

Value Increasing Business Model for Emergency Medical Services

By

Kavya Srivastava

*Dissertation submitted for the partial fulfillment of the
MBA Hospital and Health Management*

Academic year, 2015-2017



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TO WHOMSOEVER MAY CONCERN

This is to certify that Kavya Srivastav of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at Aditya Birla Health, Mumbai from 6th February, 2017 to 5th May, 2017.

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.



(Col.) Dr. Ashok Kaushik

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In recognition of having successfully completed her

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And her successfully completed her Project on

Value Increasing Business Model for Emergency Medical Services

May 5th 2017

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She comes across as committed, sincere & diligent person who has a strong drive and zeal for learning. We wish her all the best for the future endeavours


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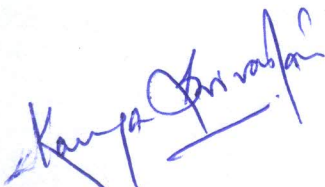
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CERTIFICATE BY SCHOLAR

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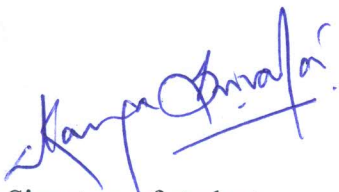


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This is to certify that all ethical issues have been considered while collecting data for my dissertation titled **“Value Increasing Business Model for Emergency Medical Services.”**

A handwritten signature in blue ink, appearing to read 'Kampana Sharma', is written over a horizontal line.

Signature of student

Abstract

“Emergency medical services, also known as ambulance services or paramedic services (abbreviated to the initialism EMS, EMAS, EMARS or SAMU in some countries), are a type of emergency service dedicated to providing out-of-hospital acute medical care, transport to definitive care, and other medical transport to patients with illnesses and injuries which prevent the patient from transporting themselves (NHTSA). Currently, India lacks a centralized body that could provide specific guidelines for training and operation of Emergency Medical Services (EMS). We have a fragmented and inaccessible service. Road traffic injuries are the ninth leading cause of death across all age groups globally, and are predicted to become the seventh by 2030 (WHO report 2015). This is where the role of a robust emergency response services comes into play so that precious lives and serious repercussions could be averted.

Keywords: Emergency medical services, perception, expectations, industry research, competition mapping, infrastructure of ambulance, response time

Objectives

- To assess the current industry and competitive scenario of emergency medical services in India.
- To analyze the perception of customers for emergency medical services.
- To develop a digitally enabled model of emergency care system.

Methodology

Descriptive cross sectional study was being conducted in Mumbai for three months (Feb 6th-May 5th 2017). Firstly, the industrial scanning and competitive mapping was done through secondary research. Then, two separate structured questionnaires were used to measure the experience of users of ambulance services and expectations of non-users.

To select the sample, non-probability convenient sampling technique was used. The total sample size for the study was 400 (200 users and 200 non-users of EMS). The data obtained was analyzed using pivot tables.

Results and Findings

The result of the secondary data analysis indicated that India has a fragmented EMS with few service providers. There are inappropriate and inadequately equipped ambulances. There is a lack of monitoring mechanism to ensure timely and optimal care. The primary data analysis of users indicated the higher response time as one of the major issue. The investigation of non-users for measuring expectations for EMS revealed that the most important parameter are efficiency of emergency care system, infrastructure of the ambulance and the emergency personnel.

Conclusion

On the basis of the results obtained, to address the issues of timeliness and optimal quality care, a digital platform is proposed. A new business model of EMS i.e. digital platform is proposed to address the issues investigated in the research.

Limitations

Before the implementation at a wider scale and at a commercialized level, the viability of this model needs to be checked through a pilot study.

Acknowledgements

I owe immense appreciation to some people for their contribution towards this work. This study could not have been successful without the support of some concerned people. I extend my sincere gratitude to my mentor, **Jenisha Sharma**, Manager, Provider and Partner Management of Aditya Birla Health Insurance Company Limited. I am thankful to her for spending her valuable time with me and giving me insights to complete this work. I would never have been able to finish my dissertation without the help of my cousin Isha Saxena and my office colleagues for always been a helping hand to me.

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TABLE OF CONTENTS

S.No	Contents	Page no.
1	Introduction	1
2	Literature review	2
3	Objectives	5
4	Materials and Methods	5
5	Results and Findings	6
6	Discussion	38
7	Proposed Model for ABHI	39
8	Conclusion	42
9	References	43
10	Supplementary	44

LIST OF FIGURES

S.No	Figure No	Figure Name	Page no.
1	Fig.1	Calling an ambulance	9
2	Fig.2	Site of accident/injury	10
3	Fig.3	Ambulance caller	10
4	Fig.4	Listening carefully to the caller	11
5	Fig.5	Understanding the location of the caller	11
6	Fig.6	Any phone advice before arrival of the ambulance	12
7	Fig.7	Reassuring call taker	12
8	Fig.8	Response time of the ambulance	13
9	Fig.9	Usage of private vehicle or ambulance	13
10	Fig.10	Mode of transport during emergency	14
11	Fig.11	Attentive listener	14
12	Fig.12	Any previous medical history	15
13	Fig.13	Trust and confidence in the ambulance crew	15
14	Fig.14	Reassuring ambulance crew	16
15	Fig.15	Explanation of care and treatment	16
16	Fig.16	Helpfulness of staff	17
17	Fig.17	Transfer of information	17
18	Fig.18	Transfer to hospital	18
19	Fig.19	Transfer into the ambulance	18
20	Fig.20	Cleanliness of the ambulance	19
21	Fig.21	Comfort of ride in the ambulance	19
22	Fig.22	Transfer of patient information	20
23	Fig.23	Advice to go to hospital	20
24	Fig.24	Agreement with the decision	21
25	Fig.25	Ambulance crew advice	21
26	Fig.26	Rating of ambulatory care	22
27	Fig.27	Overall treatment	22
28	Fig.28	Perception of highly important parameters	25
29	Fig.29	General appearance of the ambulance	26
30	Fig.30	Cleanliness of the ambulance	26
31	Fig.31	Comfort of ride in the ambulance	27
32	Fig.32	Adequacy of ambulance equipments	27
33	Fig.33	Helpfulness of the staff	28
34	Fig.34	Attentiveness of the staff	28
35	Fig.35	Empathetic nature of the staff	29
36	Fig.36	Ensuring of patient's comfort	29
37	Fig.37	Adequacy of explanation of their actions	30
38	Fig.38	Efficiency of staff	30
39	Fig.39	Feeling of safety	31

40	Fig.40	Perceived level of training	31
41	Fig.41	Professional look of the staff	32
42	Fig.42	Level of competency	32
43	Fig.43	Confidence of staff	33
44	Fig.44	Availability of staff	33
45	Fig.45	Response time of an ambulance	34
46	Fig.46	Working conditions of the equipments	34
47	Fig.47	Qualified and trained staff	35
48	Fig.48	Regular training	35
49	Fig.49	Speed of admittance to the hospital	36
50	Fig.50	Public perception of Aditya Birla services	36
51	Fig.51	Usage of an App	37
52	Fig.52	Digital platform advantage	37

LIST OF TABLES

Table 1- Industry scenario- At a Glance.....	7
Table 2- Competitor Mapping.....	8
Table 3- Importance of various attributes.....	23
Table 4- Proposed Strategy for Identified Gaps.....	39

LIST OF APPENDICES

Appendix 1- Questionnaire for Perception about Ambulance Services	
Appendix 2- Questionnaire for recent experience with an Ambulance Service	
Appendix 3- List of empanelled hospitals of ABH in Mumbai	
Appendix 4- Customer Value Proposition	
Appendix 5- Industry Research and Competitor Mapping	
Appendix 6- Analysis of Perception about ambulance services	

INTRODUCTION

There are few events in our life that leave us to live into a living hell. A major cause of distress is an unexpected loss of life or permanent disability caused by an injury whether physical or accidental. Article 21 of the Constitution of India guarantees the 'Right to Life' but this is being deprived to the injured patient who could have been potentially saved but dies needlessly owing to flaws in effective treatment or delay in care.

The medical care is becoming costlier day by day and it is becoming out of reach of common person in India. Approximately eighty percent of health expenditure is out-of-pocket private expenditure. So, Health Insurance comes out as a rescue mechanism to minimise the risk and cover the cost of medical care. In India, 5% population had health Insurance in 2002 which has increased to approx. 18% in 2014. So, every year about 1% population is being added up to the pool of health insurance in India. Health insurance has been defined as "coverage that provides for the payments of benefits as a result of sickness or injury & includes insurance for losses from accident, medical expense, disability, accidental death and dismemberment," (Health Insurance Association of America). USA has more than 80% insured population while India has more than 80% uninsured people in the country. India had approx. 17.5% population health insured in 2013-14 (IRDA-2015). In India the business of Insurance including health insurance is regulated by IRDA. So, India has a vast scope of expansion for health insurance due to increasing population, increasing cost of medical care and inadequate & poorly managed public healthcare system. Future of health Insurance in India is very bright. With about 360 million policies; India's life insurance sector is the biggest in the world with a Compound Annual Growth Rate (CAGR) of 12-15 per cent over the next five years. The insurance industry will hike to five per cent penetration levels by 2020.

With 33% coverage, Maharashtra leads the list followed by Rest of India-23 states (29%), and followed by Tamil-Nadu, Karnataka, Delhi and Gujarat. Except Maharashtra, Tamil-Nadu, Karnataka, Delhi and Gujarat; majority of the states have very poor penetration of health insurance, hence there is a wide scope for its expansion.

India is a second most populous country with 1.32 billion people living here which make approx. 17.8% of the world's population. The ratio of road traffic accidents in the world is 0.75 accidents for 1000 vehicles while in India it stands at a staggering 16 accidents per 1000 vehicles. By 2020, it is estimated that India will have maximum number of people suffering from cardio vascular diseases (WHO report 2015). By 2025; India will be Diabetes Capital of the world. India is one of the world's most disaster prone areas. Almost 57% of the land is vulnerable to earthquakes, 68% to draught, 8% cyclones and 12% to floods. Unfortunately, man-made disasters are also a reality in India. 30% of victims die due to delay of transportation or during transportation, which is often primitive. Road traffic injuries are the ninth leading cause of death across all age groups globally, and are predicted to become the seventh by 2030. These figures speak themselves for the provision of an efficient and organised emergency medical service in our country. The situations that result in sudden bodily harm due to injury and other urgent medical conditions are addressed by emergency medical services. This include the evaluation of the person in the adverse condition, providing one with

appropriate pre-hospital care and safe and appropriate transportation to a health care facility for the provision of definitive care.

Currently, India lacks a centralized body that could provide specific guidelines for training and operation of Emergency Medical Services (EMS). We have a fragmented and inaccessible service. There is no standardised toll free number to call in case of an emergency. There are wide inconsistencies among those present and huge unevenness in terms of dispatch and transport capabilities. There are also ambulances owned by private hospitals that fill the gap of those available by government. But these ambulances are beyond the reach of a huge number of people owing to their high cost yet being well equipped. However, many local agencies came into picture with free or affordable pre hospital emergency services which are managed by various nongovernmental organizations (NGOs), social trusts, volunteer health organizations etc. These services have huge disadvantages because they are not uniform across the country, they do not have a standardized EMS protocol. Also, they have almost nil and coordination with the local police and fire departments. Most of the time, people do not know the telephone number to call for EMS assistance. Thus, the EMS accounts for a lot of unpredictability.

The greatest impact can be brought about by an emergency medical care only within several hours of the event; if provided that can prevent from losing a life or a life-long disability. The success of the case will depend on convenience to access the services, timely reaction, and apt stabilization of the condition and quick delivery of the patient for specialized treatment. Therefore, the efficient working of EMS depends on proficient communication systems, transportation and supplies, well-trained human resources as well as proper synchronization of all involved parties.

Although it may be difficult to enumerate the number of lives or DALYs saved through emergency medical care, many of the conditions that add to the burden of disease in India can be mitigated through prompt and early treatment. The concept of golden hour saves the life of an individual if proper care is received from well trained professionals and immediate transportation to the nearest healthcare facility is available. The platinum ten minutes has the greatest chance for survival.

It's this acknowledgment that has led to research and development in EMS and developing a robust ambulance network for providing the best of the class services to the Aditya Birla Health customers.

LITERATURE REVIEW

Millions of people lose their life every year on the world's roads; with millions more are left to live with serious injuries and spending their lives with long-term adverse health consequences. Globally, the maximum toll of death is caused by road traffic crashes among young people. More than 1.2 million people die each year on the world's roads, making road traffic injuries a leading cause of death globally. Rapid economic growth accompanied by increased motorization and road traffic injuries lead to most of these deaths low- and middle-income nations. As well as being a public health problem, road traffic injuries are a development issue: these countries lose approximately 3% of GDP on account of road traffic injuries. Although road traffic injuries have been a leading

cause of mortality for many years, most traffic crashes are both predictable and preventable (WHO report).

According to WHO report; road traffic injuries place a heavy burden on national economies as well as on households. In low- and middle income countries they particularly affect the economically active age group, or those set to contribute to family, society and the workforce in general. Many families are driven deeper into poverty by the loss of a breadwinner, or by the expenses of prolonged medical care, or the added burden of caring for a family member who is disabled from a road traffic injury. The economic costs also strike hard at a national level, imposing a significant burden on health, insurance and legal systems.

With the launch of the Sustainable Development Goals, road safety is receiving increased international attention, and is included in two of the 17 Goals of this new global agenda. In response to this growing epidemic, in 2010 the UN General Assembly adopted Resolution 64/255 to establish the Decade of Action for Road Safety (2011–2020), the goal of which is to stabilize and reduce predicted levels of road traffic fatalities around the world. A Global Plan of Action provides the roadmap towards this goal, promoting proven, cost-effective solutions for making roads safer, including those pertaining to: (i) road safety management; (ii) safer roads and mobility; (iii) safer vehicles; (iv) making road users safer; and (v) improved post-crash response and hospital care (WHO report 2015).

The UN Road Safety Collaboration is pleased to announce that the Fourth UN Global Road Safety Week will be held from 8-14 May 2017. The Week will focus on speed and what can be done to address this key risk factor for road traffic deaths and injuries. Speed contributes to around one-third of all fatal road traffic crashes in high-income countries, and up to half in low- and middle-income countries. The way victims of road traffic crashes are dealt with following a crash determines their chances and quality of survival. Prompt communication and activation of the response system, prompt response and effective assessment, treatment and transport of injured people to formal health-care facilities (where necessary) are essential. This is where the role of a robust emergency response services comes into play so that precious lives and serious repercussions could be averted.

Some of the key facts

- About 1.25 million people die each year as a result of road traffic crashes.
- Road traffic injuries are the leading cause of death among young people, aged 15–29 years.
- 90% of the world's fatalities on the roads occur in low- and middle-income countries, even though these countries have approximately half of the world's vehicles.
- Half of those dying on the world's roads are “vulnerable road users”: pedestrians, cyclists and motorcyclists.
- Without action, road traffic crashes are predicted to rise to become the 7th leading cause of death by 2030.

- The newly adopted 2030 Agenda for Sustainable Development's has set an ambitious road safety target of halving the global number of deaths and injuries from road traffic crashes by 2020.
- There is no formal Emergency Room Injury Surveillance System in India as per WHO report
- There are multiple emergency access telephone numbers in India which lead to inefficient post-crash care services.
- Around 2.0–3.0% is permanently disabled due to road traffic crash.
- Reported road traffic fatalities (2013) is 137 572 (85% M, 15% F)
- WHO estimated road traffic fatalities is 207 551
- WHO estimated rate per 100 000 population is 16.6
- Estimated GDP lost due to road traffic crashes 3.0%
- The relatively long response time (as compared to 7–8 minutes in developed countries like the United States) is due to various factors, which include traffic congestion, frequent roadwork changes and roadblocks, and inadequate communication information resulting in the inability to reach the called destinations or reaching the wrong destinations.

A study conducted (Fitzgerald et al) in an urban South Indian city reported that in 50% of cases, no pre hospital care or treatment was offered by qualified personnel when ambulances were used to transport patients to hospitals. Another study (Ramanujam P et al) reported that 80% of trauma patients in India cannot get access to medical care within the first hour. In other words; the ambulance system has been ineffective due to poor infrastructure, the lack of trained pre hospital personnel, and lack of access to services. The World Health Organization National Commission on Macroeconomics and Health Report on India said that an average villager in India, who does not have a motor vehicle, needs to travel over two kilometres to get a tablet of paracetamol, over six kilometres for a blood test, and nearly 20 kilometres for hospital care. India Today's reality check of ambulances found several lapses in operations. Many ambulances run by government hospitals were found to be compromising patient safety due to dilapidated, unhygienic vehicles and poor response times. In Akola, in Maharashtra, a hospital van was transporting medical supplies instead of patients. In Pune, an ambulance was ferrying school children.

In Uttar Pradesh, vehicles running under the national ambulance are in a state of disrepair. While the fan and air conditioners were damaged in some, others had dysfunctional sirens. Some were also not able to transport patients as they did not have fuel. The condition in the national capital is also not any better. Private vans labelled as ambulances queued outside government hospitals. But they hardly had any primary healthcare equipment or emergency apparatus.

OBJECTIVE

- To assess the current emergency medical services in India and understand their business model.
- To analyze the perception of customers for emergency medical services.
- To develop a digitally enabled model of emergency care system.

MATERIAL AND METHODS

STUDY DESIGN:

Cross sectional descriptive study. An opinion of diverse groups of people (above 18 years of age) that has ever been a user of emergency services or not and the experience of existing customers along with secondary data research is being taken and analysis is being done to reach at the most desirable business model for emergency medical services for ABH customers.

SETTING:

Mumbai, Maharashtra

DURATION OF STUDY:

Three months (Feb 6th-May 5th 2017)

DATA COLLECTION

The study used secondary and primary data sources. The source of primary data is individual respondents of the age 18 years and above. There are 400 respondents of which 200 are users and 200 non-users of Emergency Medical Services. 200 existing users of EMS are being used to understand their recent experience with the emergency medical services and another 200 users are being used to understand and analyze their opinion and expectations from the ambulance services. They were interviewed with a set of questions concerning their perception of the ambulance services and were asked to rate the view on a Likert Scale from 1 to 5.

A thorough industrial research and a competitive mapping are being done for the ambulance services provided by the insurance market in the country. The data used are from key market private health insurers in the country viz; ICICI Lombard, Apollo Munich Health Insurance, Religare, Max Bupa, Star Allied Health Insurance etc. The working model of existing ambulance service providers (GVK EMRI, Lifejet

Ambulance, AMBER, Life Hover, Book My Ambulance, Ziqitza, East West Rescue etc are being analysed.

These questions were divided into six components of customer's perception: vehicle, attitude, performance, professionalism, efficiency of service and usage. Individuals were asked to rate their perception for each item in order of their preference in an ambulance service in the questionnaire from a scale of 1 to 5, with the score of 5 rated as "highly important" and the score of 1 as "highly unimportant" (Appendix 1). The higher the score, the more is that particular item necessary in an ambulance service for the user.

Also, there is another set of questionnaire which is about their experience of the emergency ambulance services (Appendix 2).

SAMPLING METHOD:

Non-probability convenient sampling

SAMPLE SIZE:

A total of 400 respondents; includes male and female both

RESULTS AND FINDINGS

A thorough industrial research and a competitive mapping are being done for the ambulance services provided by the insurance market in the country which gives the following key points.

The data used are from key market private health insurers in the country viz; ICICI Lombard, Apollo Munich Health Insurance, Religare, Max Bupa, Star Allied Health Insurance etc. The working model of existing ambulance service providers (GVK EMRI, Lifejet Ambulance, AMBER, Life Hover, Book My Ambulance, Ziqitza, East West Rescue etc are being analysed (Appendix 5).

The industrial scenario at a glance gives us the following picture;

Table 1- Industry Scenario - At a Glance

S.NO.	SERVICE PROVIDER	LOCATION	CONTACT NO. FOR EMERGENCY	Total number of ambulances	Business model	Digital platform
1	GVK EMRI's	15 states and 2 UT i.e. Andhra Pradesh, Telangana, Gujarat, Uttarakhand, Goa, Tamil Nadu, Karnataka, Assam, Meghalaya, West Bengal, Himachal Pradesh, Chhattisgarh, Uttar Pradesh, Rajasthan and 2 Union Territories, Dadra & Nagar Haveli and Daman & Diu.	108	108 ambulances-6570 and JSSK-4257	PPP	No
2	Maharashtra Emergency Medical Services (MEMS) with BVG	Aundh Chest Hospital Pune; all over Maharashtra	108	1000	PPP	WIP
3	Ziqitza Health Care Limited (ZHL)	980 Ambulances across five states; Basically South Mumbai and Kerala	1298	3000...150 for private	Outsourcing and PPP (Cross-subsidy and fixed contract)	App WIP
4	LIFEJET AMBULANCE	Mumbai, Nashik, Pune, Goa; Air service throughout India; Patna, Allahabad	+91 9322270516	7 Cardiac Ambulance and 4 Basic Ambulances	Private	No
5	AMBER	launched in Delhi-NCR and would soon be expanded to Bengaluru, Mumbai and Hyderabad	MOBILE APP	-	App based- Private	Yes

Also, the competitor mapping helps in understanding our current status in the market and thus develop our model accordingly;

Table 2- Competitor Mapping

S.No	Service Provider	Cashless/RM	Plan Name	Limit	Road Ambulance	Air Ambulance
1	ICICI LOMBARD	RM	Complete Health Insurance Extension HC 5	1500 per event	YES	NO
			Health Booster	1500 per event	YES	NO
2	Apollo Munich	RM	Optima Senior	2000	YES	NO
			Optima Super	2000	YES	NO
			Optima Restore Family	-	YES	YES
3	Bajaj Health Insurance	RM	Silver Health	1000	YES	NO
			Extra Care	3000	YES	NO
4	Religare Health	RM	Care Comprehensive	3000	YES	NO
			Care Freedom	1000	YES	NO
5	Star Health	RM	Star Comprehensive Insurance Policy	10% of Sum Insured	YES	YES

The data collected from 200 respondents about their most recent experience of emergency ambulance services gave the following results-

The service questionnaire was divided into sections-

- Calling an ambulance
- The ambulance crew
- Transfer to hospital
- If you were not taken to hospital
- Overall

- **Calling an Ambulance**

1. Way of calling an ambulance service

Almost half of the population responded that they called 108 for ambulance services and around 41percent called their family or friends for help. Very few, 9percent of the population called the ambulance by dialling any other number and only 1percent used an app

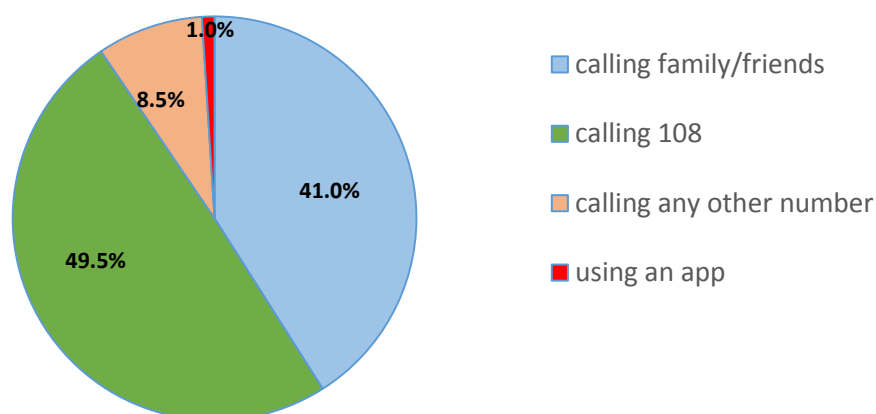


Figure 1-Calling an ambulance service

2. Site of accident/injury

The percentage of population who were at a public place at the time of accident/injury was 41 and 30percent of them were at their home. While 18percent respondents were somewhere else and 12percent of the population don't remember.

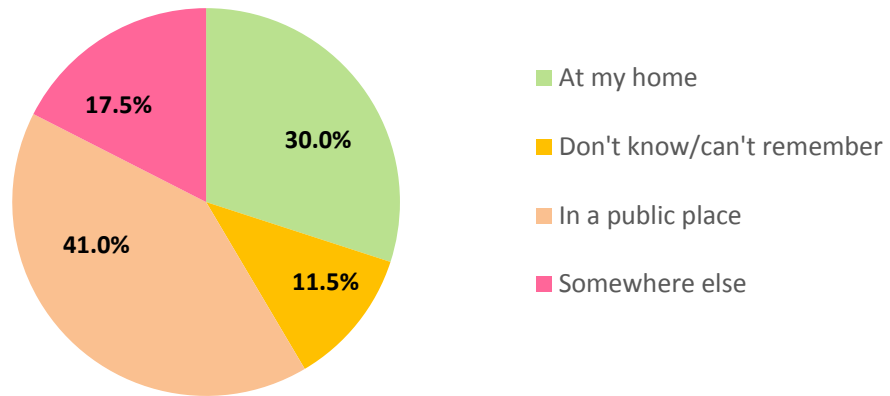


Figure 2-Site of accident/injury

3. Ambulance caller

Around 40percent of the respondents called the ambulance on their own and 32percent cases have friends or relative as their callers. Unknown people also came to be a Samaritan in 11percent of the cases and the police also contributed to rescue in 5percent of the cases. Rest 12percent don't remember their rescue rangers.

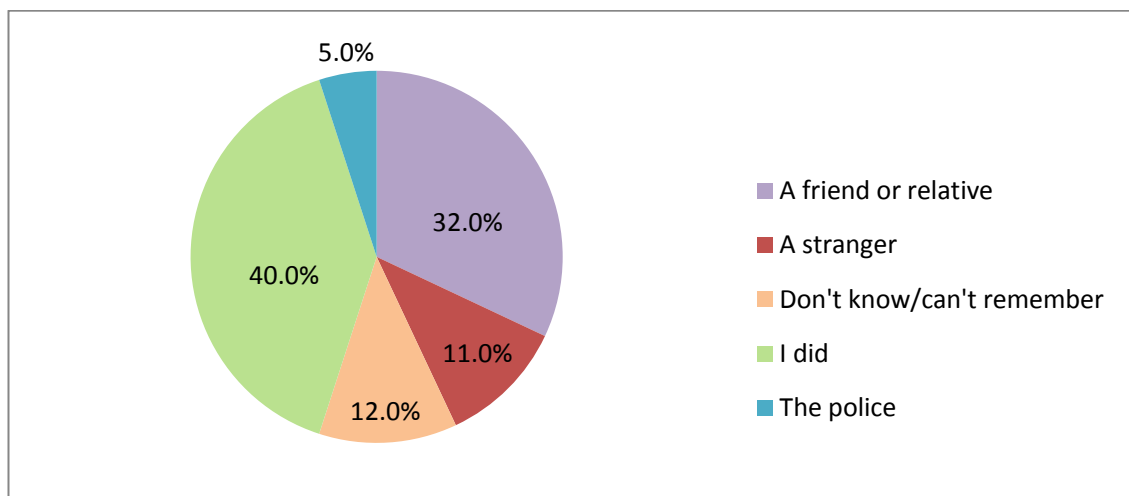


Figure 3- Ambulance caller

4. Listening carefully to the caller

More than half (67percent) cases reported the ambulance call taker listened to them carefully while around 18percent reported that they didn't. Around 16percent didn't remember about this incident.

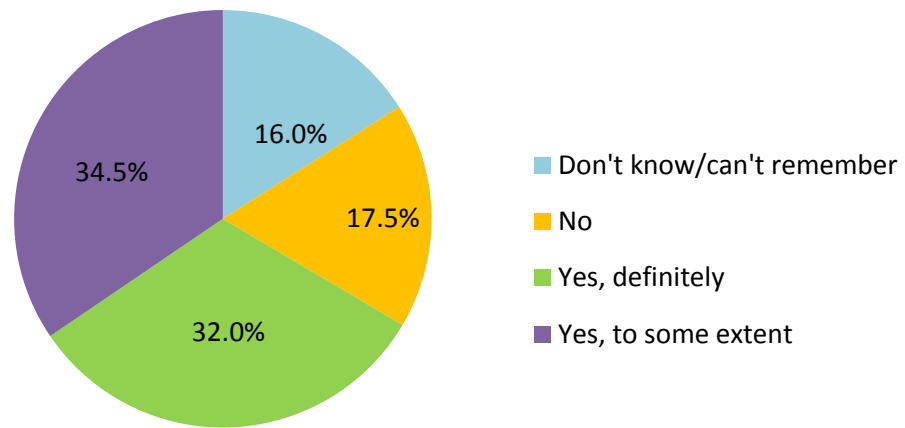


Figure 4-Listening carefully to the caller

5. Understanding the location of the caller

Around 37percent responded that the ambulance call taker easily understood their location and 46percent understood to some extent. While 3percent response was negative and 15percent could not recall.

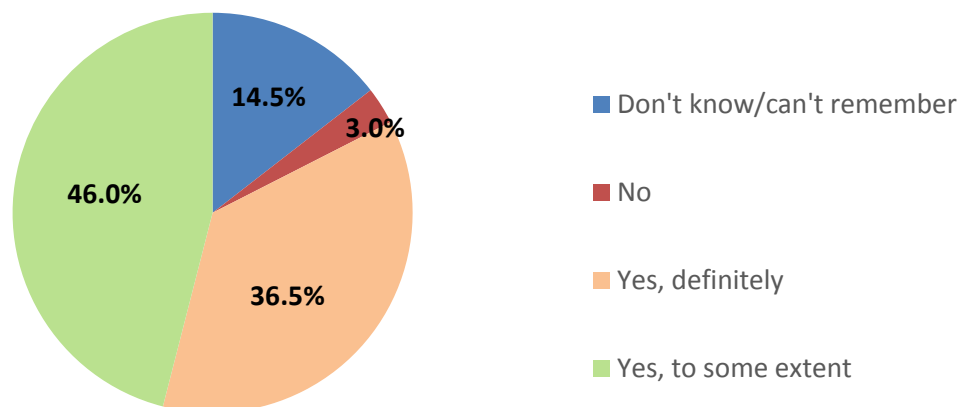


Figure 5-Understanding the location of the caller

6. Any phone advice before arrival of the ambulance

Around 30percent respondent received advice on the call about what to do before the ambulance arrived while 36percent responded in negative. 15percent did not need any advice as such. Around 18percent cases could not recall.

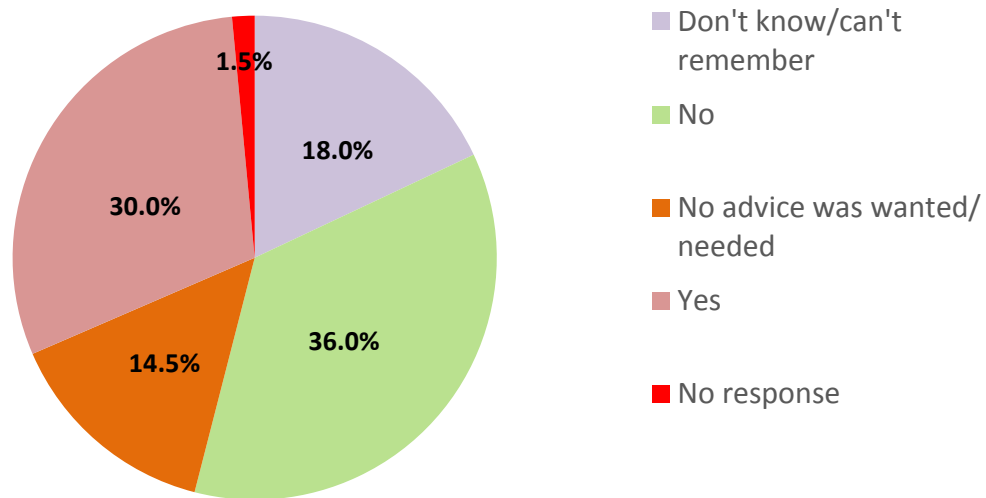


Figure 6-Any phone advice before arrival of the ambulance

7. Reassuring call taker

More than half of the population responded in positive while 10percent response was in negative. However, 23percent of the population could not recall.

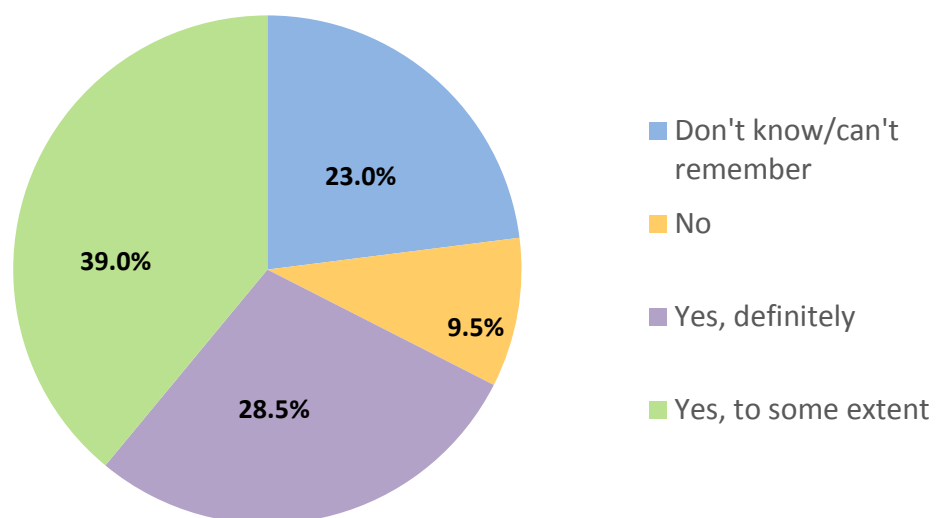


Figure 7- Reassuring call taker

8. Response time of the ambulance

Around 14percent of the population received ambulance in less than 15 minutes and 33percent in 15 minutes. Also, 40percent received in half an hour. It took more than half an hour for the ambulance to reach in the rest 5percent and 8percent cases.

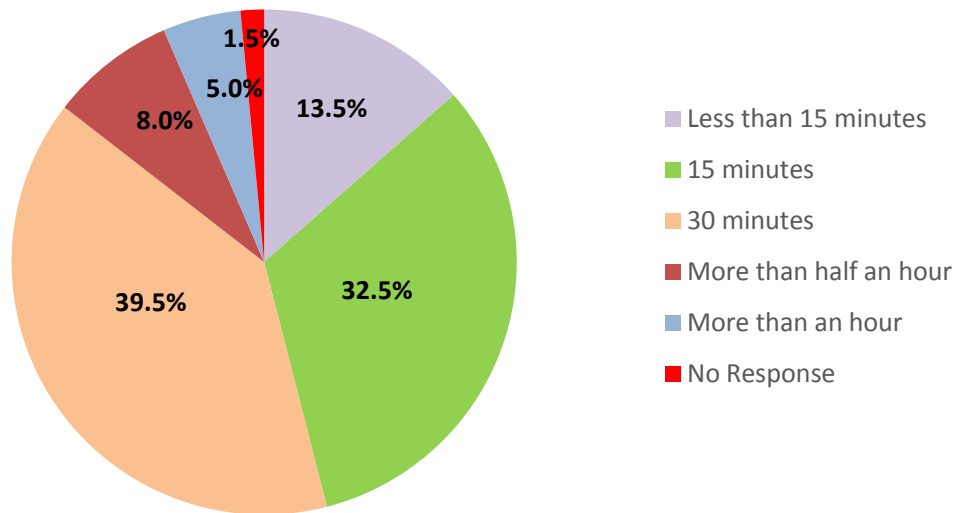


Figure 8- Response time of the ambulance

9. Usage of a private vehicle or an ambulance

More than half of the population have to opt for a private vehicle in case of emergency while around 49percent responded in negative.

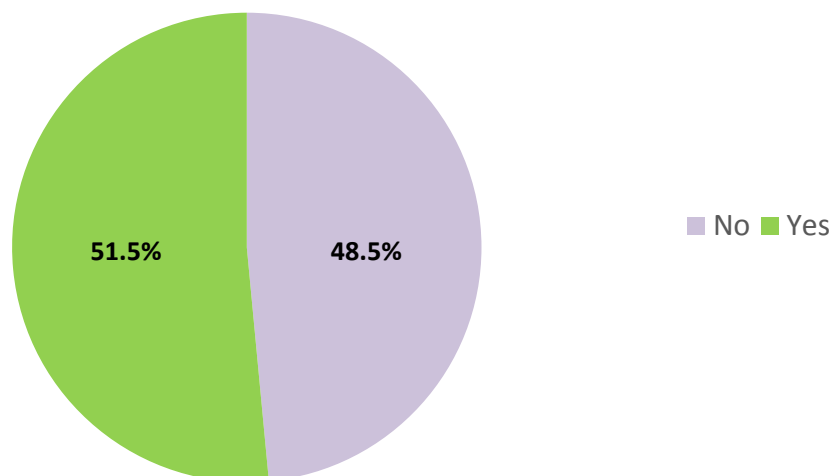


Figure 9- Usage of a private vehicle or an ambulance

10. Mode of transport during emergency

Around 49percent of the population hired a taxi/cab and 18percent used their own vehicle. No response was available from 28percent of the population. Very few, 6percent of the population called a private provider for ambulance service.

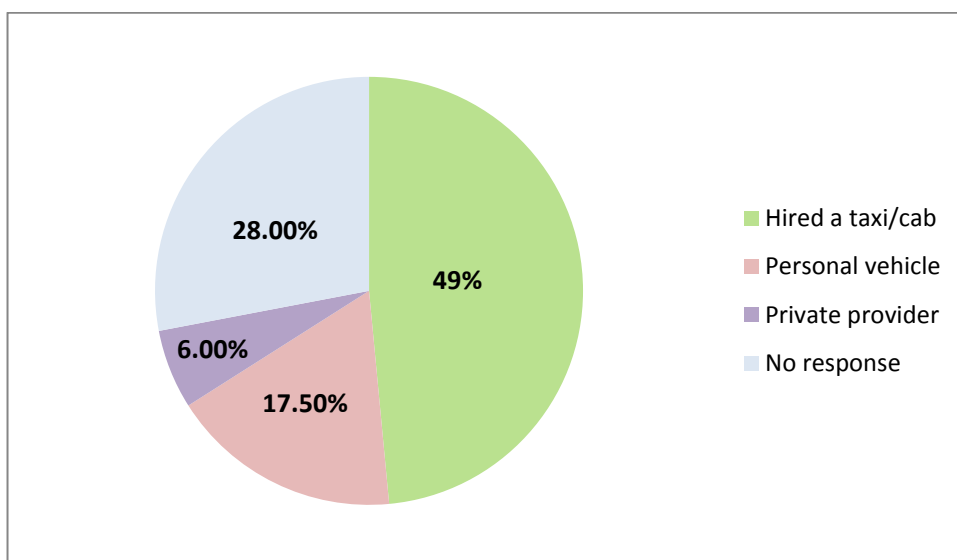


Figure 10- Mode of transport during emergency

- **The Ambulance Crew**

11. Attentive listener

Around 79percent of the population responded affirmative and rest of them could not recall and responded in negative.

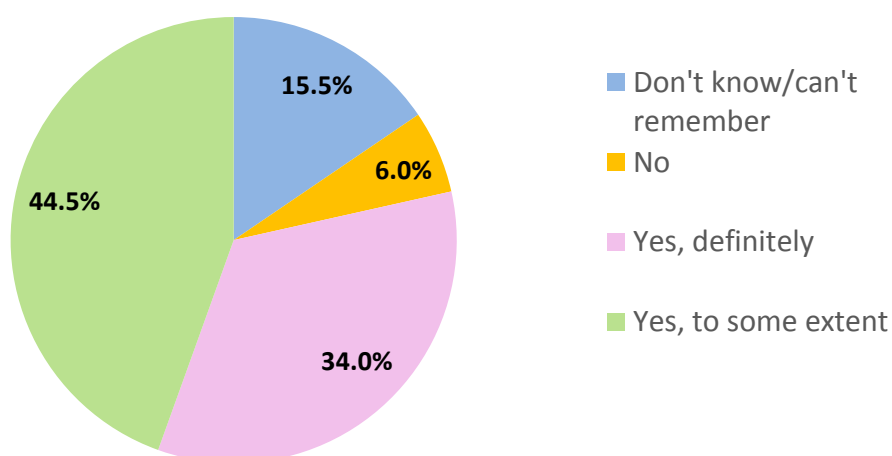


Figure 11-Attentive listener

12. Previous medical history information from the patient

The response was negative in around 40percent of the cases and 44percent responded affirmatively. While 12percent cases do not remember.

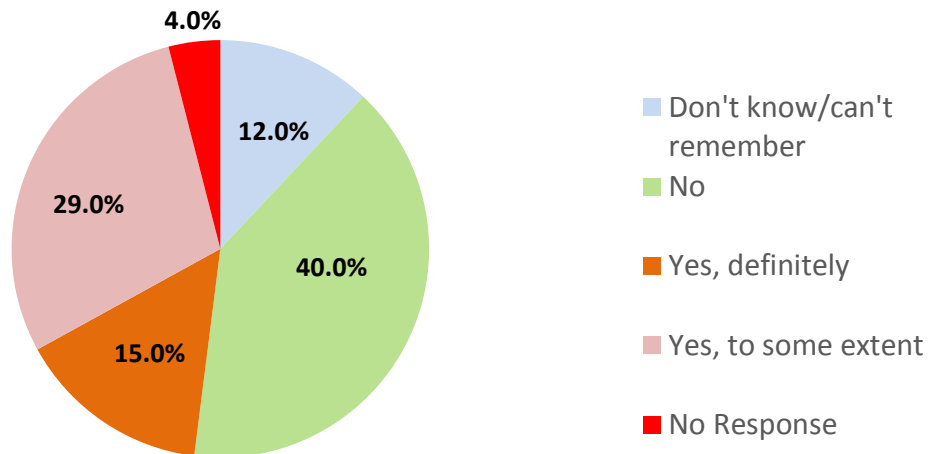


Figure 12-Any previous medical history

13. Level of trust and confidence in the ambulance crew's professional skills

Half of the cases responded negatively while 36percent said they had trust in the crew's professional skills.

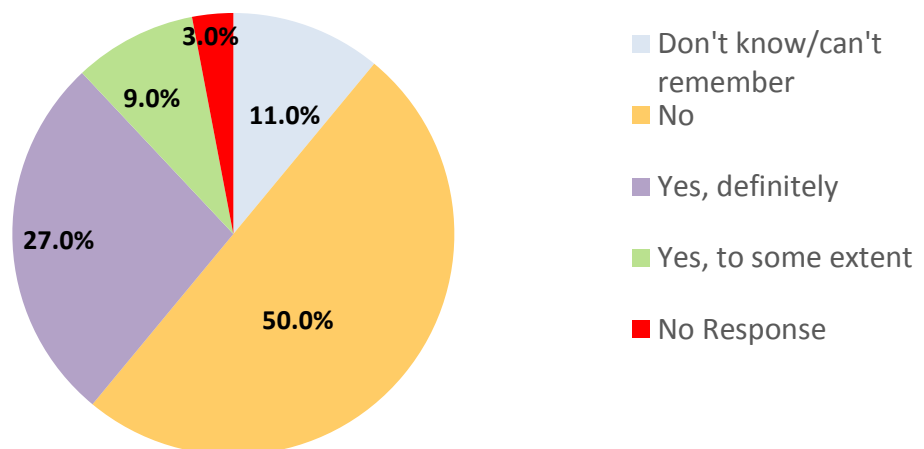


Figure 13- Trust and confidence in the ambulance crew's professional skills

14. Reassuring ambulance crew

Half of the population (63percent) responded positively and 27percent responded in a negative manner.

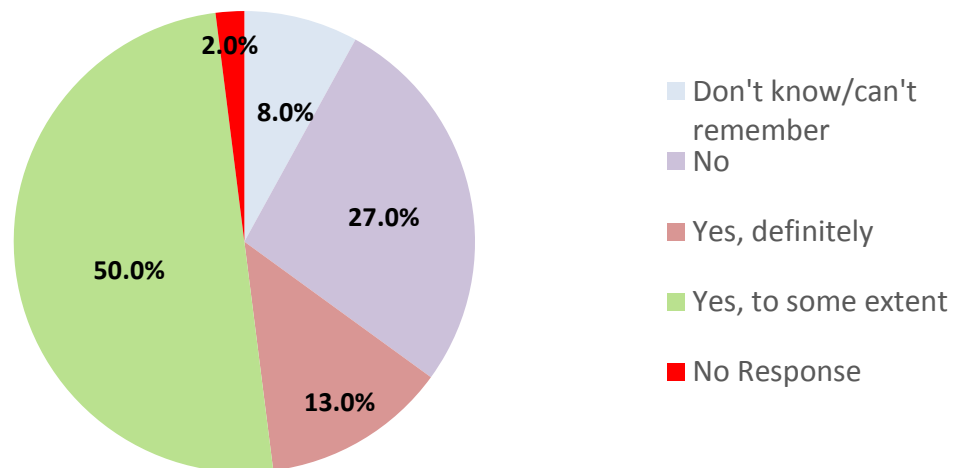


Figure 14-Reassuring ambulance crew

15. Explanation of care and treatment

Half of the population showed negative response while 31percent people were satisfied with the ambulance crew. 12percent cases could not recall.

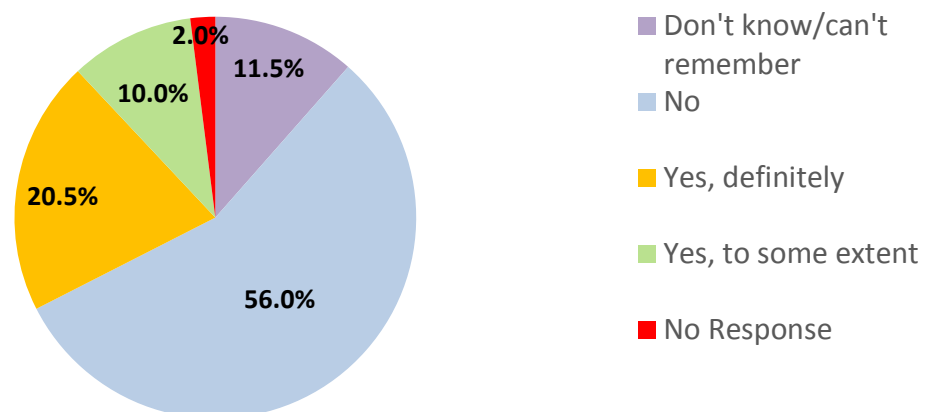


Figure 15-Explanation of care and treatment in an understandable way

16. Helpfulness of staff

Half of the population showed positive response while 21percent people were dissatisfied with the ambulance crew. While 8percent cases did not need any help.

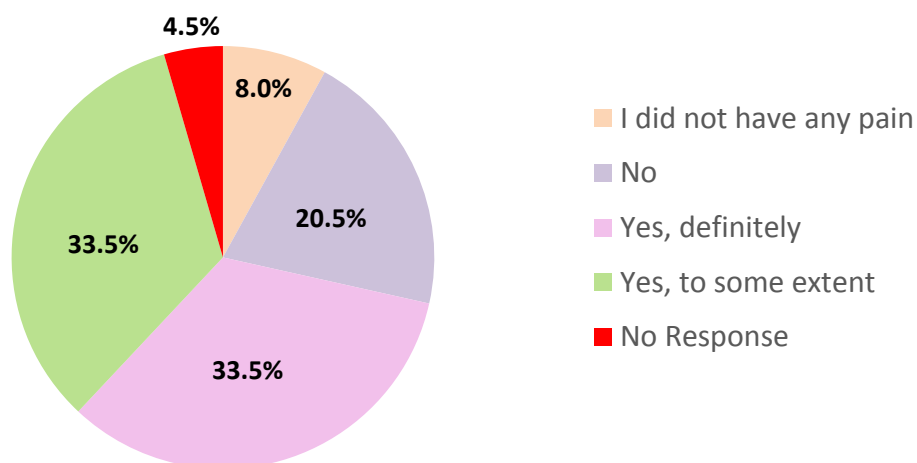


Figure 16- Helpfulness of staff

17. Transfer of enough information to friends and family

Around 40percent cases accompanied with friends or family received enough information about the care and treatment while 20percent cases did not and 10 percent cases were not accompanied by friend or relatives.

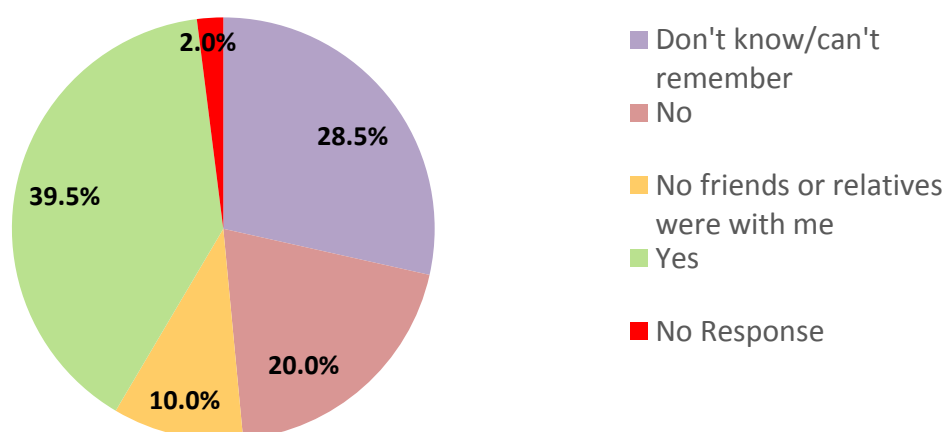


Figure 17- Transfer of enough information

- Transfer to Hospital

18. Transfer to the hospital

More than half of the population was taken to the hospital in an ambulance.

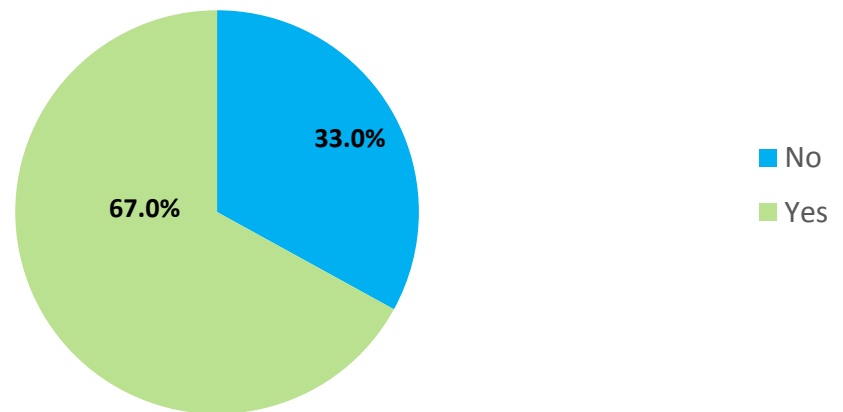


Figure 18- Transfer to the hospital

19. Transfer into the ambulance

More than half of the population said they were transferred into the ambulance suitably while 26percent responded negatively.

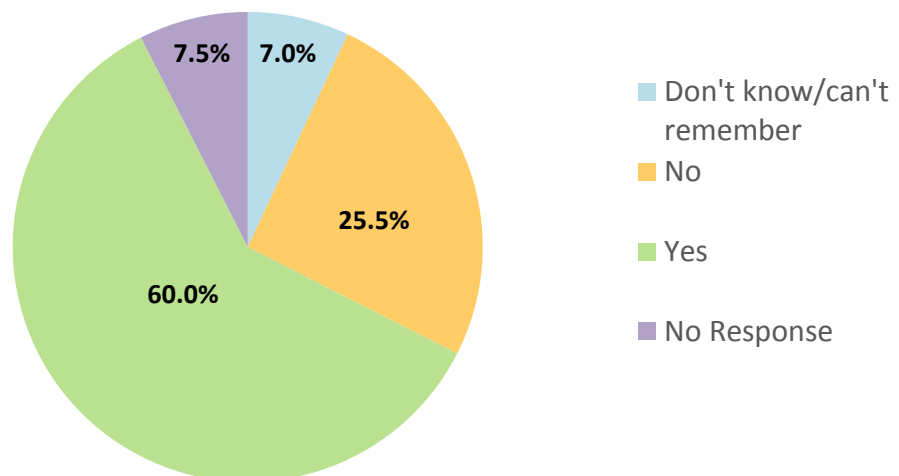


Figure 19- Transfer into the ambulance

20. Cleanliness of the ambulance

Half of the population said that the ambulance was fairly clean and 8percent said it was very clean. While 14percent cases responded negatively.

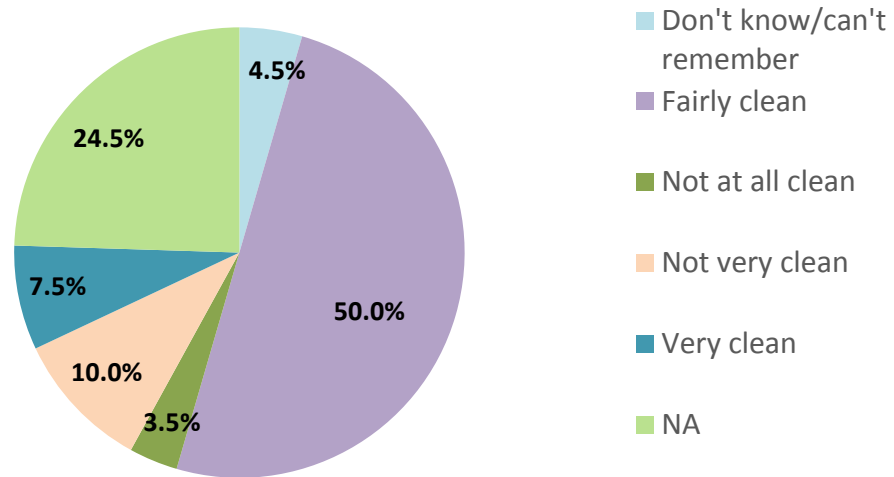


Figure 20- Cleanliness of the ambulance

21. Comfortable journey in the ambulance

More than half of the population responded positively while 4percent stated negative response.

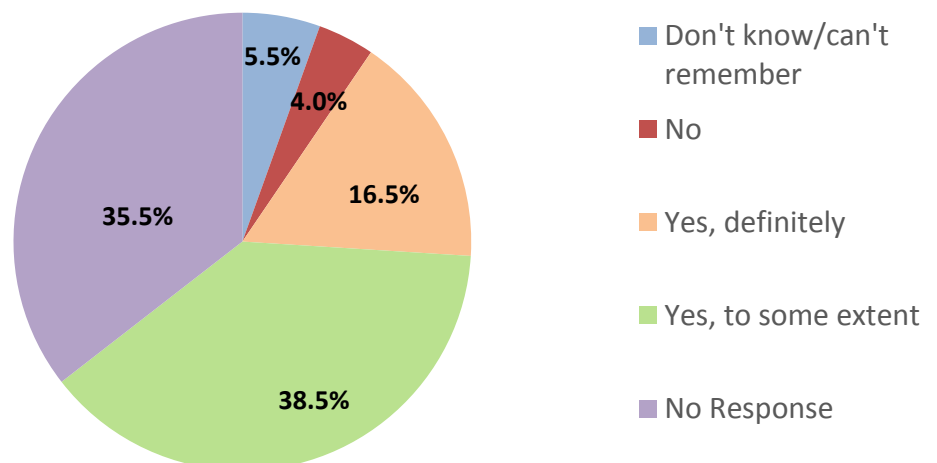


Figure 21- Comfortable journey in the ambulance

Transfer of patient information to the hospital

22. Transfer of patient information to the hospital

Around 40percent cases responded in a positive manner and 8percent cases gave negative response. Around 37percent cases gave no response and 17percent could not recall.

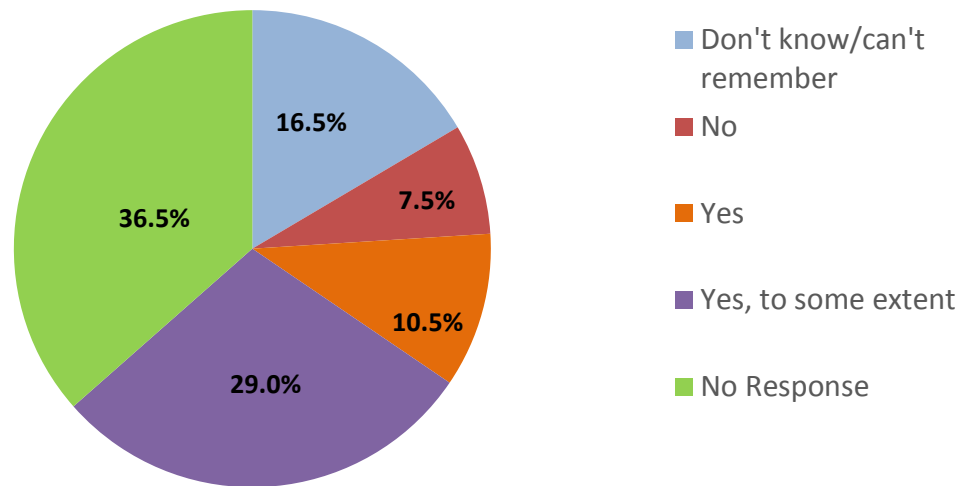


Figure 22- Transfer of patient information to the hospital

23. Advice to go to hospital

Around 33percent of the population received advice to go to hospital but they refused and 37percent didn't received any advice as such.

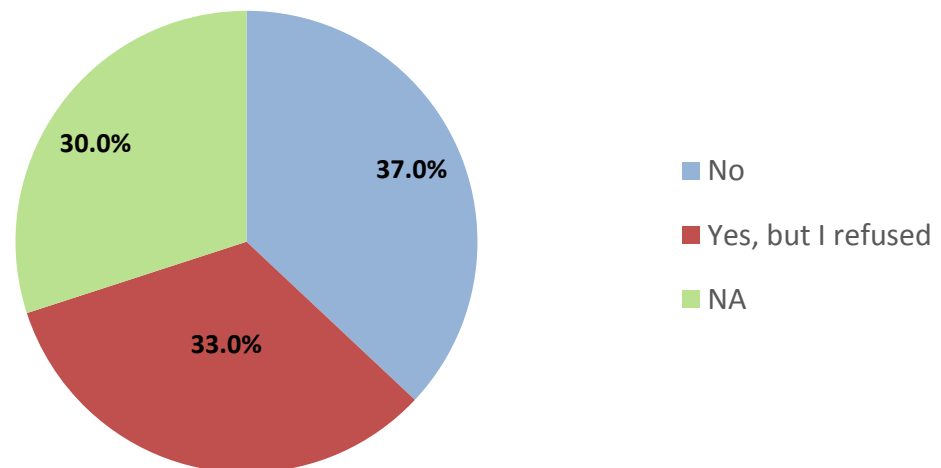


Figure 23-Advice to go to hospital

24. Agreement with the decision

Around 19percent cases agreed with the decision while 24percent were not sure of their decision. Almost 23percent disagree with the decision.

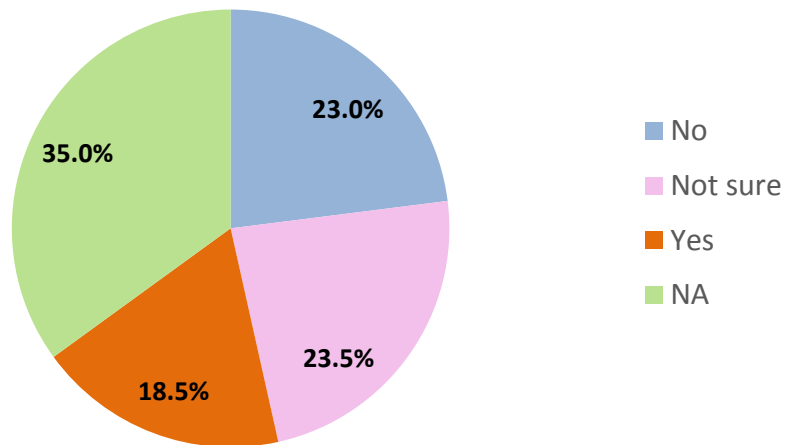


Figure 24-Agreement with the decision

25. Ambulance crew advice to take care if felt unwell again

Around 24percent received advice from the ambulance crew while 7percent rejected any kind of advice. Around 60percent population said they were not given any advice. Another 7percent could not recall.

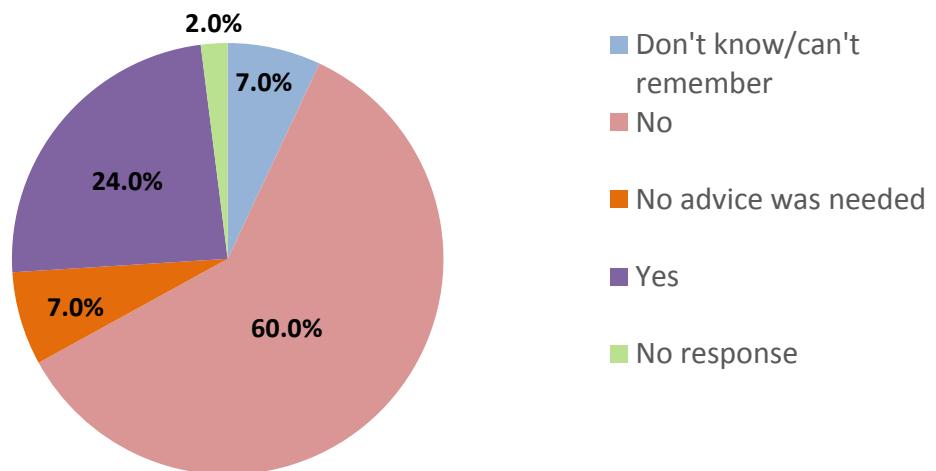


Figure 25-Ambulance crew advice

26. Rating the ambulatory care received from the ambulance service

Around 37percent rated the ambulance service they received as fair and 10percent said it was good. Around 19percent cases rated very well while 1percent also gave them excellent rating. Around 33percent considered them poor.

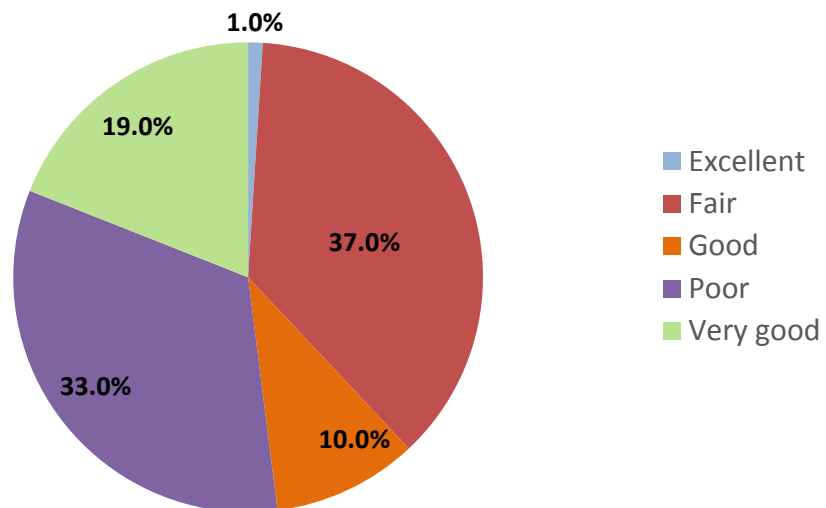


Figure 26- Rating the ambulatory care received from the ambulance service

27. Overall treatment

More than half of the population were treated with respect and dignity while around 17percent denied this fact. Around 12percent could not recall the event.

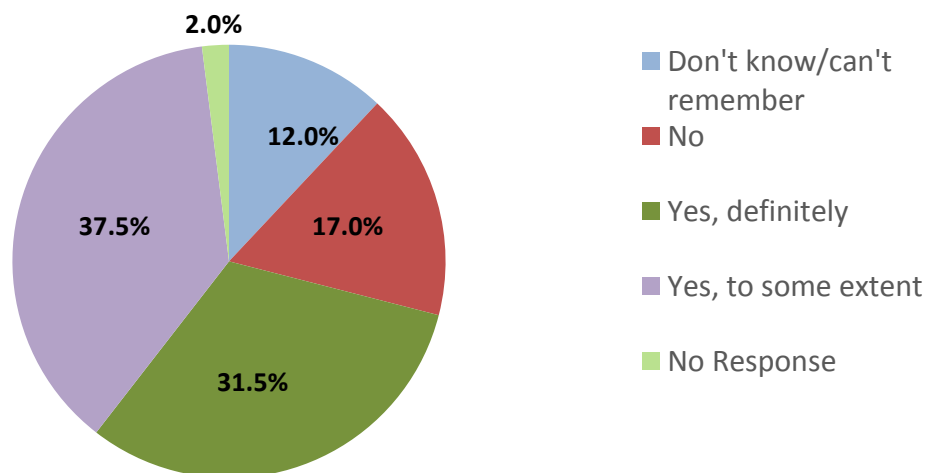


Figure 27- Overall treatment

Findings of perception about ambulance services with 200 numbers of prospective customers who could be using the ambulance in the future suggest the following;

The results obtained from the six components of perception about ambulance services can be summed up into the following parameters (Appendix 6- Analysis of perception about ambulance services);

Infrastructure of the ambulance- Vehicle (general appearance, cleanliness of the ambulance, comfort of ride in the ambulance, adequacy of ambulance equipment)

Emergency Personnel- Staff Attitude, Staff Performance and Professionalism

Efficiency of the Emergency Care System- Efficiency of Service (Availability of staff at all times, Response time of an ambulance to an emergency, Working condition of the equipments, Qualified and Trained Staff, Training of staff at proper intervals, Speed of admittance to the hospital)

Usage of Technology- Perception about Aditya Birla Health services, Usage of app, Digital Platform usage

Table 3- Importance of various attributes in ambulance services according to prospective customers

COMPONENTS	LEVEL	PARAMETERS	LEVEL OF IMPORTANCE
VEHICLE	General appearance of the ambulance	INFRASTRUCTURE OF AMBULANCE	27%
	Cleanliness of the ambulance		
	Comfort of ride in the ambulance		
	Adequacy of ambulance equipment		
STAFF ATTITUDE	Helpfulness of staff	EMERGENCY PERSONNEL	23%
	Attentiveness of staff		
	Empathic nature of		

	staff		
STAFF PERFORMANCE	Ensuring of patient's comfort		
	Adequacy of explanation by staff of their actions		
	Efficiency of staff		
	Feeling of safety when staff arrive		
PROFESSIONALISM	Perceived level of training of staff		
	Professional look of staff		
	Level of competency of staff		
	Confidence of staff to keep me alive until reaching the hospital		

COMPONENTS	LEVEL	PARAMETERS	LEVEL OF IMPORTANCE
EFFICIENCY OF SERVICE	Availability of staff at all times	Efficiency of Emergency Care System	31%
	Response time of ambulance to an emergency		
	Working condition of the equipments		

	Qualified and trained staff		
	Training of staff at proper intervals		
	Speed of admittance to hospital		
USAGE	What do you think would be the public perception of our (ADITYA BIRLA HEALTH) ambulance service?	Usage of Technology	20%
	Would you like to use an app for calling an ambulance service?		
	Do you think digital platform would improve the emergency services?		

The highly important parameter necessary in any ambulance service is efficiency of emergency care system, around 31percent. The second highly important parameter is the infrastructure of the ambulance; 27percent while the emergency personnel (23percent) and usage of technology is (20percent) is the next.

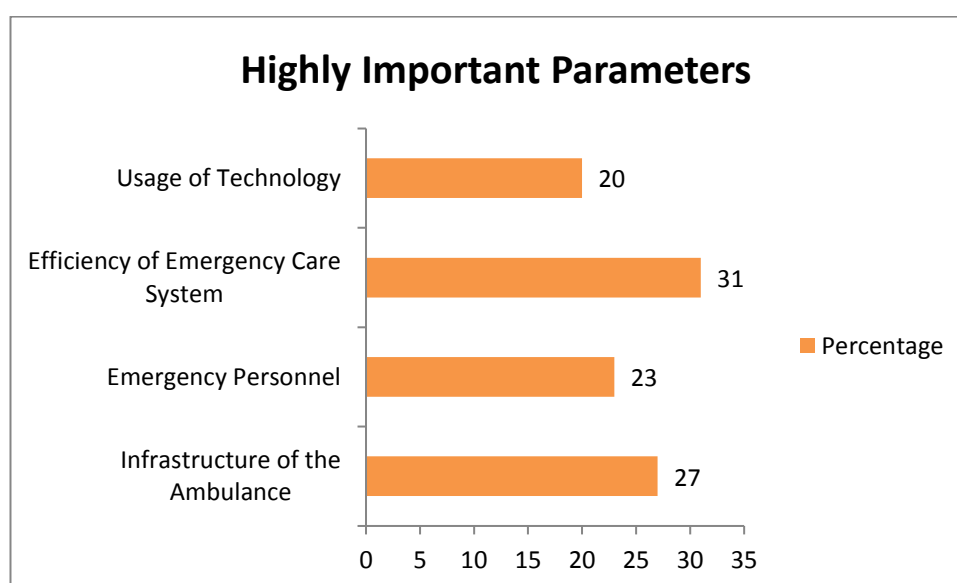


Figure 28- Perception of Highly Important Parameters

- **General Appearance of the Ambulance**

According to 44percent population, general appearance of an ambulance is highly important and 21percent consider them important. While 15percent say it is unimportant and 8percent consider them highly unimportant. Around 14percent of the population are neutral.

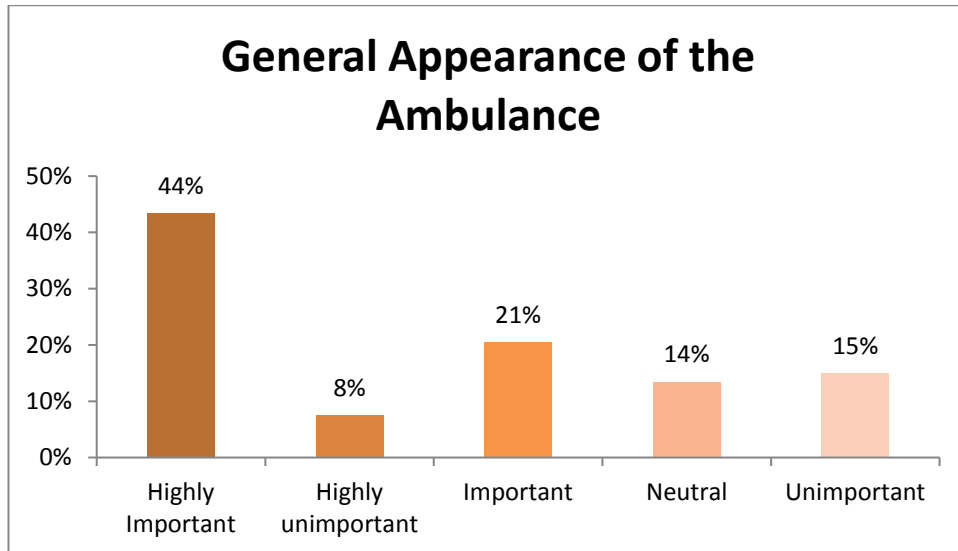


Figure 29- General appearance of the ambulance

- **Cleanliness of the Ambulance**

According to 43percent population, cleanliness of an ambulance is highly important and 14percent consider them important. While 9percent say it is unimportant and 5percent consider them highly unimportant. Around 31percent of the population are neutral.

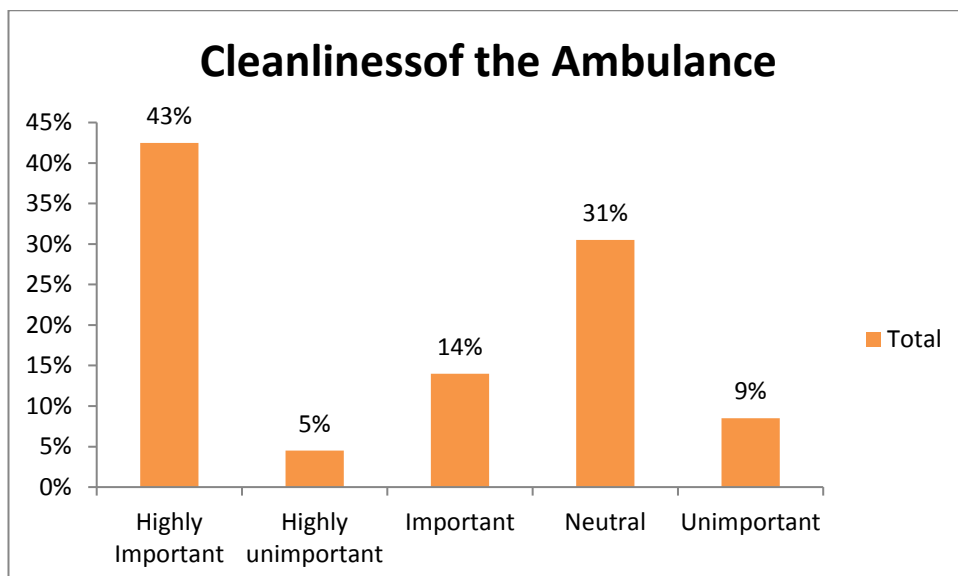


Figure 30- Cleanliness of the ambulance

- **Comfort of ride in the ambulance**

According to 22percent population, comfort of ride in the ambulance is highly important and 27percent consider them important. While 19percent say it is unimportant and 5percent consider them highly unimportant. Around 27percent of the population are neutral.

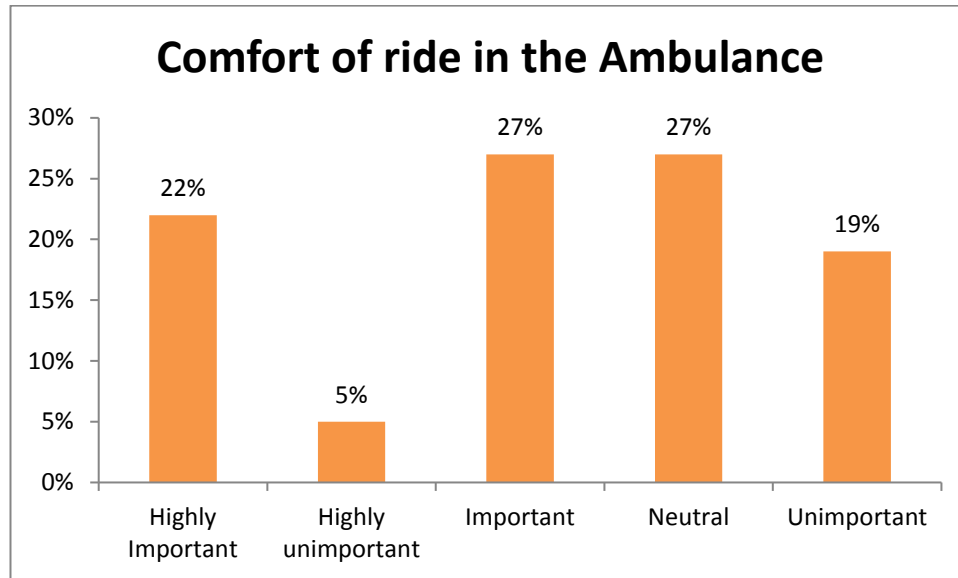


Figure 31- Comfort of ride in the ambulance

- **Adequacy of ambulance equipment**

According to 43percent population, adequacy of ambulance equipment is highly important and 27percent consider them important. While 9percent say it is unimportant and 5percent consider them highly unimportant. Around 17percent of the population are neutral.

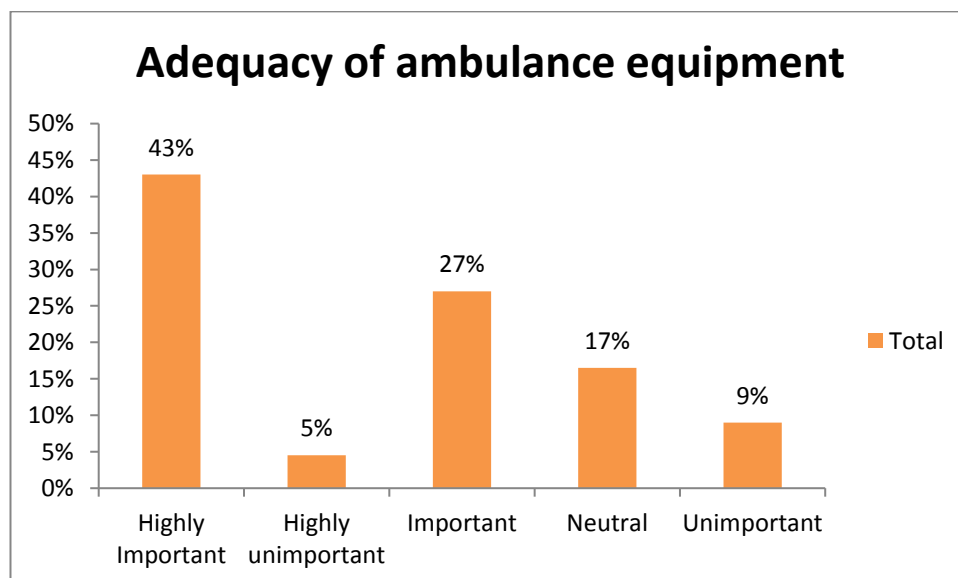


Figure 32- Adequacy of ambulance equipment

- **Helpfulness of staff**

According to 24percent population, helpfulness of staff is highly important and 37percent consider them important. While 6percent say it is unimportant and 7percent consider them highly unimportant. Around 27percent of the population are neutral.

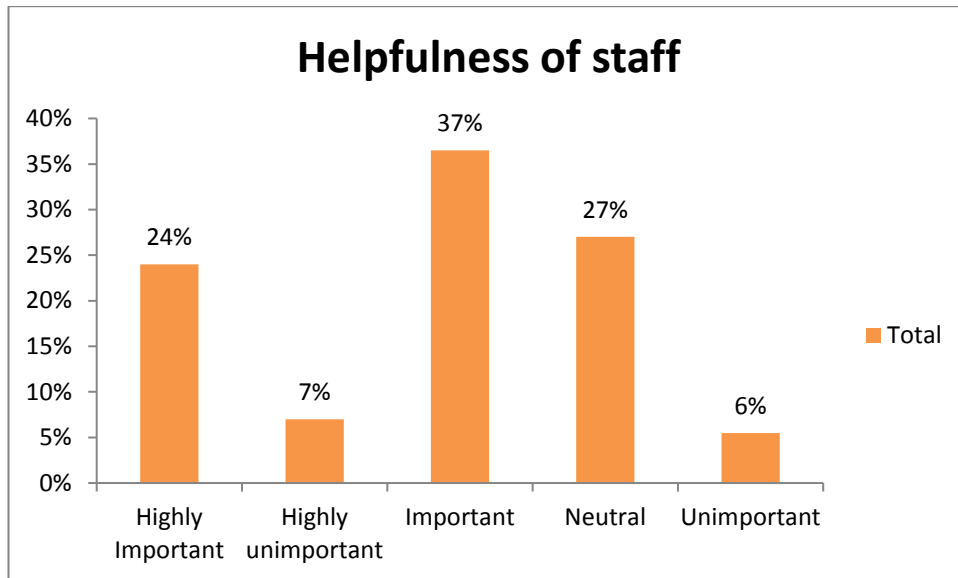


Figure 33- Helpfulness of staff

- **Attentiveness of staff**

According to 43percent population, attentiveness of staff is highly important and 27percent consider them important. While 15percent say it is unimportant and 2percent consider them highly unimportant. Around 14percent of the population are neutral.

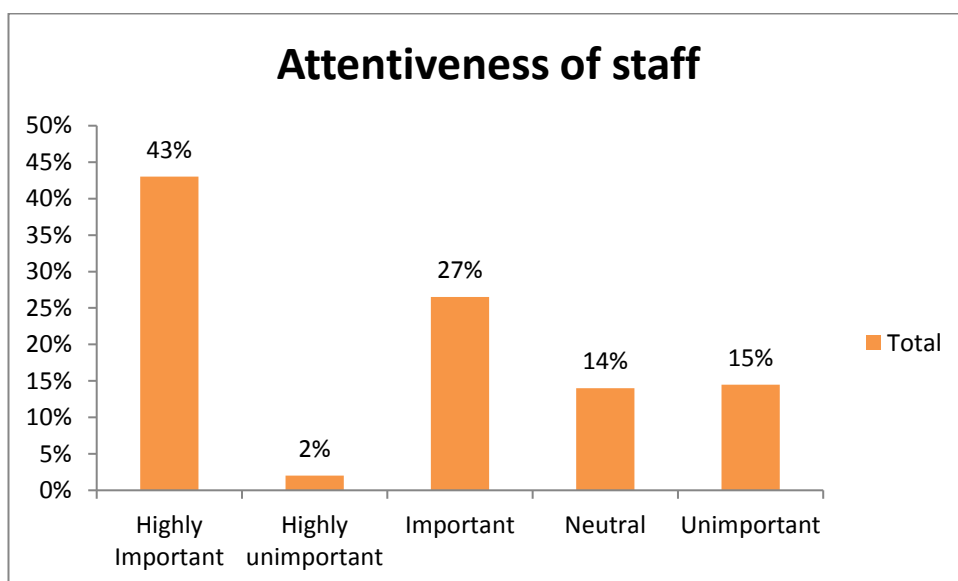


Figure 34- Attentiveness of staff

- **Empathetic Nature of staff**

According to 25percent population, empathetic nature of staff is highly important and 43percent consider them important. While 13percent say it is unimportant and 5percent consider them highly unimportant. Around 16percent of the population are neutral.

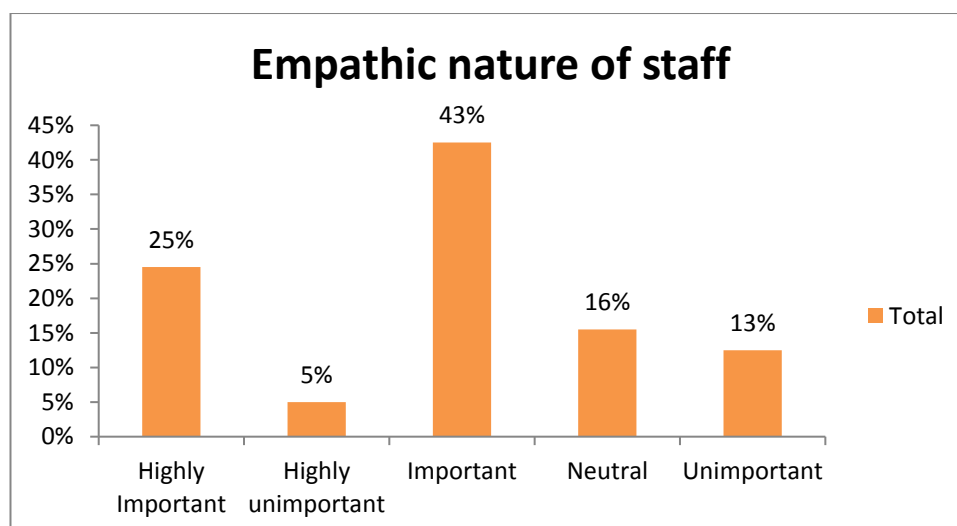


Figure 35- Empathetic Nature of staff

- **Ensuring of patient's comfort**

According to 27percent population, ensuring of patient's comfort is highly important and 25percent consider them important. While 14percent say it is unimportant and 4percent consider them highly unimportant. Around 32percent of the population are neutral.

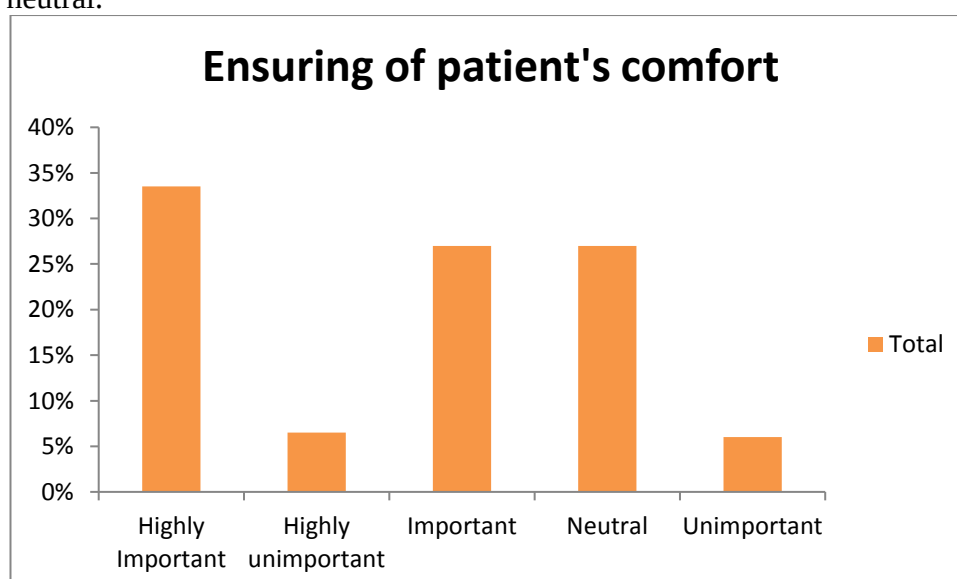


Figure 36- Ensuring of patient's comfort

- **Adequacy of explanation by their actions**

According to 27percent population, adequacy of explanation by their actions is highly important and 25percent consider them important. While 14percent say it is unimportant and 4percent consider them highly unimportant. Around 32percent of the population are neutral.

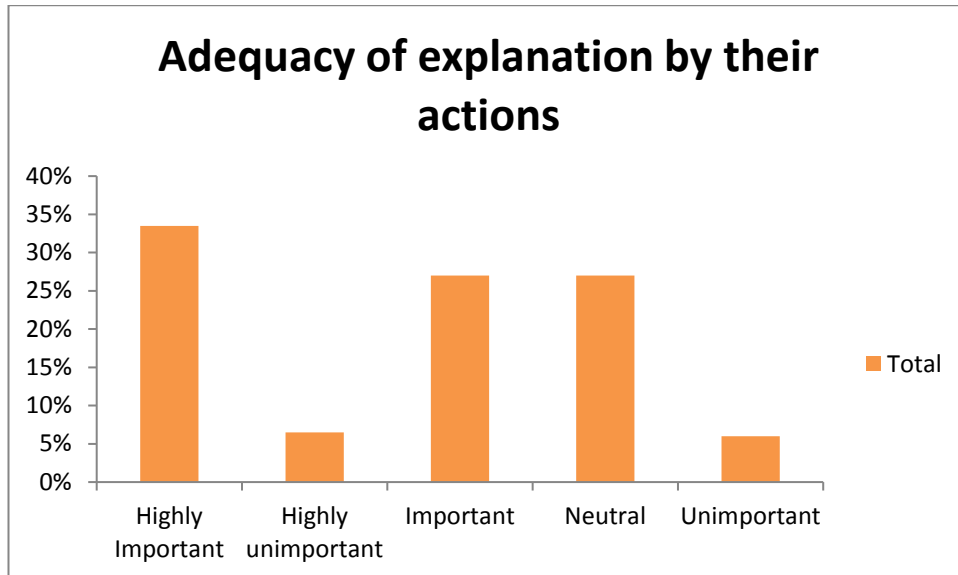


Figure 37- Adequacy of explanation by their actions

- **Efficiency of staff**

According to 52percent population, efficiency of staff is highly important and 26percent consider them important. While 7percent say it is unimportant and 1percent consider them highly unimportant. Around 15percent of the population are neutral.

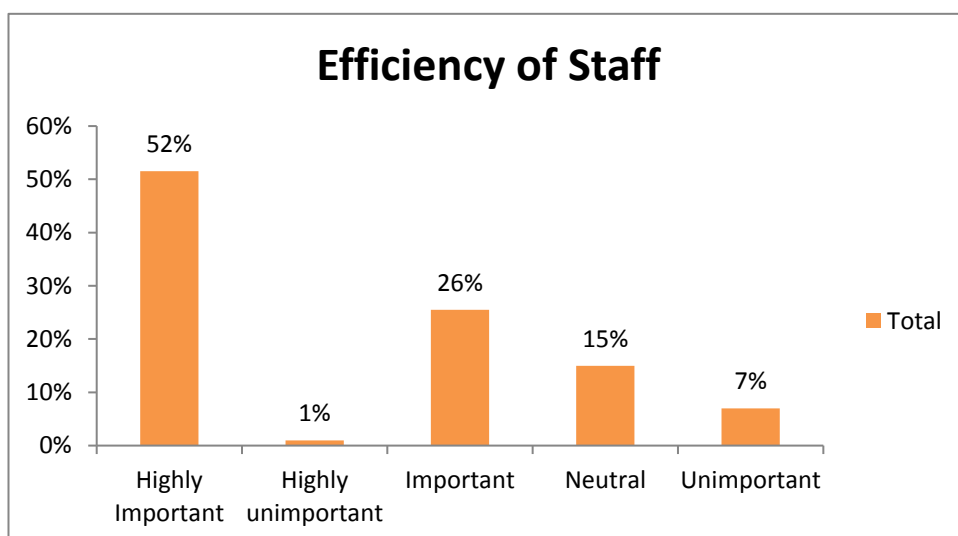


Figure 38- Efficiency of staff

- **Feeling of safety**

According to 27percent population, feeling of safety is highly important and 34percent consider them important. While 8percent say it is unimportant and 7percent consider them highly unimportant. Around 26percent of the population are neutral.

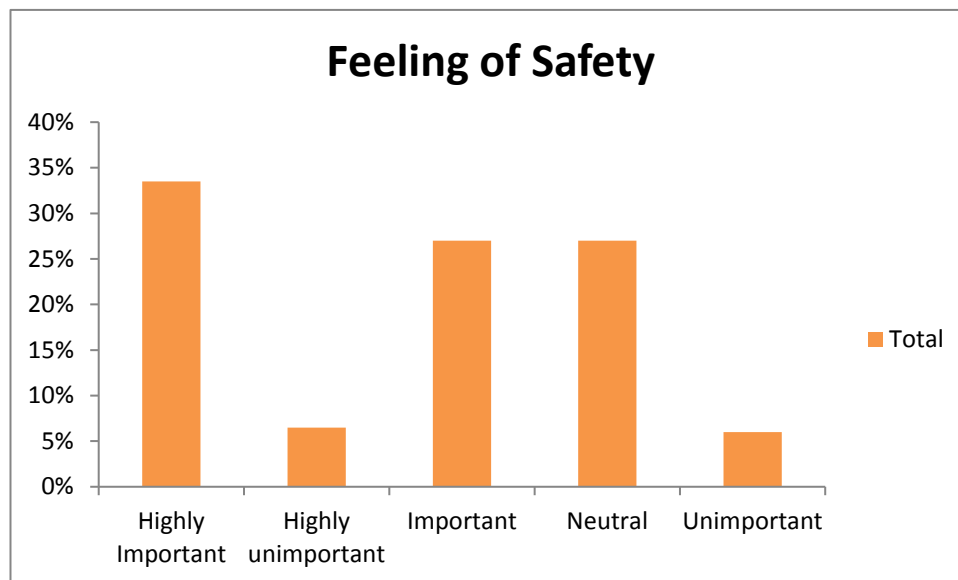


Figure 39- Feeling of safety

- **Perceived level of training**

According to 52percent population, perceived level of training is highly important and 26percent consider them important. While 7percent say it is unimportant and 1percent consider them highly unimportant. Around 15percent of the population are neutral.

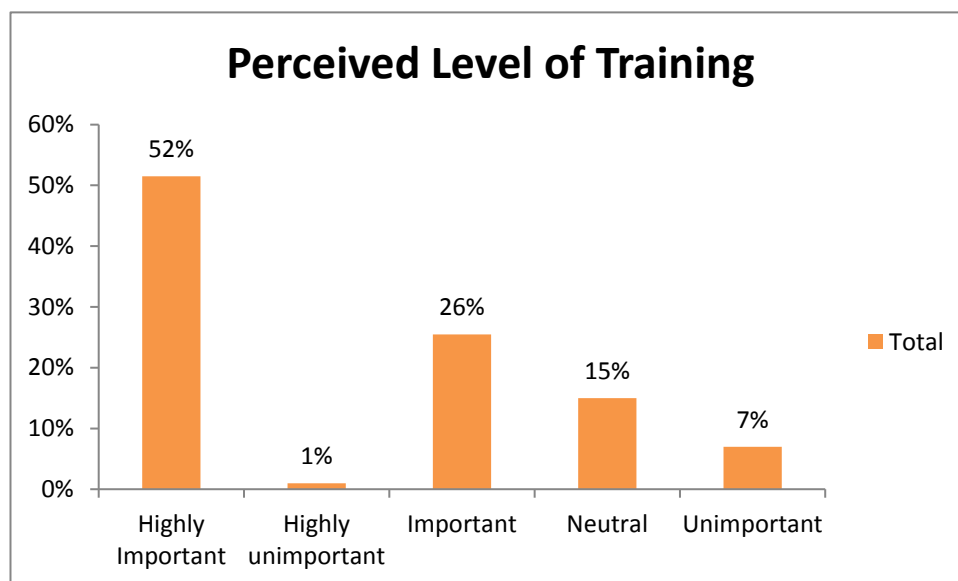


Figure 40- Perceived level of training

- **Professional look of staff**

According to 29percent population, professional look of staff is highly important and 26percent consider them important. While 16percent say it is unimportant and 8percent consider them highly unimportant. Around 21percent of the population are neutral.

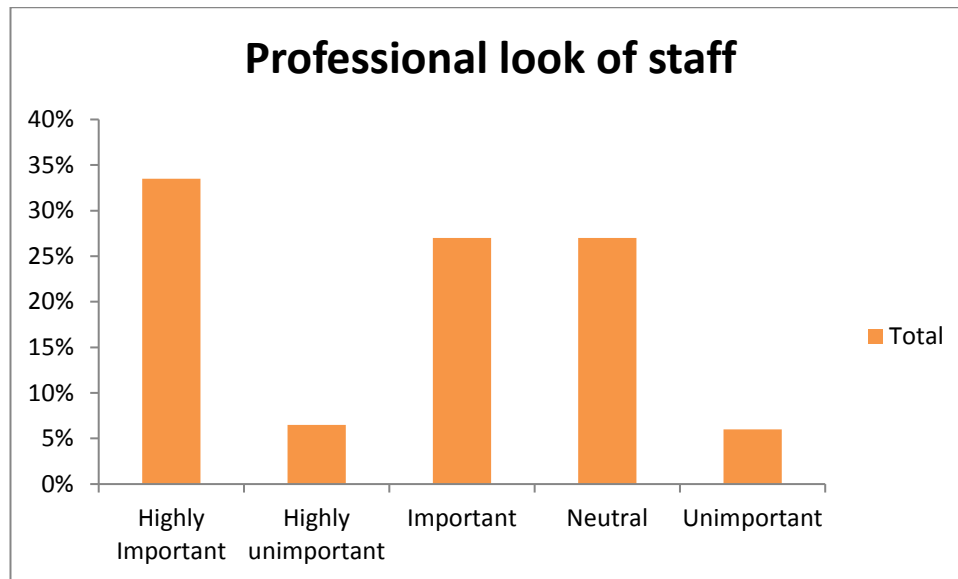


Figure 41- Professional look of staff

- **Level of competency of staff**

According to 45percent population, level of competency of staff is highly important and 32percent consider them important. While 5percent say it is unimportant and 2percent consider them highly unimportant. Around 17percent of the population are neutral

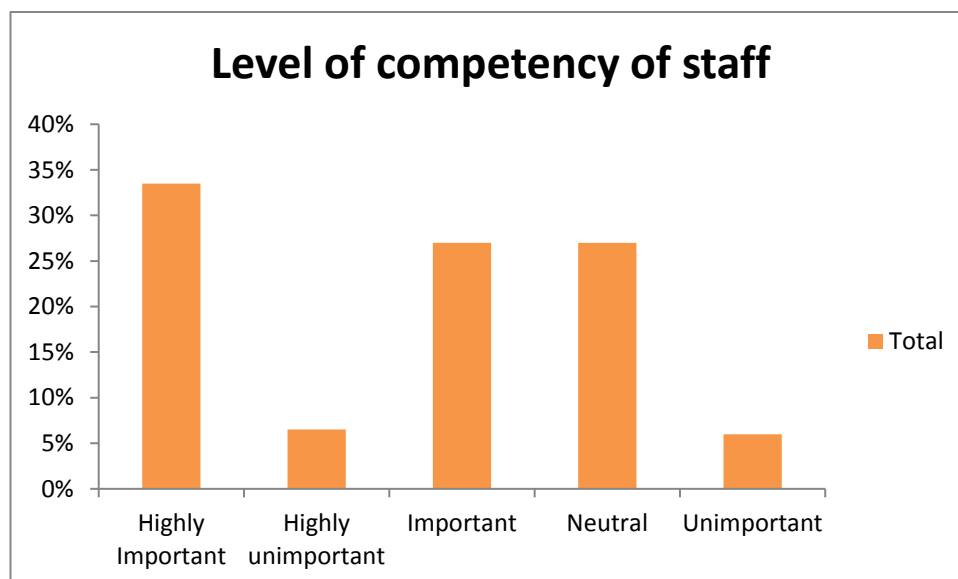


Figure 42- Level of competency of staff

- Confidence of staff

According to 39percent population, confidence of staff is highly important and 29percent consider them important. While 9percent say it is unimportant and 2percent consider them highly unimportant. Around 22percent of the population are neutral.

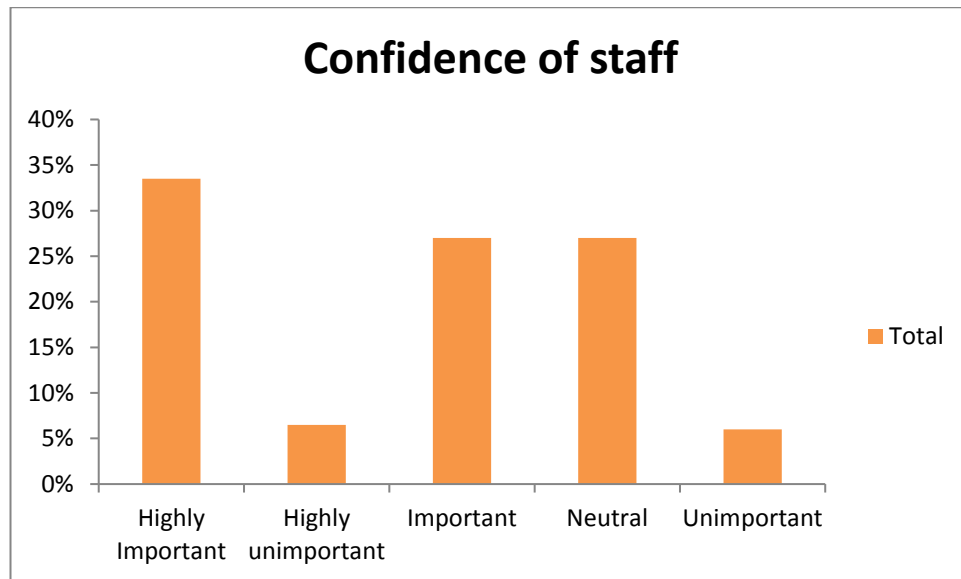


Figure 43- Confidence of staff

- Availability of staff
- According to 44percent population, availability of staff is highly important and 28percent consider them important. While 10percent say it is unimportant and 4percent consider them highly unimportant. Around 15percent of the population are neutral.

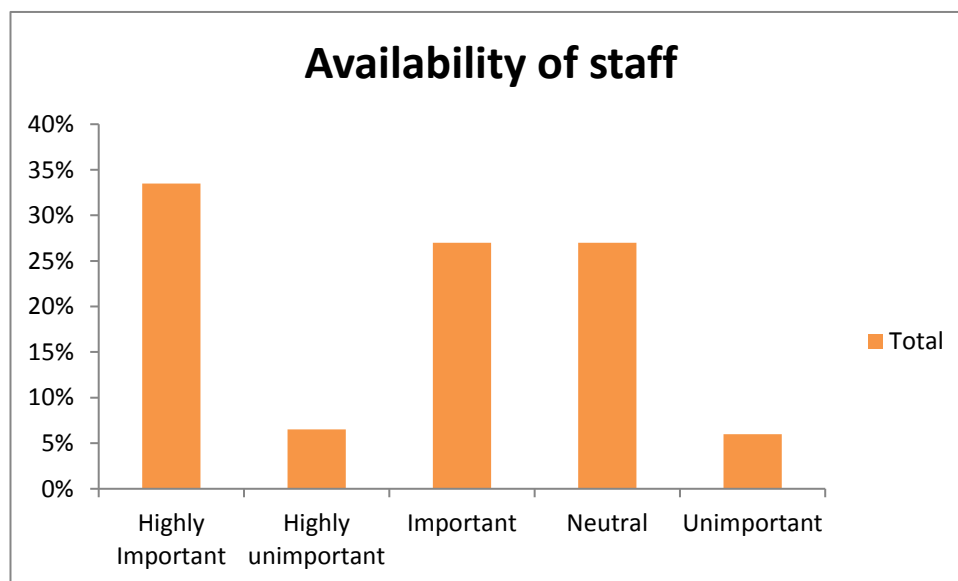


Figure 44- Availability of staff

- **Response Time**

According to 50percent population, response time is highly important and 27percent consider them important. While 9percent say it is unimportant and 1percent consider them highly unimportant. Around 14percent of the population are neutral.

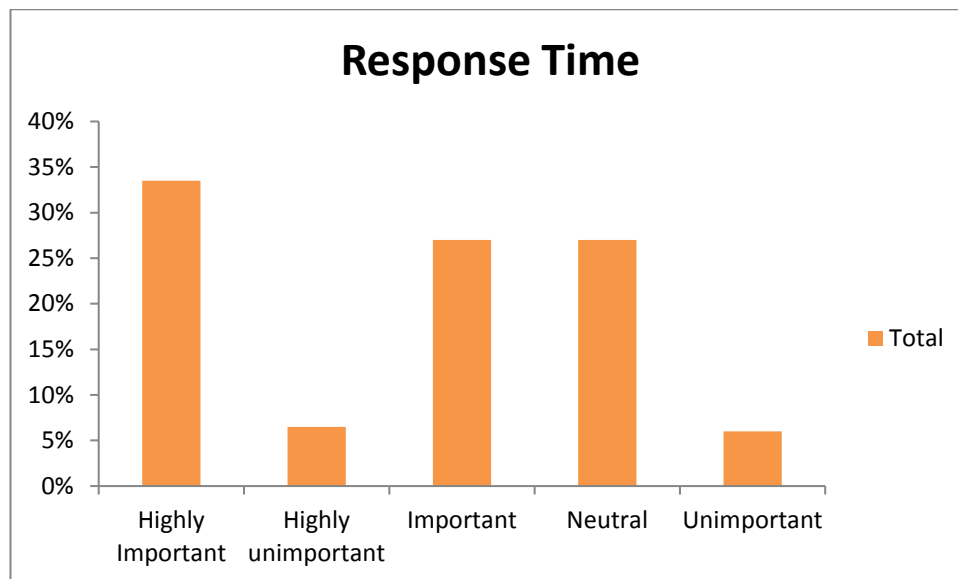


Figure 45- Response Time

- **Working condition of equipments**

According to 52percent population, working condition of equipments is highly important and 26percent consider them important. While 7percent say it is unimportant and 1percent consider them highly unimportant. Around 15percent of the population are neutral.

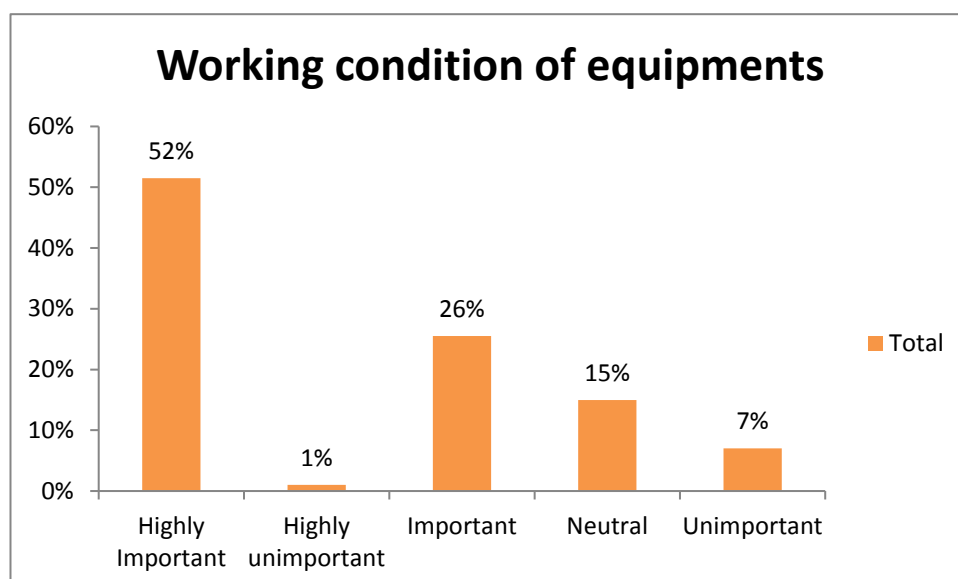


Figure 46- Working condition of equipments

- **Qualified and trained staff**

According to 49percent population, qualified and trained staff is highly important and 25percent consider them important. While 9percent say it is unimportant and 6percent consider them highly unimportant. Around 12percent of the population are neutral.

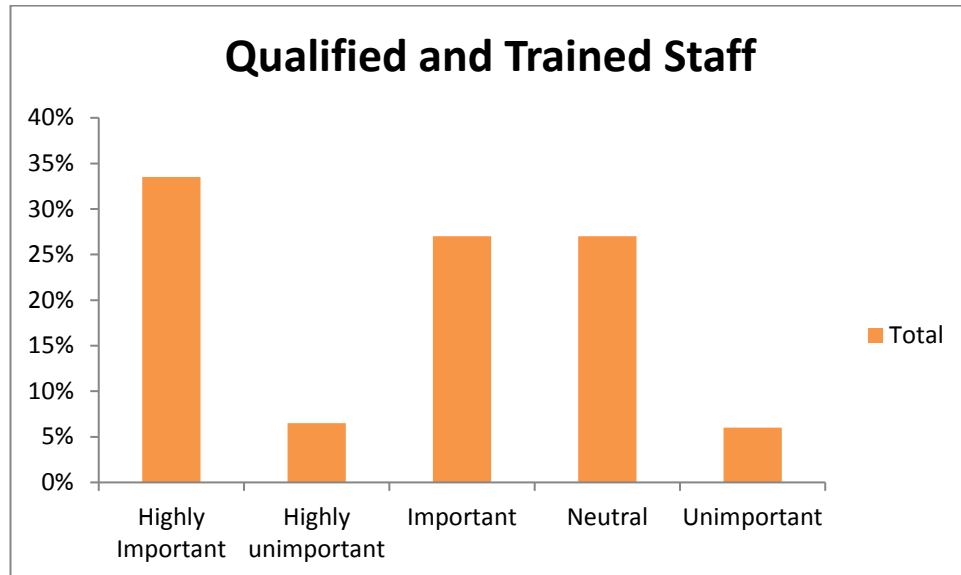


Figure 47- Qualified and Trained Staff

- **Regular training**

According to 27percent population, regular training of the staff is highly important and 23percent consider them important. While 20percent say it is unimportant and 8percent consider them highly unimportant. Around 24percent of the population are neutral.

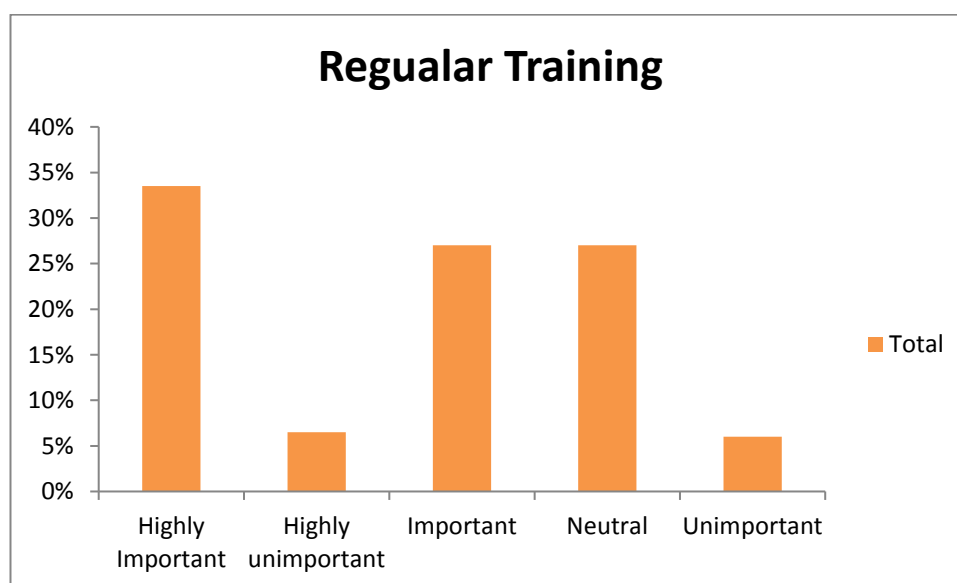


Figure 48- Regualr Training

- **Speed of admittance to hospital**

According to 27percent population, regular training of the staff is highly important and 23percent consider them important. While 20percent say it is unimportant and 8percent consider them highly unimportant. Around 24percent of the population are neutral.

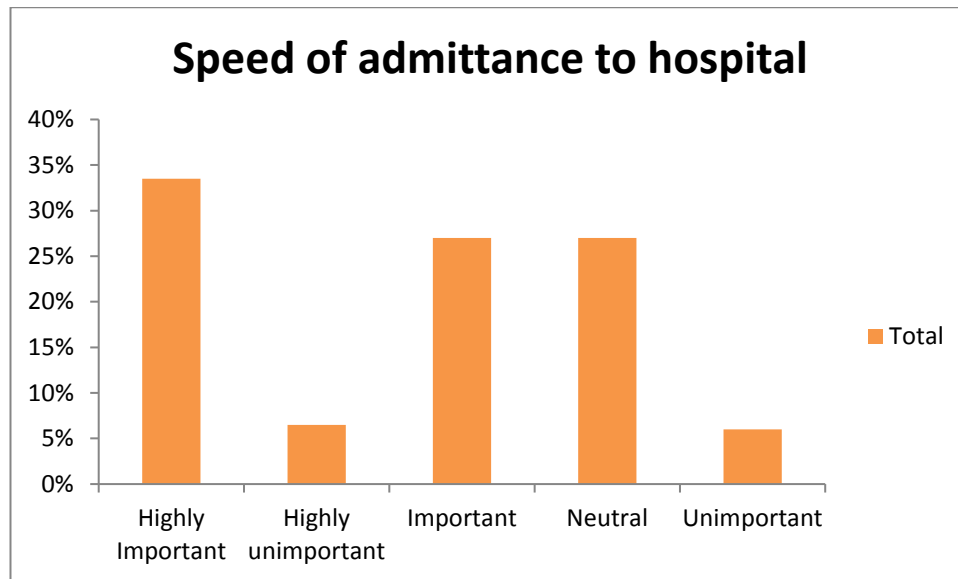


Figure 49- Speed of admittance to hospital

- **Public perception of Aditya Birla Health Services**

According to 26percent population, Public perception of Aditya Birla services is highly important and 26percent consider them important. While 23percent say it is unimportant and 10percent consider them highly unimportant. Around 16percent of the population are neutral.

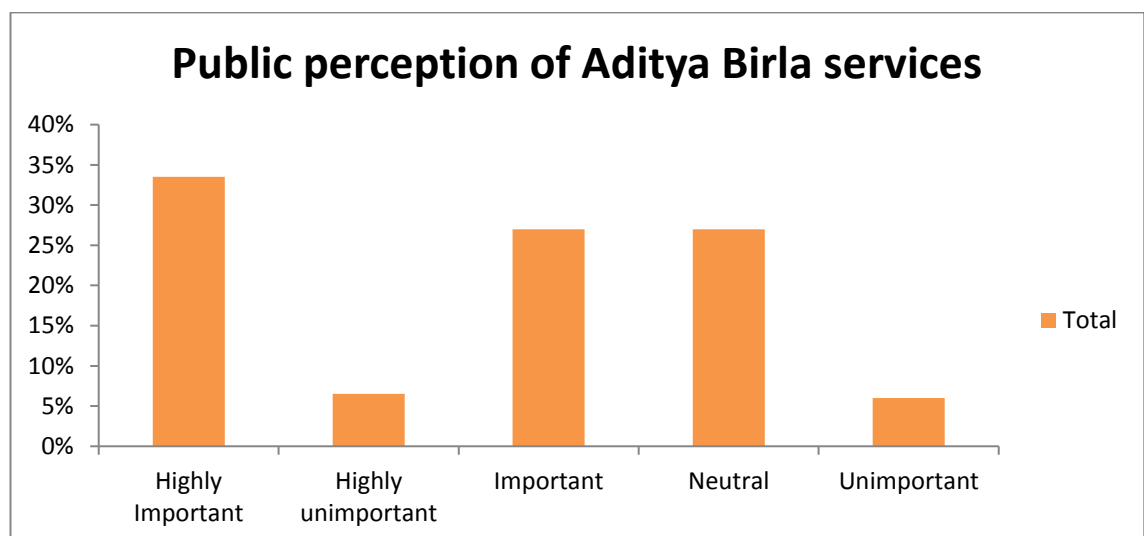


Figure 50- Public perception of Aditya Birla services

- **Usage of an App**

According to 24percent population, Usage of an APP is highly important and 25percent consider them important. While 9percent say it is unimportant and 24percent consider them highly unimportant. Around 36percent of the population are neutral.

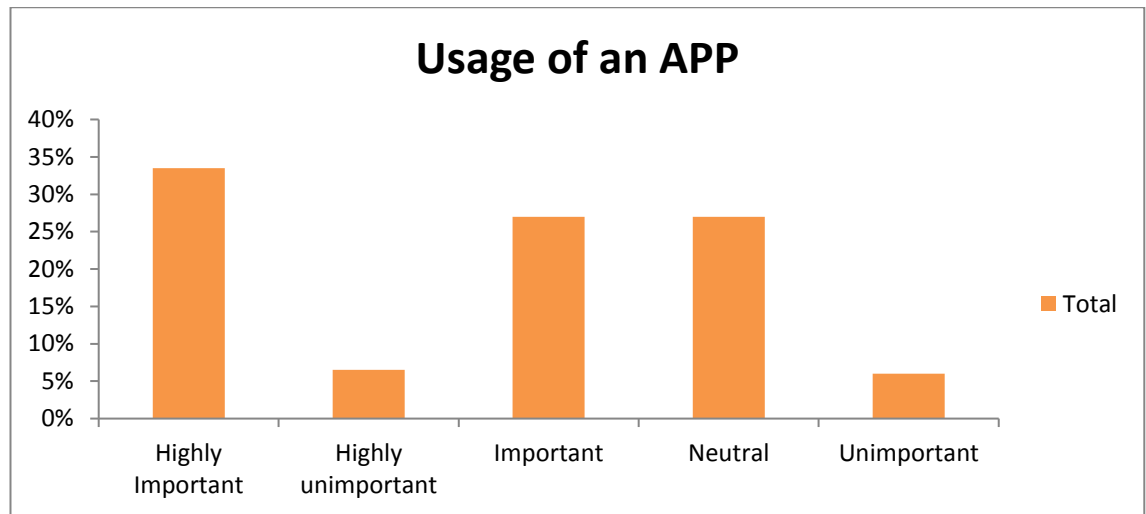


Figure 51- Usage of an APP

According to 24percent population, Usage of an APP is highly important and 25percent consider them important. While 9percent say it is unimportant and 24percent consider them highly unimportant. Around 36percent of the population are neutral.

- **Digital platform advantages**

According to 34percent population, digital platform involvement is highly important and 27percent consider them important. While 6percent say it is unimportant and 7percent consider them highly unimportant. Around 27percent of the population are neutral.

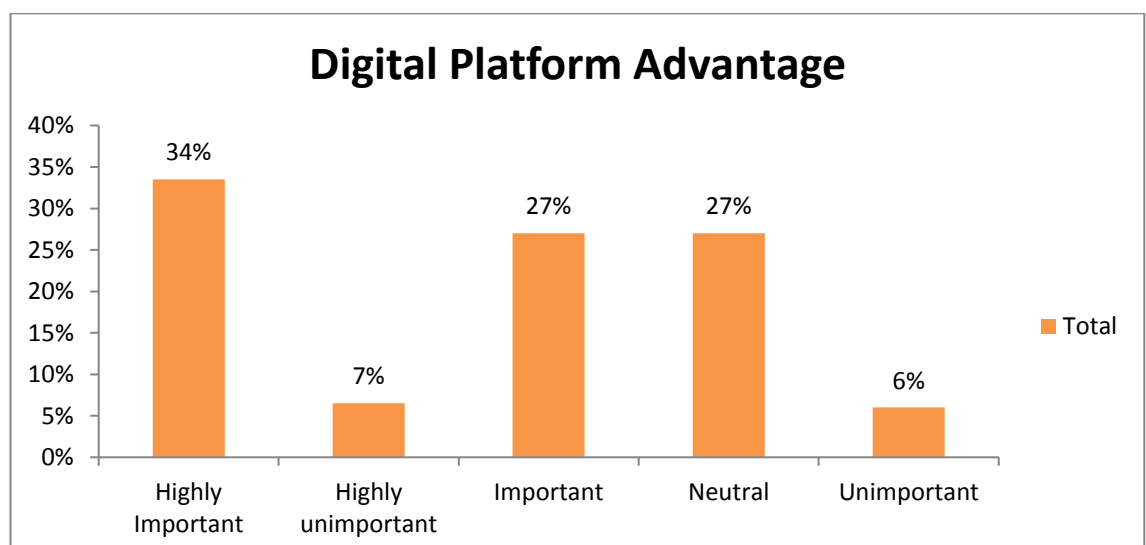


Figure 52- Digital Platform advantage

DISCUSSION

The Current EMS Operations scenario in India is fragmented. Public-private partnership model with respective state governments for medical, police, and fire emergencies provides Dial 108 services for free. Similar is the Dial 1298 operationally; the only difference is that 1298 is a paid service while 108 is free.

A communications officer receives the toll free call 102/108. He/she then collect and record all relevant facts regarding the emergency. This information is then transferred to the dispatch officer who is responsible for identifying the closest Global Positioning System-enabled ambulance to the scene of emergency and also giving instructions for dispatch of the ambulance. Basic Life Support (BLS) ambulances responded to medical emergencies such as fracture, fever, and syncope; emergencies such as cardiac arrest, seizures, snake bite, unconsciousness, burns, and pregnancy-related emergencies; these many are usually managed by an Advanced Life Support (ALS) ambulance.

In some cases, emergency medical technician (EMT) or a physician support is provided on call when the caller is placed in a conference call in the Emergency Response Centre (ERC). All relevant information regarding the patient is recorded and maintained including details of drugs and disposables consumed. A log register or dispatch software captures the time or receipt of call, time of arrival at the site, and time of hospital arrival either manually or automatically in. Generally there is neither structured ambulance service nor emergency medicine departments. A sufferer is usually brought to the nearest health care facility by any relatives, onlookers or passing motorists using whatever transport is available, leaving behind any required treatment or first aid at the scene. There is no recognized specialty of Emergency medicine in general and in countries like India, such services are provided in "Casualty Centres" who are staffed by physicians who does not possess postgraduate qualifications. Fee for service base ambulances are mostly privately owned and are thus costly.

The current scenario of accident and emergency care in our country suffers from the following nuisances based upon a thorough industrial analysis, competition mapping, experience of the existing users of EMS and expectations of the prospective customer are-

- Lack of awareness about EMS-Emergency Medical Service System
- General public has no first-aid skills
- Lack of standardised toll free number to call for help
- Lack of standardized protocols & medical directives for EMS
- Unavailability of appropriate & safe transport for the injured patient.
- Missing concept of real Ambulance in India. Lack of specially designed ambulances with respect to patient care, comfort & ergonomics
- Absence of any National Ambulance Code which specifies the minimum National Specifications for various types of Ambulances
- Adequate number of First Responders/Ambulances are not there
- Inappropriately/inadequately equipped ambulances
- In-adequate care during transportation attributable to lack of trained Emergency Medical Technicians (EMT's) & unskilled existing manpower
- No Standard Operating Procedures (SOP's) for pre-hospital triage and transport
- Overcrowding at the limited number of medical facilities available
- Inadequately equipped healthcare facilities and lack of infrastructure

- Absence of accountability and monitoring mechanisms to ensure opportune and best possible care

Proposed Model for ABHI

After a thorough understanding and analysing of the major gaps in the current emergency care system, a major set of problems came into the picture which we would be addressed in the proposed model for ambulance services. A definite filter criterion (feasibility, resources available, financial fit, time bound, impact, customer benefit, company values, realistic) was used to arrive at a set of major issues which could be addressed and solved out easily in a time frame that would bring major impact and customer benefit.

The major issues related to current emergency system that would be addressed in this model are-

Table 4- Proposed Strategy for Identified Gaps

Parameters	Current Gaps	Proposed Strategy
Efficiency of Emergency System of Care	Late response time	Adequate and well equipped life support ambulances in case of any emergency
	Trauma leading to mortality due to lack of proper care at the healthcare facility	Integration of Ambulances and Emergency Room (ER)
		Location based services resulting in faster location of patients
		Monitoring arrival of ambulances at ER location
		Availability of medical records and co-morbid conditions
		Ensuring prompt and early blood availability if required
	Unskilled manpower	Regular training of emergency medical personnel at regular intervals
	Inappropriately/inadequately equipped ambulances	Adequate number of ambulance-ALS, BLS, Cold Transport
	Low self management and healthcare	Routine visits to partner hospitals, diagnostic centres and doctors
	Low accountability and monitoring	Accountability and monitoring mechanism
	Inefficient patient care and transport	Standard Operating Procedures (SOP's) for pre-hospital triage and transport

	Inefficient services and overcrowding at limited number of healthcare facilities available	Tie-up with blood banks and quality emergency providers
	Bad working condition of ambulances	Appropriately/adequately equipped ambulances
Infrastructure of Ambulance	Non-availability of emergency transport	Adequate number of ALS, BLS, Cold transport ambulances
	Inadequate equipments	Well equipped equipments in the ambulance
	Non-availability of appropriate and safe transport	Designed ambulance with respect to patient care, comfort and ergonomics
	Frequent breakdown of equipments	Regular maintenance of equipments and the ambulance
Emergency Personnel	Unskilled/untrained staff	Provision of well qualified and trained staff
	Low level of competency	Regular training at proper intervals
	Lack of professionalism	Standard Operating Procedures Adherence
	Absence of staff	Dedicated staff for health advices and counselling
	Lack of medical personnel	Adequate medical staffing
Usage of Technology	Low usage of technology and digital platform	Cloud based platform-Improved Outcomes for Patients with Medical Emergencies through APP
		Efficient self management
		Comprehensive App features like Pill Reminder, Health Monitor, Buy Medicines
		Availability of ambulance at one click
		EMR for patients
		Visibility of partner hospital facilities on app driven workflow

To start with, ABHI is trying to implement policies that provide valuable and worth service. A cost efficient service with respect to implementation, maintenance and development would be the focus of this model. Before the implementation at a wider scale and at a commercialized level, the viability of this model need to be checked through a pilot study to explore the best customer value proposition in the city of Mumbai where we have 141 empanelled hospitals out of which 112 hospitals have quality care emergency departments (Appendix 3).

The developing model of ABHI would form the network of dispatcher services and ambulances to serve the areas of Mumbai as of now thus developing the health insurance market. Moreover, by providing affordable and wealthier customers a better customized and individualised service, we would expand the market of EMS. Usage of high equipments and well qualified trained staff would ensure that the medical care is high and prompt.

ABHI believes in the mission of Digitalise India and the E-health initiative started by our Honourable Prime Minister Shri Narendra Modi Ji and thus this model would be based on a digital platform using an app developed by AMBER and incorporating the ambulance services of Ziqitza and Life Jet Ambulances.

A detailed customer value proposition has been designed for ABHI corporate and retail users (Appendix 4).

A thorough industrial research and a competitive mapping are being done for the ambulance services provided by the insurance market in the country. The data used are from key market private health insurers in the country viz; ICICI Lombard, Apollo Munich Health Insurance, Religare, Max Bupa, Star Allied Health Insurance etc. The working model of existing ambulance service providers (GVK EMRI, Lifejet Ambulance, AMBER, Life Hover, Book My Ambulance, Ziqitza, East West Rescue etc are being analysed(Appendix 5).

CONCLUSION

The most important factor that could affect patient outcome in an emergency situation is Time. Half of the road traffic injuries to the vital organs result into immediate death within 15 minutes of the accident. The first 30- 60 minutes are the most important factor in patient survival. An unanticipated injury or illness (physiological or psychological) that needs immediate medical care is a medical emergency. It focuses on the stipulation of immediate or imperative medical interventions to steady such patients and prevent death and life-long disability. This one of the most crucial service in India is still in its infancy and is very fragmented. This proposed model has some utility but it has some limitations on the application of this model on a wider scale. This model is expected to trim down the load of the Government sponsored EMS by serving to the affording and wealthier class of the society; therefore making available more resources for the underserved population. Increased competition may also be another change with increased number of private hospitals providing EMS. This would make discovery of price possible for the market.

A treatable condition can be very well addressed to and thus could save many lives with an organized and value EMS system. The emphasis on prevention of damage is better than cure ever. This would be possible by the stipulation of pre-hospital care that would make sure that precious lives are not unnecessarily lost due to unavoidable circumstances.

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Supplementary:

Appendix 1- Perception about ambulance services



Perception about
Ambulance Services.c

Appendix 2- Ambulance Service Questionnaire



Ambulance Service
Questionnaire.docx

Appendix 3- Mumbai Network of Hospitals with Emergency Services



Mumbai ER
Network.xlsx

Appendix 4- Customer Value Proposition



CVP.xlsx

Appendix 5- Industry Research and Competitor Mapping



Ambulance Industry
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Appendix 6- Analysis of Perception about ambulance services



Analysis of
Perception of Ambula