

Date : April 14, 1980

Title : APPRAISAL OF PEDIATRIC CARDIOPULMONARY RESUSCITATION

Authors : Peter G. Duncan, M.D., and Robert Friesen, M.D.

Affiliation: Department of Anesthesia, University of Manitoba, Health Sciences Centre, 700 William Avenue, Winnipeg, Manitoba, R3E 0Z3

**Introduction.** There is currently much emphasis on cardiopulmonary resuscitative techniques by both medical and lay personnel. Much importance has been placed on the pre-hospital phase and basic life support measures; however reported series are largely confined to adult populations. We report the results of resuscitative measures in children when applied to a population group rather than for a selected medical disease entity or in a specific medical facility.

**Methods.** All patients more than thirty days and less than sixteen years of age suffering an unexpected cardiac arrest in the Province of Manitoba (population approx. one million) between July, 1977 and December, 1978 were included in the study. Details of the resuscitation were recorded by the admitting hospital at the time of arrest. Charts and data were then reviewed as a group upon completion of the study. Both urban and rural hospitals were included, as were both in and out of hospital arrests. The study thus appraised the resuscitative efforts of all levels of health care delivery.

**Results.** A total of sixty-six patients were identified. There were no hypothermic drownings and only one drug overdose (tricyclic anti-depressants) during this study period. Overall intact survival to discharge was 9.1% (six patients). Respiratory disease accounted for 29% of arrests but also had the most favorable survival (21%). There were no survivors in those patients whose cardiopulmonary arrest was secondary to sepsis or trauma even though initial resuscitation may have been successful. Only one of forty-four patients arresting outside of hospital survived and only one patient who presented with asystole survived although the latter with profound CNS damage. Survivors had a significantly shorter period between time of arrest and application of basic life support (2.3 vs 6 minutes) and had rhythms other than asystole. Technical difficulty with the establishment of intravenous routes and a secure airway are recognized. Aggressive post-arrest supportive manoeuvres did not appear to influence survival.

**Discussion.** This study presents the results of pediatric cardiopulmonary resuscitation and suggests a survival which is no better than that of an adult population. Early recognition and monitoring of those children at risk, earlier application of basic and advanced life support, improved education of medical and lay personnel, and further research into pediatric resuscitative

techniques may be helpful in future improvement to these sobering results.

#### References.

1. Tweed, WA, Bristow G, Donen, N: Resuscitation from cardiac arrest: Assessment of a system providing only basic life support outside of hospital. Can Med Assoc J 122:297, 1980