

## **NCHRP Synthesis on Statistical Methods in Highway Safety Analysis**

Bhagwant N. Persaud, Ph.D., P.Eng  
Professor  
Department of Civil Engineering, Ryerson University  
350 Victoria Street, Toronto  
Toronto, Canada M5B 2K3

**E-Mail:** [bpersaud@ryerson.ca](mailto:bpersaud@ryerson.ca)

**Phone:** (416) 979-5000

**FAX:** 416-979-5122

### **Biography:**

Professor, Department of Civil Engineering, Ryerson University, Toronto, Canada. 20 years research and applied experience is the development and application of methodology for highway safety analysis Ph.D. from University of Toronto

### **Abstract:**

The purpose of this synthesis is to summarize the current practice and research on statistical methods in highway safety analysis. The focus is on highway engineering functions such as establishing relationships between accidents and associated factors, identifying locations for treatment, and evaluating the safety effect of engineering improvements. Through a survey of state DOTs and a literature review, the synthesis attempts to identify gaps between available knowledge and practice and to provide insights into bridging these gaps. Although gaps were evident, it is particularly encouraging that most jurisdictions recognize the peculiarities of highway safety data and the need for special analytical methods to accommodate these. These peculiarities relate to the quality and quantity of accident and traffic volume data, random fluctuation in accident data, the regression-to-the-mean phenomenon and accident reporting differences across time and space. Despite these positive aspects, much remains to be done to improve the state of practice. This requires the availability of reliable data and a commitment to provide safety analysts with the knowledge and resources to use the best available methods. It is expected that this synthesis in itself will go a long way towards providing jurisdictions with a feel for what is required to meet these challenges.