be wood or plastic material or metal applied used as support.

Reasonably wide splints are better than narrow ones.

They should be long enough so that the joints above and below the fractured bones can be made immobile.

Splints are best applied over the clothing and better if they are well padded with cotton or cloth so as to fit softly and snugly on the injured limb.

In an emergency splints can be improvised with a walking stick, an umbrella, a piece of wood, a book or even firmly folded newspaper.

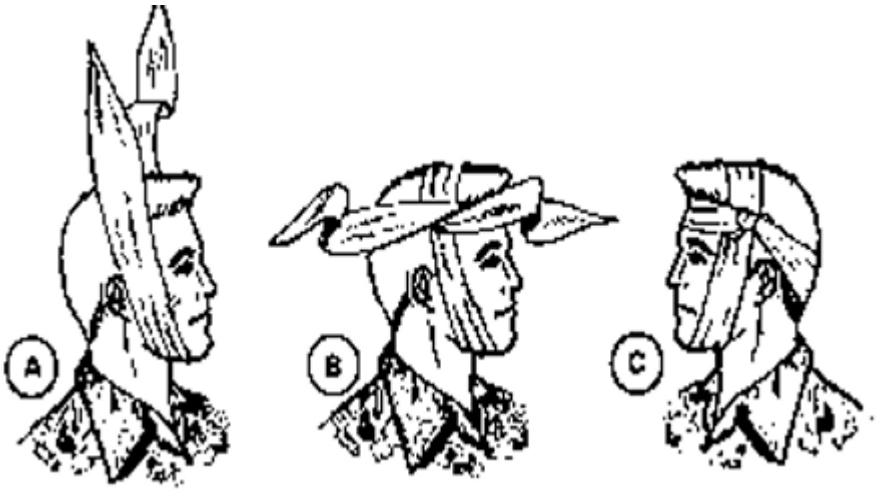


Some common Injuries and their management

A. Head injury
If breathing is normal:
• Lay the casualty on his back with head and shoulder slightly raised by cushions.
• Turn the head to one side (if there is bleeding from the ear, the head should be turned so that the bleeding side is down)

If breathing is noisy with bubbling of air (This is usually due to secretions in the chest or mouth and windpipe).
• Lay the casualty in the recovery position. Support him in this position by pads in front of the chest and draw up the casualty's upper knee.
• Keep the air passages clear.
• In cases with bleeding from the ear, arrange the position of casualty so as to keep bleeding side down. Do not plug the bleeding ear.
• Do not give anything to drink.
• Do not rouse him.
• Transport the casualty to hospital.

B. Lower jaw injury
1. Ask the casualty not to speak, and do not give anything by mouth.
2.Remove false teeth, if any. Make sure the tongue does not fall back. Ensure and open airway.
3.With the patient leaning forward place the palm or your hand on the chin and gently press the lower jaw upwards against the upper jaw (which acts as splint)
4.Place a narrow bandage under the chin. Carry one end up and over the top the head, cross with the other end over the ear. Carry the shorter end across the front of forehead and the longer and in the opposite direction around the back of the head. Tie just above the opposite ear
5.If the casualty shows signs of vomiting, remove the bandage and tie it up again after vomiting stops.
6. Remove him to hospital as early as possible



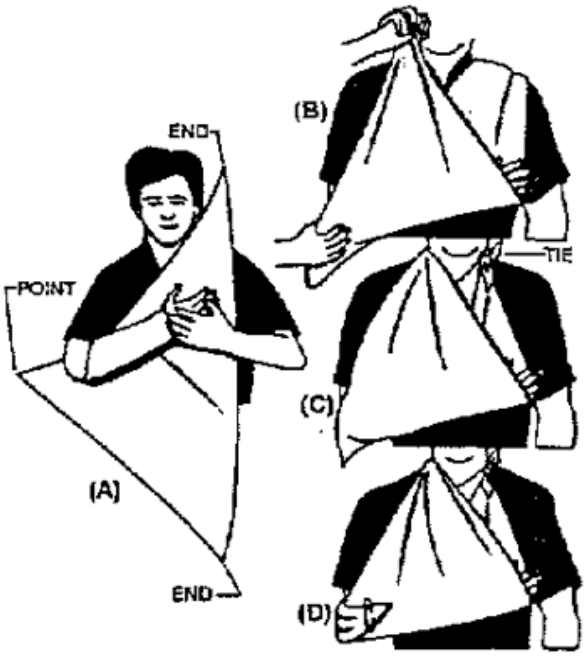
C. Upper arm injury (Fracture)

• Place a pad of rolled handkerchief in the axilla lightly tie the arm to the chest.
• Bend the elbow and the hand place on the opposite and apply shoulder a triangular sling.
• For all injuries of arm and elbow, always feel the pulse of the injured limb. If the pulse weakens after splintage relax the bandage till the pulse comes back.

D. Lower arm injury (Fracture)

• If elbow can be bent, strap arm to the chest and support forearm in a triangular sling.
• If elbow cannot be bent, strap arm and forearm on the side of body in extended position.

Actions if sling with a splint is placed.



• Place the forearm at right angles to the upper arm, and place it across the chest, the thumb facing upwards and the palm over the chest.
• Roll a folded newspaper or other magazine round the forearm. The paper magazine should be from the elbow to the fingers.
• Apply one bandage above the fracture and the other over the wrist first around it and then as a figure of eight including the wrist and hand.
• Support the limb by a broad arm sling.

Dental injuries

Dental injuries, particularly in children, are common problems seen by first aid providers.

Guidelines

It is not recommended for first aid providers to re-implant an avulsed tooth
Avulsed teeth may be stored in milk and transported with the injured victim to a dentist as quickly as possible.

Actions

• First aid treatment for an avulsed tooth includes the following:
• Clean bleeding wound(s) with saline or tap water.
• Stop bleeding by applying pressure with gauze or cotton.

• Handle the tooth by the top (crown) not the root; i.e., do not handle the part that is below the gum line.
• Place the tooth in milk, or if milk is not available, in water.
• Have victim evaluated by dentist as soon as possible.

Snakebites

In many countries, bites by venomous snakes are a serious health problem. In addition, many people are extremely afraid of snakes and snakebites. Even in countries where only harmless snakes are found, people often panic after snakebite and may possibly provide first aid measures that may be harmful rather than beneficial.

Guidelines

•Suction should not be applied to pull venom out, because it is ineffective and may be harmful
• Properly performed compression and immobilization of extremities should be applied in first aid
• When performing compression for snakebite, the pressure applied should be a bandage that will allow a finger to be inserted underneath (40 to 70 mm Hg).

Actions

In regions where very venomous snakes are found:
Contact the local health centre to find out where and how to get antivenin for victims of poisonous snakes and what specific treatments are needed.

Insect bites

Some insects are not harmful themselves but function as vectors for transmitting diseases such as malaria or tick-borne encephalitis.

Guidelines

• To remove a tick, grab the tick as close to the skin as possible with a very fine forceps/ tweezers and pull it gradually, but firmly, out of the skin. The bite site should be thoroughly disinfected with alcohol or another skin antiseptic solution. Avoid squeezing the tick during removal, because squeezing may inject infectious material into the skin

• Use of gasoline, petroleum, and other organic solvents to suffocate ticks, as well as burning the tick with a match, should be avoided
• If a rash develops, the patient should see a physician in case antibiotics or vaccinations are indicated

Actions

• Contact medical centers to find out which of these insect related diseases are common in the region as well as preventive measures such as: Use repellent, use bed-nets, wear long sleeves and long pants, especially at dawn, when these insects are active.
• Get in touch with medical personnel on how to prevent these diseases, e.g., vaccination for tick-borne encephalitis and pharmaceuticals for malaria prevention.

Poisoning

A large number of poisonous substances are found in the home and worksite. It is important to understand the toxic nature of chemical substances in the environment and the proper protective equipment and emergency procedures in case of toxic exposure. Most frequently, intoxication happens through inhalation or ingestion of poisonous material.

Guidelines

• In rendering first aid to a poison victim, the first priority is the safety of the rescuer/first aid provider, meaning that any direct contact with gases, fluids or any other material possibly containing poisons should be avoided
• In remote areas where further care is delayed giving a diluent (milk or water) may be appropriate
• Activated charcoal should be used as a first aid measure only on the direction of a poison control centre or equivalent agency
• To treat skin or eye exposure to acid and alkali, first aid providers should immediately irrigate the skin or eye with lot of tap water.

Actions

• For a toxic substance exposure, the preferred action is to stop or limit further effect of the poison by stopping continued exposure.

•In the case of inhalation of a toxic gas, the victim should be removed from the area, but this should be done only while maintaining rescuer safety.

•In the case of external or internal contact with a toxic material: Dry chemicals/powders should be removed before the victim is rinsed, body surface should be rinsed, the (caustic) toxin should be diluted.

• Mouth-to-mouth resuscitation should be avoided in the presence of toxins.

•Immediate medical help should be called.

Carbon monoxide

Frequent sources of carbon monoxide (CO) are gas engines, fires, furnaces and space heaters, especially in badly ventilated spaces. Typical symptoms of CO poisoning are headache, nausea, vomiting, muscle weakness (especially in lower limbs), unconsciousness and seizures

Actions

• All doors and windows should be opened

• Move the victim out of the area with the gas, but only if this can be done without endangering the first aid providers

• If the victim is unconscious, maintain a patent airway and perform rescue breathing if needed

Dehydration/gastrointestinal distress

Dehydration can be a consequence of a wide variety of illnesses (vomiting and diarrhea, heat stress or exhaustion, fever, etc.). Common symptoms of gastrointestinal (GI) distress include abdominal pain, nausea and/or vomiting, and/or diarrhea and sometimes fever. Dehydration may result, especially in prolonged or severe vomiting or diarrhea, or in children and older adults.

Guidelines

• For dehydration, first aid providers should rehydrate using an oral rehydration solution

• Either a commercially prepared oral rehydration solution or a pre-prepared salt package for

oral rehydration should be used

• In the absence of pre-prepared solutions, a homemade solution may be used

• For diarrheal illness, first aid providers may place the victim in a horizontal position.

•If there is considerable abdominal pain, bending the hips and knees may be helpful

Actions

Symptoms of dehydration include the following:

• Pale and dry skin

• Dry mouth and tongue

• Weakness Symptoms of GI distress include the following: • nausea/vomiting, diarrhea, abdominal pain, eventually signs of dehydration and/or fever If symptoms appear suddenly, are serious or are accompanied by dehydration (or the latter appears alone), Emergency treatment may be necessary.

Prepare oral dehydration solution using oral rehydration salt (ORS) packets:

•Wash hands with water and soap or ask before preparing solution.

•Take an ordinary glass and use it to fill 5 glasses of potable water in a bigger pot/jug

•Mix the whole of ORS packet in this water

•Shake it well till it dissolves completely

• In the absence of pre-prepared packets, a homemade solution can be formulated with the following ingredients: 1 liter of water + 1/2 teaspoon of salt + 6 teaspoons of sugar.

Supplementary reading – Contents of a first aid kit

A first aid box comes in different shapes, sizes and colors. The contents within the box could also differ depending on need and manufacturer standards. There are guidelines (national and international standards) that guide as a check-list for equipments and their use. There is a wide variation in the contents of first aid kits based on the knowledge and experience of those putting it together, the differing first aid requirements of the area where it may be used, and variations in legislation or regulation in a given area. The international standard for first aid kits is that they should be identified with the ISO graphical symbol for first aid although many kits do not comply with this standard, either because an individual puts them together, or they predate the standards. An essential First Aid kit contents: -

- Torch – Battery powered.
- Sterile hand gloves – for use on cuts, wounds, abrasions etc.
- Antiseptic liquid – for use on cuts, wounds, abrasions, bites.
- Crepe Bandage – to cover sprains and/ or use on blunt injury of limbs/ joints.
- Triangular bandage -
- Compressed roller bandage – For use on wound with gauze or in making sling and tie splints.
- Surgical cotton rolls – for cleaning e.g. clearing dirt, grime and debris with water/ antiseptic solution.
- Adhesive plaster/ tape – to hold bandage in place.
- Adhesive bandage – to use on cuts/ wounds over body parts that may not require use of large bandages (if needed hair should be shaved to prevent discomfort or further injury)
- Sterile Gauze – to cover cuts, wounds or abrasions for preventing infection.
- Eye Pads – Covering an injured.
- Sterilised paraffin Gauze – to use on burn or scald before covering ii with any bandage.
- Silver sulfadiazine ointment – Used on burns and scalds.
- Mouth to mouth resuscitator – Used in assisting mouth to mouth breathing. An infection barrier for performing artificial respiration as part of CPR.
- Scissor – For cutting bandage, cloth, tape etc.
- ORS packets – Oral rehydration solution packets.
- Glucose powder – To be mixed with water as a drink for quick energy and/ or rehydration.
- Forceps – Can be used to hold sterile gauze or access areas that may not be easy to reach.
- Safety pins – For holding bandages or clothes in place.
- Splints - A strip of rigid material used for supporting and immobilizing a broken bone

Notes

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