

**Report of the Working Group
on
Emergency Care in India**

**Ministry of Road Transport & Highways,
Govt. of India**

Report of the Working Group on Emergency Care in India

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Abbreviations

AIIMS	All India Institute of Medical Science
CATS	Centralized Accident and Trauma Services
CMVR	Central Motor Vehicle Rules
CRV	Crash Rescue Vehicles
DFS	Delhi Fire Service
EAG	Empowered Action Group
EMS	Emergency Medical Service
EMSS	Emergency Medical Service Systems
EMT	Emergency Medical Technicians
ERTS	Emergency Referral Transportation System
GDP	Gross Domestic Product
HMV	Heavy Motor Vehicle
HRT	Hospital Response Time
ICT	Information and Communication Technology
IMS	Incident Management System
MoHFW	Ministry of Health & Family Welfare
NGO	Non-Governmental Organization
NHAI	National Highway Authority of India
NHARSS	National Highways Accident Relief Services Scheme
NHSRC	National Health Systems Resource Centre
NHTCP	National Highway Trauma Care Project
NRHM	National Rural Health Mission
PCR	Police Control Room
PPP	Public Private Partnership
RTA	Road Traffic Accidents
SOP	Standard Operating Procedures
SRT	Site Response Time
TCT	Total Call Time

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INTRODUCTION

Few events are more distressing than an unexpected loss of life or permanent disability caused by physical violence or accidental injury. Particularly tragic is the injured, potentially salvageable patient who dies needlessly through delay in retrieval, inadequate assessment or ineffective treatment. This not only maims many young lives but also **deprives all affected of the 'Right to Life' guaranteed to them vide Article 21 of the Constitution of India.**

Trauma – defined as a physical injury sustained by a person; requiring timely diagnosis and treatment by a multidisciplinary team of health care professionals, supported by the appropriate resources, to diminish or eliminate the risk of death or permanent disability – has been often termed as the “*neglected disease of modern society.*”

Trauma is now the leading killer of young persons in their productive years. The National Health Profile of India 2009 lists **injury** as the **3rd leading cause of death in India.** Recent calculations by the Planning Commission of India estimate the **total societal cost of injury in India** to be approx. **3% of India's GDP.**

As per the latest data published by the National Crime Record Bureau, **'Road Accidents' in India have increased by 1.4%** during 2009 compared to 2008. The **casualties in Road Accidents in the country have increased by 7.3%** during 2009 compared to 2008.

1,08,409 males and 18,487 females totalling **1,26,896 persons were killed during the year 2009**, while travelling by various modes of transport on roads. This is **akin to a jumbo jet crashing every day.**

A review of the incidence of Casualties due to Road Traffic Accidents in India during the past five years presents a disturbing trend:

Incidence of Casualties due to Road Traffic Accidents in India (2005-2009)					
Year	2005	2006	2007	2008	2009
No. of Deaths	98,254	1,05,725	1,14,590	1,18,239	1,26,896
No. of Injured	4,47,900	4,52,900	4,65,300	4,69,100	4,66,600
Source: National Crime Record Bureau, Ministry of Home Affairs, Govt. of India					

Though these statistics don't reflect the true numbers of people who are injured & maimed every day in accidents as majority of such instances go un-recorded in the absence of a mandatory standardized nationwide reporting system, the pattern clearly indicates that despite our on-going efforts to contain accidental deaths, their number is gradually increasing by the years and it's time for introspection. It also reflects a disorder which is systemic and necessitates a holistic overview. Thus it is **necessary to look at the Emergency Care or Trauma Care System as a whole than just piece meal at its components.**

PROBLEM STATEMENT

Prevailing Problems in the Accident & Emergency Care Delivery in India

1. At the site of Impact

- a. There is lack of awareness about the Emergency Medical Service (EMS) System
- b. The general public doesn't possess basic first aid skills
- c. There is no standardized toll free national access number to call for emergency medical help
- d. Adequate number of First Responders/Ambulances are not there
- e. There are no standardized protocols & medical directives for EMS

2. In Transit to a definitive care health facility

- a. Non availability of **appropriate & safe transport** for the injured patient in the form of road ambulances, air ambulances, etc.
- b. The real concept of an Ambulance is missing in India. Existing ambulances are more like transport vehicles and any vehicle suitable

to lay a patient is called an ambulance without consideration to the overall **ambulance design** w.r.t. patient care, comfort & ergonomics.

- c. Currently there is no '**National Ambulance Code**' in the country which specifies the minimum National Specifications for various types of Ambulances, viz ALS, BLS, First Responder, etc.
- d. The ambulances are **inappropriately/inadequately equipped**
- e. In-adequate care during transportation due to lack of trained **Emergency Medical Technicians (EMT's)** in the country & unskilled existing manpower
- f. Lack of **Standard Operating Procedures (SOP's)** for pre-hospital triage and transport to appropriately designated hospitals in sync with the type and gravity of their injury
- g. **Remuneration** of paramedics and drivers are not in sync with their skills

3. At the Healthcare Facility

- a. Appropriate healthcare facilities are not available within reasonable **distances**
- b. There is a mismatch between the healthcare facility capacity vis a vis the catchment area resulting in **overcrowding** at the limited number of available facilities
- c. **Infrastructure** at the existing healthcare facilities is deficient due to lack of funds or poor planning
- d. Inadequately **equipped** healthcare facilities due to lack of National Standards and Guidelines regarding the same
- e. Sub-optimal quality care at the existing health facilities due to inadequately skilled **manpower**
- f. Lack of SOP's regarding the handling of a patient on his arrival at the healthcare facility
- g. Lack of **accountability** and monitoring mechanisms to ensure timely and optimal care

4. Miscellaneous

- a. Lack of **documentation** and a foolproof **reporting** mechanism due to which majority of the Road Traffic Accidents (RTA's) go unreported and the real magnitude of the problem is not known.
- b. **Laws** like Motor Vehicles Act 1988 and CMVR 1989 which have been in vogue since 1980's and have not been updated since then
- c. This is **lack of co-ordination** between agencies resulting in a mismatch between the existing resources
- d. There is **no appropriate database** for further evaluation and enhancement of the services being rendered
- e. Post Trauma **Rehabilitation Facilities** for the injured are deficient
- f. Research into **post crash response** and emergency care is not there
- g. There is lack of awareness regarding **Hon'ble Supreme Court of India's directives regarding the Right to Emergency Care for RTA victims** & the legal protection available to good Samaritans who offer help to a RTA victim.
- h. There is no provision to ensure adequate compensation to an RTA victim in case the accident causing vehicle doesn't have a **third party insurance**
- i. Majority of the drivers do not have a personal **mediclaim** policy to cater to their emergency medical needs in case of an accident

REVIEW OF THE EXISTING SCHEMES

The Govt. of India has progressively made efforts to provide Trauma Care to the citizens of India. Some of these efforts are bearing fruit as evident from the fact that **rate of deaths per thousand vehicles has decreased marginally from 1.5 in 2005 to 1.4 in 2009.**

However, during the same period, the quantum of 'Road Accidents' has steadily increased. Thus, it is pertinent to review & improve upon the existing schemes before recommending new measures.

a. National Highway Trauma Care Project (NHTCP)

This is an ambitious project in its scale and reach intending to cover the entire Golden Quadrilateral and North-south-east-west corridors for trauma care. It envisages strengthening hospitals along the highways from basic trauma care to advanced tertiary care, all networked with pre-hospital care ambulances so as to provide care during transit and hospitalize **within the golden hour**. Under this scheme the MoHFW is already upgrading 113 existing healthcare facilities under the 11th Five Year Plan and has plans to upgrade 160 more during the 12th Five Year Plan. To complement the same, the Ministry of Road Transport & Highways (MoRTH) is providing Advanced Life Support Ambulances to each of the Trauma Care Facilities for Inter-Facility Transfer. 70 ambulances have already been supplied and 70 more are being supplied in this year. The Ministry has associated a team of doctors from AIIMS to assist them in finalizing the specifications for the said Ambulances & their prototype design.

- **It is proposed that the scope of the scheme should be expanded to cover all the national highways in all the states with initial emphasis on states with difficult terrains.**
- **State Governments should be encouraged to replicate similar schemes on the state highways**
- **'102' should be adopted as the Toll Free National Medical Distress Call Number across the country on lines of '100' for police, '101' for Fire, etc. and should be used by all State & Highway EMS Networks**

b. National Highways Accident Relief Services Scheme (NHARSS)

In the 11th Five Year Plan, the Govt. has launched National Highways Accident Relief Services Scheme which entails providing cranes and ambulances to States/UTs/NGOs for relief and rescue measures in the

aftermath of accidents by way of evacuating road accident victims to nearest medical aid centre and for clearing the accident site.

So far, 347 Ten ton cranes and 106 small/medium size cranes have been sanctioned under the scheme. 579 ambulances have been sanctioned to States/UTs/ NGOs under the scheme. During 2011-12, 30 cranes, 30 ambulances and 20 small/medium sized cranes are proposed to be provided.

It is proposed that this scheme should be modified as under:

- A periodic audit for the already supplied Ambulances & Cranes should be done w.r.t. their location, availability, utilization, efficacy, manpower, uptime, etc.
- A monitoring mechanism to ensure proper implementation of this scheme should be institutionalized
- It is observed that the ambulances alone are grossly ineffective in initiating a post crash response as the victims are more than often trapped inside the crashed vehicle and need to be extricated with professional powered tools to ensure prompt emergency care. Thus, instead of providing small/medium cranes alone, versatile **crash rescue vehicles (CRV's) equipped** with 'hydraulic rescue tools for extrication', fire extinguishing equipment (ABC Type), hydraulic towing arm & road clearing equipment should be provided. The same should be staffed with trained manpower.
- The **CRV's & Ambulances should operate in sync** as a **crash rescue unit** and their operations should be integrated
- All CRV's & Ambulances should be integrated under a **National Highway Accident Relief Network** which should be accessible by a Uniform Toll Free Number across the country
- The **National Highway Accident Relief Network** should be closely linked with the state EMS Network and the **Toll Free Number** should be same as the state EMS Number (102).

c. NHAI – Incident Management System (IMS)

National Highway Authority of India (NHAI) operates an Incident Management System on the National Highways which entails a set of co-ordinated activities initiated when an accident occurs. The aim of this system is to minimise the effects of the incident and restore normal capacity and safety levels to all affected road facilities as efficiently as possible. The operator has to identify relevant agencies viz. rescue, fire, hazardous materials, traffic, police, ambulance, hospitals, alternative routes, cleanups, etc and to liaise with them. The operator also runs 24x7 Route Patrols, Cranes & Ambulances on the said stretches.

It is proposed that this scheme should be modified as under:

- This scheme be rapidly **extended all the national highways in all the states with initial emphasis on states with difficult terrains.**
- State Governments should be encouraged to replicate **similar schemes on the state highways**
- A **periodic audit** for the already awarded contracts should be done w.r.t. the quality of service being rendered, quality of vehicles being used as patrol cars, ambulance and cranes, their utilization, linkages, uptime, etc to ensure they are meeting with the T&C of the contract in letter & spirit. NHAI should institutionalize this activity by establishing an **IMS monitoring unit** staffed by skilled manpower.
- The **response time** of 30mins for the Ambulances, Cranes, etc to reach the site needs to be **reduced to 10mins** over a period of 10 years. To ensure this, a **close liaison with the corresponding State's EMS Network** is obligatory.
- As stated earlier, the **ambulances alone are grossly ineffective in initiating a post crash response** as the victims are more than often trapped inside the crashed vehicle and

need to be extricated with professional powered tools to ensure prompt emergency care. Attempt has been made in this scheme to enable the same by the provision of gas cutters, etc in the Patrol Cars but these will not be useful for extrication of victims in all scenarios as there is a risk of fire and burn injury to the victims with their use. In such cases there is need **of Hydraulic Rescue Tools**, etc.

- Thus, instead of providing small/medium cranes alone, versatile **crash rescue vehicles (CRV's)** with 'hydraulic rescue tools for extrication', fire extinguishing equipment (ABC Type), hydraulic towing arm & road clearing equipment should be provided. The same should be staffed with trained manpower.
- The specifications for the Ambulances, Patrol Cars & CRV's should be revised, updated & standardized to remove ambiguity and ensure uniformity in form and function.
- The **Patrol Cars, CRV's & Ambulances should operate in sync** as a **crash rescue unit** and their operations should be integrated
- All Patrol Cars, CRV's & Ambulances should be integrated under a **National Highway Accident Relief Network** which should be accessible by a Uniform Toll Free Number across the country
- The **National Highway Accident Relief Network** should be closely linked with the state EMS Network and the **Toll Free Number** should be same as the state EMS Number (102).
- The **National Medical Distress Call Number (102)** should be well advertised by displaying prominent signage at every 5kms.

d. Emergency Medical Service Systems (EMSS)

In India, the EMS System was started in 1984 during the 6th Five Year Plan, when **Centralised Accident and Trauma Services (CATS)** was conceptualised as a plan scheme. The scheme was to be implemented

under the aegis of All India Institute of Medical Science (AIIMS). In April, 1988, the ambulance service was transferred to the Delhi Fire Service (DFS) with a fleet of 14 ambulances. Since the service required multi sectoral coordination, it was later decided that the scheme may be implemented by a society registered for the purpose. Consequently, CATS society was formed by Delhi Administration as a registered society In June, 1989 and has been running the service with approx 30 ambulances since then.

A study of CATS by the Dept of Hospital Administration, AIIMS from June 2009 to May 2010 brought forward the following facts:

- **CATS refuses approximately 28% of the total calls received monthly.** This refusal is primarily due to the non-availability of the Ambulance.
- The **Avg. Site Response Time (SRT)** i.e. the time from receiving the call to reaching the site for accepted calls is **approx. 10min.**
- The **Avg. Hospital Response Time (HRT)** i.e. the time taken in transferring the victim from the site to the hospital is approx. **30min**
- The **Avg. Total Call Time (TCT)** i.e. the time from dispatch from base to returning back to base is approx. **57min.**
- **66% of calls attended relate to Trauma** in various forms especially RTA's
- 78% of Calls Attended to were received from Police Control Room (PCR). This reflects a **lack of awareness amongst the public regarding the CATS Toll Free Number** (1099) or (102)
- The CATS Control Room on an average receives 178 Calls per hour with the number of calls almost doubling between **8pm – 12am (peak time)** and almost halving between **2am – 8am (lean time).**

Other than C.A.T.S., EMS in India is a relatively new concept, where the most dominant model is the Public Private Partnership (PPP). As of December 2009, more than 2,600 ambulances are operating under PPP across around 15 states in India. States like Madhya Pradesh and West Bengal have opted for basic transportation services (without stabilization care) in the PPP mode through multiple agencies (mostly NGOs) contracted at district/block level. The central government support to the above mentioned schemes is mainly in the form of capital expenditure (capex) support. Operating expenditure (opex) is borne by the states, with the central support being progressively reduced from 60% of opex to begin with, to zero by the 3rd year of operations. For the year 2010-11, total of Rs. 227.10 crores have been sanctioned under NRHM for 11 states (including 4 EAG states and 2 North-Eastern states) – for Emergency Referral Transportation System (ERTS), mostly through PPP mode.

A concept paper on the EMS in India prepared by the National Health Systems Resource Centre (NHSRC), MoHFW summarizes the **ill's ailing the EMS in India** as under:

- **Hospital infrastructure**, especially in public hospitals, for treating and managing medical emergencies need further strengthening.
- **Lack of training and training infrastructure** for training health staff (public or private) and other stakeholders in medical emergency management/first aid
- Fleet of existing government owned ambulances not liked with the new ERTS schemes (in terms of **operational linkages** and **standardization across fleet**).
- **Legal framework** defining and regulating roles and liabilities of various stakeholders (like ambulance operators, emergency technicians, treating hospitals and staff, etc.) needs further clarity/transparency, standardization and enforcement across the states.

TECHNICAL REVIEW & DISCUSSION

Until recently, injuries were considered to be due to “accidents,” or randomly occurring, unpredictable events. Injuries were thus regarded in a fundamentally different manner from other diseases, which are viewed as having defined and preventable causes. This viewpoint, on the part of the public, professionals, and policy makers, induced a nihilistic attitude and severely limited the development of post-injury response systems. However, it has now been realized that Trauma is an epidemic that affects all age groups with devastating personal, psychological, and economic consequences.

As per the **National Road Safety Policy**, the Government of India is committed to ensure that all persons involved in road accidents benefit from speedy and effective trauma care and management. The essential function of such a system would include provision of rescue operation and administration of first aid at the site of an accident and evacuation of the victim under adequate medical care to prevent loss of life and limb.

To realize the vision of Government & for planning an effective and executable Emergency Care System for accident victims, the following measures are proposed:

1. **National Accident Relief Policy**

Considering the large incidence of accidents in India and taking into account that accidents are increasing at an alarming rate resulting in substantial loss to the national economy in the form of permanent disablement of victims, man hours, cost of hospitalization and so on, it is imperative that a **National Accident Relief Policy** is to be evolved in India with the objectives of:

- Providing free trauma care services to all citizens of India
- Providing adequate and prompt relief to trauma victims and reducing the resulting disablement

- Undertaking such measures as are necessary to prevent or reduce the disability of accident victims
- Training Police, Teachers, Students, Drivers, etc in accident prevention and relief
- Furthering research in fields of trauma accidents, prevention and management of accident victims
- Creating community awareness and undertaking community education and participation
- To define the broad framework for the National Trauma System Plan within the domain of which various states can build their EMS Systems

2. National Trauma System Plan

In order to achieve an **efficient and cost effective Inclusive Trauma System**, the **National/State Trauma Plan** must specify how the various components operate and interact to achieve specific goals with immediate emphasis on the following:

I. Pan-India Pre-Hospital Emergency Medical Services (EMS) Network

- a. The EMS Network should ensure an average primary crash response time of **8 – 10 mins** by deploying adequate number of First Responders, BLS & ALS Ambulances
- b. As far as possible, **existing ambulances of both Govt. & Private Hospitals** supported by a reimbursement model should be brought into this network to reduce the load on exchequer of immediate capital investment
- c. This network should be adequately complemented by **seamless communication, centralized dispatch & medical direction**

- d. **Pre-hospital Care Triage protocols** should be standardized and synchronized across the country
- e. There should be a **unified toll free access number for EMS** across the country which should be accessible from all landlines and mobiles. The existing '**102**' number should be adopted as the **National Medical Distress Call Number** for this purpose across the country on lines of '100' for police, '101' for Fire, etc..
- f. This number should be **widely publicized through the use of ICT, print & electronic media, text books, etc** and by displaying **prominent signage** at every 5 kms along the national & state highways
- g. **Vandal Proof Emergency Call Boxes/Posts** through which the users in need of help can communicate with the control room and the latter can rush the help, rescue and relief should be mandatorily put at **every 5 kms** along the national & state highways
- h. The ambulances should be adequately supported by **Crash Rescue Vehicles (CRV's)**, Police & Fire Services
- i. Wherever required, the ground EMS Services should be supported by **Heli-Ambulance Service** for transfer to referral centers

II. Hospital based Emergency Care

- a. As recommended by the National Human Rights Commission (*NHRC Annual Report - 2004-2005*), **Emergency Healthcare facilities** should be present at **every 50kms** along/near the national & state highways to ensure definite care to a RTA victim in the Golden Hour.
- b. To ensure the same, firstly the existing healthcare facilities **both public and private** along/near the Highways should be audited, **verified & designated** with respect to the provision of Trauma Care Facilities in accordance with the WHO "Guidelines for Essential Trauma Care"

- c. Those found deficient, should be **upgraded in terms of manpower, equipment, skills**, etc. in line with the WHO “Guidelines for Essential Trauma Care”
- d. The Govt. through its appropriate agencies should **reimburse the private facilities** empaneled in the EMS Network for providing Emergency Care to RTA victims. The funds for the same can be mobilized by imposing an **EMS Cess on the Road Tax**.
- e. New facilities should be planned only where there is no existing Govt. or Private facilities are available
- f. Regional Referral Trauma Centers should be established across the country supported by a Heli-Ambulance network to ensure speedy care to the severely injured

III. Health Facility Networking

- a. There should be dynamic linkages between various health care facilities in terms of manpower, resources, skills & information
- b. SOP’s for initiation of network response must be put in place and there should be role clarity amongst the various participants

IV. Capacity Building and Training

- a. There is a dire shortage of **trained Emergency Medical Technicians (EMT’s)** in the country. Currently there is no standardization of the para-medical degrees, courses & curriculum in India. Immediate steps in this direction need to be taken and the Ministry of Health & Family Welfare in consultation with other bodies to **finalize the Paramedical Degrees & Curriculum** to ensure parity and recognition across the country.
- b. **Training in First Aid & Rescue** must be mandatory for all Drivers, Police Personnel, Conductors, Teachers, Students, etc. Social organizations like Red Cross, Lions Club, Rotary Club & other

social organizations offering such trainings may be roped in for the same

- c. Six months – one year **Heavy Motor Vehicle (HMV) driving training course** should be started as a new trade in the existing ITI's. This course apart from imparting driving skills should also impart adequate training in First Aid, basic vehicle maintenance, etc. and after completing this course, the person should be able to directly get a HMV Driving Licence instead of going through the current system of having an initial experience of three years on LMV and then becoming eligible for a HMV Driving Licence.

V. Research & development into post-crash response

- a. **Post-Crash Response** is a specialized field which involves the active participation of multiple agencies like Fire, EMS, Police and Crash Rescue units.
- b. Currently there is no institute/university which does a **multi-disciplinary research** on this topic per se. To develop quality, effective and economical indigenous post-crash response techniques, protocols, specifications, etc. it is necessary that research in this field should be encouraged and liberal funding for the same should be ensured
- c. There is an urgent need to **standardize minimum national specifications for various types of ambulances, rescue vehicles, Dispatch/ Command & Control Centers**, etc. so as to bring homogeneity in the system across the country.

VI. Cross-linkages with other working groups:

a. Changes in the Motor Vehicles Act 1988

It is proposed that the following changes be made in the Motor Vehicles Act 1988 keeping in view the fact that the act was introduced in the year 1988 and the per capita income in the year 1988 was Rs. 745.89/- whereas the per capita income in the year 2010-11 has gone to Rs. 46,492/-.

- i. **Section 9:** Driving license - It should be mandatory for all driving license holders to possess training in First Aid and a Medical Insurance Policy and the same should be ensured at the time of issue/renewal of the driving license
- ii. **Section 140:** Liability to pay compensation in certain cases on the principle of no fault - The amount of compensation for death at present is 50000/- and it should be enhanced to two lakh and in the case of injury it should be one lakh (presently amount is 25000/-)
- iii. **Section 146:** Necessity for insurance against third party risk - There should be one time insurance for third party on the lines of road tax.
- iv. **Section 163:** Special provision as to compensation in case of hit and run motor accident - The amount of compensation for death at present is 25,000/- and it should be enhanced to Two lakh and in the case of injury it should be one lakh (presently amount is 12,500/-)
- v. **Section 163A:** Notional Income is taken as Rs. 15,000/- for computing annual loss of income for the non-earning person like children, housewives etc. The same should be enhanced to Rs. 1,00,000/-
- vi. The act doesn't provide any kind of compensation for the **Gratuitous Passengers** nor does any insurance policy cover the same. Necessary provision to provide compensation for the same maybe incorporated

b. Changes in Central Motor Vehicle Rules 1989

Ambulances & Rescue Vehicles meeting with the National Ambulance Code should only be registered as an Ambulance or as Specialized Rescue Vehicle. To ensure this necessary changes should be made in the CMVR.

c. Standardized Signage System (S³)

A Standardized Signage System (S³) should be introduced across all highways in the country for uniformity and to enhance visibility thereby ensuring road safety.

d. Awareness and Implementation of the Hon'ble Supreme Court of India's directives regarding the Right to Emergency Care

In the case of **Pt. Parmanand Katara vs Union of India** in Criminal Writ Petition No. 270 of 1988, D/-28.8.1989, [AIR 1989 Supreme Court 2039]. The Hon'ble Supreme Court had observed that all injured persons especially in the case of road traffic accidents, assaults, etc., when brought to a hospital / medical centre, have to be **offered first aid**, stabilized and shifted to a higher centre / government centre if required. It is only after this that the hospital can demand payment or complete police formalities. If a **bystander** wishes to help someone in an accident, his responsibility ends as soon as he leaves the person at the hospital. **He will not be questioned by the police**. The hospital bears the responsibility of informing the police & providing first aid.

There is an urgent need to spread awareness regarding this amongst the general public through the audio, print & electronic media and by displaying these directives prominently at the toll booths & hospitals.

CONCLUSION & SUMMARY OF RECOMMENDATIONS:

Trauma care includes multifarious activities from the time of occurrence of injury till the injured returns to optimum functioning. **Availability, Accessibility and Affordability** of emergency care play crucial role in accessing emergency services and pre-hospital care. EMS in India is at crossroads and a lot needs to be done to achieve global standards and provide timely optimal care to victims.

This working group after due deliberations propose the following recommendations to provide India a resilient and contemporary EMS system:

1. For Immediate Implementation:

1.1. Review & Audit of the Existing Schemes:

1.1.1. National Highway Trauma Care Project (NHTCP)

- 1.1.1.1. The **scope of the scheme should be expanded to cover all the national highways** in all the states with initial emphasis on states with difficult terrains.
- 1.1.1.2. State Governments should be encouraged to **replicate similar schemes on the state highways**
- 1.1.1.3. **'102'** should be adopted as the **Toll Free National Medical Distress Call Number across the country** on lines of '100' for police, '101' for Fire, etc. and should be used by all State & Highway EMS Networks

1.1.2. National Highways Accident Relief Services Scheme (NHARSS)

- 1.1.2.1. A periodic audit for the already supplied Ambulances & Cranes should be done w.r.t. their location, availability, utilization, efficacy, manpower, uptime, etc.

- 1.1.2.2. A monitoring mechanism to ensure proper implementation of this scheme should be institutionalized
 - 1.1.2.3. Instead of providing small/medium cranes alone, versatile **crash rescue vehicles (CRV's) equipped** with 'hydraulic rescue tools for extrication', fire extinguishing equipment (ABC Type), hydraulic towing arm & road clearing equipment should be provided. The same should be staffed with trained manpower.
 - 1.1.2.4. The **CRV's & Ambulances should operate in sync** as a **crash rescue unit** and their operations should be integrated
 - 1.1.2.5. All CRV's & Ambulances should be integrated under a **National Highway Accident Relief Network** which should be accessible by a Uniform Toll Free Number across the country
 - 1.1.2.6. The **National Highway Accident Relief Network** should be closely linked with the state EMS Network and the **Toll Free Number** should be same as the state EMS Number (102).
- 1.1.3. **Incident Management System (IMS) – NHA**
- 1.1.3.1. This scheme be rapidly **extended all the national highways in all the states with initial emphasis on states with difficult terrains.**
 - 1.1.3.2. State Governments should be encouraged to replicate **similar schemes on the state highways**
 - 1.1.3.3. A **periodic audit** for the already awarded contracts should be done w.r.t. the quality of service being rendered, quality of vehicles being used as patrol cars, ambulance and cranes, their utilization, linkages, uptime, etc to ensure they are meeting with the T&C of the contract in letter & spirit. NHA should institutionalize this activity by establishing an **IMS monitoring unit** staffed by skilled manpower.
 - 1.1.3.4. The **response time** of 30mins for the Ambulances, Cranes, etc to reach the site needs to be **reduced to 10mins** over a period of 10 years. To ensure this, a **close liaison with the corresponding State's EMS Network** is obligatory.

- 1.1.3.5. Instead of providing small/medium cranes alone, versatile **crash rescue vehicles (CRV's)** with 'hydraulic rescue tools for extrication', fire extinguishing equipment (ABC Type), hydraulic towing arm & road clearing equipment should be provided. The same should be staffed with trained manpower.
- 1.1.3.6. The specifications for the Ambulances, Patrol Cars & CRV's should be revised, updated & standardized to remove ambiguity and ensure uniformity in form and function.
- 1.1.3.7. The **Patrol Cars, CRV's & Ambulances should operate in sync** as a **crash rescue unit** and their operations should be integrated
- 1.1.3.8. All Patrol Cars, CRV's & Ambulances should be integrated under a **National Highway Accident Relief Network** which should be accessible by a Uniform Toll Free Number across the country
- 1.1.3.9. The **National Highway Accident Relief Network** should be closely linked with the state EMS Network and the **Toll Free Number** should be same as the state EMS Number (102).
- 1.1.3.10. The **National Medical Distress Call Number (102)** should be well advertised by displaying prominent signage at every 5kms.

1.2. Emergency Medical Services (EMS) System

- 1.2.1. **National Framework for the EMS System** with the aim of providing effective and economical emergency care should be developed so as to maintain uniformity and continuity across the county
- 1.2.2. This framework should specify the broad specifications, guidelines and protocols for the various components of EMS System viz. Ambulances, Trauma Centres, Emergency Departments, Emergency Medical Technicians, Communication, Dispatch Centers, Command & Control Posts, etc.

1.2.3. All the states should develop their respective EMS Systems within this predefined framework

2. Short term Measures (one – two years for realization)

2.1. Enunciate a **National Accident Relief Policy** & a **National Trauma System Plan**

2.2. Deployment of a **Pan-India Pre-Hospital Emergency Medical Care Network** to ensure a primary crash response time of **8 – 10 mins**. This network should be adequately supported by a unified toll free number, seamless communication, centralized dispatch, medical direction, triage protocols & crash rescue units.

2.3. To **verify & designate the existing healthcare facilities** along the Highways and upgrade those found deficient to minimum defined levels & to plan for new facilities where there is a deficit so as to ensure the availability of one emergency care facility at every 50km along the national highways.

2.4. Plan for **seamless networking amongst health facilities**, rescue services, existing fleet of ambulances, etc.

2.5. **Capacity building and regular training** in EMS to all involved in trauma care supplemented by training in First Aid to the public

2.6. Encourage **research & development** into post-crash response.

2.7. Appropriate changes in the Motor Vehicles Act 1988 & CMVR 1989

3. Long Term Measures (three – five years for realization)

3.1. **Assured essential emergency care** to all citizens of India

- 3.2. **Augmentation in capacity and resources** of available Medical establishments
- 3.3. Setting up of **Regional Referral Trauma Centers** across the country supported by a **Heli-Ambulance network** to ensure speedy care to the severely injured
- 3.4. Plan for **rehabilitation centres** for the trauma care victims
- 3.5. Standardize minimum **national specifications for various types of Emergency Response Vehicles** viz. First Responders, Patient Transport Ambulances, BLS Ambulances & ALS Ambulances, Crash Rescue Vehicles, Dispatch Centers, Command & Control Centers, etc. so as to bring homogeneity in the system across the country.
