Principal Investigator (last, first, middle initial)_____GAGNE, Janik_____

ABSTRACT

Give a brief summary of the research proposal. Include specific aims, research hypothesis, background and significance, experimental design and methodology, and data analysis. Must fit within abstract box (4½ x 7½).

The Province of Quebec, Canada, covers a huge territory of more than 1.5 million square kilometers with a population of 7.5 million and is served by ground ambulances for all distances shorter than 250 km and by a governmental fixed wing aircraft for distances greater than 250 Km. Currently the system does not offer a helicopter service, although there are discussions to implement such a service. A fully integrated regionalized trauma system of 59 designated trauma centers (i.e. 4 level 1, 2 pediatric, 24 level 2, and 29 level 3 centers) exists and each one complies with a standardized trauma registry. The objective of this research is to evaluate the effect of the availability of inter-hospital transportation type (ground vs air) on 1) the decision to transfer trauma patients from a level 2 or 3 trauma center to a level 1 trauma center and 2) on trauma mortality, hospital length of stay and the occurrence of in-hospital complications. With a retrospective cohort study (but data acquired prospectively), the project will use the Quebec trauma registry, with over 20,000 patients meeting the study criteria, of which 6,000 were transferred to a level 1 trauma center. For analysis, the variable "distance" will be treated as categorical reflecting the various zones for optimal transport time of ground, helicopter and fixed wing ambulance. The analysis will compare patients initially transported to hospitals located 0-75 km, 75-250 km and >250 km from the closest level 1 trauma center. The three groups will be compared in terms of percentage of transfers and outcomes. Multivariate analysis will adjust for the variation in baseline risk factors among compared groups (severity, age, co-morbidity...) This project offers an original approach by a) studying the effect of a fixed wing aircraft on a trauma population, b) evaluating the effect of transport mode on the medical decision to transfer trauma patients and c) performing adjustment for baseline risk factors. To our knowledge, no study has tackled this question before. Finally, this project will simulate the potential effects of introducing a helicopter service in the 75-250 km zone, in a setting with an efficient, fully integrated and regionalized trauma system. As the Quebec government is currently contemplating such an implementation, this study may offer a unique opportunity to serve as the basis for a potential before-after study.