

### Epidemiology of non-transported emergency medical services calls in Saudi Arabia

*To the Editor*

I read the article on non-transported emergency medical services calls in its entirety and with a great interest.<sup>1</sup> I must say the authors attempted to address an important concern of emergency response system at the moment of “caller-dispatch receiver interaction”. What happens at that moment is crucial, which can affect resuscitation outcome? One may even legitimately pose a question if the caller-dispatch interaction is the reason that so many patients are privately transported to the emergency department as has already been alluded in the work of Conroy and Jolin.<sup>2</sup> The regions as a whole have poor Emergency Medical Services (EMS) infrastructure and the portrayal of their activities are beginning to emerge in a few recent works. A robust EMS including the dispatch system in Saudi Arabia can make a difference in the resuscitation outcome and a robust EMS is indeed required. This can only begin at patient call and dispatch interaction, which is the initial part of a resuscitation effort, which if activated promptly can make a difference in the outcome of resuscitation.

As a follow up to the article, I have few comments and queries related to the research design and some contextual issue. I suppose my primary concern in the article is that it is confined to reporting of the profile of 10 EMS stations in Riyadh within a 3 months' period and yet there are lack of random selection of the EMS sites and lack of seasonal variations. A broader generalization and trends regarding patient call could have been made had different region been involved at a different season of the year. As such, I would be cautious to generalizing findings of the calls of 10 EMS station in Riyadh to all Saudi Arabia as suggested in the title and even be cautiously specific to indicate months of the year in the title. The other regions (east, west, and South regions) of Saudi Arabia are not represented in your study and there may be variation in a demographic profile and available EMS infrastructure may even be different. More so, the article lend itself to profile of a call audit in as much as the reference is to the “calls” been made not “persons” as opposed to “epidemiology,” which seems an over-used term here to describe the non-transport conditions of EMS.

The finding of your article will have mainly an implication to dispatch and potential recommendation to the role of dispatch and what can be carried out to improve the caller-dispatch interaction? To be fair with a number of calls of 1791 presented within 3

months period and scrutinize closely those numbers at an average per day happening would give us a conceivable magnitude. A figure of 1791 calls is an average of 20 calls per day in 10 EMS sites. For a dispatch to cancel as many as 4 calls, or 22.4% per day of non-transported calls in 10 EMS stations seems within norm. What benchmarks are being used to set as criteria if 1791 calls are considered as “too much,” or “too less” as a non-transported. Again, I stress what are the benchmarks that are been used at a regional, or global level to make statement of dispatch cancellation, or patient cancellation. Are the percentages of cancelled calls comparable with other countries regionally and globally?

You have raised several important factors in your discussion including the role of culture in society especially if it is a female gender. You raised an important issue that a cancelled call by dispatch is a concern, and you made a suggestion that they should be investigated. I agree with your suggestions that accountability and responsibility should be a dictum in practice. What is troublesome is also that the patient does a large percentage of cancellation. While some factors can be attributed to patient themselves whether it is culture or gender issue, yet to a large extent could be attributed to a dispatch factor. An important factor that can make difference in healthcare provider - patient relationship is an empathic communication and trust. A communication gap and lack of trust in the infrastructure can emerge and fail the system. Are the dispatch empathic communicators? Do they have adequate health background? Are dispatches from multi linguistic background available in addition to Arabic speakers to provide dispatch services as you have alluded in your figure that 35% are expatriates? Did the societal trust in EMS infrastructure fail? I think many questions can arise, but not adequate answers are provided. However, these questions can help us reflect and transform an important infrastructure in healthcare. In this case, the calls made and dispatch are factors that are in need of enhancement and improvement.

One of the challenge dispatch could potential face is address the information conveyed with them. Conroy and Jolin<sup>2</sup> alluded in their work 3 decades ago that most places have unnamed streets. It is indeed difficult to simply give an address and get the location. The people have to describe it and mention important landmark to identify the place. Therefore, beyond EMS, city planners have to make their parts to make the city small street location identifiable so as to utilize global positioning system (GPS) as you have suggested.

While not directly related to the subject of your article, but is prior to a call, or referred to as “recognition” in the chain of survival. At a patient level, what dictates if a person, or patient will attempt to make a call, or

not call? The pre-call phase is indeed very important to make a meaningful transition to activation of EMS. The psychology of person is very complex at a moment when a person's loved one is suffering. A person's attitude is to react in a best way he knows and those best ways he knows may be to rush patient to hospital, or even make unnecessary emergency medical call. In fact, physical and emotional proximity of a caller as well as professional background can affect dispatch's response. It is so unfortunate that most of the public in the region does not know the 3 digit emergency number that facilitate that transition to making the first call.

Finally, an important recommendation is to set a higher standard of qualification and require a periodic training of dispatch. A frequent training and re-training should be required to feel comfortable with dispatch activities. Alfsen et al<sup>3</sup> asserts triple role of dispatcher in obtaining information, providing instruction, and reassuring of a caller. Integration of simulation training using standardize patient can improve dispatch performance of a triple role.

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#### *Reply from the Author*

**Comment.** A robust Emergency Medical Services including the dispatch system in Saudi Arabia can make a difference in the resuscitation outcome and a robust EMS is indeed required. This can only begin at patient call and dispatch interaction, which is the initial part of a resuscitation effort, which if activated promptly can make a difference in the outcome of resuscitation.

**Response.** All the authors undoubtedly agree to the fact.

**Comment.** I suppose my primary concern in the article is that it is confined to reporting of the profile of 10 EMS stations in Riyadh within a 3 months' period and yet there are lack of random selection of the EMS Sites and lack of seasonal variations. A broader generalization and trends regarding patient call could have been made had different region been involved at a different season of the year. As such, I would be cautious to generalizing findings of the calls of 10 EMS station in Riyadh to all Saudi Arabia as suggested in the title and even be cautiously specific to indicate months of the year in the title. The other regions (east, west, and south regions) of Saudi Arabia are not represented in your study and there may be variation in a demographic profile and available EMS infrastructure may even be different.

**Response.** Currently, Saudi Red Crescent Authority does not have proper automation process for Patient Care Record or Dispatch Information except the voice logs.<sup>4</sup> Retrieving valuable accurate information is enormous task with lots of paperwork and translations. Prior to conducting an intensive research it was wise to know the extent of the problem in n area which had demographically represented by different citizens and non-citizens. Authors being based at Riyadh, logistically possible to conduct the research. The climate of Saudi Arabia is mostly summer throughout the year, marked by high temperature in the day and low in the night. Mostly it follows pattern of desert climate, with exception to the southwest. Hence selection of month was not given much importance. Strategically 10 busy Ambulances posted at all important regions of Riyadh were selected to gather good amount of sample size.

**Comment.** More so, the article lend itself to profile of a call audit in as much as the reference is to the "calls" been made not "persons" as opposed to "Epidemiology" which seems an over-used term here to describe the non-transport conditions of EMS.

**Response.** Agreed, but numerous researches pertaining to dispatch calls are available with similar term being used

**Comment.** The finding of your article will have mainly an implication to dispatch and potential recommendation to the role of dispatch and what can be done to improve the caller-dispatch interaction?

**Response.** The findings will also be useful for EMS Administrators, Policy Level Decision Makers and lastly but not the least end users

**Comment.** To be fair with a number of calls of 1791 presented within 3 months period and scrutinize closely those numbers at an average per day happening would give us a conceivable magnitude. A figure of 1791 calls is an average of 20 calls per day in ten EMS sites. For a dispatch to cancel as many as 4 calls or 22.4% per day of non-transported calls in ten EMS stations seems within norm. What benchmarks are being used to set as criteria if 1791 calls are considered as "too much" or "too less" as been a non-transported. Again, I stress what are the benchmarks that are been used at a regional or global level to make statement of dispatch cancellation or patient cancellation. Are the percentages of cancelled calls comparable to other countries regionally and globally?

**Response.** No studies were carried out in the same area within the kingdom, more exploration is needed. Currently, there are no benchmarks locally, or regionally. Emergency Medical Services in the middle east is just in its infancy stage with vast difference in demographics, culture and awareness. Primary goal of the study was to identify the extent of problem and understand its

nature. Subsequent studies would assist in development of standards and benchmarking.

**Comment.** An important factor that can make difference in healthcare provider-patient relationship is an empathic communication and trust. A communication gap and lack of trust in the infrastructure can emerge and fail the system. Are the dispatch empathic communicators? Do they have adequate health background? Are dispatches from multi linguistic background available in addition to Arabic speakers to provide dispatch services as you have alluded in your figure that 35 % are Expatriates?

**Response.** Saudi Red Crescent Authority (SRCA)<sup>5</sup> has an Emergency Dispatch Centre (EDC) in every region with a toll free number as 977. It caters to calls receive from the respective region and dispatches nearest located ambulance to the scene. Currently, it has caller taking system and dispatch system with minimal criteria based dispatch. Automation is not advanced, which has only voice log recording system in place. Emergency Dispatch Centre is manned by both healthcare and non-health care professionals with little, or no EMS experience. Most were native Arabic speakers with minimal knowledge of English and EMS terminologies. During Hajj season, Urdu speaking individuals are also employed.

**Comment.** Did the societal trust in EMS infrastructure fail? I think many questions can arise but not adequate answers are provided. However these questions can help us reflect and transform an important infrastructure in healthcare. In this case, the calls made and dispatch are factors that are in need of enhancement and improvement.

One of the challenge dispatch could potential face is address information conveyed to them. Conroy and Jolin<sup>2</sup> have alluded to it in their work on 3 decades ago that most places have unnamed streets. It is indeed difficult to simply give an address and get the location. The people have to describe it and mention important landmark to identify the place. Therefore beyond EMS, city planners have to make their parts to make the city small street location identifiable so as to utilize GPS as you have suggested. While not directly related to the subject of your article but is prior to a call or referred to as “recognition” in the chain of survival. At a patient level, what dictates if a person or patient will attempt to make a call or not call? The pre-call phase is indeed very important to make a meaningful transition to activation of EMS. The psychology of person is very complex at a moment when a person's loved one is suffering. A person's attitude is to react in a best way he knows and those best ways he knows may be to rush patient to hospital or even make unnecessary emergency medical call. In fact, physical and emotional proximity of a caller as well as professional background

can affect dispatch's response . It is so unfortunate that most of the public in the region does not know the 3 digit emergency number that facilitate that transition to making the first call.

**Response.** Agreed, Hamam et al<sup>6</sup> study showed that one out of 3 people only knew the emergency dispatcher number. The stress on the fact that bad response time of the ambulance service was due to 1) badly addressed districts, 2) no GPS guidance available, 3) no roaming unit system, and 4) small districts with very small streets that do not allow cars to enter them.

**Comment.** Finally, an important recommendation is to set a higher standard of qualification and require a periodic training of dispatch. A frequent training and re-training should be required to feel comfortable with dispatch activities. Alfsen D et al<sup>3</sup> asserts triple role of dispatcher in obtaining information, providing instruction and reassuring of a caller. Integration of simulation training using standardize patient can improve dispatch performance of a triple role.

**Response.** We totally agree to your point. We would also assert that only experienced Paramedics with proper qualification, training and licensure should be should be recruited as dispatchers. They should have Fluency in English and Arabic with knowledge of computer application and geographical area. On job training will prepare them to handle high stress situations appropriately and identify complex problems, develop and evaluate options, and implement solutions.

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## References

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