In this paper, we introduce a novel method for network screening and simple crash prediction models. The approach involves analyzing network screening results based on multivariate and simple crash prediction models. The methodology involves identifying hazardous road locations using network screening and employing multivariate and simple crash prediction models to assess the risk of crashes.

**Introduction**

Identification of hazardous road locations for network screening is a critical step in road network safety management. This process involves the use of various methods to identify locations requiring potential safety improvements. The key steps in this process include:

1. **Identification of Hazardous Locations**: Using network screening to identify locations with a higher risk of crashes.
2. **Multivariate and Simple Crash Prediction Models**: Developing models to predict crash frequencies and severities at these locations.
3. **Evaluation of Models**: Comparing the performance of multivariate and simple models to determine their effectiveness in predicting crashes.

**Data and Modeling**

**Segmentation**
- Most road sections divide into homogeneous segments with respect to 9 variables:
  - Change in any of these variables at the end of a segment and beginning of another (E).
- The distance between segment lengths within one segment is considered.
- Typical paper: a total of 160 nearest road accidents.

**Results of Segmentation**
- 5%: 320 accidents
- 75%: 250 accidents
- 75%: 150 accidents
- Total: 704 segments

**Variables**
- Variables of safety-related features were assigned to segments.

**Modeling**
- The main approach is to develop models for network screening.
- Two primary crash models were developed:
  - Multivariate model and safety index (ADT) models.
  - Simple models.

**Conclusion**

In conclusion, the developed models showed promising results. The multivariate model proved effective in predicting crash frequencies, while the simple models provided a quick and easy alternative. Further research could focus on improving these models and applying them to different regions and road types.