THE EMERGENCY CARE

OF

ROAD CRASH VICTIMS

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SUMMARY

The thesis describes the findings of a study conducted by a research team, consisting of Dr. G. A. Ryan and the author, from the Department of Social and Preventive Medicine, Monash University, Melbourne. The aim of the study was to describe and evaluate the operation of the emergency care system in Melbourne.

The study was conducted in two distinct phases. In the first phase the research team attended the scene of 100 road crashes in a selected metropolitan area. Details of the crashes, the operation of the emergency services, and the care provided for the 310 persons involved in the crashes, were observed and recorded by the two researchers. Patients who required hospital treatment were followed to the hospital and observed until their discharge from the casualty department. In the second phase, the author observed the care provided for 328 crash victims during their treatment in the casualty department of a major Melbourne teaching hospital. This phase of the study was designed to investigate in greater detail the performance of emergency care within the casualty department.

In the thesis a systems approach is used to describe the emergency services and the care provided at the crash scene, during ambulance care, and in the hospital casualty department. Care before hospital is compared with that provided in the casualty department, using the time delays in the various treatment phases and the quality of the treatment performed as variables for evaluating performance in the emergency care system.

Deficiencies detected in the system included poor communication between ambulance and casualty staff members, the lack of an effective documentation subsystem for recording post-crash data, and defects in the provisions for patient safety and comfort during transport.
The major time delays during treatment occurred within the hospital casualty department. It was observed that the median elapsed time for ambulances to reach the crash scene after the service was notified was 12 minutes with a median delay of 25 minutes from receipt of the notification call until patients reached hospital. After arriving in hospital the median waiting time to see a doctor was 17 minutes, just eight minutes less than the total elapsed time during the ambulance call. On the average, study patients spent approximately three hours in receiving casualty treatment.

Deficiencies were found in the quality of the treatment provided in the casualty department. Major discrepancies were observed between the care provided and that expected on the basis of the normative standards for the management of road traffic casualties defined by the Royal Australasian College of Surgeons. Less than 2% of patients received care commensurate with these standards. Thirteen per cent of patients were assessed by the observers as receiving unsatisfactory casualty treatment. In contrast, the differences between the standards for ambulance care and the care actually performed were less marked, with approximately 6% of patients receiving care that was assessed as unsatisfactory.

Many of the emergency care system problems are problems of organization and management. As such, they lend themselves to operations research analysis and, in the final section of the thesis, a simulation model is used to demonstrate the applicability of these techniques to the problems under study. Data collected during the study are used as inputs for the model and the effects of two changes in casualty department operations are examined.

The study, which is the first of its kind to be conducted in Australia, contributes to knowledge by describing and documenting the
operation of the emergency care system and demonstrating the contributions of the separate emergency services to the overall system performance. The major conclusion drawn is that important deficiencies in the emergency care system occur during care within hospital casualty departments. It is recommended that planners of emergency services should consider care within the casualty department when planning changes in the existing system.