International Bicycle Fund

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OUTLINE ON ACCIDENT DATA:
Practical Applications to Education, Engineering & Enforcement

A.   Selecting The Desired Accidents Study Methodology. There are a variety of different types of accident studies. The nature of the study will determine the characteristics and the possible applications of the results.

      1.   Typology studies - Indicates patterns of how accidents occur.
      2.   Injury studies - Indicates patterns what happens during incident.
      3.   Location studies - Indicates patterns of where accidents occur.
      4.   Demographic studies - Indicates patterns of who is involved in accidents.

B.   Conducting a Study

      1.   The accident data and the definition of accident will significantly alter the characteristics of the findings. The source of the data base determines the bias of the data. Each source has it own characteristic short-comings. It is extremely difficult to get a full picture of bicycle accidents and injuries.

            Sources:
            a.   Police - Tends to be restricted to accidents involving motor-vehicle in urban or suburban area.
            b.   State Patrol - Tends to be restricted to accidents involving motor-vehicle for jurisdictions statewide.
            c.   Hospital Emergency Rooms - Tend to be restricted to serious accidents require medical attention, but not restricted to those involving motor-vehicles.
            d.   Emergency Medical Services - Tend to be restricted to accidents with possible emergency medical intervention.
            e.   Doc-in-Box and physicians - Reports everything to scraped knee, but hard to collect and to get sufficiently detailed information from which to determine full typology.
            f.   Bicycle club members - Selected portion of bicyclists.
            g.   National Accident Sampling System - Does not reflected regional variations.

2. Constructing surveys. The designing a good questionnaire is difficult. It needs to be clear and comprehensive so that responses are comparable. Wording need to be specific and unbiased.

C. Accident Statistics

1. Computer programs. Electronic data storage can make your data base more productive. There are a variety of different ways to use computers.

   a. Programming for accident statistics

2. Putting results in perspective. The meaningfulness of accident statistics is derived from the rate of incidence. Determining a meaningful rate is difficult because the are few good numbers on level of participation.

   a. Accidents / population
   b. Accidents / numbers of trips
   c. Accidents / distance traveled
   d. Accidents / time spent in activity
   e. Accidents / level of experience

D. Applications of Accident information

1. Second generation effect - children of bicyclists (Vehicle accident rates typically fall as successive generations learn the operation of the vehicle from their parents. Once children begin to learn effective cycling techniques from their parents accident rates should fall.

2. Education - Accident analysis identifies common cyclist's errors that lead to incidence. Education programs can be designed to target these to reduce occurrence of accidents or severity of injuries.

   a. Schools - Captive audience, but competing priorities
   b. PTA - The few active volunteers seem to be over committed
   c. Youth organizations: scouting, YMCA, boys & girls clubs - Very decentralized, understaffed with limited training.
   d. Community - Need to develop awareness and then commitment.
   e. Helmet promotion program - Must get information to a buying adult.

3. Engineering - Accident analysis can identifies engineering errors that lead to incidence. Spot improvement programs in departments in charge of public works can target these.

   a. city engineering
   b. county engineering
   c. state department of transportation

        d.   parks department

4.   Enforcement and reinforcement - School accident and injury reduction programs are strengthened by enforcement and reinforcement by police officers and parents. There are several examples of programs which do this.

        a.   Police
            i.   issuing citations on street
            ii.   rodeo/safety and skills course
        b.   Parents
            i.   PTA
            ii.   Civic organizations

5.   Safety Awareness programs - Accidents can be reduced by developing programs targeted at raising the level of safety awareness of the whole community, i.e. share the roads campaigns, etc. Because this is a very passive program the relevance of the location of the message is critical (i.e. bus signs, billboards, bumper stickers, etc.)