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#### ORIGINAL ARTICLE

# Assessment of facility-based emergency care services for road traffic injuries in tertiary care hospital, Larkana

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#### ABSTRACT

**Background:** Road traffic injuries are considered as main public health problem; strenuous efforts are required for its prevention. Facility based emergency care for road traffic injuries is considered as an important but challenging component of post-crash care response. It demands healthcare providers to make quick lifeand-death decisions based on minimal information. The objective of our study was to explore the challenges for emergency services for road traffic injuries within Tertiary care hospital.

**Methodology:** Qualitative methods were used including 15 interviews and 02 focus group discussions. Topic guide was developed for all the participant's interviews, in order to explore the challenges for effective emergency care services at tertiary care level in Larkana city, Sindh. Topic guide was developed for all the participant's interviews.

**Results:** After making the transcripts of qualitative data, thematic analysis framework was used to analyze the transcripts, by which two main themes; recognition of causes and adverse consequences of road traffic accidents and health system challenges for delivering emergency care were extracted. Results suggest that improvement in documentation and record keeping system, security for health care providers, provision of timely interventions and proper training for health professionals at hospital level can be helpful for the provision of effective emergency care services.

**Conclusion:** An integrated trauma care system along with the improvement in documentation, efficient record keeping system, security for health care providers, provision of timely interventions and training for health professionals is needed for effective post-crash care management at the hospital level.

**Keywords:** Road traffic accidents, post-crash care, emergency care system, emergency medical services, health care providers, Larkana.

#### Introduction

Rising population has not only created voluminous socio-economic and environmental apprehensions but has mounted the number of road traffic accidents as well, therefore, making it as an important public health issue. Generally, Lower middle-income countries are showing upward trend of lives lost due to road traffic accidents in comparison to higher middle-income countries. As Road traffic accidents are responsible for 90 percent of disability

adjusted lives lost years (DALYs) and 85 percent of all deaths.<sup>1</sup>

Globally, out of all causes of deaths, Road traffic accidents is ranked third on the list which involves all the individuals ranging from five to forty-four years of age group. According to the statistics, 3000 deaths occur due to the road accidents daily, and approximately 1.3 million



people succumb to road traffic accidents annually. Moreover, several researches have suggested that, about 20 to 50 million people round the globe, experience certain level of physical disability due to the road traffic incidents and live with that for their whole lives afterwards.<sup>2,3</sup> Ironically, situation for Pakistan is not different, about 25 thousand to 30 thousand deaths occur due to the road traffic accidents annually and it's predicted that, half the number of casualties will be caused by road traffic accidents alone by 2020, stated by World Health Organization. Pakistan's Road traffic accident mortality rate is 14.2 per 100 thousand populations.4 It is estimated that, if required efforts will not be taken then road traffic injuries by year 2030 would become 7th prominent cause of death. As per Sustainable development goals agenda by the year 2020, target has been set to lessen the number of deaths and injuries due to road traffic accidents. Among Other Non-communicable diseases injuries share 11 percent of the total burden of diseases in Pakistan, due to the increasing population, rapid urbanization the number of road traffic accidents likely to be increased<sup>5</sup> so, it requires concerted efforts and inter-sectoral collaboration to minimize burden due to road traffic accidents.

## Methodology

Qualitative methods were used in order to explore the challenges for effective emergency services at, tertiary care level. Study was conducted in tertiary care hospital, Larkana, Sindh. This area was chosen because of the importance of its location, as it surrounds the web of main roads that makes it vulnerable to road traffic accidents. General hospital information is mentioned in Table 1.

**Table 1: Hospital Information** 

Health workforce Staff	Numbers
Physicians	3
Surgeon	3
Gynecologists	3
Pediatricians	3
Doctors/GMO	295
Nurses	120
Dentists	13
Total beds	1250
Emergency ward bed	50
Daily OPD	2000-3000

Study was conducted among emergency health care providers like, administrator/manager emergency ward, Head of surgery, Head of Nursing, senior medical officer and surgical intern of emergency in tertiary care hospital, Larkana. All personnel involved in emergency care working in the hospital were interviewed during day shifts. 15 in-depth interviews and 02 Focus group discussions were conducted after taking verbal consent and each interview took approximately 30-60 minutes. For the interviews, topic tool guides were developed for each type of study participant, the key areas broadly covered in the interview guide were, to assess the perceptions of emergency health care providers regarding increasing number of road traffic injuries and its overall impacts on health system, along with the knowledge about the importance of emergency care services for road traffic injuries and lastly, challenges faced by health care providers while giving emergency care for road traffic injuries.

## Results

Total 15 in-depth interviews (IDI) and two Focus groups discussions (FGD) were conducted. The participants (Administrator/manager emergency ward, Head of surgery, Head of Nursing, Senior medical officer and surgical intern in emergency) were interviewed to assess their perceptions regarding increasing number of road traffic injuries and its overall impacts on health system, Knowledge about the importance of emergency care for road traffic injuries and challenges faced by health care providers while giving emergency care for road traffic injuries. Thematic analysis was done, after transcribing the interviews and reading the data again and again familiarizing with the data, initial relevant codes were extracted from the data after reviewing those codes sub themes and two main themes identified and named were "Recognition of causes and consequences of road traffic accidents" and "Health system challenges for delivering emergency medical services". Topic guide mentioned in Table 2.



Table 2: Topic Guide for In-depth Interviews and **Focus Group Discussions.** 

Topic Guide	
Respondents Questions asked	
	I would like to begin by asking about your perceptions regarding the increasing number of road traffic accidents and its overall impacts on the health systems.
	1: What are your views regarding increasing number of road traffic injuries? Share your views with us?
	-Can you give us a brief insight/detail about the type of cases you get in your emergency?
	-Tell us about the number of patients you get related to road traffic injuries (approx.: no per month).
	2: Do you think that road traffic accidents as an important public health issue and responsible for increasing burden on our health systems and how?
IDI for Managers / Administrators:	-What steps are needed to minimize burden due to road traffic accidents
	3: Do you think there is a need of making a proper policy for road safety and efforts for reducing the traffic accidents?
	-Tell us about the efforts or strategies which can limit the fatalities related to road traffic accidents.
	-What can be done to get all the local and regional political leaders together to address this issue?
	-As evident from my literature search, how to address the prevailing research gap related to the emergency care system for road traffic injuries in Pakistan?
	Now I would like to know about your perceptions regarding importance of emergency care system for road

#### traffic injuries and different strategies exist in your hospital.

- 1: Do you think by providing effective and timely emergency pre and postcrash care can actually play a vital role in lowering the death toll?
- -Tell us how lowering the death toll plays an important role in improvement of your hospital emergency care system?
- -Do you provide proper rehabilitation facilities including occupational and physiotherapy for the injured patients?
- 2: In your hospital for quality trauma care in emergency departments, what kind of strategy exists for the planning, organization and provision of timely emergency care?
- -Can you tell us about the injury care including triage (allocating aid) for resuscitation and management in your facility?
- 3: As it's a tertiary care hospital and the link between primary, secondary and tertiary centers is essential so what channels are utilized to maintain the communication with other levels of care?
- -Why it's really important to maintain the communication between the other levels of care?
- -What can be done to improve communication with the other levels of care?

Now I would like to know about the challenges you face during the provision of emergency care for road traffic injuries and how to address them.

- 1: What challenges do you face while dealing road traffic injuries on the hospital level?
- -Do you think in Pakistan trauma related emergency care needs to be



#### revamped?

- -In your opinion do you think there is a shortage of trained doctors and other health related personnel in emergency departments?
- -Do you think that instituting of operative trauma care systems, along with proper documentation and record system is a need of an hour?
- 1: How to address those challenges within possible available resources and improve the level of emergency care?
- -What message in particular do you want to give to the policy makers to address this issue?
- 1: As a head of the nursing what are your views regarding increasing number of road traffic injuries?
- -Can you give us a brief insight/detail about the type of cases you get in your emergency?
- -Tell us about the number of patients you get related to road traffic injuries (approx.: no per month).

#### IDI for Head of Nursing and **FGD** for Nursing staff:

- 2: Do you think that road traffic accidents as an important public health issue and responsible for increasing burden on our health systems and how?
- -What steps are needed to minimize the burden due to road traffic accidents?
- **3:** How many beds are available for the emergency patients?
- -Do you think that the present workforce meeting the needs of maintaining emergency care for road traffic injuries?
- -What else is needed to give a better emergency care for road traffic injuries in your hospital?

Now I would like to know about your perceptions regarding importance of

#### emergency care system for road traffic injuries and different strategies exist in your hospital.

- 1: Do you think by providing effective and timely emergency pre and postcrash care can actually play a vital role in lowering the death toll?
- -Tell us how lowering the death toll plays an important role in improvement of your hospital emergency care system?
- -Do you provide proper rehabilitation facilities including occupational and physiotherapy for the injured patients?
- 2: In your opinion how important is to train nurses for critical care provision who are regularly dealing with road traffic injuries?
- -Tell us about any training courses/sessions are being done for the provision of emergency care at your hospital so far?
- -What are the certification requirements and done by who?
- 3: Do you/or nursing staff know the importance of each episode of care should be documented?
- -Tell us about the record keeping mechanism of your hospital
- -Do you think that record keeping mechanisms really helpful for the improvement of emergency care system for road traffic injuries? And How?

Now I would like to know about the challenges you face during the provision of emergency care for road traffic injuries and how to address them.

1: As a nursing head can you tell us about the challenges/issues nurses face while giving emergency care for



road traffic injuries?

- -Do you think in Pakistan trauma related emergency care needs to be revamped?
- -In your opinion do you think there is a shortage of trained nurses and other health related personnel in emergency departments?
- -What other problems do you face while giving the care for road traffic injuries in your ward?
- 2: How to address those issues in order to improve the emergency care for road traffic injuries?
- -Any additional thing you want to add or tell us related to this issue?

I would like to begin by asking about your perceptions regarding the increasing number of road traffic accidents and its overall impacts on the health systems.

- 1: What are your views regarding increasing number of road traffic injuries? Share your views with us?
- -Can you give us a brief insight/detail about the type of cases you get in your emergency?

IDI for the Head of the Surgery and FGD for surgical department:

- -Tell us about the number of patients you get related to road traffic injuries (approx.: no per month).
- 2: Do you think that road traffic accidents as an important public health issue and responsible for increasing burden on our health systems and how?
- -What steps are needed to minimize burden due to road traffic accident
- 3: Do you think there is a need of making a proper policy for road safety and efforts for reducing the traffic accidents?
- -Tell us about the efforts or strategies

which can limit the fatalities related to road traffic accidents.

- -What can be done to get all the local and regional political leaders together to address this issue?
- -How to address the prevailing research gap related to the emergency care system for road traffic injuries in Pakistan?

Now I would like to know about your perceptions regarding importance of emergency care system for road traffic injuries and different strategies exist in your hospital.

- 1: Do you think by providing effective and timely emergency pre and postcrash care can actually play a vital role in lowering the death toll?
- -Tell us how lowering the death toll plays an important role in improvement of your hospital emergency care system?
- -Do you provide proper rehabilitation facilities including occupational and physiotherapy for the injured patients?
- 2: In your hospital for quality trauma care in emergency departments, what kind of strategy exists for the planning, organization and provision of timely emergency care?
- -Can you tell us about the injury care including triage (allocating aid) for resuscitation and management in your facility?
- **3:** As it's a tertiary care hospital and the link between primary, secondary and tertiary centers is essential so what channels are utilized to maintain the communication with other levels of care?
- -Why it's really important to maintain the communication between the other levels of care?
- -What can be done to improve



communication with the other levels of care?

-What are the strengths of this hospital's emergency care system?

Now I would like to know about the challenges you face during the provision of emergency care for road traffic injuries and how to address them.

- 1: What challenges do you face while dealing road traffic injuries on the hospital level?
- -Do you think in Pakistan trauma related emergency care needs to be revamped?
- -In your opinion do you think there is a shortage of trained doctors and other health related personnel in emergency departments?
- -Do you think that instituting of operative trauma care systems, along with proper documentation and record system is a need of an hour?
- 2: How to address those challenges within possible available resources and improve the level of emergency care?

What message in particular do you want to give to the policy makers to address this issue?

IDI for the Senior Medical Officers/Residen ts/House officers:

I would like to begin by asking about your perceptions regarding the increasing number of road traffic accidents and its overall impacts on the health systems.

- 1: What are your views regarding increasing number of road traffic injuries? Share your views with us?
- -Can you give us a brief insight/detail about the type of cases you get in your emergency?
- -Tell us about the number of patients you get related to road traffic injuries

(approx.: no per month).

- 2: Do you think that road traffic accidents as an important public health issue and responsible for increasing burden on our health systems and how?
- -What steps are needed to minimize burden due to road traffic accidents
- **3:** Do you think there is a need of making a proper policy for road safety and efforts for reducing the traffic accidents?
- -Tell us about the efforts or strategies which can limit the fatalities related to road traffic accidents.
- -What can be done to get all the local and regional political leaders together to address this issue?
- -How to address the prevailing research gap related to the emergency care system for road traffic injuries in Pakistan?

Now I would like to know about your perceptions regarding importance of emergency care system for road traffic injuries and different strategies exist in your hospital.

- **4:** Do you think by providing effective and timely emergency pre and postcrash care can actually play a vital role in lowering the death toll?
- -Tell us how lowering the death toll plays an important role in improvement of your hospital emergency care system?
- -Do you provide proper rehabilitation facilities including occupational and physiotherapy for the injured patients?
- 5: In your hospital for quality trauma care in emergency departments, what kind of strategy exists for the planning, organization and provision of timely emergency care?
- -Can you tell us about the injury care



including triage (allocating aid) for resuscitation and management in your facility?

- **6:** As it's a tertiary care hospital and the link between primary, secondary and tertiary centers is essential so what channels are utilized to maintain the communication with other levels of care?
- -Why it's really important to maintain the communication between the other levels of care?
- -What can be done to improve communication with the other levels of care?
- -What are the strengths of this hospital's emergency care system?

Now I would like to know about the challenges you face during the provision of emergency care for road traffic injuries and how to address them.

- 1: What challenges do you face while dealing road traffic injuries on the hospital level?
- -Do you think in Pakistan trauma related emergency care needs to be revamped?
- -In your opinion do you think there is a shortage of trained doctors and other health related personnel in emergency departments?
- -Do you think that instituting of operative trauma care systems, along with proper documentation and record system is a need of an hour?
- 2: How to address those challenges within possible available resources and improve the level of emergency care?
- -What message in particular do you want to give to the policy makers to address this issue?

## A. Recognition of causes and adverse consequences of road traffic accidents

During interviews, it was reported that enough level of knowledge is not given to the masses. As, one of the participants recalled a memory and told about an incident and how people take this issue for granted.

"I remember when an only son of a famous politician had a massive accident while driving, brought to our emergency. As we were under immense political pressure in order to take all the possible steps to save his life at any cost, which we did, and luckily saved his life. Only in that moment his father who was a political leader as well, realized and regretfully shared that, we have not done enough efforts to spread knowledge about the use of road safety measures to our kids and keep them aware with its adverse consequences" P4-IDI-AED.

It is really very important that Government should do danger spotting on those roads which are thought to be causing accidents. This was suggested by the head of nursing as he said, "Government must identify the danger zones where there are increased chances of having road accidents may be due to is location or whatever cause may be. It should be identified and spotted" P5-IDI.HOD Nursing.

By establishing effective punishment system for rule breaker can be proved useful in order to minimize the incidence of accidents, as administer emergency said that. "In our cities, assigned traffic officers/sergeants are not performing their duties properly, I would suggest even if they don't do anything but only puncture the tires of motorbikes of who were caught doing fast wheeling, and fine them along with reporting to their parents, then next time surely they will avoid this kind of irresponsible behavior" P4-IDI-AED.

When the accidents happen, there are chances that injured can die before reaching to the emergency ward, so it's important that all levels of care performing their functions according to the set rules and the availability and accessibility of the facilities nearby danger spots must be ensured by the government. "Caring for the injured starts from the scene of accident up to the reaching emergency department of the hospital. Most of the times deaths occur due to three types of cases respiratory suppression, hemorrhages, and foreign bodies. So, these



cases require an immediate first aid or pre hospital care at the scene in order to secure the lives of victims and this can only be achieved if proper pre hospital care mechanism is in place" P5-IDI-HOD. Nursing.

Proper transport system is very important part of the injury prevention during crashes, it can help in lowering the death toll by transporting injured patients to the hospitals on time, surgical intern shared his views regarding the importance of proper transport mechanism that, "Effective timely care for the injured cannot be started until patient is not transported to the emergency ward on time. In our city because of affordability and accessibility to the issues patients lose their lives on the scene or in between the route of incident scene and up to reaching emergency department" P3-IDI-HOD. Surgery.

In order to minimize the fatalities caused due to the road traffic accidents, it is important to make strict licensing policies and ensure the implementation of all the already set rules and regulations. Administrator emergency shared his views in this regard, "Plenty of policies, rules and regulations are already present, but the issue is that these policies are not properly implemented. Most of the traffic personnel get involved in illegal activities like taking bribes from people instead of implementing regulations strictly. It's also Government's duty to ensure proper implementation of the policies" P4-IDI-AED.

Road traffic accidents are considered among the leading causes of death and disability as senior medical officer in emergency department told us that, On daily basis we get a lot of cases which are related to the road traffic accident out of them some are non-fatal with minor injuries while other are fatal with major bone fractures, joint dislocations, skull damages, vascular injuries and other soft tissue injuries. Because of major fractures most of the patients become disable for the rest of their lives and some even become dead due to visceral or neuro related damages" P1-IDI-SMO.

Among the main consequences of road traffic injuries, socioeconomic impacts are worth mentioning. As the senior medical officer rightly described it, "Because of the major accidents a lot victims become disables for rest of their lives and this not only impacts the victim's life but also affects his immediate family as well. As he may be

the only bread winner they had but because of that road traffic injury he became disable and dependent on others. Moreover, any catastrophic expenditure will ultimately push him below the poverty line" P1-IDI-SMO.

The importance of trained staff in emergency department cannot be denied as its very important that trained staff should be present in order to treat injured road traffic injury patients effectively, as senior medical highlighted the importance of the trained staff in emergency, "Yes, training of the staff/all medical care providers is very important and if its present then it can help in improving our emergency medical system including for road traffic injuries" P1-IDI-SMO.

Communication between all levels of care is also considered as an essential part of medical care especially for the injured patients. It was explained by the surgical intern that, "Communication is very important for establishing links between different levels of care, it can be done by proper telephonic communication. Authentic numbers must be mentioned in all health care centers at every level so that communication can be done before referring cases to higher level especially in emergency situations. It is important because any injured who requires an immediate emergency care then through communication with other hospitals timely care be initiated" P2-IDI-SI.

## B. Health system challenges for delivering emergency medical services

For effective management of the emergency department the main challenge was to have a proper record keeping and documentation system. It improves the overall functioning of emergency as well as the whole hospital indeed. This was also mentioned by the surgical intern as well, "Definitely, proper documentation system and record keeping mechanism is one the important components of effective management of the hospital including emergency, as it gives us the whole idea about the types of cases. As far as nurses are concerned, they are quite aware of the fact that proper documentation is in their best interest, as it allows them to make negligible medical errors, makes them efficient and responsive while giving care for emergency services as well" P5-IDI-HOD.Nursing.



Effective management of the emergency department can help in earning of the patient's trust on the services which are being provided by the hospitals. Head of surgery mentions it in this way, "When we give timely and effective services to the injured patients with our expert team on board then we can lessen the death toll remarkably. This efficient provision of services not only improves hospital's credibility but also earn the trust of patients in medical care system especially of public sector" P3-HOD.Surgery.

Time factor is very important while treating patients in emergency, as far as service provision for road traffic injuries is concerned, time is the most important factor which decides the fate of injured person. As it was explained by senior medical officer working in emergency department that, "Yes, timely and effective provision of services is very important, as you must have heard of the term "Golden Hour", which is very crucial time period after the crash is happened, and if in this particular time period effective actions are being taken and patient gets required interventions then his life can be saved" P1-IDI-SMO.

One of the biggest challenges for emergency care system in hospital was not having proper security system in place. Head of the surgery shared his experience and emphasized the need of proper security in emergency ward especially, "Security is the major concern for our emergency department, as most of the times our doctors are being attacked or harassed while performing their duties in emergency ward. It completely disrupts our wards functionality and discourage health care providers from performing their assigned duties without fear of being attacked by the patient's attendants" P3-IDI-HOD surgery.

Administrator emergency emphasized on the importance of trained professionals and how they face problems while care giving, "On hospital level no doubt we are doing our best within possible available resources, but still we lack in trained sub specialists like we have good orthopedic surgeons but we need trained vascular surgeons, and especially critical care specialists in emergency department who can improve the functioning of our emergency department" P4-IDI-AED.

On the matter of emergency services at tertiary care hospital, administrator emergency shared that, "We lack in ventilator facilities for our patients at emergency ward and because of that most of the serious patient get referred to other tertiary care hospitals of big cities instead of getting timely treatment here" P4-IDI-AED.

For proper functioning of hospital management, it is important to have proper reward and punishment mechanism in place, "There is no culture of giving incentives to our health care providers in hospitals nor, there is any strict system for their accountability. In my opinion proper reward and punishment system should be present so that we can monitor and improve overall progress of the hospital" P5-IDI-HOD. Nursing.

From the current study, results advocate that, an integrated trauma system along with improvement in documentation and record keeping system, security for health care providers, provision of timely interventions and training for health professionals is also crucial to be considered for effective post-crash care management at hospital level. So, the importance of building an effective trauma care system, using available professional resources and implementing low cost and evidence-based improvements such as establishing dedicated trauma teams along with proper triage mechanism cannot be denied. Moreover, trauma training for staff (both the nurses and doctors in emergency medicine, critical and trauma surgery) on a regular basis is necessary in order to improve delivery of trauma care at the hospitals. Furthermore, proper security system for health care providers' unavailability of ventilators and lack of Incentives and punishment mechanism were among the main problems identified during this study.

## Discussion

Immediate on-the-scene rescue and assistance is vital, especially if emergency care response is absent or significantly delayed. The quality of the first response strongly depends on adequate training to develop necessary skills to render first response this study is also consistent with the previously done research work which identifies the lack of proper scene care as one of the important challenges.6 Moreover, single universal access number that is valid country-wide and linked to centralized ambulance dispatch is optimal, simple systems requiring only mobile phones and well-designed protocols can also greatly improve care. 7, 8 However, few studies which were



conducted in lower middle income country settings stressed on the improvement of facility based trauma care and the availability of all possible resources required for the provision of this care as consistent with this study as well, so, if we work for the betterment of the pre and post-crash emergency services then we can save 1.2 million deaths and 50 million cases of disable persons in the first place.<sup>9, 10</sup>

Emergency care is delivered in an inherently challenging environment, often requiring providers or dedicated team, to make quick life-and-death decisions based on minimal information. 12, 13 Many who enter the emergency care profession enjoy the challenging work and the high-pressure environment, and take satisfaction in providing care to patients in urgent need. 14 This study highlighted Coordinating doctors, nurses, and subordinate staff to care for patients requires dedicated teamwork and leadership. This is particularly true in emergency settings where care providers from numerous specialties converge to care for critically ill and injured patients with limited data and under strict time constraints. This study is also consistent with the findings of one of the previous studies, which explains that, emergency personnel especially nurses are vital for the delivery of quality emergency care that is safe, effective, patient-centered, timely, efficient, and equitable.<sup>15, 17</sup> Moreover, without screening, clients' trauma histories and related symptoms often go undetected, leading providers to direct services toward symptoms and disorders that may only partially explain client screening for trauma history and trauma-related symptoms can help behavioral health practitioners identify individuals at risk of developing more pervasive and severe symptoms of traumatic stress. Screening, early identification, and intervention serves as a prevention strategy. 18 An emergency medical service (EMS) can be effective at reducing losses associated with RTI, by streamlining the chain of survival, effective EMS systems depend upon the prompt transportation of injured people from the scene to the trauma center. It is considered as a major challenge for all health care professionals, along with the various difficult situations related to the life and physical injuries to body can make the decision-making process while giving emergency care difficult. It is important make such efforts which are helpful for injury

prevention and medical care for the victims of accidents. 19,20

#### Conclusion

The importance of building an effective trauma care system, using available professional resources and implementing low cost and evidence-based improvements such as establishing dedicated trauma teams along with proper triage mechanism can be proved as the suitable solution in improving emergency care services for road traffic accidents.

## Ethical Considerations

Keeping in mind the safeguarding of dignity, rights and safety of the participants for this research study; informed consent was taken from all of the participants prior to the collection of data. The study was approved by the institutional research board of health services academy Islamabad.

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