

# Trauma research in the United Arab Emirates: reality and vision

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## ABSTRACT

**Introduction:** Trauma is a major health problem in the United Arab Emirates, and it is the second leading cause of death. Research can help us find solutions for this problem. We evaluated the published literature on trauma from United Arab Emirates to define research areas which need improvement.

**Methods:** A MEDLINE search for articles on trauma and injury from the United Arab Emirates covering the period 1960–2005 was performed. The content of articles was studied, classified and summarised.

**Results:** 32 articles were found, of which 18 were published in the last six years. 18 articles were on prevention and epidemiology, ten on clinical management and four on education. The first author was affiliated to the university in 19 articles. There were no articles on pre-hospital care, experimental work, trauma systems, trauma registry or post-hospital rehabilitation.

**Conclusion:** There is a need for a strategic plan to support research in areas like pre-hospital care, implementation of trauma systems, trauma registries and post-hospital rehabilitations to reduce the socioeconomic impact of trauma in the United Arab Emirates.

**Key words:** injury research, road traffic accidents, strategic planning, trauma research

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## INTRODUCTION

Trauma is a major health problem in the United Arab Emirates (UAE). It is the second cause of death in the UAE responsible for 18% of mortality.<sup>(1)</sup> It is the leading cause of death under 45 years of age and accounts for 60% of yearly potential life loss.<sup>(2)</sup> Trauma research has a central role in identifying key local health problems related to trauma and ways to solve them. Nevertheless, a good trauma audit process and a good injury quality management system are essential and complimentary to trauma research. Planning should include prevention before the injury occurs, protection during the event and management after the injury.<sup>(3)</sup> It would be useful to analyse the results of trauma research in a specific country

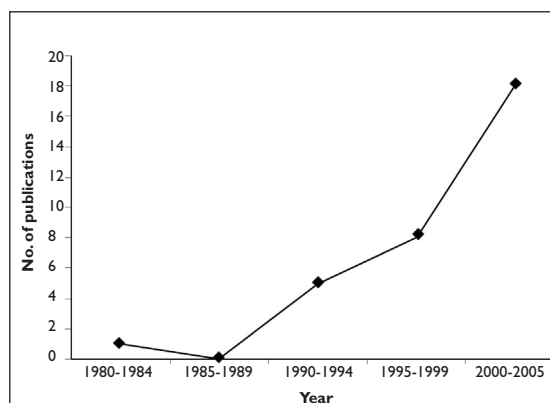


Fig. 1 UAE trauma research publications in MEDLINE.

for different reasons, and to know areas that are deficient and to build on what has already been done. Our aim in this study was to evaluate the published trauma research that has originated from the UAE so as to define areas which need improvement.

## METHODS

A MEDLINE search through the PubMed website covering the period 1960–2005 on medical publications from the UAE was performed.<sup>(4)</sup> We searched by country of publication and not by topic because it was easier to capture all articles published from a country. This was more laborious, more accurate and would not lead to missing articles. The total number of publications for the UAE was collected. First, the country name was entered into the “for” field. Then, the “Limits” link was clicked and “Affiliation” was chosen in the “Limited to:” field so that the affiliation field in the MEDLINE database was searched for the entered country. Then, the “Go” button was pressed and a list of results was displayed in “Summary”. Then, the “Save” button was clicked, so that the data was downloaded and saved in a text file. In the same fashion, the names of UAE cities were entered in the “Limited to:” field and a further search was done. A total of 1,398 abstracts were retrieved. All abstracts were reviewed manually to select articles related to trauma. Full papers were collected through the National Medical Library of the Faculty of Medicine and Health Sciences, UAE University. 35 relevant articles were found. 32 articles (Appendix 1) were studied and three articles (Appendix 2) were excluded. The reasons for the exclusion of these articles were, the data was from other countries

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**Table I. Authors' participation.**

Participation	University	Community
First author	19	13
Other authors	17	21
External participation	5	3

in two articles and the third article was a short report of another article which was published later. The contents of the 32 articles were studied, summarised, and classified according to the MEDLINE categories, first authors and other authors' affiliation, institution affiliation, Emirate of institution, external participation and content of articles.

## RESULTS

18 of the 32 articles were published in the last few years (Fig. 1). 75% of the articles were original, 16% were case reports, and 9% were review articles. Only three articles were prospective clinical studies. The first author was affiliated to the university in 19 articles and to a community hospital in 13 articles (Table I). 11 articles were purely from community hospitals, nine were purely from the university and 12 were combined between them. Abu Dhabi Emirate, where the national UAE University is located, had the largest number of articles per 100,000 population (0.16 articles per 100,000 inhabitants), followed by Dubai (0.025 articles per 100,000 inhabitants). In five articles, there was external participation from universities of Sweden, Canada, the United Kingdom (UK) and Jordan. In three articles, there was external participation from community centres in the UK and Qatar. Prevention and epidemiology were the topics in more than half of the articles (18 articles), followed by clinical management (ten articles) and education (four articles). No article was published on pre-hospital care, trauma systems, trauma registries or rehabilitation. According to evidence-based classification of outcome studies,<sup>(5)</sup> six of the articles were class II evidence (clinical studies in which the data was collected prospectively; retrospective analysis based on clearly reliable data), 22 articles were class III evidence (retrospectively-collected data) and none was class I evidence (prospective, randomised, controlled trials). The remaining articles were three educational and one experimental study.

## DISCUSSION

Our study has shown that the publications on trauma stemming from the UAE are relatively few, despite the fact that trauma is a major health problem in our country. Nevertheless, there has been an exponential increase of trauma-related publications in the last five years. The majority of these publications stemmed from our faculty. This is well-demonstrated in the ratio of publication to population of the different Emirates. We chose MEDLINE

publications as an indicator of good quality research. This may not be completely precise because we think that the real impact of research comes from knowledge dissemination that is relevant to regional problems, debating on critical national health issues, along with spreading knowledge to the outside world.<sup>(6)</sup> Nevertheless, MEDLINE is a widely-used database in the field of medicine that has strict criteria to include journals. Journals that are indexed in MEDLINE are highly cited. Furthermore, it is the most comprehensive resource for health-related literature searches and is accessible to everyone through PubMed. We intentionally did not use other databases to avoid selection bias. This was essential to represent the relative ratio of different trauma research. We have used this approach before to study medical publications from Arab countries.<sup>(7)</sup> Publications are the final outcome of research and can be considered as a rough quantitative marker. In our university, about 30% of clinical academics' time is allocated for research; in contrast, during the study period, the community hospital staff had no time allocated to conduct research. Nevertheless, this has now changed and clinical research is encouraged. Furthermore, surgery and trauma PhD programmes are not yet available. During the study period, some institutions lacked access to health informatics resources. During 2005, 4.9% of UAE University research funds of interdisciplinary projects went to trauma research. The Sheikh Hamdan Medical Award also supports medical research including trauma.

The prevalence of road traffic collisions (RTC), the morbidity and mortality, and the seat belt usage have been studied in almost a quarter of the articles. Another study concluded that RTC was the major mechanism of injury for maxillofacial fractures.<sup>(8,9)</sup> Furthermore, other articles correlated the morbidity and mortality of children and women to trauma, with RTC being the common cause of accidental death among these groups.<sup>(10,11)</sup> Falls, sharp object trauma, burns and RTC were the most frequent causes of paediatric injuries.<sup>(12)</sup> Another study reported on injuries sustained from the unique experience of camel riding.<sup>(13)</sup> All camel-related injuries in the paediatric age group occurred among males and the most common were head injuries. One observation was that the incidence of tibial fractures of the spiral type was very high among camel riders.<sup>(14)</sup>

The majority of trauma research in the UAE is epidemiological in nature. Surprisingly, clinical trauma research is limited, despite the extensive clinical trauma experience that is gained by clinicians in our country and the availability of adequate clinical care for trauma victims in the UAE. Our overall mortality of hospitalised RTC patients is 4.1%, indicating a high standard of hospital healthcare.<sup>(15)</sup> This can be attributed to lack of training in clinical research, lack of incentives, lack of time for research within hospitals, lack of health informatics

and lack of funding.<sup>(16)</sup> Our study has shown important areas in trauma research that need extensive work. These include prehospital care, trauma registries and systems, rehabilitation of multiple trauma patients and the economical impact of trauma. These need to be addressed in future research. The distribution of trauma deaths differs from one country to another. The only published literature in the MEDLINE from a developing country about strategic planning for trauma problems was from the Philippines.<sup>(17)</sup> The predominant cause of trauma-related deaths in the UAE is road traffic collisions, compared to homicide in the Philippines. Therefore, a different research strategic plan may be needed.

Policy makers have to appreciate that trauma is a major public crisis that needs an appropriate response. Policies must be based on local evidence and research, and designed for a particular social, political, and economic circumstance found in a developing country.<sup>(18)</sup> In the USA 25 years ago, economical loss and number of life years lost due to trauma were higher when compared with cancer and heart disease. Despite that, funds were spent much less on trauma research.<sup>(19)</sup> 25 years later, Carrico et al found that the national support for trauma research in the USA was still very low when compared with cancer and acquired immunodeficiency syndrome (AIDS).<sup>(20)</sup> The AIDS Research Programme has saved billions of dollars over the past years. There is no reason why a Trauma Research Programme would not succeed if it was similarly supported.

An interdisciplinary approach that involves collaboration between basic scientists, healthcare providers, clinical researchers, educators, economists, legislators and policemen, is essential to progress the regional and national trauma systems. This should include prevention before the injury occurs, prehospital care, transportation of victims of trauma, clinical care and rehabilitation after discharge from the hospital. It should include the victim, the cause of injury and the environment in which the injury occurred. Research on trauma systems using a population-based data has shown that their implementation will reduce 20% of trauma-related mortality.<sup>(21)</sup> Using an interdisciplinary approach, we have established a Trauma Research Group within our faculty. This group has worked as a facilitator and a role model for excellent clinical research in the UAE for the last five years. The group's efforts in establishing a trauma registry has started to show its impact in the UAE and to attract adequate research funding that is relevant to our local needs. Data of our trauma registry was used to produce different manuscripts and abstracts which were presented nationally and internationally.<sup>(15,22)</sup> Furthermore,

we are working on areas of deficiency. In summary, we think that there is a need for a strategic plan to support research in areas like pre-hospital care, implementation of trauma systems, trauma registries and post-hospital rehabilitations, so as to reduce the socioeconomic impact of trauma in our community.

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## Appendix 1

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## Appendix 2

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