

Life in The Golden Hour: Statistical Analysis of Road Accidents in India and Optimization of Medical Emergency Kit

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Abstract - Roadways have long been a critical source of transportation, facilitating the movement of people and goods. As the reliance on road networks continues to grow, so does the unfortunate increase in accidents and fatalities resulting from delayed response to emergencies. This research paper investigates into the critical intersection of road safety and emergency medical aid. It presents a comprehensive analysis of road accident statistics, emphasizing the severity of accidents and the imperative need for prompt medical assistance. The study examines the various components of emergency medical help including response time to highlight their pivotal role in saving lives and reducing the impact of accidents at a crucial time. By understanding the dynamics of road accidents and the essential elements of emergency medical response. This research paper seeks to present statistical data on road accidents, emphasizing the significance of emergency kits. The study focuses on optimizing components within emergency medical kits to enhance their effectiveness in addressing road accident-related emergencies.

Key Words: Road Accidents, Emergency Medical Kit, Medical Components.

1. INTRODUCTION

In the complex web of modern society, road accidents stand as a grim and ever-present reality. They strike without warning, causing immense human suffering, economic loss, and untold grief. Understanding road accident statistics, identifying accident-prone areas, and embracing the crucial concept of the "Golden Hour" can play pivotal roles in mitigating their impact. This introduction delves into the concerning statistics surrounding road accidents, explores the notion of accident-prone regions, emphasizes the critical importance of the "Golden Hour," and examines government initiatives aimed at addressing this crisis. Additionally, it highlights how the delay in providing timely medical aid often leads to tragic fatalities and proposes the provision of emergency kits as a potential solution to reduce deaths and fatalities. By shortlisting the essential emergency components for road accident cases, we can pave the way towards a safer and more secure road network for all.

2. LITERATURE REVIEW

The preceding articles and research papers highlighted issues related to traffic congestion problems and gave some insights to prevent future accidents. After a qualitative study conducted by researchers, it was inferred that external factors such as the presence of fog in rainy and winter seasons reduce the visibility on the road becoming a key factor causing accidents [3]. Studies revealed that along with natural factors negligence of drivers and poor road conditions also fuel up the already rising problem of road accidents. A study recommended some solutions such as providing halt stations for heavy vehicles to give time for gearboxes to cool down, providing extra lanes for heavy vehicles to avoid overtaking, proper diversion indicators, lights on the roads, and regular maintenance of roads to avoid road accidents [3].

The "Road Accidents in India — 2021" report presents comprehensive data on road accidents in India for the year 2021, sourced from police departments of States/Union Territories. The report comprises ten sections covering various aspects, including accident profiles, causes, fatalities, and comparisons [1,3].

According to the data gathered (Refer Chart -1) in 2022, there were 4,61,312 reported road accidents, resulting in 1,68,491 fatalities and 4,43,366 injuries [1]. Notably, 31.2% of accidents occurred on National Highways, with 35.8% of fatal accidents happening on these roads. Tamil Nadu had the highest number of road accidents on National Highways, while Uttar Pradesh recorded the highest fatalities [1,2].

A total number of 4,12,432 road accidents have been reported by States and Union Territories (UTs) during the calendar year 2021, claiming 1,53,972 lives and causing injuries to 3,84,448 persons. The number of road accidents in 2021 increased by 12.6 percent on average compared to the year 2020. Similarly, the number of deaths and injuries on account of road accidents increased by 16.9 percent and 10.39 percent respectively [2]. These figures translate, on average, into 1130 accidents and 422 deaths every day or 47 accidents and 18 deaths every hour in the country. During the previous year 2020, the country saw an unprecedented decrease in accidents and fatalities (Refer Chart -1).

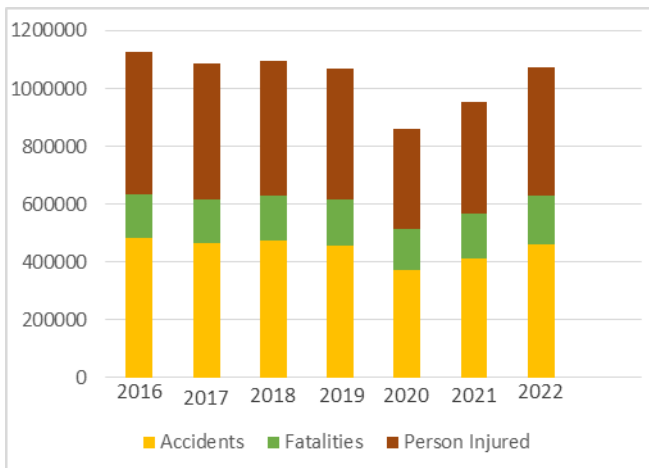


Chart -1: Trends in the number of Accidents, Fatalities, and Persons Injured: 2016 to 2022 [1]

This is primarily due to the unusual outbreak of the Covid-19 pandemic and the resultant stringent nationwide lockdown particularly during March-April 2020 followed by gradual unlocking and phasing out of the containment measures. Accident parameters followed a similar trend till 2019, a sudden drastic fall occurred in 2020 due to the Covid-19 pandemic. Major indicators of accidents performed better in 2021 when compared to 2019. Road accidents on average decreased by 8.1 percent and injuries decreased by 14.8 percent in 2021 compared to 2019. Fatalities, however, on account of road accidents increased only by 1.9 percent in 2021 corresponding to the same period in 2019. The trend in the total number of road accidents, fatalities, and injuries during 2016 to 2022 is presented in the (Refer Chart -2) [1, 2].

As shown in (Refer Chart-2), the distribution of road accidents in 2022, reveals alarming figures with fatalities at 34.47%, grievous injuries at 30.65%, minor injuries at 29.01%, and non-injury incidents at 5.88% [1]. These stark statistics underscore the urgent need for comprehensive road safety measures and an efficient medical emergency system. Concerted efforts must be made to address the root causes of these accidents, implement preventative measures, and enhance emergency response capabilities to safeguard lives on our roads (Refer Chart -2).

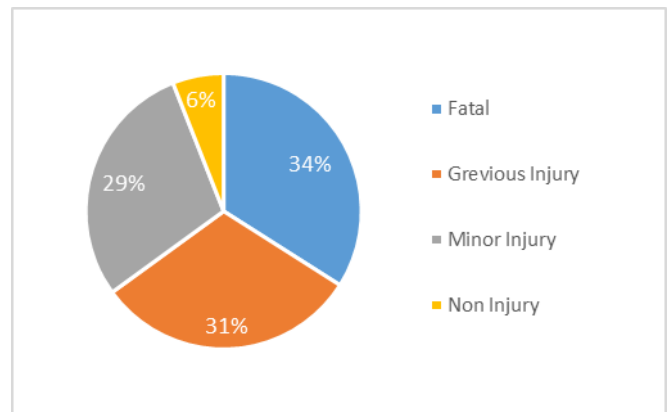


Chart -2: Types of road accidents in 2022 [2]

3. Research Methodology

The research methodology employed in this study encompasses a multi-faceted approach to comprehensively examine the relationship between road accidents, the importance of medical emergency kits, and subsequent fatalities. Firstly, a quantitative survey was conducted, gathering opinions from a diverse sample of drivers to gauge their perspectives on the significance of carrying a medical emergency kit and its potential impact on mitigating road accidents.

Subsequently, government officials from the Regional Transport Office (RTO) were interviewed to delve into the statistics and factors contributing to road accident fatalities. This involved a meticulous analysis of accident severity, death ratios, and the delays in medical responses. The insights gathered from these interviews shed light on the systemic issues and challenges associated with emergency medical services. To further enrich the study, medical practitioners were engaged, providing them with a concise overview of the importance of medical emergency kits in the context of road accidents. Their professional insights were crucial in understanding the role of emergency kits in such scenarios. The final phase of the research involved designing and streamlining the medical components of emergency kits. This step aimed to optimize the effectiveness of these kits based on the collective feedback and information obtained from the surveys, interviews, and expert consultations. The integration of these diverse perspectives ensures a holistic exploration of the subject matter and informs the subsequent analysis and findings of this research endeavor.

3.1. Quantitative Survey: Assessing Public Awareness and Significance of Medical Kit in Road Accident Situations

Road accidents pose significant risks, demanding immediate attention and swift medical aid. This research endeavors to shed light on the public's awareness regarding road accidents and the necessity for prompt emergency medical assistance. Utilizing a qualitative survey involving 410

participants out of which 375 were found to be legitimate. This survey delves into the perceptions, knowledge, and recognized requirements concerning road accidents and the crucial need for timely medical aid in such distressing situations (Refer to Annexure A).

3.1.1. Data of how often the surveyed individuals travel by their own vehicles

It can be inferred (Refer Chart -3) that 69% of the surveyed individuals use their personal vehicles on a daily basis, 22% of the surveyed individuals use their personal vehicles occasionally and the remaining 9% of the surveyed individuals use their personal vehicles rarely.

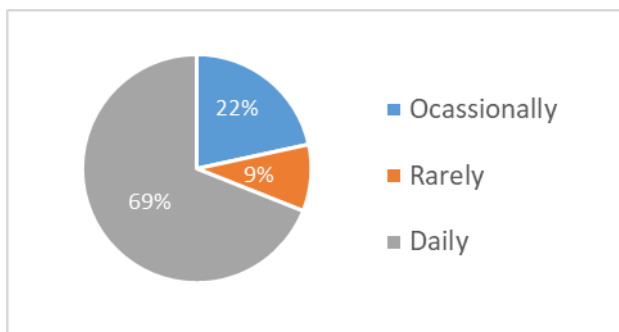


Chart-3: Frequency of private vehicle usage of surveyed individuals

3.1.2 Frequency of road accidents witnessed by the surveyed individuals

As depicted in the (Refer Chart -4), 8% of people have witnessed accidents routinely, 4% of the people has never witnessed accidents, 23% have frequently observed and 65% have rarely witnessed road accidents.

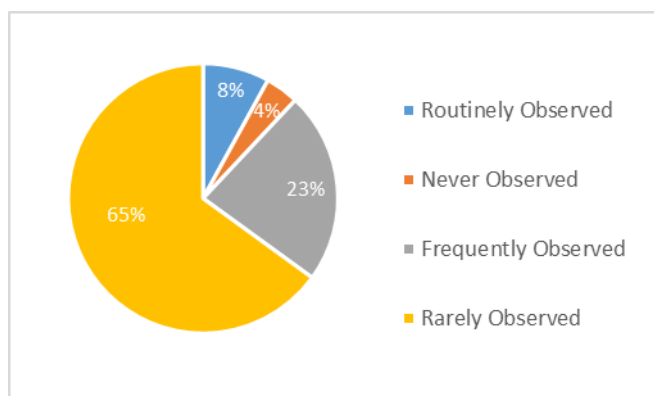


Chart- 4: Frequency of road accidents

3.1.3 Importance of emergency medical help

The graph in (Refer Chart -5) depicts the opinion of surveyed individuals on whether accident victims must get emergency help before ambulance arrives.

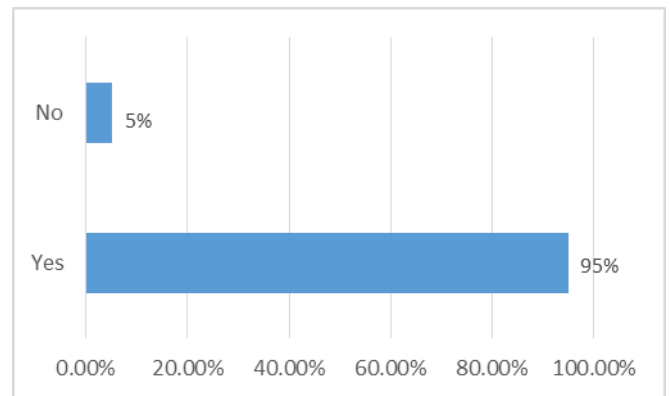


Chart- 5: Importance of emergency medical help before ambulance arrives.

As evident in (Refer Chart -5), 94.70% of people think that the victim must receive emergency medical assistance before the ambulance arrives, 5.30% people think otherwise

3.1.4 Surveyed individuals with basic first aid components in their vehicles

The below diagram depicts the data of surveyed individuals having basic first aid components (bandages, antiseptic liquid, cotton) in their personal vehicles.

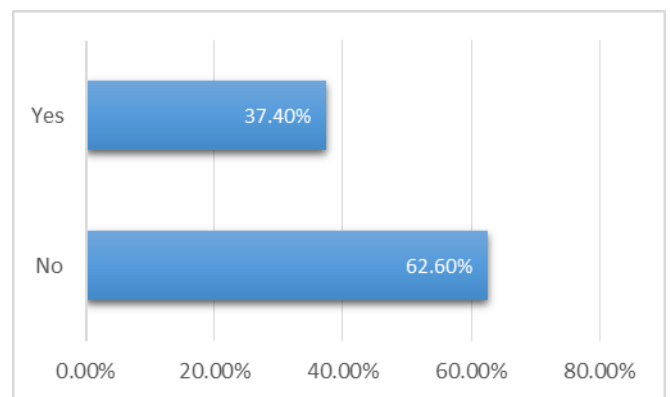


Chart- 6: Availability of basic first aid in the vehicle for surveyed Individual

It is evident from (Refer Chart -6), that out of the total surveyed individuals, 62.60% do not have basic first aid in their vehicle whereas 37.40% people have basic first aid in their vehicle.

3.1.5 Surveyed Individuals willing to keep medical emergency kit for road accidents

The graph (Refer Chart -7) shows the willingness/preference of the surveyed individuals to keep a medical emergency kit for road accidents.

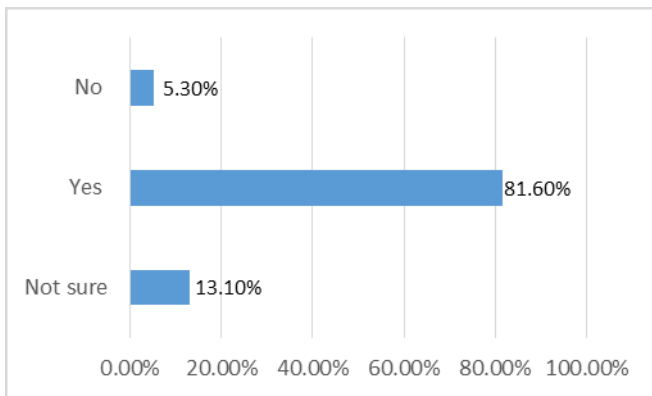


Chart- 7: Ratios of Individuals Advocating for Inclusion of Medical Kit in Vehicles

As per the information gathered from the survey, 81.60% are willing to keep a medical kit in their vehicles for emergencies, 5.30% people are unwilling and 13.10% are not sure to keep a medical emergency kit in their vehicles.

3.1.6. Percentage of surveyed individuals who have knowledge and awareness of first aid

The below (Refer Chart -8) shows the percentage of surveyed individuals who have of awareness of first aid.

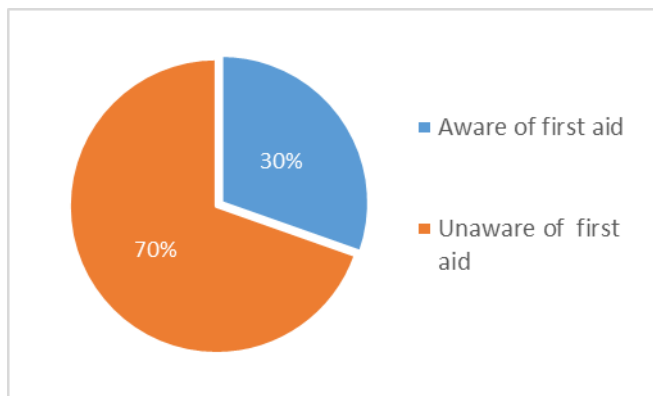


Chart- 8: Proportion of Individuals who are aware of first aid

As per the gathered data, 30% of people have knowledge and awareness of first aid and remaining 70% of surveyed individuals are unaware of first aid.

The survey findings reveal a noteworthy emphasis by the majority of respondents on immediate and effective measures to address bleeding and injuries. The suggested components for the medical kit, as highlighted by the surveyed individuals, include bandages, painkillers, ointment, antiseptic liquid, cotton, gauze, and Diclofenac spray. Understanding these priorities is vital for tailoring future medical kits.

The survey highlights a significant pattern where a majority of individuals use their personal vehicles daily, increasing the likelihood of accidents. This underscores the importance of having an emergency medical kit in their vehicles. Furthermore, the observation that a considerable number of individuals have witnessed road accidents emphasizes the necessity of such kits. While the majority acknowledges the importance of having an emergency medical kit, the survey reveals a concerning gap, with most individuals lacking the actual kits in their vehicles. Additionally, the findings indicate a lack of awareness regarding the usage of medical components in first aid. Collectively, these results underscore the critical need for promoting and ensuring the presence of emergency medical kits in personal vehicles for the safety and well-being of individuals on the road.

3.2 Qualitative study from the Regional Transport Office

In pursuit of enhancing safety and emergency response measures, invaluable data has been meticulously gathered through fieldwork conducted at the Regional Transport Offices of Vasai, Maharashtra, and Panvel, Maharashtra, India. This data collection effort focuses on identifying accident-prone areas, comprehending emergency response concepts, and capturing essential information related to the 'Golden Hour,' a critical period for timely medical intervention. After an accident takes place lives are lost due to non-involvement of authorities and medical negligence. The number of fatalities is increasing day by day because of victims not receiving immediate medical help. Research also reveals that if an accident victim receives medical aid within one hour of the accident then his/her chances of surviving are increased up to 60%.

By closely examining this data (Refer to Table no. 01 & 02), we aim to gain valuable insights that can be instrumental in improving accident prevention strategies and bolstering emergency services, ultimately contributing to the safety and well-being of the community. (Refer to Annexure D).

Table no.01 and Table no. 02 is the data collected from Regional Transport Office Panvel, Maharashtra, India. This data provides the qualitative statistics of accident information for January 2023 to May 2023 and December 2023 to May 2023.

Table no. 01: Jan-May (2022-23) Qualitative accident information

(Source: received from RTO Panvel, for research purpose)

Office Name	No. of Total Accidents		No. of Fatal Accidents		No. of Fatalities	
	Jan 22- May 22	Jan 23- May 23	Jan 22- May 22	Jan 23- May 23	Jan 22- May 22	Jan 23- May 23
Dy RTO Pimpri-Chinchwad	60	57	34	30	43	37
Percentage %		-5		-12		-14
RTO Panvel	70	53	26	22	34	34
Percentage %		-24		-15		0
Total	130	110	60	52	77	71
Percentage %		-15		-13		-8

Table no. 02: Dec-May (2022-23) Qualitative accident information

(Source: received from RTO Panvel, for research purpose)

Office Name	No. of Total Accidents		No. of Fatal Accidents		No. of Fatalities	
	Dec 21- May 22	Dec 22- May 23	Dec 21- May 22	Dec 22- May 23	Dec 21- May 22	Dec 22- May 23
Dy RTO Pimpri-Chinchwad	65	65	37	34	46	41
Percentage %		0		-8		-11
RTO Panvel	87	75	34	32	42	48
Percentage %		-14		-6		+14
Total	152	140	71	66	88	89
Percentage %		-8		-7		+1

According to the data gathered from Assistant Regional Transport Officer of Regional Transport Office Panvel, Maharashtra, India. The identified accident-prone areas include: -

1. Merge and Exit Ramps: Accidents often occur when vehicles are merging onto or exiting from expressways due to changes in speed and merging conflicts.

2. Intersections: Expressways sometimes intersect with other roads, and accidents can occur at these points, especially during turning maneuvers.

3. High-Traffic Areas: Congested sections of expressways are more prone to accidents, as there's less room for error and increased chances of rear-end collisions.

4. Construction Zones: Accidents are more likely in construction zones where lane changes, reduced speed limits, and construction vehicles can create hazards.

5. Curves and Turns: Sharp curves or unexpected turns on expressways can catch drivers off guard, leading to accidents.

Emergency Concept To reduce the number of accidents and fatality of accident cases, the concept of 4E and Golden Hour plays an important role.

The concept of 4E is
 E-EDUCATION
 E-ENGINEERING
 E-EMERGENCY RESPONSE
 E-ENFORCEMENT

Education focuses on educating drivers, pedestrians, and other road users about safety practices. Engineering involves designing and maintaining road infrastructure to be safer. Emergency Response addresses the prompt response to the accidents when they occur. Enforcement involves enforcing traffic laws and regulations to deter unsafe behaviours.

The "Golden Hour" concept refers to a critical period following a traumatic injury or medical emergency during which prompt medical treatment can greatly improve a person's chances of survival and recovery. This concept emphasizes the importance of providing medical care within the first 60 minutes (one hour) after the injury or emergency occurs.

3.3. Qualitative study obtained from Trauma Centre

In our relentless pursuit of better understanding and improving the response to medical emergencies, our team has undertaken visits to trauma centres where highly qualified and experienced medical practitioners have graciously agreed to participate in our survey. This collaboration has yielded a wealth of insights into medical emergencies and the responses to such critical situations. The following section presents the questions posed to these dedicated professionals and their recorded responses, shedding light on the vital aspects of emergency healthcare and the valuable expertise of those on the front lines of medical care. (Refer Annexure B)

RQ1. How do you classify accidents based on their severity? (Refer to annexure B)

Medical Practitioner 1 – There are two cases one is simple and the other is grievous. The simple type of accident is the one in which the victim has patch burns, bruises, cuts,

wounds, and abrasions. In grievous accidents, there is severe loss of blood, head injuries, and major fractures.

Medical Practitioner 2 – The accidents are classified as fatal and non-fatal. In fatal accidents, the victim has a head injury, major fractures, severe blood loss, and chemical burns.

Medical Practitioner 3 – The accidents are identified as fatal and non-fatal.

Medical Practitioner 4 – The accidents are identified as fatal and non-fatal.

RQ2. Following the fatality of the accidents, what is the time limit within which medical help must be provided to reduce the severity of the condition?

Medical Practitioner 1- In case of head injury and severe blood loss the victim must receive help within 1 hour.

Medical Practitioner 2- In any accident situation medical help must be provided as early as possible.

Medical Practitioner 3- In case of fatal accident medical assistance must be provided in less than 30 minutes.

Medical Practitioner 4-In case of a fatal accident medical assistance must be provided within 30- 40 minutes.

RQ3. What is the traumatic body damage after the accident?

- A - Head injury
- B- Fractures (neck, spine, hands, legs)
- C -Wounds (closed, open, deep)
- D- Bleedings: - Arterial, scalp, internal
- E- Injury: - Head injury, spine injury, dislocation, Fractures, sprains
- F- Burns: - Chemical burns.

RQ4. What is the primary Aid that is to be given to the accident victims?

Medical Practitioner 1: - For burns – savlon, normal saline water, hydrogen peroxide, silverex ointment, cuts and bruises- spirits, normal saline water, hydrogen peroxide+ betadine solution, betadine ointment, gauze piece, cotton bandage, for a bleedings-pressure bandage, tablets- paracetamol, zarynac sp –(painkiller), BP drop- ORS, Ice compression for sprains.

Medical Practitioner 2: - In case of anonymous fractures splints are very vital. It reduces pain and helps prevent further injury. Severe blood loss – Pressure bandages (must be changed/reapplied every 30-45 minutes), Diclofenac spray/patches. To relieve pain and swelling in small and medium joints. Brain Injuries/ trauma – GCS-P (Glasgow Coma Scale Pupil Score) range (1-15), Eye-opening, verbal responses, motor responses. Burns- Silverex ointment,

Dressing materials, Antibiotic. A portable Oxygen cylinder can prove useful.

Medical Practitioner 3- In case of blockage – Airway suction pumps. Breathing support- AMBU Bags, Circulation- ORS, and Oral fluids.

Blood loss -3P's

P-Pressure -Applying direct pressure to the wound

P- Packing -Packing wound if direct pressure alone is not enough to control the bleeding.

P- Patience -After providing medical aid one must wait for a few minutes.

Closed wounds – diclofenac spray. Burning- Framycetin /Silverex /Lignocaine jelly (aesthetic agent), Fractures- Splints, cold compressions for closed wounds (covered compression), Preliminary analysis–pulse oximeter, digital, sphygmomanometer (BP machine), Stretch the neck and tongue out in case of breathing issues,2/4-inch roller bandage, cotton, gauze, ointments, dressing pads.

Medical Practitioner 4- For fractures use splints and avoid injections, Diclofenac should not be used on open wounds, in case of scalp bleeding apply pressure, Silverex ointment can be used for burns, any oral medications are not to be given without a doctor's guidance.

3.3.1. Primary List of Medical Components.

Incorporating the valuable insights and recommendations provided by the medical practitioner, we have meticulously crafted a comprehensive primary list. This list encompasses essential factors and considerations that will guide us in optimizing our approach.

COMPONENTS-

1. Silverex ointment
2. Spirits
3. Normal saline water
4. Betadine solution/ointment
5. Gauze piece
6. Pressure bandage/crepe bandage (10cm)/ Roller bandage
7. ORS
8. Ice compression
9. 2/4-inch roller bandage
10. Fractures-Splints-1.5 to 3 feet
11. Breathing support-AMBU Bags
12. Diclofenac spray/tramadol/aceclofenac
13. Esmarch Tourniquet (arterial supply cut)
14. Disposable Gloves
15. Adhesive Tape/Bandage
16. Airway suction pumps
17. AMBU bags
18. Framycetin
19. Lignocaine Gel (aesthetic agent)
20. Splints
21. Pulse oximeter

- 22. Digital sphygmomanometer
- 23. Portable oxygen cylinder
- 24. Gloves
- 25. Paracetamol
- 26. zarynac sp
- 27. Dualin+ Budecort Nebuliser

3.3.2. Finalised List of medical components

The primary list was reconsidered a thorough reassessment of the feedback from our esteemed medical practitioners was taken, we have diligently refined and finalized our list. Our paramount focus has been on ensuring the utmost safety for accident victims. In this pursuit, we have conscientiously iterated certain components that posed potential risks to the well-being of those in need. As advised by the medical practitioners' components were carefully scrutinized, and those deemed to pose any risk to the well-being of individuals in the intended application were systematically removed.

These selected components stand as the cornerstone of providing essential aid to accident victims, as they have undergone rigorous validation by the discerning eye of medical practitioners. Their inclusion in the finalized list underscores their crucial role in delivering basic and effective assistance to those in need. With the endorsement of medical experts, these components represent a robust foundation for ensuring the well-being and care of accident victims in critical situations. (Refer Annexure C).

4. CONCLUSION

This research paper underscores the alarming issue of road accidents and their devastating consequences. It emphasizes the significance of understanding accident statistics, identifying high-risk areas, and recognizing the importance of the "Golden Hour" in reducing the impact of accidents. The paper also sheds light on government initiatives to address this problem. Furthermore, it highlights the critical role of timely medical assistance and proposes equipping emergency kits to save lives. By focusing on essential emergency components for road accidents, this research contributes to the development of more effective protocols, ultimately working towards a safer road network and a reduction in the probability of fatalities.

While this research sheds light on the importance of emergency medical kits in addressing road accidents, it is essential to acknowledge certain limitations. Firstly, the size of the surveyed respondents was relatively small, potentially limiting the generalizability of the findings. Additionally, the variability in medical kit sizes based on different types of vehicles poses a challenge in standardizing recommendations. Moreover, it is crucial to recognize that the designed medical kit may not encompass all types of road accidents, and its applicability for scenarios involving

more than ten individuals remains unexplored. Furthermore, deploying medical kits on the field warrants further investigation, exploring effective ways to ensure accessibility and utilization during emergencies.

The scope of the research paper on an emergency medical kit for vehicles could include assessing the current kit's components, evaluating their effectiveness in addressing minor accidents, and proposing enhancements to expand its capabilities. Consider factors like kit size, portability, and the inclusion of additional medical supplies based on emerging needs in the field. Addressing potential challenges in increasing the kit size and ensuring user-friendly features could also be part of the scope.

Acknowledgement

The completion of this research paper was made possible through the support and collaboration of various individuals and organizations. We express our sincere gratitude to Usha Mittal Institute of Technology, SNDT University for providing the necessary resources and research environment.

Final Components: -

1. Gloves
2. Chloroxylenol and alpha terpineol
3. Isopropyl alcohol
4. Sodium chloride
5. Gauze Piece
6. Povidone-iodine
7. Povidone-iodine
8. Silver nitrate, ethyl alcohol
9. Cotton roll
10. Rolled bandages
11. Crepe bandages
12. Adhesive Tapes
13. Blade
14. Diclofenac, methyl salicylate, alcohol and menthol
15. Glucose sodium chloride, potassium chloride, sodium citrate

Special appreciation goes to Professor Dr. Vilas J. Kharat sir and Professor Poonam More ma'am for their invaluable guidance, mentorship, and insightful feedback throughout the research process. Their expertise greatly enriched the quality and depth of this study.

We extend our gratitude to Sachin Vidhate Sir, ARTO, Bhausahab Kadam Sir and the entire RTO staff for their valuable insights of MH-46 Panvel, Maharashtra, India Regional Transport Office and Anil Gite Sir, Sub Inspector and the entire RTO staff for their valuable insights of MH-48 Vasai-Virar, Maharashtra, India Regional Transport Office for their cooperation and assistance in providing essential data and information related to road accidents and safety regulations.

Our sincere appreciation is also directed towards Dr. Shija and Dr. Rameshwari, Panacea Hospital (New Panvel), Dr. Hemant Patil, Sanjivani Hospital (Khopoli), Dr. Tushar Shelar, Jakhotia Nursing Home And Trauma Centre(Khopoli), Dr. Abhidnya Raut, MO, Rural Hopital(Virar), Dr. Shekhar Bavkar, Dr. Rahul Kulkarni, Dr. Nikhil D. Palange, Dr. Vijay D. Walke, Sanjivani Hospital(Virar) the esteemed medical practitioners who generously shared their knowledge and experiences, contributing significantly to the medical aspects discussed in this paper.

Lastly, we express our gratitude to the surveyed individuals who participated in this study. Their willingness to share their insights and experiences played a crucial role in shaping the findings and conclusions of this research.

Collectively, the collaboration and support from these entities and individuals have been instrumental in the successful completion of this research.

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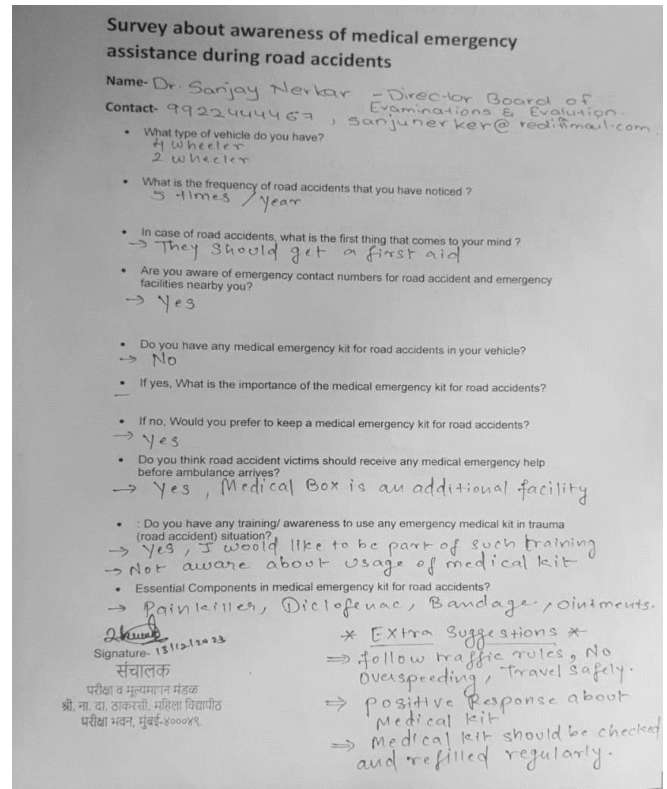
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Annexure

Annexure A. Offline Interview / Survey Inference Sample



Annexure B. Trauma Centre Visit Inference Sample



SANJIVANI HOSPITAL (KHOPOLI)

DATE: 21/06/2023

AIM: Interaction with doctors for information regarding designing of medical kit.

INFERENCE:

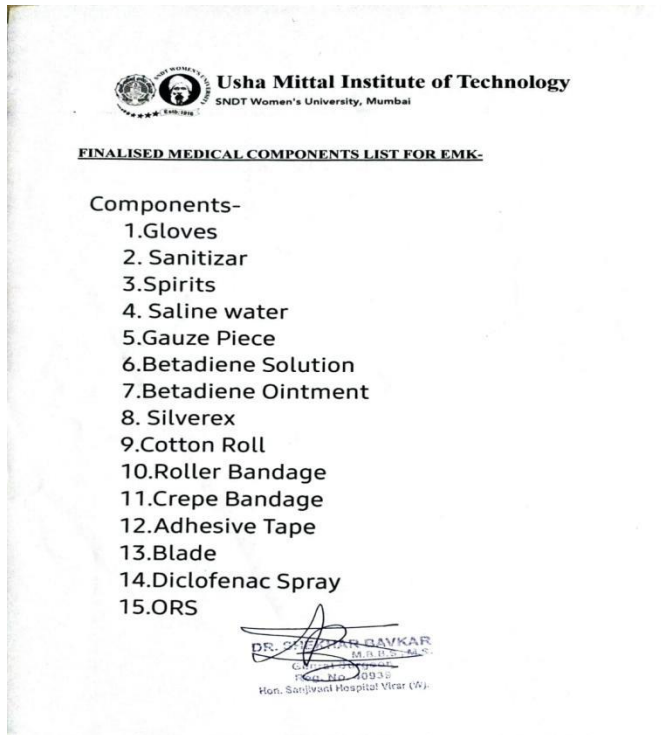
- Frequency of the accidents is every 2-3 days. The accident prone time is 12am-7am.
- In case of anonymous fractures splints are very vital . It reduces pain helps prevent further injury .
- Types – neck, spine, arm , leg.
- Severe blood loss – Pressure bandages (must be changed/reapplied every 30-45 mins)
- Diclofenac spray / patches . To relieve pain and swelling in small and medium joints
- Brain Injuries/ trauma – GCS-P (Glasgow Coma Scale Pupil Score) range (1-15)
- Eye opening , verbal responses , motor responses
- Burns - Silver-jX ointment , Dressing materials , Antibiotic.
- Portable Oxygen cylinder can prove useful.

PROJECT GUIDE:

- Dr. Vilas J Kharat
- Ms. Poonam More.

Hemant Patil
Dr. Hemant Patil
 (M.S. Consulting Surgeon)

Annexure C. Final Verified Components List from medical practitioners



Usha Mittal Institute of Technology
SNDT Women's University, Mumbai

FINALISED MEDICAL COMPONENTS LIST FOR EMK-

Components-

1. Gloves
2. Sanitizer
3. Spirits
4. Saline water
5. Gauze Piece
6. Betadine Solution
7. Betadine Ointment
8. Silverex
9. Cotton Roll
10. Roller Bandage
11. Crepe Bandage
12. Adhesive Tape
13. Blade
14. Diclofenac Spray
15. ORS

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Annexure D. Regional Transport Office, Panvel, Maharashtra, India.



Usha Mittal Institute of Technology
Shrimati Nathibai Damodar Thackersey Women's University
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Mumbai - 400 049.

उषा मिटल इन्स्टिट्यूट ऑफ टेक्नॉलॉजी
श्रीमती नथीबाई दामोदर ठाकरसी महिला विद्यापीठ
जुहू तारा रोड, सांताक्रुझ (पश्चिम),
मुंबई - ४०० ०४९.

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उषा मिटल इन्स्टिट्यूट ऑफ टेक्नॉलॉजी
श्रीमती नथीबाई दामोदर ठाकरसी महिला विद्यापीठ
जुहू तारा रोड, सांताक्रुझ (पश्चिम),
मुंबई - ४०० ०४९.

To: RTO, PANVEL
KALAMBOLI, PANVEL, NAVI, MUMBAI
MHARASHTRA - 410218.

Date - 14 JULY 2025

Subject: Permission Request for Electronics and Communication Engineering Students for Designing a Medical Kit

Dear Sir / Madam,

I hope this letter finds you in good health and high spirits. I am writing to formally request your esteemed institution's permission to allow a group of Electronics and Communication Engineering students from our college to carry out a project related to the design and development of a medical kit.

At UMIT, we strongly believe in providing our students with practical and hands-on learning experiences to supplement their theoretical knowledge. In line with this approach, we have identified an opportunity for our Electronics and Communication Engineering students to undertake a project focused on designing a medical kit that can contribute to the healthcare sector's advancement.

We are impressed by the exceptional reputation and expertise of your organization in the field of healthcare and medical services. Considering the expertise and facilities available at your esteemed institution, we believe that collaborating with your hospital will greatly enhance our students' learning experience and the quality of the project.

The project aims to design a medical kit for accident victims. The kit's development will require the students to study and understand the specific requirements and challenges, ensuring the final product is both effective and user-friendly.

We would be grateful if you could grant our students the permission to proceed with this project at your esteemed institution. We are confident that the knowledge and experience gained through this endeavor will have a lasting impact on their educational journey and future careers.

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