

TOWARDS ZERO-FATALITY DISTRICTS

A Quick-Reference Guide
for District/City
Leadership to Assess
and Improve Road Safety



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Preface

Road Safety is a significant public health issue causing a monumental burden on Indian society and economy every year. In 2022, 1.68 lakh people were killed and nearly 3 times more were injured on Indian roads.

While policy level reforms for road safety continue to be undertaken, on-ground implementation is the key to ensure tangible improvements in India's road safety landscape. Key mandate rests with the district administrations to execute comprehensive measures on the 4-Es of road safety namely, - road Engineering, traffic Enforcement, Emergency trauma care, Education of road users.

The causal factors for road crashes primarily include the following:

- unsafe road design and inappropriate safety infrastructure
- poor enforcement that results in high vehicular speeds, unfit vehicle condition and risky driver behaviour
- inadequate emergency trauma care systems that are detrimental to the injury outcomes of road crashes

The 'Zero-Fatality District' concept is a scientific methodology for road safety developed by the SaveLIFE Foundation. It consists of specific actionable steps that can be undertaken for decisive impact across the 4-Es of road safety to achieve significant reduction in road crash fatalities within an administrative district.

The "Towards Zero-Fatality Districts" guidebook has been conceptualised by the SaveLIFE Foundation in close partnership with the Ministry of Road Transport and Highways, Government of India. Experts and practitioners across geographies and relevant domains have been in this development. It aims to be a practical and strategic tool for districts to adopt the "zero-fatality" program by enabling administrators to ACT,

- Assess and evaluate district's road safety scenario
- Convene the stakeholders & resources to implement actions
- Track implementation and measure progress

Updated versions of this guidebook will be released from time to time. To receive the latest version, please email us at roadsafety@savelifefoundation.org.

This guidebook enables you to implement the 'zero fatality district' program in your district by providing tools to

- establish and review district road safety targets,
- identify road safety challenges, and
- finalise and monitor interventions
- assess impact

How to use this Guidebook?

This Guidebook aims to be a ready-reckoner for the district and city leadership (District Magistrate/Collector, Police Commissioner, SSP/SP amongst others) to formulate and implement the 'zero-fatality district' program by driving strategic outcomes of the District Road Safety Committee (DRSC) meetings, effectively monitor the progress of concerned agencies and assess the impact of the work done.

The Guidebook is divided into four sections—

□ **PART A: Essential Questions for District Leadership to Ask**

This part lists down the pertinent questions whose answers will reveal the current road safety scenario in the district and equip the administrator with an understanding of what all areas need to be looked into for solving the road safety challenge.

□ **PART B: District Road Safety Profiling & Data Tracking**

This part specifies the steps to be taken by various stakeholders to identify problematic areas, design solutions, execute action plans and track progress. *On Page 15, a proposed team/secretariat structure has been provided to create capacity within the district to undertake the management and monitoring of the initiative.*

□ **PART C: Impact Assessment Criteria**

This part provides the framework for assessment of the impact of various initiatives towards the 'zero-fatality' goal.

□ **PART D: Road Safety Parameters**

This section presents the factors to be considered for the execution of road safety measures.

This Guidebook provides Quick Tips  to steer action, key insights for context  and graphic illustrations for assistance. 



Comprehensive resources including detailed checklists and descriptive materials mentioned in this document can be accessed at www.savelifefoundation.org/ZFD and through the QR Codes contained in this document.

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Part A: Essential Questions for District Administrator / Police Chief to Ask

This guidebook contains the necessary processes and formats for seeking information on the queries that are essential to be answered to enable a district administrator in effective implementation of road safety measures.

1. On Road Safety Indicators in the District

Crash Data (Department: District Police)

- 1.1. How many road crashes took place in the last three years?
- 1.2. How many road crash deaths happened in the last three years?
- 1.3. Are there any time-periods during the day that see higher frequency of crashes than other times?
- 1.4. Which are the Police Station jurisdictions that contribute to 50% of all road crash deaths in the district?
- 1.5. What have been the top 5 causes of fatal road crashes in the last three years?
- 1.6. What is the primary victim category among users/vehicles involved in crashes over the last three years?
- 1.7. What is the primary offending category among users/vehicles involved in crashes over the last three years?

Location Data (Departments: Road-owning agencies - PWD, NHAI, Municipality, Expressway Authority etc.)

- 1.8. How many locations in the district are crash-prone?
- 1.9. What is the length of various road categories such as Expressways, National Highways, State Highways, MDRs and ODRs in the district?
- 1.10. What is the breakup of road crashes and crash fatalities on each of the road categories in the last three years?

2. On conducting the District Road Safety Committee (DRSC) Meetings (Department: District Collectorate)

- 2.1. Has the DRSC been constituted in the district?
- 2.2. Who are the members of the DRSC?
- 2.3. When was the last DRSC meeting conducted?
- 2.4. "Action Taken Report" on the decisions taken during the last meeting?
- 2.5. Are funds for road safety available in the district/State?

Section 215(3) of Motor Vehicles Act, 1988 mandates each state to set up a District Road Safety Committee (DRSC). Further, the Supreme Court Committee on Road Safety (SCCoRS) lays down the mandatory composition of DRSC and mandates its monthly meetings.

3. On Road Safety Actions Taken in the District

A. Engineering (Department: PWD/ NHAI/ NHIDCL/ BRO/ Expressway Authority/ Municipality/ Other Road Owning Agencies)

- 3.1. Has a 'Road Safety Audit' been conducted for all major roads in the district in the past? →
- 3.2. Does the road owning agency carry out inspections of their jurisdictional roads? What is the frequency of conducting these inspections?
- 3.3. What are the findings of the last report of these inspections? What is the action taken on these findings?
- 3.4. What are key engineering defects/issues that exist, as on date, based on the third-party audits conducted by the road owning agencies?
- 3.5. How many of the identified road engineering issues have been rectified in the last three years?



Road Safety Audit refers to a formal examination of a road by independent experts to identify and assess potential safety issues and risks associated with the road design, layout, and traffic control elements that can lead to a crash.

B. Enforcement (Department: RTO/ Traffic Police/ Highway Police/ Other Enforcement Agencies)

- 3.6. What is the offence-wise total number of challans issued in the last three years? →
- 3.7. What is the offence-wise percentage of challans issued at the designated black-spots, out of the total number of challans issued?
- 3.8. What is the offence-wise percentage of challans issued via electronic-enforcement out of the total number of challans issued?
- 3.9. How often are checkpoints (*Nakas*) for inspection and enforcement installed during a day and during a week? →
- 3.10. Are the enforcement activities in the district, 'active and visible'?



The top offences for each of which, the challan data should be sought are –

- over-speeding
- non-usage of helmets
- non-usage of seatbelts
- drunken driving
- wrong-side driving
- dangerous driving
- red-light violations



Active and visible enforcement is creating an effective deterrence amongst road users by optimal positioning of nakas/checkpoints and traffic personnel, during specific times of the day.

D. Emergency Care (Department: Civil Surgeon/ CMO/ 108 Ambulance/ Other Concerned Departments)

- 3.11. Are there any designated trauma centres in the district? →
- 3.12. In each receiving medical facility, what is the →
- sanctioned strength and present strength of medical personnel,
 - position of infrastructure,
 - quantity & condition of equipments
- 3.13. How many Advanced Life Support (ALS)/Basic Life Support (BLS) & Patient Transport (PT) ambulances are operating in the district?
- 3.14. What is the qualification and certification criteria for Emergency Medical Technicians (EMTs) present in the ambulances?

E. Community Engagement & Awareness (Department: Traffic Police/ NGOs/ Education Department)

- 3.15. How many IEC campaigns have been organized in the district in the last three years for road safety education and awareness?
- 3.16. What was the theme/topic and objective for each campaign?
- 3.17. For each campaign, what was the coverage or number of people reached?

F. Law Implementation (Department: RTO, District Police)

- 3.18. Whether the Good Samaritan Law (Section 134A of MVA, 1988) has been implemented in the district?
- 3.19. Whether a Grievance Redressal Authority has been designated at the district level for violation of the rights of good samaritans?
- 3.20. Whether the bus-body code compliance checks are carried out in the district?
- 3.21. Whether the ban on trucks and vehicles carrying protruding rods and other loads is enforced in the district?
- 3.22. Whether the 'Compensation to Victims of Hit and Run Motor Accidents Scheme, 2022' is being implemented in the district?
- 3.23. Whether the inspection of Vehicle Fitness is carried out? What is the frequency of these inspections?

Detailed criteria for trauma center designation can be found in Part-D(5), A list of trauma centre and ambulance requirements can be found on savelifefoundation.org/ZFD or on this QR Code



A receiving medical facility refers to such a hospital or health-center where road crash victims are taken for primary treatment as well as such facilities where the victims are referred to for advanced treatment.

Part B: District Road Safety Profiling & Data Tracking

The list of essential questions have allowed you to gain a holistic understanding of the various facets that needs to be looked into. In order to prepare a comprehensive road safety profile for the district, structured analysis of the data maintained and/or generated by various agencies has to be undertaken.

The following steps seeks to equip you to implement the 'zero-fatality district' program with the requisite tools to map the relevant agencies, identify the data indicators and develop an evidential overview of the road safety situation in the district.

This section will also enable you to get periodic updates, make informed decisions, prioritise implementation of strategic measures, and ultimately ensure 'zero-fatality' in the district.

Please ask your office to coordinate with the respective agencies as indicated in this section, on a monthly basis, particularly before each DRSC meeting so that the meeting is productive each-time.

Step 1. Identification of District Road Safety Stakeholders

The first step is to have in place an effective district level forum for examining the road safety issue. To ensure the success of initiatives at the district level, the Supreme Court Committee on Road Safety (SCCoRS) has issued a series of directions for the conduct of DRSC meetings in every district.

The DRSCs are structured to ensure collaboration between various agencies, including police, traffic, engineering, transport, public health, local government and civil society. This unified approach is integral to fostering adequate road safety measures in the district.

District Collector/Magistrate - Chairperson	
Superintendent of Police	Chief Medical Officer
ARTO or above	Representative of NHAI/ MoRTH
Executive Officer of Urban Local Body	At-least one NGO/Civil Society member
Superintendent Engineer/ Executive Engineer (PWD) - Member Secretary	

Composition of DRSC prescribed by SCCoRS

You may ask your office to prepare a data repository on the district website or an internal drive to ensure efficient data updation and management on a monthly basis. SCCoRS mandates that road crash data be published monthly in the public domain on the district portal.

SCCoRS Directions to States can be found at savelifefoundation.org/ZFD or on this QR Code



While the DRSC composition prescribed by SCCoRS is the mandatory minimum, you may invite stakeholders such as universities, medical colleges, engineering experts amongst others, that you feel would help in taking the work forward in the district.

Step 2. Operationalising District Road Safety Committee

The DRSC are an important forum for effective implementation of road safety measures. To ensure this, the DRSC can:

- identify problematic areas with monthly review of various data indicators specified in this guidebook
- decide and direct measures to resolve the identified issues
- monitor the implementation of road safety interventions,
- publish road crash data in the public domain on the district website and on the MoRTH DRSC Portal

The DRSC is mandated to inform the State Road Safety Council on various aspects of road crashes occurring in the district, including details of vehicles involved, causes, findings of spot investigations, details of offenders, and the condition of victims.

Step 3. Mapping the Road Network in the District

In order to avoid jurisdictional issues and unwarranted delays in execution of safety measures, it is essential to take a stock of existing roads and the responsible agencies for each. The concerned agencies are responsible for design, construction, operation and maintenance of the concerned roads.

Road Type	Custodian Agency
Expressways or National Highways (NH)	NHAI/ NHIDCL/ MoRTH/ State Agency
State Highways (SH)/ State Expressways (SEW)	PWD/State Expressway Authority
Urban Roads and Major District Roads (MDR)	PWD/ Municipality
Other District Roads (ODR)	PWD
Village Roads (VR)	PWD
Hill/ Border Roads	BRO

Indicative List of Road Owning Agencies in the District

Detailed road-mapping formats can be found at savelifefoundation.org/ZFD or on this QR Code



Step 4. Analysing Monthly Crash Data for the District

Analysis of the road crash data will enable you to prioritise interventions based on critical locations, critical risk factors and critical time-periods.

Key Monthly Road Crash Data Points (Police Station-wise)
Details of all Road Crashes with geo-location
Details of all Road Crash Fatalities with geo-location
List of Police Stations together accounting for 50% of total road crash fatalities (Refer to Section A below)
Temporal Distribution of crashes (Refer to Section B below)
Traffic Volume Data

Detailed data collection formats can be found at savelifefoundation.org/ZFD or on this QR Code



The district police can be asked to submit the aforementioned data for each police station jurisdiction, on a monthly basis.

A. Identification of High Priority Jurisdictions

The monthly police-station-wise data with geo-locations will help you determine jurisdictions that together account for 50% or more of the total fatalities and hence, need to be focussed on priority. Further, the data will identify the crash-prone locations and enable prioritisation of locations that are potentially future hotspots.

How to prioritise treatment of Crash-prone Locations using IRC 131-2022?

The IRC specifies a severity index for determining crash-prone locations. The higher the Severity Index for a location, the greater should be the priority for implementing safety measures at that location.

$$\text{Severity Index} = (\text{Number* of Fatal Crashes} \times 10) + (\text{Number* of Serious Injury Crashes} \times 5) + (\text{Number* of Minor Injury Crashes} \times 2) + (\text{Number* of Damage Only Crashes} \times 1)$$

[*aggregated numbers of the last 3 years.]

The identification of crash-prone locations is facilitated through heat maps which help pinpoint locations having a higher concentration of crashes compared to other locations.

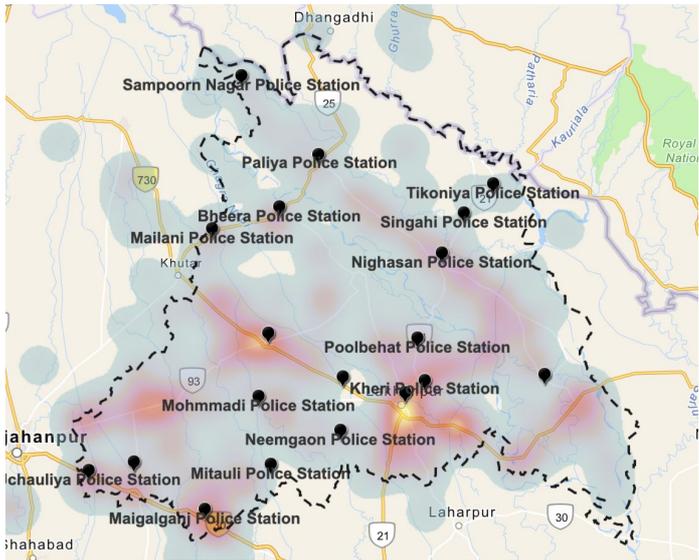
IRC guidelines on identification and treatment of blackspots can be found at savelifefoundation.org/ZFD or on the QR Code



The data of high severity locations can be retrieved from eDAR/iRAD.

The traffic police officials may be asked to use 'heat-mapping' tools to identify crash-prone locations or hotspots.

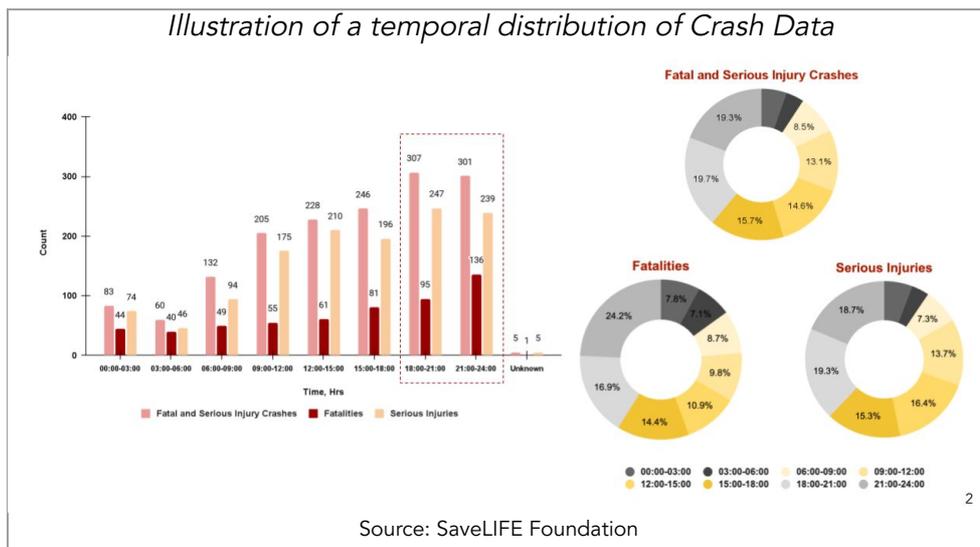
Illustration of a district heat-map



Source: SavelIFE Foundation

B. Temporal Distribution of Crash Data

Temporal assessment of crashes and fatalities enables you to determine the current status and subsequently the change, in distribution of crash incidents over time. It also identifies critical time periods during enhanced enforcement is required.



The temporal distribution data can be retrieved from eDAR/iRAD. This data will assist you in optimising the enforcement activities.

It is recommended to examine the daily crash data (number of crashes, fatalities and serious injuries) in 3-hour periods. For instance, 12AM to 3AM, 3AM to 6AM, and so on till 9PM to 12AM.

C. Traffic Volume Data

Traffic Volume is defined as the number of vehicles moving at a particular section or on a particular road stretch during a particular time period. It can be calculated on daily, monthly and yearly basis to ascertain the change in traffic load on a particular road.

Traffic Volume Data

Measurement of the Traffic Volume for a road corridor along with respective crash data is beneficial as it enables correct attribution of any change in crash and fatality statistics.

For instance, while interventions in road engineering, traffic enforcement, emergency medical care, and community engagement will certainly lead to reduction in fatalities, at times the reduction may also be due to reduced traffic volume on the said road. Therefore, analysing traffic-volume-adjusted crash and fatality data will provide the complete picture.

Details on how to capture traffic volume on un-tolled roads can be found at savelifefoundation.org/ZFD or on this QR Code

Traffic volume on tolled roads may be obtained from the toll-collection agency.

D. Examination of Crash Dynamics

For ensuring optimal interventions in engineering, enforcement and engagement as well as for planning rescue scenarios, it is essential to determine the crash dynamics of a minimum number of crashes. This is achieved through scientific investigation of crashes and allows you to undertake responsive planning.

Detailed guide on how to conduct scientific crash investigations can be found at savelifefoundation.org/ZFD or on this QR Code



i Crash Contributing Factors are those factors leading to a crash and can be categorised into three groups - Human, Infrastructural, and Vehicular. However, the cause of the victim's injury may be different from cause of the crash and the factors leading to an injury are referred to as Injury Contributing Factors.

The Haddon Matrix serves as a framework for analysing incidents by determining the crash contributing factors.

Haddon Matrix of contributing factors to crashes and injuries

PHASES	FACTORS		
	HUMAN	VEHICLE	INFRASTRUCTURE
PRE-CRASH (Crash Prevention)	Lack of Information; Carelessness; Sensory Impairment; Inadequate Enforcement	Not Roadworthy; Inadequate equipment; Improper Handling	Erroneous design and layout; Inadequate pedestrian facilities
CRASH (Injury Prevention)	Non-usage of protective devices	Crash protection design; Malfunctioning equipment	Crash Protection Infrastructure
POST-CRASH (Life Sustainance)	Delay in Access to First-Aid	Difficulty in Extraction	Inadequate Rescue Facilities

Source: SaveLIFE Foundation

Details on Crash Contributing Factors, Crash Configurations, Injury Contributing Factors and the Crash Configurations can be found at savelifefoundation.org/ZFD or on this QR Code



i Crash Configuration refers to the specific features of a road traffic crash including details such as the position and point of impact, the direction of movement, and other relevant factors. Broadly, the configurations are as follows:

- Head-on Collision
- Object Impact
- Rear-end Collision
- Sideswipe
- Rollover
- Side-impact Collision
- Pedestrian Crash
- Others
- Unknown

The following data can be sought from the district police for all crashes in the last three years:

- Most Frequent Crash Configurations
- Top 5 Crash Contributing Factors
- Top 5 Injury Contributing Factors
- Top 3 Victim or Victim Vehicle types
- Top 3 Offending Vehicle types

This information can further be used for the following opportunities:

- Permanent Engineering Improvements
- Tactical Redesign of School Zones and Intersections
- Vigilance and Traffic Compliance
- Active and Visible Patrolling
- Capacity & Resource Upgradation of Emergency Response
- Targeted Awareness Campaigns



Step 5. Tracking Engineering Interventions

The engineering aspect of road safety is crucial to address infrastructure deficiencies and design flaws contributing to road crashes in the district. It involves improving road layouts, signage, and implementing measures like speed-calming devices to create safer traffic environments.

Enhanced engineering standards ensure safe traffic flow and address potential hazards. These include measures to mitigate collision risks, control vehicle speeds, and provide clear guidance for road users. The goal is to establish a transportation system in the district that is not only safer but also more efficient.



Frequently observed engineering issues are listed in Part-D(1) of this Guidebook. Detailed engineering audit formats can be found at savelifefoundation.org/ZFD or on this QR Code



Engineering Data Points to be Tracked	Concerned Agency
Details of engineering audits conducted	PWD and/or NHAI
Action taken on frequently observed engineering issues	PWD and/or NHAI and/or Development Authority
Details of action taken on each of the frequent issues identified above	Police and/or Transport and/or Road Owning Agency

Step 6. Assessing Enforcement in the District

Enforcement is essential to ensure compliance with traffic regulations and deter risky behaviour such as speeding, drunken driving, non-usage of helmets & seat-belts amongst others.

A robust enforcement system acts as a preventive measure, fostering a culture of compliance and reducing the likelihood of road crashes in the district. Effective enforcement measures hold individuals accountable for their actions. This includes penalising traffic offenders, conducting regular checks for adherence to safety protocols, and implementing measures to curb reckless driving.

Enforcement Data Points to be Tracked	
Offence-wise Challans issued in the last three years	
<ul style="list-style-type: none"> Over-speeding Non-usage of helmets Non-usage of seatbelts Drunken driving Unauthorised parking 	<ul style="list-style-type: none"> Wrong-side driving Dangerous driving Red-light violation Speed governors violations
<ul style="list-style-type: none"> At identified blackspots 	
<ul style="list-style-type: none"> In the district 	
<ul style="list-style-type: none"> Through E-enforcement measures 	

Step 7. Strengthening Emergency Trauma Care Systems

Strengthening emergency care services involves capacity building of first responders, upgrading ambulance fleets, and ensuring hospitals are adequately equipped to handle trauma cases promptly.

An effective and coordinated emergency response enhances the overall post-crash care and minimises the severity of injuries sustained in road crashes.

List of repetitive enforcement issues can be found in Part-D(3). Detailed tracking return forms can be found at savelifefoundation.org/ZFD or on this QR Code



Detailed Return forms for tracking Emergency Trauma Care can be found at savelifefoundation.org/ZFD or on this QR Code



Medical Facilities



Ambulances

Trauma Care Data Points to be tracked	
A. Emergency care facilities in Receiving Facilities for road crash victims	
<input type="checkbox"/>	Total number of ambulances available (BLS and ALS with 100% equipments and consumables)
<input type="checkbox"/>	Total trained doctors and paramedics in the hospitals with details of training
<input type="checkbox"/>	Number of ambulance base stations within a 2 km radius of crash-prone locations
B. Details of trainings to personnel	
<input type="checkbox"/>	Doctors trained in ATLS (complete training on joining and refresher training in last 6 months)
<input type="checkbox"/>	PHTLS for paramedics and first responders
<input type="checkbox"/>	Paramedics and first responders certified / trained in BLS
C. Details of protocols and systems in place	
<input type="checkbox"/>	Trauma Registry
<input type="checkbox"/>	Inter-hospital transfer protocol
<input type="checkbox"/>	Triage guidelines and protocols
<input type="checkbox"/>	Alert System for Trauma
<input type="checkbox"/>	Emergency Care Manual

A. Determining the Status of Ambulances in the District

The effectiveness of ambulance services in providing swift medical assistance within the “Platinum Ten Minutes” and transportation to a care facility within the ‘Golden Hour’ following an emergency, significantly enhances survival rates.

Care provided by paramedics/ EMTs in the ambulance is the first instance of medical care provided to a victim of a road crash.

What is the “Platinum Ten Minutes”?
 The ‘Platinum Ten Minutes’ approach is based on the idea that seriously injured patients should take no more than 10 minutes for on-scene stabilization by emergency medical personnel prior to being transported to definitive at-facility care. According to this model, *emergency medical treatment at the scene must be initiated within 10 minutes to optimize patient survival rates.*

What is the “Golden Hour”?
 “Golden hour” stands as a pivotal concept in the realm of trauma management, particularly for individuals affected by road crashes. The concept of the golden hour is based on the idea that an injured patient has 60 minutes from the time of injury to receive definitive care, after which morbidity and mortality increase significantly.



The "platinum ten minutes" and the "golden hour" are concepts of emergency medical situations referring to different time periods and have different goals.

Various service providers provide ambulance service in a district under different schemes. The most prominent ambulance service is Dial-108. It is essential to map all the existing ambulances in the district. It is to be noted that these ambulances may or may not be registered with the RTO of the same district where they are being run and hence data from the CMO/Civil Surgeon should be sought as well instead of solely relying on RTO data.

Type	Agency
Dial 108	Ambulance Service Provider & CMO/ Civil Surgeon
Dial 1033	NHAI
Dial 102	CMO/ Civil Surgeon
Private	RTO & CMO/ Civil Surgeon

Ambulance Response Time

The response time of emergency medical services is a fundamental factor for pre-hospital care to be successful. As per WHO, an ideal response time is equivalent to less than 8 minutes. It is defined as the time between notification of an occurrence and the ambulance arrival at the scene.



Random Check:
Dial the helpline number and call for an ambulance at a crash-prone location for real-time assessment of response time, skills and equipment in an ambulance.

Sample Format for Ambulance Audits

Base Location	No. of Ambulances		No. of EMTs	No. of Pilots	RTA Calls	
	Functional	Non- Functional			Previous Month	Current Month

B. Determining Status of Receiving Medical Facilities

When road safety issues are addressed through targeted interventions in engineering, enforcement, and engagement, the potential for crashes and their severity is reduced. However, crashes may still occur, making it imperative to focus on enhancing the quality of emergency trauma care.

A well-equipped trauma care system can alleviate the burden on healthcare resources by preventing the escalation of injuries into more severe and complicated conditions for all trauma cases.

Sample Format for Hospital Information

Rank	Name of the Hospital	Head and Contact Information	RTA patients Admitted	
			Previous Month	Current Month

Check if the receiving centres maintain a trauma registry or database

Ask the EMTs during the dial-an-ambulance audit which hospital do they take road crash victims to collate the list of receiving hospitals

Step 8. Engagement with Community for Road Safety

Promoting road safety education and awareness is vital to inform and educate the community about safe road behaviour, potential hazards, and the consequences of irresponsible actions. These measures empower individuals with the knowledge needed to make informed decisions on the road.

Key indicators to develop road user engagement tracking

A. Review of campaigns undertaken
B. Details of behavioral change observed in the target audience with the campaigns, if any
C. Details of data used to assess the campaign's success in changing behaviour
D. Details of campaigns proposed for future.

Assistance on tracking engagement interventions can be found at savelifefoundation.org/ZFD or on this QR Code



Step 9. Integrating Policy Frameworks in the 4-E's Approach

The road safety legislations and regulations as the overarching framework that integrate and guide the implementation of the 4-Es of road safety.

Implementation of policies is as crucial as targeting Engineering, Enforcement, Emergency Care and Engagement, for achieving the desired road safety outcomes in the district.

Key Regulations that can be tracked for Road Safety

Implementation of the Good Samaritan Law <ul style="list-style-type: none"> - Implementation of Section 134A of MVA in the district. - Designation of a Grievance Redressal Authority - Display of the Charter of Rights of Good Samaritans in all hospitals and police stations
Enforcement of the Bus Body Code
Ban on trucks and vehicles carrying protruding rods and other loads
Installation of Fire Detection and Suppression Systems in buses
Implementation of the 'Compensation to Victims of Hit and Run Motor Accidents Scheme, 2022'
Inspection of Vehicle Fitness

Please check the state government notifications issued for further state level policy frameworks on Road Safety.

Step 10. Finalising the District Road Safety Action Plan

The district road safety plan is a comprehensive framework designed to address various facets of road safety and emergency response within the region. With a focus on proactive measures, the plan should aim to mitigate crashes, optimize emergency medical services, and enhance coordination between relevant stakeholders.

Key elements to be included in a District Road Safety Action Plan are:

- Data Analysis based on the District Road Safety Profile
- Issues identified based on the analysis
- Key interventions across 5Es of Road Safety
- Specific targets for each stakeholder
- Performance indicators for each stakeholder
- Identification of key projects to be undertaken

Steps 11. Allocating Funds for Road Safety Interventions

Diversifying funding sources for road safety interventions in the district involves re-allocating budgets from various sectors. By strategically utilising these budget heads, the district can comprehensively address road safety challenges. These budget heads may not directly relate with road safety but certain elements for it. A deliberation at the committee level shall be required to identify the funds to be utilised to fund road safety interventions. Following is a list of fund sources which the district administration can leverage —

- State Road Safety Fund
- District Police Department
- District Health Department
- NHAIR Regional Officer Fund

Other financing options may include:

- Public Private Partnership models
- Corporate Social Responsibility funds
- Project specific grants and loans from big donors

S No	Name of the Fund	Amount (at FY start)	Amount spent till date	Balance	Expiry date

Please ask NHAIR Project Directors/ROs for budgets on road safety.

For other departments, check if Operation & Maintenance funds from stakeholder departments can be used for road safety.

Categorise the Road Safety Fund across the 5Es of Road Safety to check how the fund is being spent.

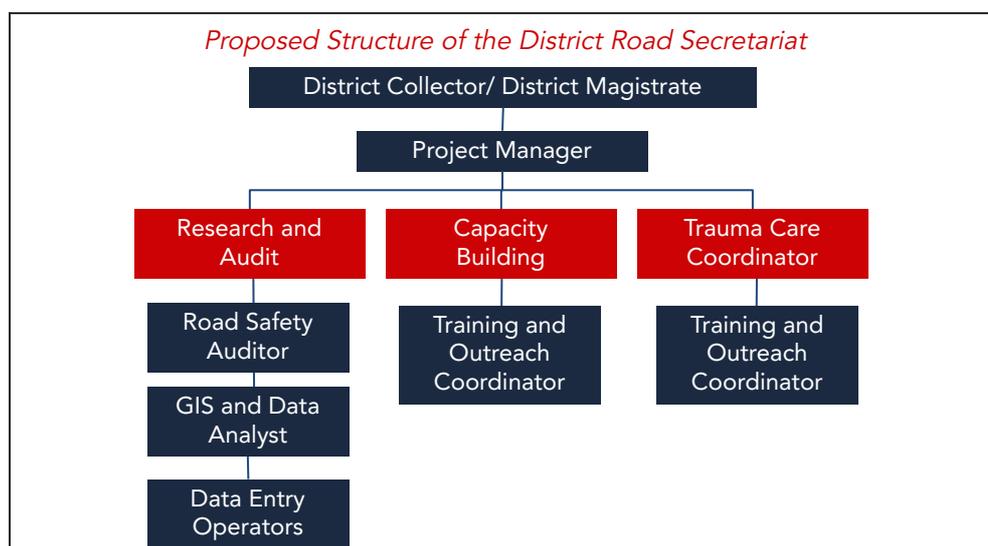
Detailed road safety fund assessment form can be found at savelifefoundation.org/ZFD or on this QR Code



Step 12. District Road Safety Secretariat at District Collectorate

A dedicated road safety secretariat at district level may be established to ensure adequate implementation and monitoring. The proposed staff may be hired as consultants or regular staff may be deputed for the same.

Team Member	Summary
Project Manager	Responsible for oversight of all analysis, evaluation, implementation and monitoring work undertaken by the district and DRSCs. Preferably a person with a background in project planning and public policy.
Road Safety Auditor	Responsible for oversight of road safety audits conducted by engineering departments and for monitoring and evaluation audits of rectification works. Preferably, a civil engineer or transportation planner with certification in road safety audits.
GIS and Data Analyst	Responsible to develop the district road safety dashboard for management of raw data received all departments and to undertake analysis of data sets for submissions to the district leadership. Preferably, a person with experience in data analytics and data management.
Training and Outreach Coordinator	Responsible to coordinate and conduct training programs and public awareness campaigns. Preferably a person having experience in inter-departmental outreach and community mobilisation.
Trauma Care Coordinator	Responsible for oversight of assessment and upgradation of trauma care facilities and ambulance operations. Preferably a public health professional with experience in hospital administration or exposure to trauma care.
Data Entry Operators	To assist the team in data collection, cleaning and collation activities.



Part C: Impact Assessment Criteria

In order to assess the effectiveness of the various road safety measures undertaken in the district, a comprehensive monitoring framework is indispensable. The success of these measures can be evaluated through a multifaceted approach to examine the reduction in the number of road crashes and in the count of road crash fatalities in the district.

Define specific targets of road safety initiatives, such as a reduction in the number of road crashes and fatalities.
Establish a regular reporting mechanism for all key indicators and conduct periodic reviews.

1. Reduction in Road Traffic Crashes

The number of reported road crashes serves as a key indicator to monitor the success of road safety initiatives.

2. Reduction in Road Crash Fatalities

Monitoring the number of road crash fatalities is another crucial criteria for assessing the impact of road safety interventions. Tracking a consistent reduction in the overall incidence in road crashes, including fatalities and injuries, would reflect the effectiveness of implemented measures in enhancing road safety in the district.

Ready-to-print road crash and fatalities monitoring forms can be found at savelifefoundation.org/ZFD or on this QR Code



The reporting from the Police Stations can be sought in the following suggested format every month:

Police Station	Month	Crashes	Fatalities	Grievous Injury	Crash Investigations conducted

The reporting from the Hospitals can be sought in the following suggested format every month:

Name of Receiving Centre	Name of CMO/ In-charge	RTA patients admitted	
		Current month	Last month

The suggested format is similar to the data collection format used to prepare the Road Accident in India report by the Ministry of Road Transport and Highways. Every state collects road crash data per this format to be submitted to the Union Ministry annually. The District may add to the template as per requirement.

A complete understanding of outcomes requires consideration of additional criteria such as adherence to speed limits, usage of seat belts and helmets, and response time of emergency services. Public perception surveys provide a qualitative dimension, while the condition of road infrastructure and incident reporting contribute to a thorough analysis of engineering and enforcement interventions. This diversified set of criteria collectively enables a comprehensive assessment of the impact of road safety initiatives in the district.

Check for number of crashes investigated by forensic crash investigation and their findings.

Part D: Road Safety Parameters

This section provides detailed information to assist the district leadership in conducting effective road safety assessments.

1. List of Frequently Observed Engineering Issues

The table lists the engineering issues that may be observed on a road stretch and should be noted for the engineering return form contained in the next section.

S No	Issue	Associated Risks
01	Absence of crash barrier along median and along road edge	1. Head-on collision 2. Object impact
02	Inappropriate transition of crash barrier	1. Head-on collision 2. Rollovers 3. Object impact 4. Impalement type
03	Inappropriate termination of crash barrier	1. Head-on collision 2. Rollovers 3. Object impact 4. Impalement type
04	Damaged crash barrier	1. Head-on collision 2. Rollovers 3. Object impact 4. Impalement type
05	Man-made hard structures/ Natural hard structures	1. Object impact 2. Head-on collision 3. Rollovers 4. Vision obstruction
06	Absent truck lay-byes and truck rest stops	1. Rear end collision
07	Untreated median opening	1. Side impact collision 2. Rear end collision 3. Pedestrian crash
08	Signages covered by vegetation	1. Head-on collision 2. Rear end collision 3. Run off crashes 4. Side impact 5. Rollover 6. Pedestrian crashes 7. Loss of control 8. Vision obstruction
09	Vision obstruction at the curve due to poor road geometry or excess vegetation	1. Head-on collision 2. Rear end collision 3. Run off crashes 4. Loss of control
10	Narrow Shoulder	1. Pedestrian/cyclist crash 2. Rear end collision
11	Absent pavement marking/Faded marking	1. Pedestrian/cyclist crash 2. Loss of control 3. Side impact collisions

The Zero Fatality Corridor program has been undertaken across 21 highway corridors in India.

The Mumbai Pune Expressway has recorded a 58% decrease between 2016 to 2023 while the Yamuna Expressway recorded a 45% reduction in crash fatalities between 2019 and 2023.

Key Safety measures implemented include installing median crash barriers, deploying speed cameras, installing safety-critical signages, relocating ambulances to key locations, and more.

This demonstrates the practical effectiveness of the zero-fatality solutions.

S No	Issue	Associated Risks
12	Absent signages/ Damaged signages/ Wrong signages	<ol style="list-style-type: none"> 1. Rear end collision 2. Head on collision 3. Side impact 4. Rollover 5. Run off crashes 6. Pedestrian crashes
13	Absent safety during routine maintenance works or construction zone	<ol style="list-style-type: none"> 1. Object impact 2. Loss of control 3. Vision obstruction 4. Pedestrians/workers crash
14	Absent/ Discontinuous pedestrian path/crossing/rails	<ol style="list-style-type: none"> 1. Pedestrian / cyclist crashes
15	Absent facilities at bus stops	<ol style="list-style-type: none"> 1. Pedestrian / cyclist crashes 2. Rear end collision
16	Roadside encroachment	<ol style="list-style-type: none"> 1. Object impact 2. Loss of control 3. Rear end collision
17	Unauthorised parking	<ol style="list-style-type: none"> 1. Rear end collision
18	Inconsistent road geometry (narrow bridges, lane drop, lane widening)	<ol style="list-style-type: none"> 1. Head-on collision 2. Rear end collision 3. Run off crashes 4. Side impact
19	Poor pavement condition	<ol style="list-style-type: none"> 1. Rear end crashes 2. Hit and run 3. Loss of control
20	Inadequate illumination/delineation	<ol style="list-style-type: none"> 1. Rear end collision 2. Pedestrian / cyclist crashes 3. Side impact 4. Object impact 5. Run off crashes

2. Engineering Return Forms

(Department: PWD/ NHAI/ NHIDCL/ BRO/ State Expressway Authorities/ Other Road Owning Agencies)

a. Assessment of Crash-prone Locations - Monthly

S No	Road Name & Number	Category (NH/SH/MDR/ODR/UR/RR)	Crash-Prone Locations		
			Point Name	Latitude	Longitude

b. Assessment of Prevailing Engineering Issues - Monthly

S No	Road Name & Number	Category (NH/SH/MDR/ODR/UR/RR)	Engineering Issue (refer to Pt.1 above)			
			Issue	Carriageway & Direction	Latitude	Longitude

3. List of Frequently Observed Enforcement Issues

The table lists the enforcement issues that may be observed on a road stretch and should be noted for the enforcement return form contained in the section below.

S No	Component	Issue
01	Patrolling & Enforcement	Inadequate/ absence of active patrolling
02		Vehicles parked on road and road-side
03	Dangerous Driving	Wrong side driving
04		Lane hogging, or slow moving vehicles on fast lane/right-most lane
05		Overtaking from the left side
06		Distracted driving/use of mobile phone
07		Overloading with passengers or goods
08	Road User Behaviour	Non-usage of safety helmets and seatbelts
09		Pedestrians on road or shoulder
11		Public Buses stopping at undesignated spots
12	E-Enforcement	Inadequate or absent speed traps/cameras
13	Encroachment	Roadside stalls/vendors/dumping etc

4. Enforcement Return Forms

(Department: District Police & Highway Police)

The enforcement activities can be tracked using the following forms:

a. Penalties Assessment Form - Monthly

S No	Police Station /Circle	Over-speed	Challans Issued for					
			Red-Light Jump	Helmet Non-Use	Seatbelt Non-Use	Over-loading	Wrong-Side	Others

b. Equipment Stock Assessment - Quarterly

S No	Police Station/ Circle	Number of Equipment in Use		
		Breath Analyser Meters	Body Wearable Cameras	Fine Issuance POS Machines

c. Traffic Staff Strength Assessment - Quarterly

S No	Police Station/ Circle	Sanctioned Strength					Present Strength				
		Insp	SI	ASI	HC	Ct	Insp	SI	ASI	HC	Ct

5. Emergency Trauma Care Systems Assessment

The following are the parameters developed by the SaveLIFE Foundation for operationalisation of trauma care based on WHO, MoHFW and MoRTH standards. Under the Trauma Care assessments, the clinical establishments and the ambulances may be audited as per these parameters.

a. Medical Facilities (Hospitals & Clinical Establishments)

Broadly, a facility can be classified between Level-4 to Level-1 of Trauma Care (TC) standards.

Level-1 Trauma Center	Level-2 Trauma Center	Level-3 Trauma Facility	Level-4 Trauma Facility
24 x 7 Operational			
Minimum 75 TC Beds	Minimum 50 TC Beds	Minimum 30 TC Beds	Minimum 10 TC Beds
Specialist Surgeons	Specialist Surgeons	Surgeons on-call	MBBS Physicians
Fully equipped major OT, ancillary services	Fully equipped major OT, ancillary services	Fully equipped major OT, ancillary services	First-aid & patient stabilisation capacity
Medical college/ Speciality hospital or equivalent	District Hospital/ Speciality hospital or equivalent	Sub-District Hospital/ Community Health Centre or equivalent	Primary Health Centre or equivalent

The hospitals and clinical establishments may be operationalised for effective trauma care using the following indicative checklist.

Category	Details	Level 1	Level 2	Level 3	Level 4
Human Resources	Emergency GDMO (MBBS)	✓	✓	✓	
	Physician (MBBS)	✓	✓	✓	✓
	General Surgeon	✓	✓	✓	
	Anaesthetist	✓	✓	✓	
	Orthopaedic Surgeon	✓	✓		
	Plastic Surgeon	✓	✓		
	Neurosurgeon	✓	✓		
	OT Technician	✓	✓	✓	
	Radiologist (MD, MBBS)	✓	✓	✓	
	Radiographer Technician	✓	✓	✓	
	MRI Technician	✓	✓		
	Lab Technician	✓	✓	✓	
	Nurse & Nursing Attendant	✓	✓	✓	✓
	GDA and Safai Karamchari	✓	✓	✓	✓
Infrastructure	Direct & levelled access to Emergency Ward	✓	✓	✓	✓
	Adequate number of Stretchers & Wheelchairs at Entrance	✓	✓	✓	✓
	Electricity Backup (atleast 8 hours)	✓	✓	✓	✓

Category	Details	Level 1	Level 2	Level 3	Level 4
Infra-structure	Tables in Major OT	✓	✓	✓	
	Minor OT in Emergency	✓	✓	✓	
	Treatment Room	✓	✓	✓	✓
	Manifold Gas Supply System	✓	✓	✓	✓
	Laminar Air Flow	✓	✓		
	Humidity & Temp Control	✓	✓	✓	
Equip-ment	Emergency Tray Set	✓	✓	✓	✓
	Crash Cart	✓	✓	✓	✓
	Vitals Monitor	✓	✓	✓	✓
	Pneumatic Tourniquet	✓	✓	✓	✓
	Splints and Traction	✓	✓	✓	✓
	Transport Ventilator	✓	✓		
	ABG machine	✓	✓	✓	
	O.T. Ceiling Light	✓	✓	✓	
	OT Headlights & Microscope	✓	✓	✓	
	Surgical Instruments, Power Saw & Drill	✓	✓	✓	
	Orthopaedic, Thoracotomy & Spinal Surgery Instruments	✓	✓		
	Craniotomy/Faciomaxillary Instruments	✓			
	Anesthesia Machine	✓	✓	✓	
	Central Suction Pipeline	✓	✓		
	Suction & Cautery Machine	✓	✓	✓	
	Angiography Machine	✓	✓		
	Defibrillator with Monitor	✓	✓	✓	✓
	Standard Ventilator	✓	✓	✓	
	Syringe Infusion Pump	✓	✓	✓	
	Digital X-ray Machine	✓	✓	✓	✓
Portable Ultrasound Machine	✓	✓	✓		
C-Arm Image Intensifier, CT scan Machine, MRI Machine	✓	✓			
Blood Investigation Equipment	✓	✓	✓	✓	
Physiotherapy Equipment	✓	✓			
Protocols	Triage Guidelines and Protocols	✓	✓	✓	✓
	Patient Transfer/Referral SOPs	✓	✓	✓	✓
	Trainings for Emergency Ward Staff	✓	✓	✓	✓
	Prominent Display of Rights of Good Samaritans & Adherence to Good Samaritan Protocols by the Staff	✓	✓	✓	✓
	Disaster Management Plan for Mass Casualty Scenario	✓	✓	✓	✓
	Hospital Management Information System(HMIS) software for operations and management	✓	✓	✓	✓
	Pre-Hospital Arrival Notification/ Linkage with Ambulances	✓	✓	✓	✓

b. Ambulances

A trauma response ambulance can be classified as either Advanced Life Support (ALS) (with ventilator support) or Basic Life Support (BLS) ambulance. The ambulances can be made effective for providing trauma response using the following indicative checklist.

Category	Items	BLS	ALS
Human Resource	Qualified Emergency Medical Technician (EMT) - B.Sc. with EMT Diploma or Certification in BLS/ ALS/ ITLS	✓	✓
	Qualified Driver having a valid licence & ability to read, write and maintain log books	✓	✓
Infrastructure	Heating & Cooling System	✓	✓
	Prior Hospital Notification Connectivity	✓	✓
	Stock Register	✓	✓
	Patient Care Record Books	✓	✓
Equipment	Automated External Defibrillator (AED), Triage Bag	✓	✓
	Oxygen cylinder Minimum 360L	✓	✓
	Ambu Bag and Mask Ventilation Device (Adult, Child & Neonatal), Flowmeter with Humidifier bottle, Nebulizer (Electric), Supraglottic device (LMA), Suction Pump, Nasogastric Tubes, Venturi Mask	✓	✓
	Intra Venous Cut Down Set, Suture Kit	✓	✓
	Multi parameter monitor, BP Instrument, Sphygmomanometer, Stethoscope, Digital Thermometer, Pulse oximeter, Glucometer	✓	✓
	Trolley Stretcher with back tilt facility and collapsible wheels, Cervical Collar, Pneumatic Splints, Spinal Board, Cold packs, Thomas splint, Scoop Stretcher, Double Head Immobilizer	✓	✓
	Extrication Equipment - Heavy duty scissors for cutting clothing, belts, and boots; Axe; Wrecking Bar; Crowbar	✓	✓
	Kidney Tray, Urinal or Bedpan	✓	✓
	Transport Ventilator		✓
	End Tidal CO2 Monitor, Infusion Pump, Syringe Pump		✓
	ECG Machine		✓
	Traffic signalling device, Siren, Spare Tyre, Vehicle Tool Kit, Headlights, Flashlights, extra batteries and bulbs	✓	✓
	Fire extinguisher, CO2 or dry chemical or type ABC.	✓	✓
	Personal Protective Equipment, Safety Helmet, Shoes	✓	✓
	Pocket Bin for sharp needles, Waste Bin, Disinfection	✓	✓
	Delivery Kit	✓	✓
Disposable bags for vomiting	✓	✓	

Category	Items	BLS	ALS
Consumables	Sterile Dressing - multi-trauma dressings, Occlusive dressing, Adhesive tape, Elastic bandages, gauze sponges, Cotton Rolls, Triangular Bandage)	✓	✓
	G.V. Paint	✓	✓
	IV Set - Micro/Macro drip and Cannula	✓	✓
	Syringes - 2, 5 & 10 ml	✓	✓
	Nebulisation mask, Guedel's airway, Nasal airways & catheters	✓	✓
	First Aid Box, Burn Pack, Cotton Roll, Bandage - 15cm, 10cm, 6cm, Savlon, Betadine solution or betadine ointment	✓	✓
	Teeth guard		✓
	Sample collection kits		✓
	ECG electrodes		✓
Medicines	Tablets - Paracetamol 500gm, Ecosprin/ Aspirin, Activated charcoal, Clopidogrel, Isosorbide Dinitrate 5mg, Nitroglycerin sublingual	✓	✓
	Syrups - Antacid Anaesthetic Gel, Paracetamol 60ml	✓	✓
	IV Fluids - Dextrose 25%, Normal Saline, Ringer Lactate	✓	✓
	Pain Spray, Mistdress Spray, Coolex Spray	✓	✓
	Other - Xylocaine Jelly 2%, ORS, Glucose, Vinodine Spray	✓	✓
	Injections - Adrenaline, Atropine, Adenosine, Calcium Carbonate, Dopamine, Dobutamine, Noradrenaline, Nitroglycerine, Sodium Bicarbonate, Hydrocortisone, Frusemide, Diazepam/Midazolam, Deriphyllin, Phenytoin sodium, Avil, Metro Chlorpropamide, Ondansetron, KC1, Lignocaine 2%, Amiodarone 50 mg /ml, Magnesium sulphate 25% 2ml, Mannitol 20%, Morphine/ Pethidine, Noradrenaline bitartrate 4mg, 2ml, Naloxone HC1, Fentanyl, Sodium Valproate, Voveran, Paracetamol, Bacteriostatic water, Dextrose solution		✓
	Inhaler Beclomethasone 250 micrograms/ dose, Salbutamol 200 micrograms		✓
	EpiPen		✓

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