

# The Impact of the ATLS Course on Traffic Accident Mortality in Trinidad and Tobago

D.C. Ariyanayagam, F.R.C.S., V. Naraynsingh, F.R.C.S., F.A.C.S. and I. Maraj, B. Sc.  
Department of Surgery, Port-of-Spain General Hospital, Trinidad and Tobago

## ABSTRACT

*Advanced Trauma Life Support (ATLS) training of medical staff did not improve outcome of the trauma victim. Potential benefit of this course may have been masked by weak links in the trauma care chain such as pre-hospital care and in hospital investigative and therapeutic facilities.*

## INTRODUCTION

Trinidad and Tobago is a twin-island republic in the Caribbean with a total population of approximately 1.2 million. Motor vehicular accidents in this country are the most common cause of death for persons under the age of 45 years (Annual Report of Ministry of Health of Trinidad and Tobago, 1983-1984). During the period 1970 - 1979, there was a progressive increase in the number of traffic accidents from 16,433 to 28,003, and the number of fatalities rose from 179 in 1970 to 252 in 1979 (Annual Reports of Traffic Management Branch, Ministry of Works). The average injury to death ratio for this period was 24.9, compared with a ratio of 62.5 for a comparable population in North America (Ali and Naraynsingh, 1987). Although the rise in traffic accidents was not sustained into the eighties, it was felt that the problem had to be addressed urgently. Thus, in January 1986, the Advanced Trauma Life Support (ATLS) Course was inaugurated.

The ATLS Course was developed in America to improve the resuscitative skills of primary care physicians (Callicott, 1979). This arose out of the recognition that the initial hour following trauma was most critical in determining patient survival (ATLS Manual, 1985).

## MATERIALS, METHODS AND RESULTS

For the specific purpose of comparing the impact of the ATLS course on traffic accident mortality, three-year periods before (1983, 1984 & 1985) and after (1987, 1988 & 1989) the start of the ATLS Course were compared. These 3-year

periods were chosen since data for longer period are not yet available. The year 1986 was excluded because it is the year when the programme was introduced, and the ATLS recommendations were in the process of being implemented.

The pre-ATLS period is designated as "A" and the post-ATLS period is designated "B".

Table: Results of the 6-year period

	A	B
Injuries	13,739	9,132
Deaths	637	430
Deaths within 6 hrs after accident (excludes on the spot deaths)	302	192
% Total deaths	49	46
Injury: Death ratio	21.5	21.2

The Table illustrates the results for this 6-year period. The number of injuries and deaths decreased in period B compared to period A (13,739 and 637 vs 9,132 and 430). However, this only reflects a steady decrease in road traffic morbidity and mortality over the past decade (Fig. 1).

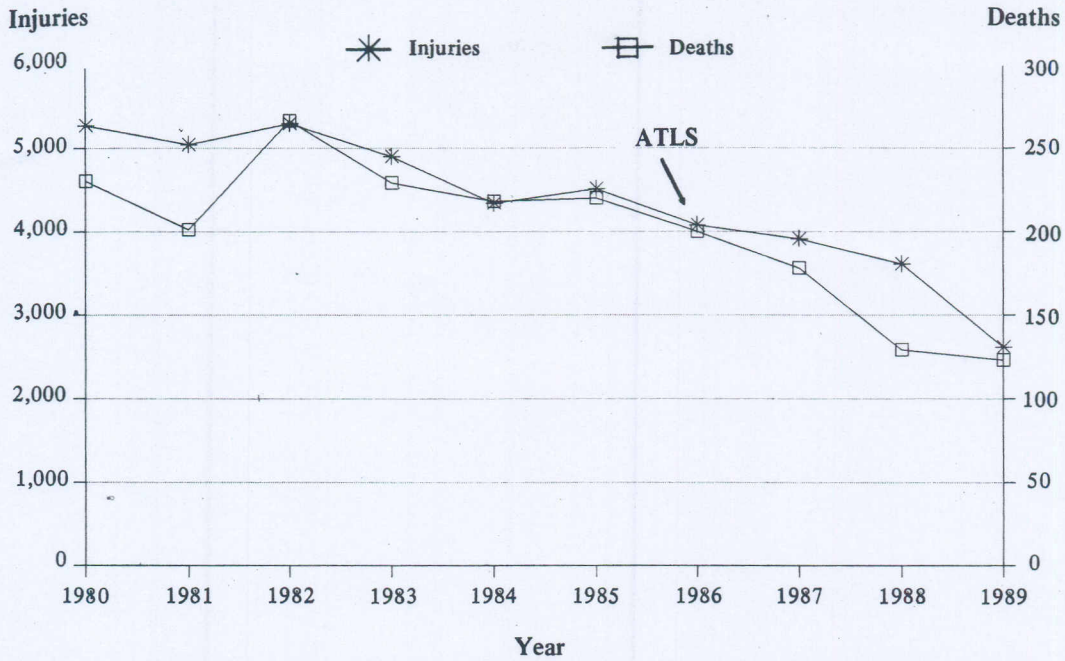


Fig. 1. Injuries and deaths by year

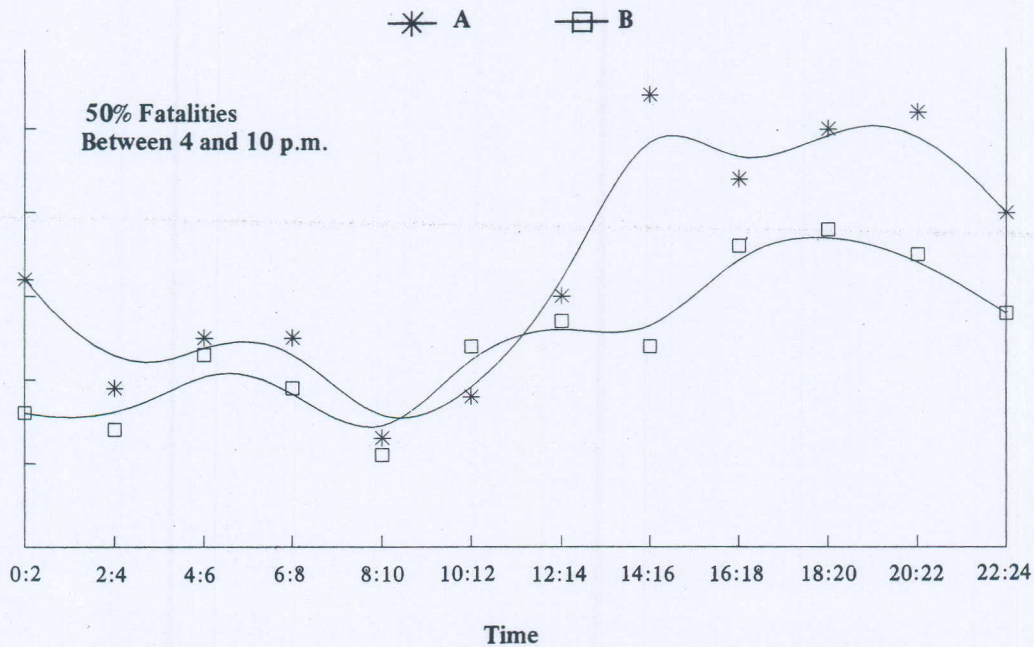


Fig. 2. Fatalities by time of day



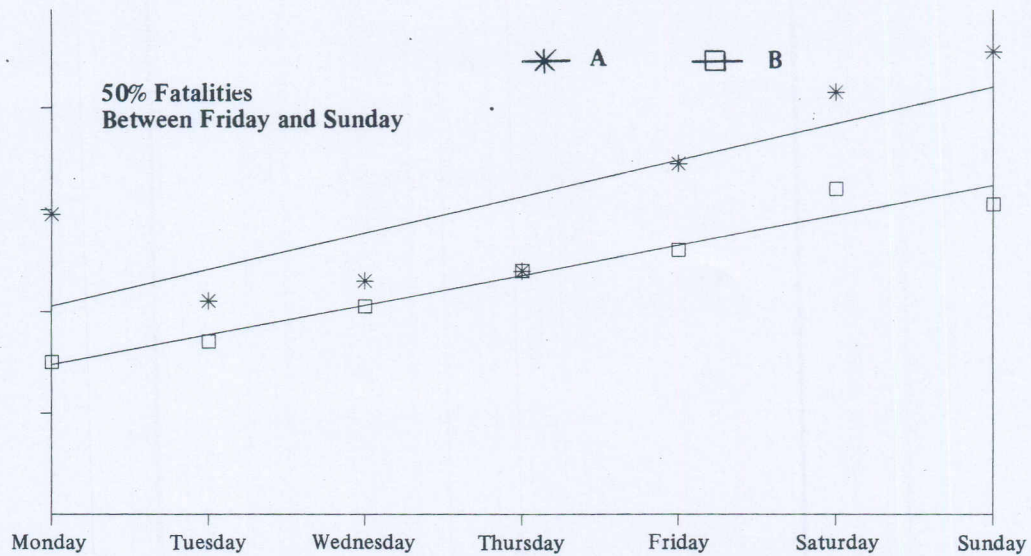


Fig. 3. Deaths according to day of week

The temporal pattern of deaths (time of day, day of week) is similar in both pre- and post-ATLS periods (Figs. 2 & 3), as is the percentage of deaths within 6 hours of accident (49% and 47%). There is no significant difference in injury to death ratios between periods A and B: 21.5 vs 21.2.

#### DISCUSSION

Although there has been a decrease in the number of road deaths in the post-ATLS period, the decline was noted during the years preceding the ATLS Course (Fig. 1). The injury to death ratio of 21.2 after the ATLS Course is worse than that reported for the decade 1970-1979 (24.9) (Ali and Naraynsingh, 1987) and similar to that for the 3 years pre-ATLS (21.5). This is in stark contrast to the ratio of 62.5 reported from Canada (Ali and Naraynsingh, 1987).

In both groups (pre- and post-ATLS), approximately 50% of deaths occurred on weekends and after 4:00 p.m. Thus, most fatalities presented at a time when relatively junior, inexperienced officers were on duty. The ATLS Course is aimed at these same officers and is designated to improve the trauma care they deliver. If the course was effective, therefore, an improved injury to death ratio should have been recorded.

However, optimal management of the trauma victim originates at the site of the accident with extrication, stabilisation and rapid transport to the trauma care facility. The importance of pre-hospital care is stressed by the term "Golden Hour" during which time the provision of adequate care results in salvage of the critically injured trauma victim (ATLS Manual 1985). In Trinidad and Tobago, pre-hospital care and rapid transport are almost non-existent, resulting in critically ill trauma victims reaching hospital in a virtually unsalvageable state.

Hospital care is determined not only by the competence of staff but also by the ready availability of resources such as

blood, radiological and laboratory facilities, access to operating theatres and intensive care, drugs and rehabilitative facilities. Many of these links in the trauma care chain are weak in our situation; thus, improving staff competence in isolation (by the ATLS Course) did not result in improvement of patient survival, as illustrated by the virtually unchanged injury: death ratios.

Although medical staff have been ATLS-trained since 1986 in Trinidad and Tobago, the benefits in terms of improved patient outcome are yet to be realised.

In order to achieve this:

1. A programme to train Emergency Medical Technicians (EMTs) must be developed
2. Ambulances must be readily available with facilities to communicate with the hospital
3. In hospital investigative and therapeutic facilities must be upgraded and
4. ATLS-trained staff must be preferentially deployed to suit the peak periods of need, i.e., weekends and 4 - 10 p.m.

Until these additional factors are addressed, it is not likely that any greater number of severe trauma victims will be salvaged than in the past.

#### REFERENCES

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