Road Traffic Crash Data Availability

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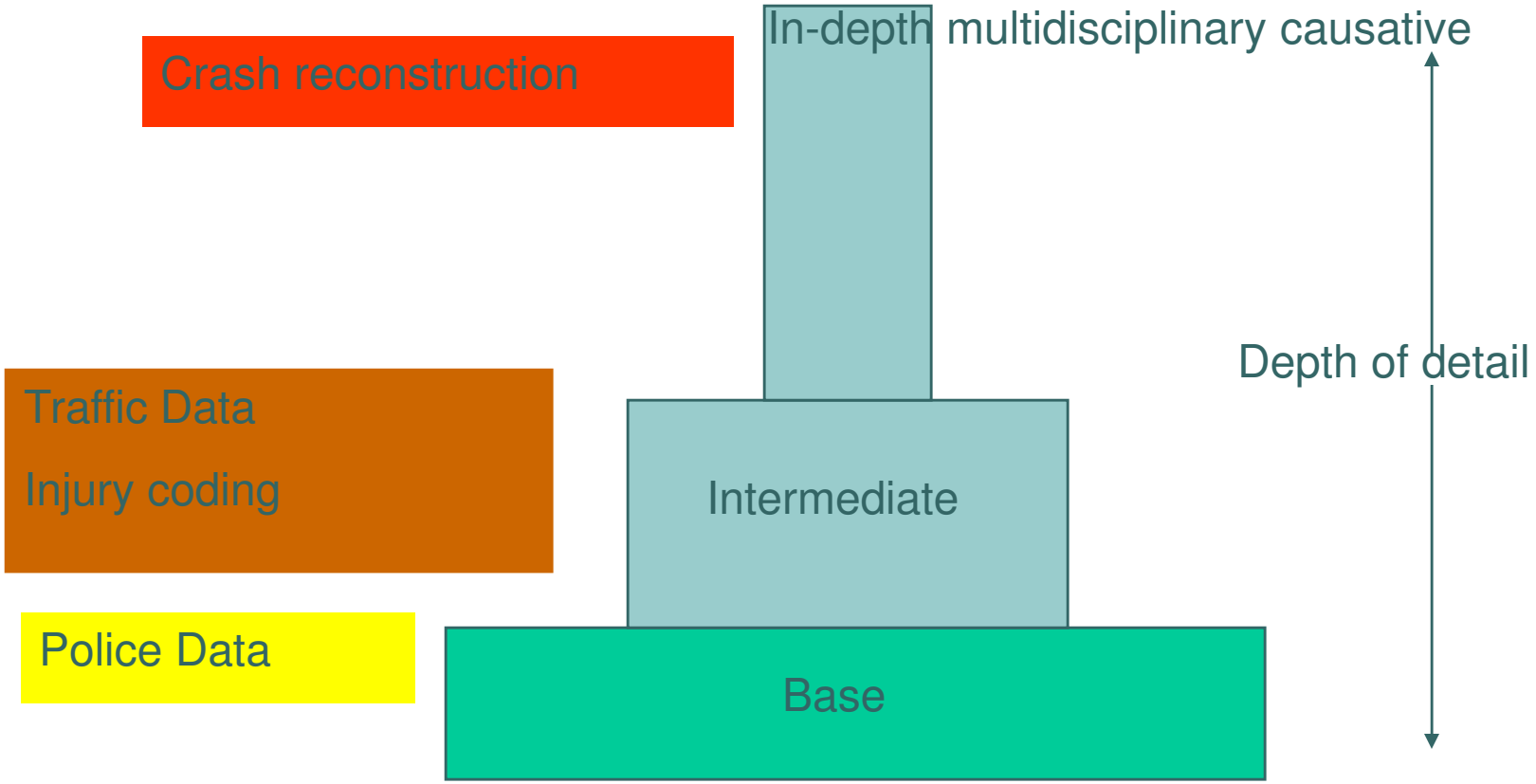
Levels of data collection



PRIMARY LEVEL DATA

- The analyses of primary level data is expected to accomplish the following important functions:
  - 1. To give perspective view of the RTC situation in terms of who is involved (the type of road user) where (Urban or rural area, road layout), when (day or night) and under what circumstances.
  - 2. To enable trends to be examined, and provide a basis for comparison against which road safety workers may match their performance, either within or between state or national administrations.
- To provide a basis for establishing priorities for action.

- For the primary level data to be meaningful other important issues are:

- 1. How to improve the reliability and consistency of reporting the data elements, and

- 2. Integrating it with reliable exposure data for distance traveled in different modes of transport to examine trends.

Establishment of a quality data base at the primary level requires improving the quality of police recording system.

- It is a complex task because
- (1) The data base maintained by the police -- the primary level data -- is expected to accomplish multiple objectives, ranging from providing epidemiological information to documenting the baseline information upon which the evaluation of countermeasures can be judged, and
- (2) in countries like India, the police or the traffic police, if it exists as a separate entity, does not have the resources or the level of training required to carry out a systematic collection of data as it is done in many high income countries.

Bangalore example of MAAP TRRL, 1993-94

- Data from case files to coding sheets, not at the site
- New coding sheets to save paper, not the original form
- Data entered in the computer, variable definitions?

Road Accident Recording Form

Form No: | | | | | | | | | |

Filled by: _____ Date filled: _____

Police report available: **Yes/ No** | | **If yes, FIR No.** _____

1. **Time of accident:** | | | **(24hr)** **2. Date** | | **(DD)** | | **(MM)** | | **(YY)**

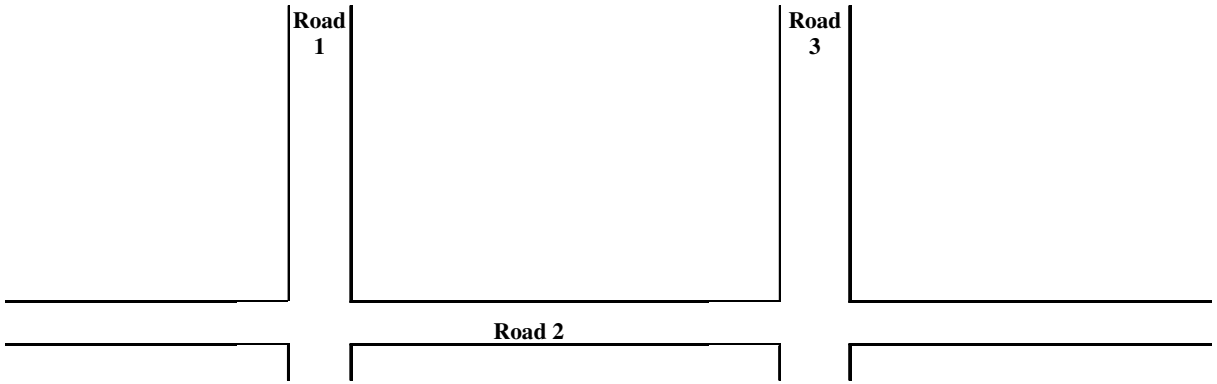
3. **Day:** | | **4. Holiday:** | | **5. Hit & Run:** | | **6. Accident severity:** | |

7. **Number of fatalities:** | | **8. No. injured:** | | **9. Number vehicles:** | |

10. **Collision type:** | | **11. Collision spot:** | | **12. Type of road:** | |

13. **Divider:** | | **14. Location:** | | **15. City/Town/Village name:** _____

16. **RoadCategory** | | **17. Distance** | | | **Km** | | **m** **18. From** _____



19. **Name Road 1:** _____ **20. Name Road 2:** _____

21. **Name Road 3:** _____ **22. Landmark:** _____

Brief description of accident:

Form No.

/ehicle 1:

23. Type: | 24. Manoeuvre: | 25. Loading: | 26.Disposition

27. Mechanical Failure | 28. Impact- Vehicle/Object

29. Make/Model

/ehicle 2:

30. Type: | 31. Manoeuvre: | 32. Loading: | 33.Disposition

34. Mechanical Failure | 35. Impact- Vehicle/Object

36. Make/Model

/ehicle 3:

37. Type: | 38. Manoeuvre: | 39. Loading: | 40.Disposition

41. Mechanical Failure | 42. Impact- Vehicle/Object

43. Make/Model:

/ictim 1:

44. Type: | 45. Occupant veh. | 46.Road user: | 47. Age:

48. Sex: | 49. Injury: | 50. Pedestrian/vehicle impact

njury details

51. Mode of treatment | 52. Days in Hospital

53. Injury 1							54. Injury 1 severity	
55. Injury 2							56. Injury 2 severity	
57. Injury 3							58. Injury 3 severity	
59. Injury 4							60. Injury 4 severity	
61. Injury 5							62. Injury 5 severity	
63. Injury 6							64. Injury 6 severity	

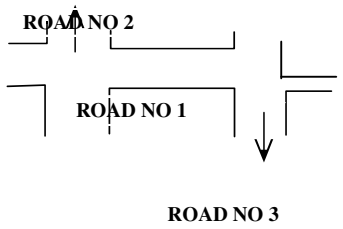
65. Most Severe Injury | 66. ISS

CODING INSTRUCTIONS FOR ROAD ACCIDENT STUDY

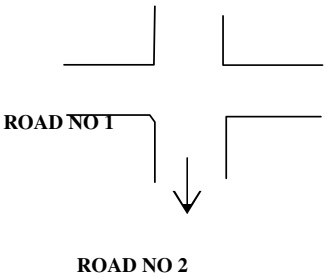
1. Form No _ _ _ _ _ _ _ _ _ _

Case Number in serial order
City / Village/ Location No.
Thana No.

Accident on a straight road



Accident at a crossing



For Items 19-21 use codes
as above. Road 3 is not necessary for accidents at crossings

Police report available: 0=No, 1=Yes

3. Day: Monday =1, Tuesday=2, Wednesday=3, Thursday=4,Friday=5, Saturday=6, Sunday=7, Unknown=9.

4. Holiday:0 = No, 1 = Yes, 9=Unknown

5. Hit & Run: 1 = Yes; 0 = No, 9=Unknown

6. Accident severity: 1=Damage Only(DO), 2= Injury, 3=Fatal, 9= Unknown

**10. CollisionType: ***1 = Hit pedestrian 2 = Vehicles head on 3 = Vehicle hit from back 4 = Vehicle hit from side 5 = Overtun
6 = Vehicle hit fixed object 7 = Run off the road 8= Others 9 = Unknown

11. Collision spot: 1 = On straight road 2 = Road junction 3 = Other 9 = Unknown

12. Type of Road: Type of Surface. 0= Unmetalled 1=Metalled (Black topped/Concrete), 2=Others, 9=Unknown

*In case of more than one type reported in a series of events, the first collision/event will be considered.

13. Divider: Whether divider was present on the road? 0=No, 1=Yes, 9= Unknown

14. Location: 1=Urban, 2=Rural, 3=Semi-Urban, 4=Other, 9=Unknown

16. Road Category: ty/Rural road, 2= State Highway, 3= National Highway, 4= Other, 9= Unknown (no other road categories except NH and SH are given as they 1=Ci are the only ones who are appropriately marked on the milepost. For other roads their categories may not be obvious during data collection at the field.

17. Distance: Km post. In the absence of Km post - from the nearest urban centre.

VEHICLE

23. Road User Type: (V1, V2 etc.) 1 = Multi-Axle Heavy Goods vehicle 2 = 2-Axle Heavy Goods vehicle 3=Light Goods Vehicle 4 =Bus 5 = Car/van/jeep/taxi 6 = Three wheeler scooter rickshaw 7 = Motorcycle/scooter/moped 8 = Tractor 9 = Cycle rickshaw 10 = Thela 11 = Animal drawn vehicle 12=Bicycle 13= Pedestrian 14 = Other 99 = Unknown

24. Manoeuver of vehicle crash time: 1 = Proceeding straight 2 = Turning 3 = Reversing 4 = Overtaking 5=Parked/Stopped 6 = Other 9 = Unknown

25. Loading: 1=Normal; 2= Overloaded; 3= Others; 9= Unknown

26. Disposition of vehicle: 0=Not Roadworthy (needs to be towed away); 1= Roadworthy (can drive away), 9 = Unknown

27. Mechanical Failure: 1=Yes; 0=No; 9= Unknown

28. **Impact-Vehicle/Object**: Vehicle number (If another vehicle impacted this vehicle, enter the appropriate number of that vehicle from section 23) 11=Pedestrian 12=Tree, 13=Kerb/Median; 14= Pole; 15= Other; 99=Unknown

VICTIM

44. Type: 1= Passenger, 2= Driver, 3= Pedestrian, 9= Unknown

45. Occupant Vehicle: Which of the above vehicles (vehicle1/2/3 etc.)? OR Pedestrian =0

46. Road User: Occupant code of Vehicle type/Pedestrian from code 23.

48. Sex : 1 = Male 2 = Female

49. Injury : 0 = No injury 1= Injured 2 = Fatal 9 = Unknown

50. Pedestrian/Vehicle Impact: Enter Vehicle number OR 11= Flying Object, 12= Fall, 13=Others, 99= Unknown

INJURY

51. Mode of Treatment: None 0 First Aid only 1 Discharged after casualty ward treatment 2 Admitted to the hospital 3 Other 8 Unknown 9

52. Number of Days in Hospital: Days, Unknown- 999

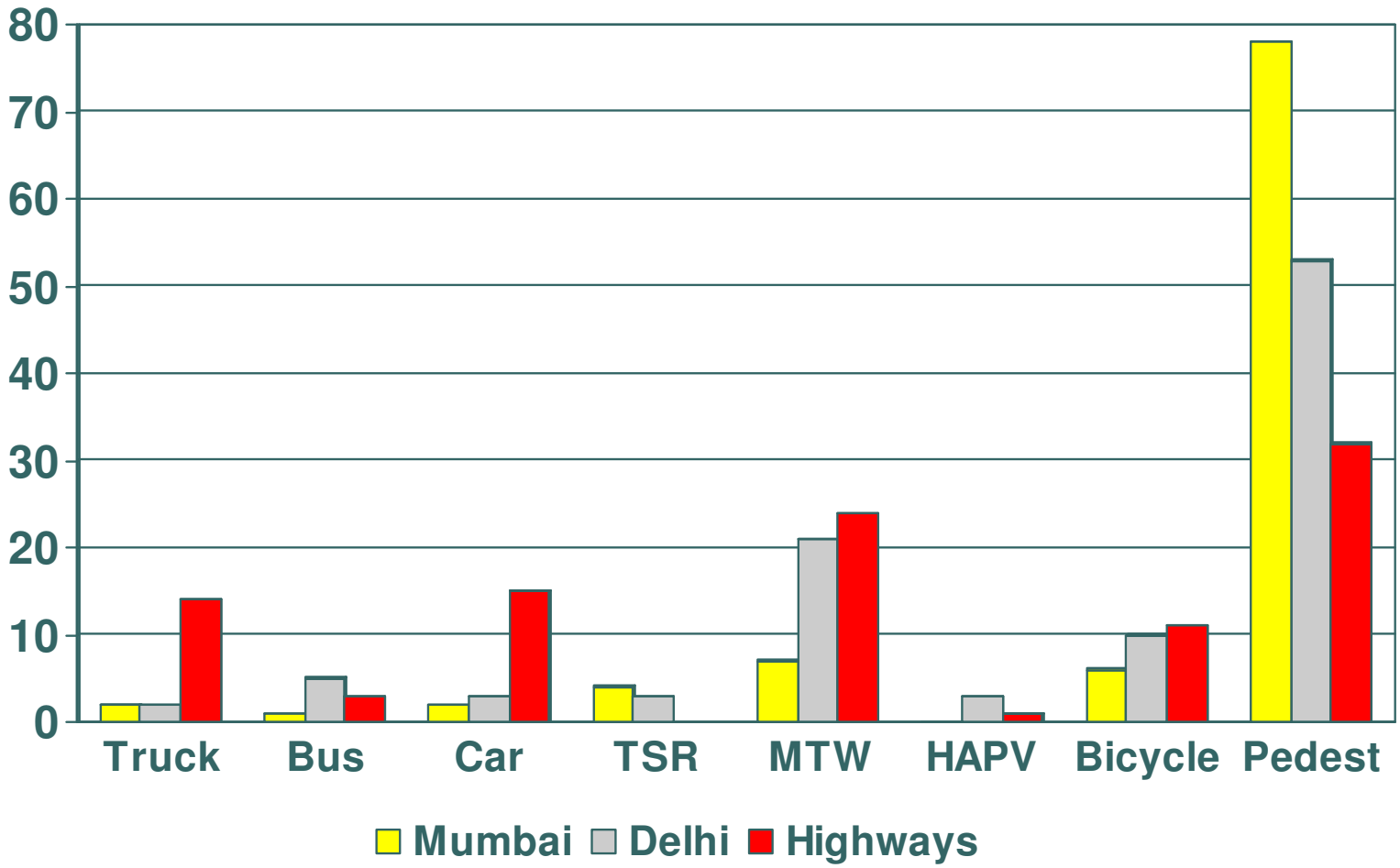
53. Injury: From AIS code

54. Injury Severity: -do-

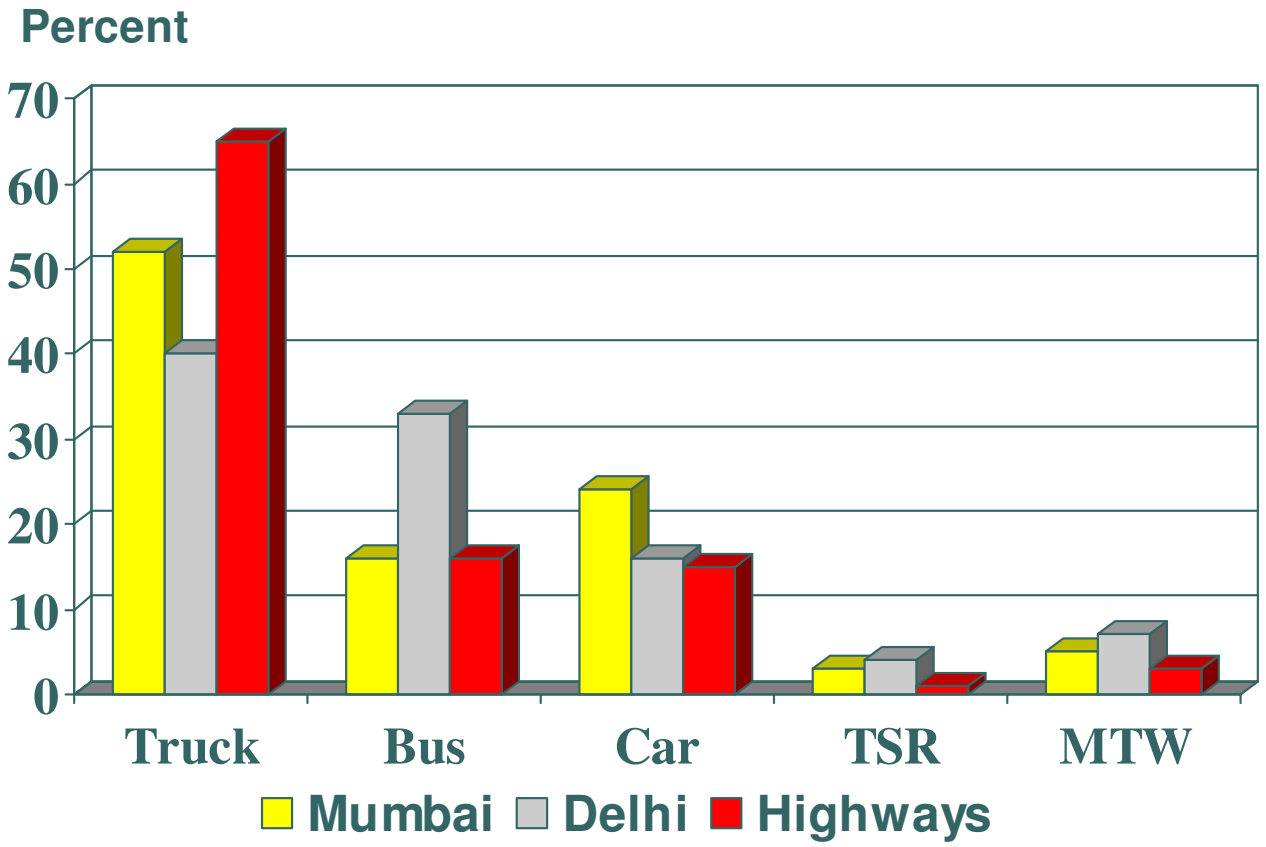
65. Most Severe Injury: -do-

66. ISS: -do-

Proportion of road users killed at different locations in India, percent



Proportions of vehicles involved in fatal crashes



Only those cases included where details were known

CONCLUSION:

- Creation of a quality data base requires much more than introducing a standardized format and a computer package.
- It needs the resolution of the conflicts between recording of information, which is easily available, and that information which would be useful for designing preventive measures.
- It is important and difficult at the same time to design a form, which is clearly understood by those filling the forms.
- Terminology used must be understood by all individuals and agencies involved.

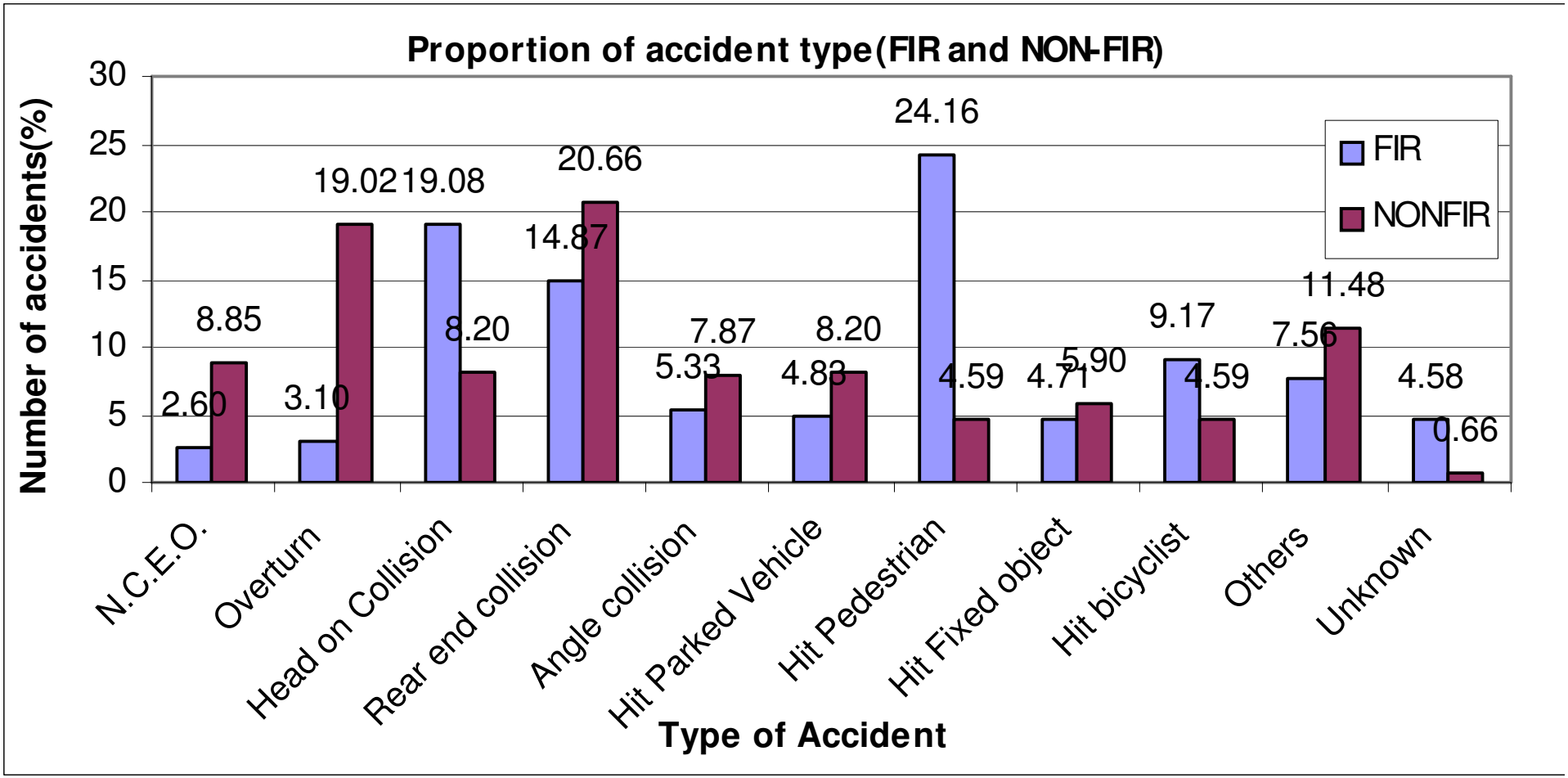
- Only those variables should be included which suit local conditions. This can be accomplished by modifying the standardized form to meet the local needs:

  - training must be introduced at the training schools: there must be greater interaction between police officials and researchers and policy makers who use and analyses the recorded data.

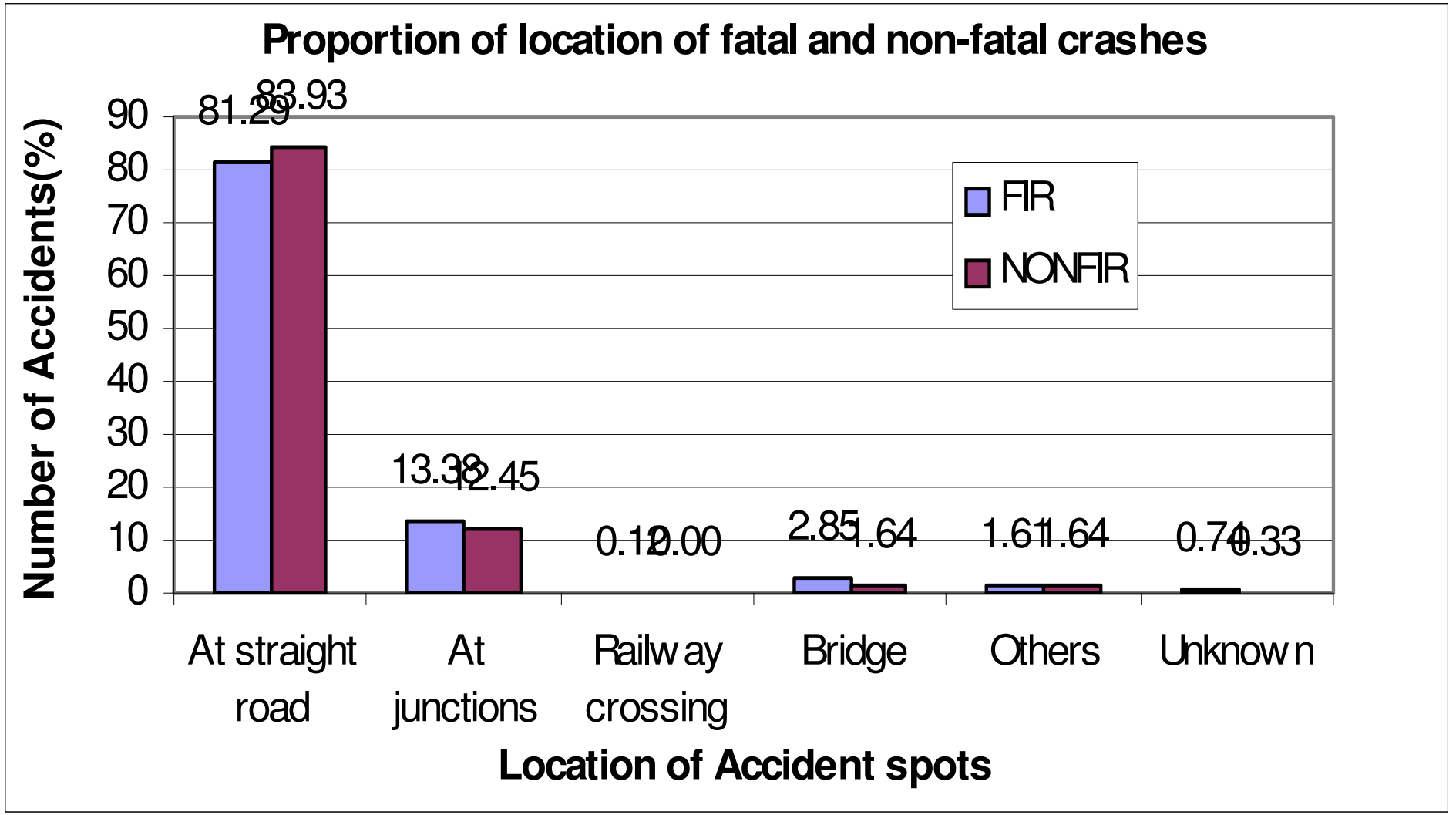
FIR vs NFIR RTC Recording

- FIR (First Information Report): Accident data is collected for a period of one year from the Police Stations at each of these sites.
- NON-FIR: Accident data was collected by specially trained informers for a period of 3 months along the selected 50 km section of the highway. The informers were instructed to travel over the section everyday and collect information on accidents occurring on that stretch in a predesigned format.

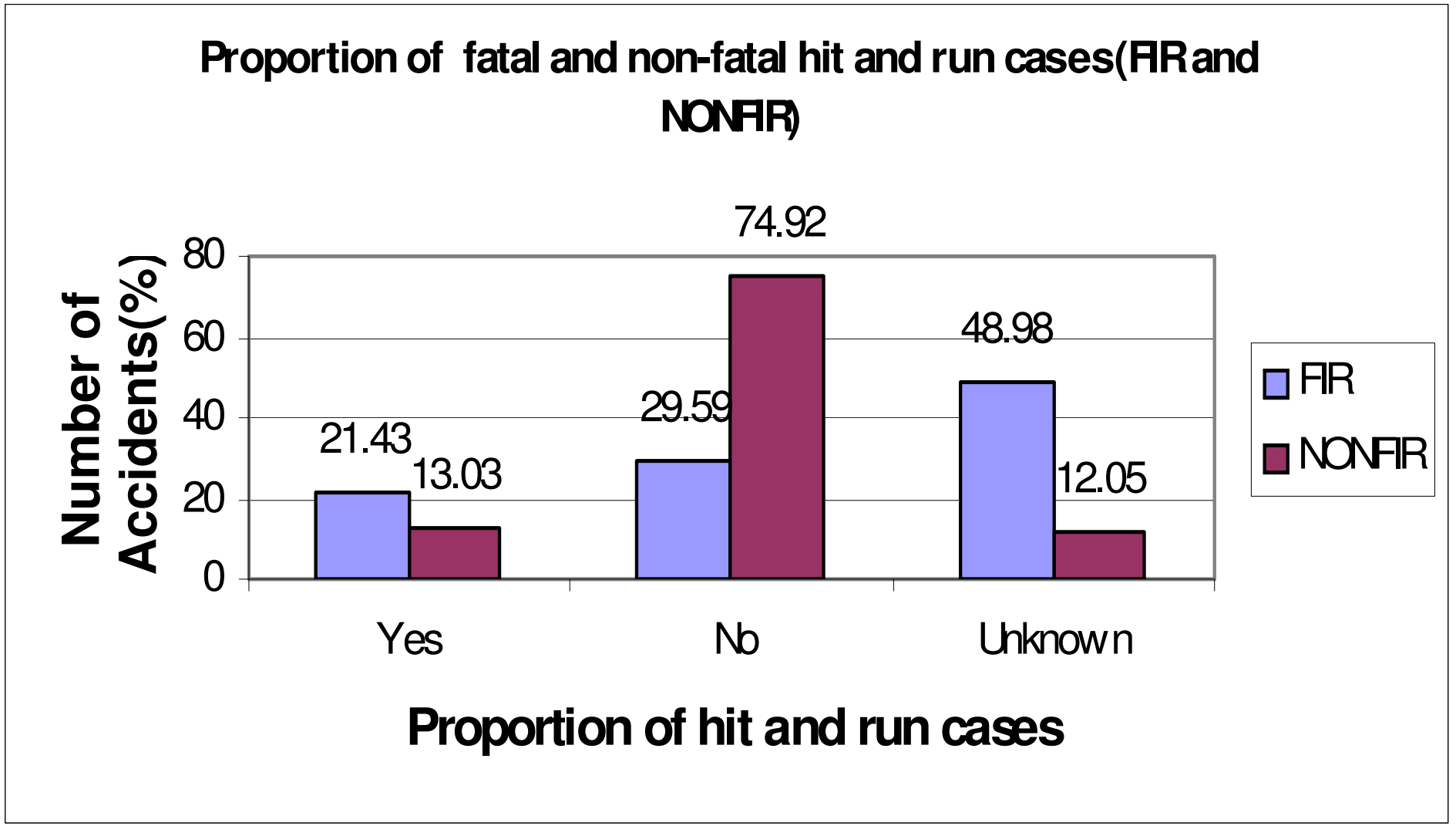
FIR: 25% pedestrian RTC
NFIR: 20% overturn, 20% rearend



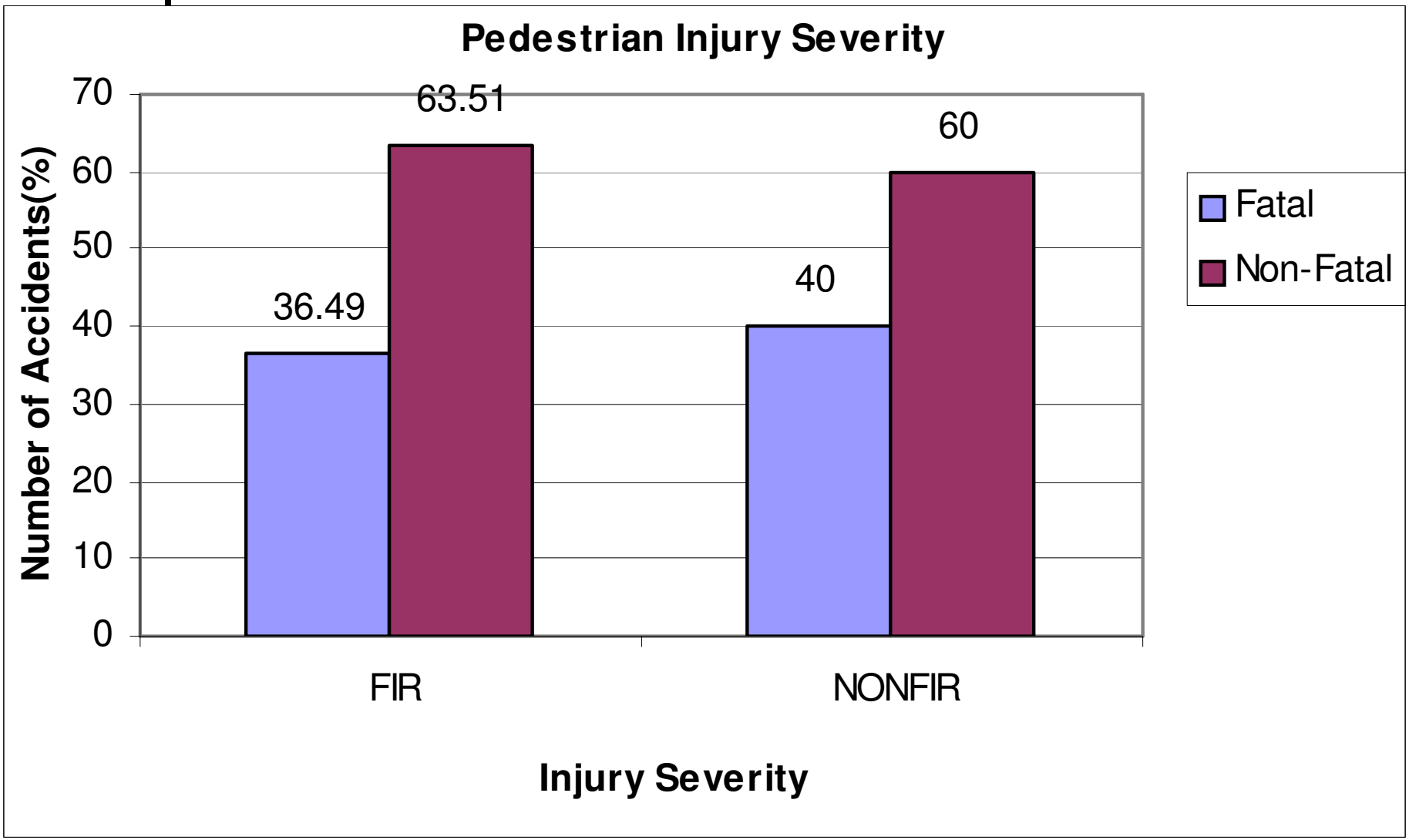
RTC location



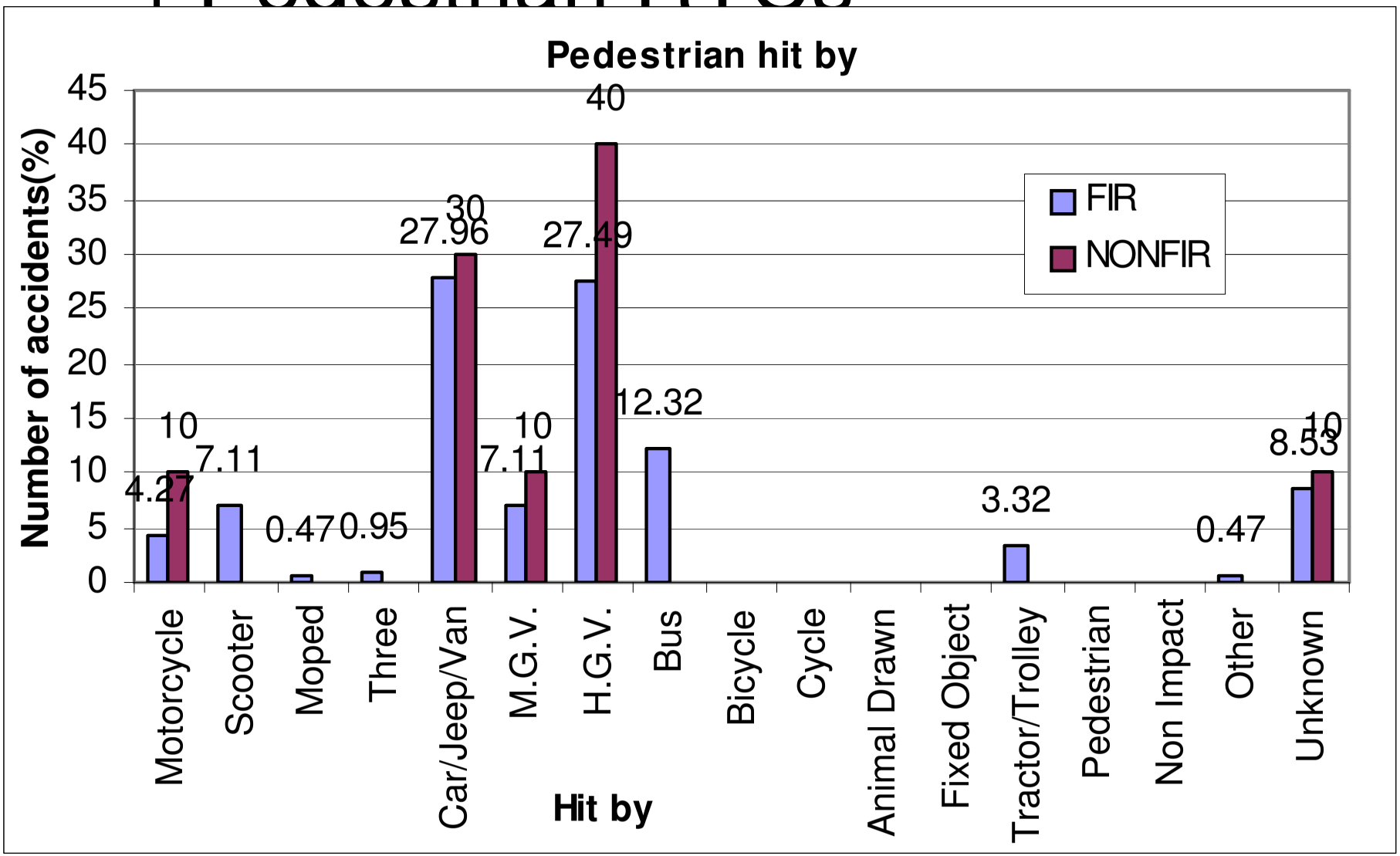
Unknown RTC ~50%



Similar injury severity in FIR vs NFIR



Impacting vehicle in Pedestrian RTCs



FIR vs NFIR

- The data available from the police records misses out minor injury and single vehicle accidents.
- The data collected by the informer missed out many fatal accidents involving pedestrians and bicyclists. vehicles involved in these cases are able to drive away, As such there is no evidence left behind and the informer may miss the case when he travels on the stretch of the highway after a day.
- The informer recorded details of the crashes involving damaged or overturned trucks on the side of the highway, as they were available for inspection and questioning. It is interesting that a majority of these crashes did not result in fatalities to the truck occupants.

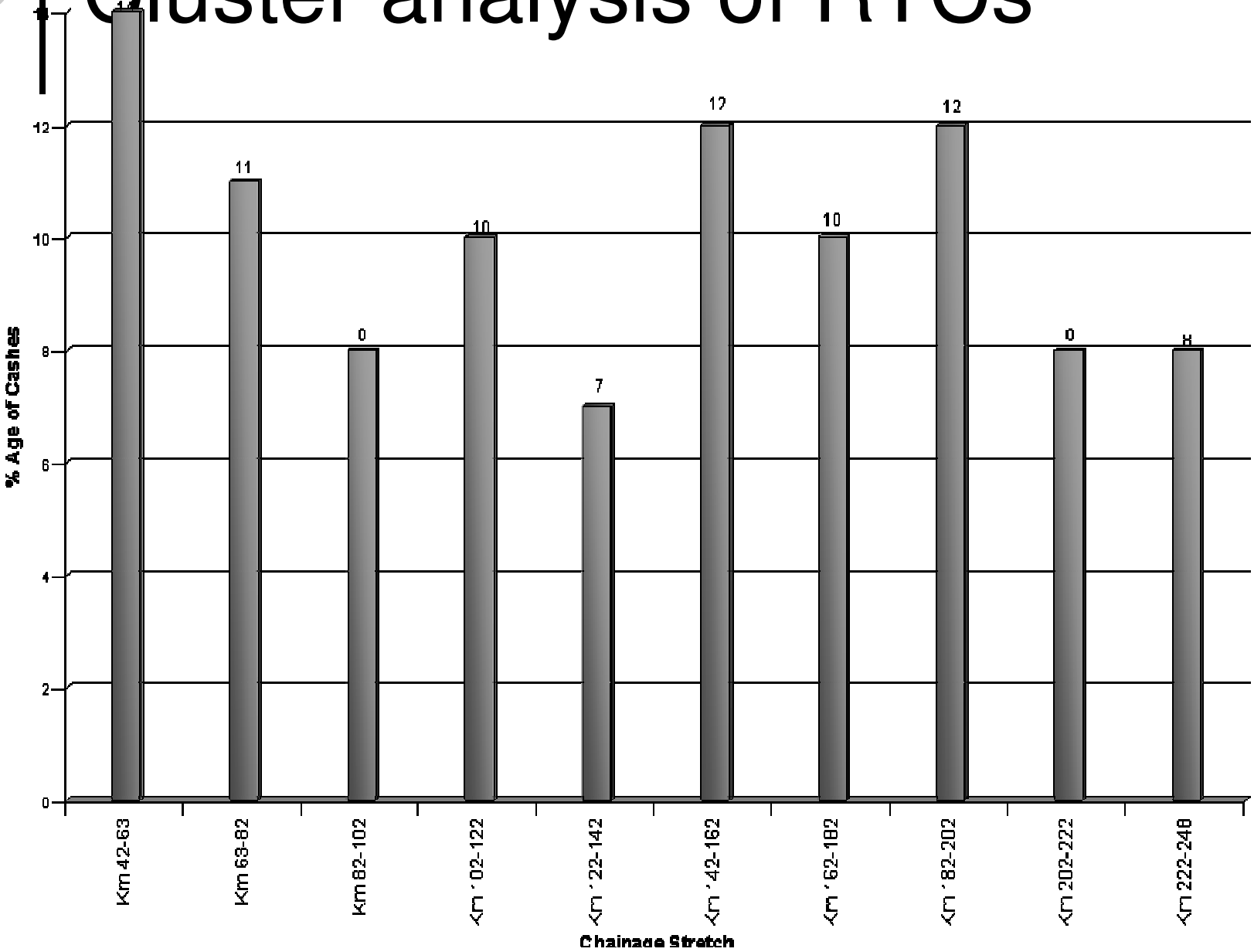
Conclusion

- perceptions about highway accidents formed by highway users may not reflect the reality about the problem. All of us see damaged vehicles stranded on the highways and are convinced that these kinds of accidents constitute the main problem.
- However, findings suggest that though these accidents do cause large economic, time, and efficiency losses, they do not result in a majority of the deaths

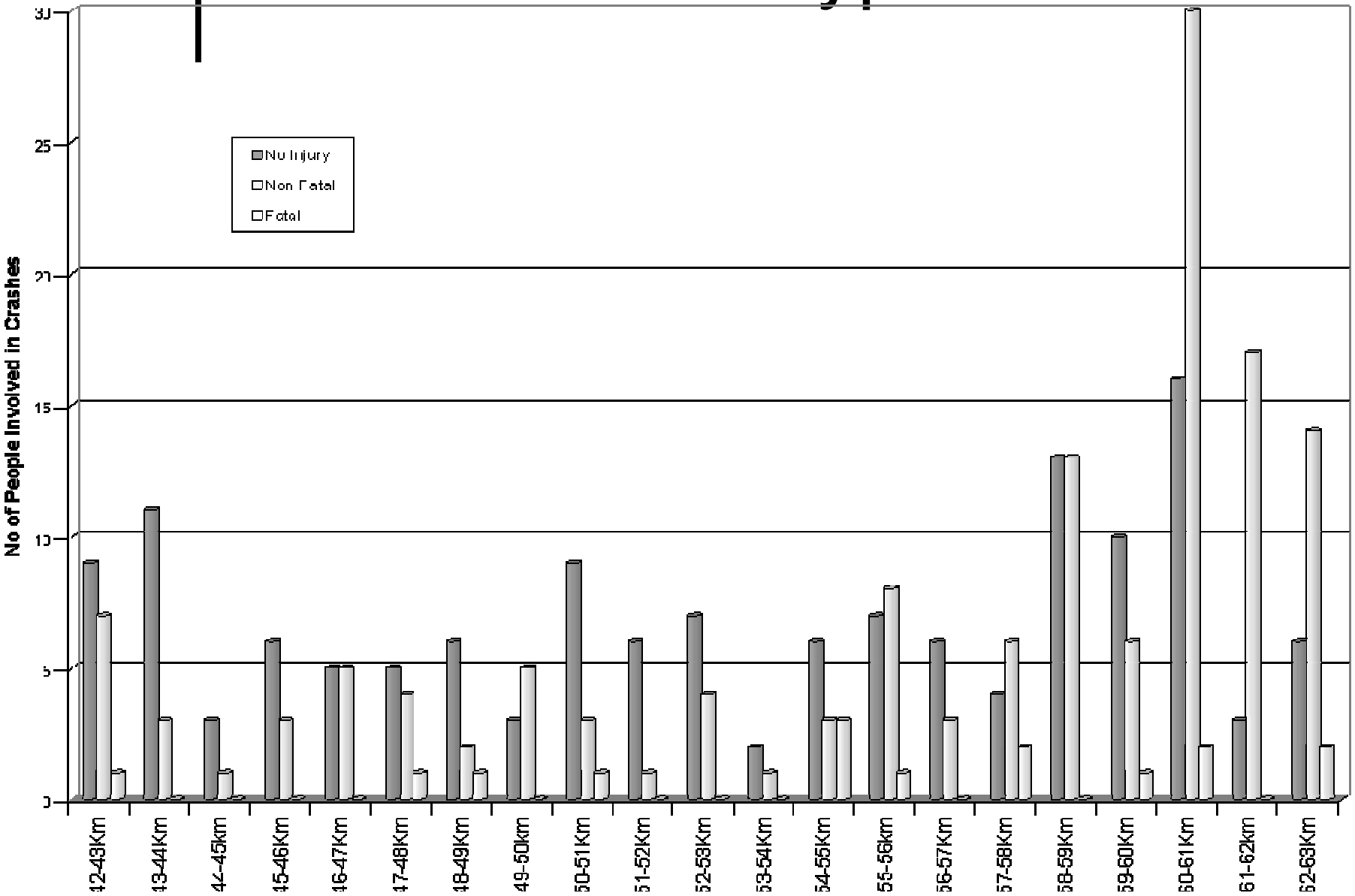
RTC data by O&M agencies

- Monthly report data obtained from O&M agency on NH-8 (october2002-2004),
- type of vehicle, date, time, location(km), number of victim, type of crash, visibility, property damage, injury and fatality type with photographs

Cluster analysis of RTCs



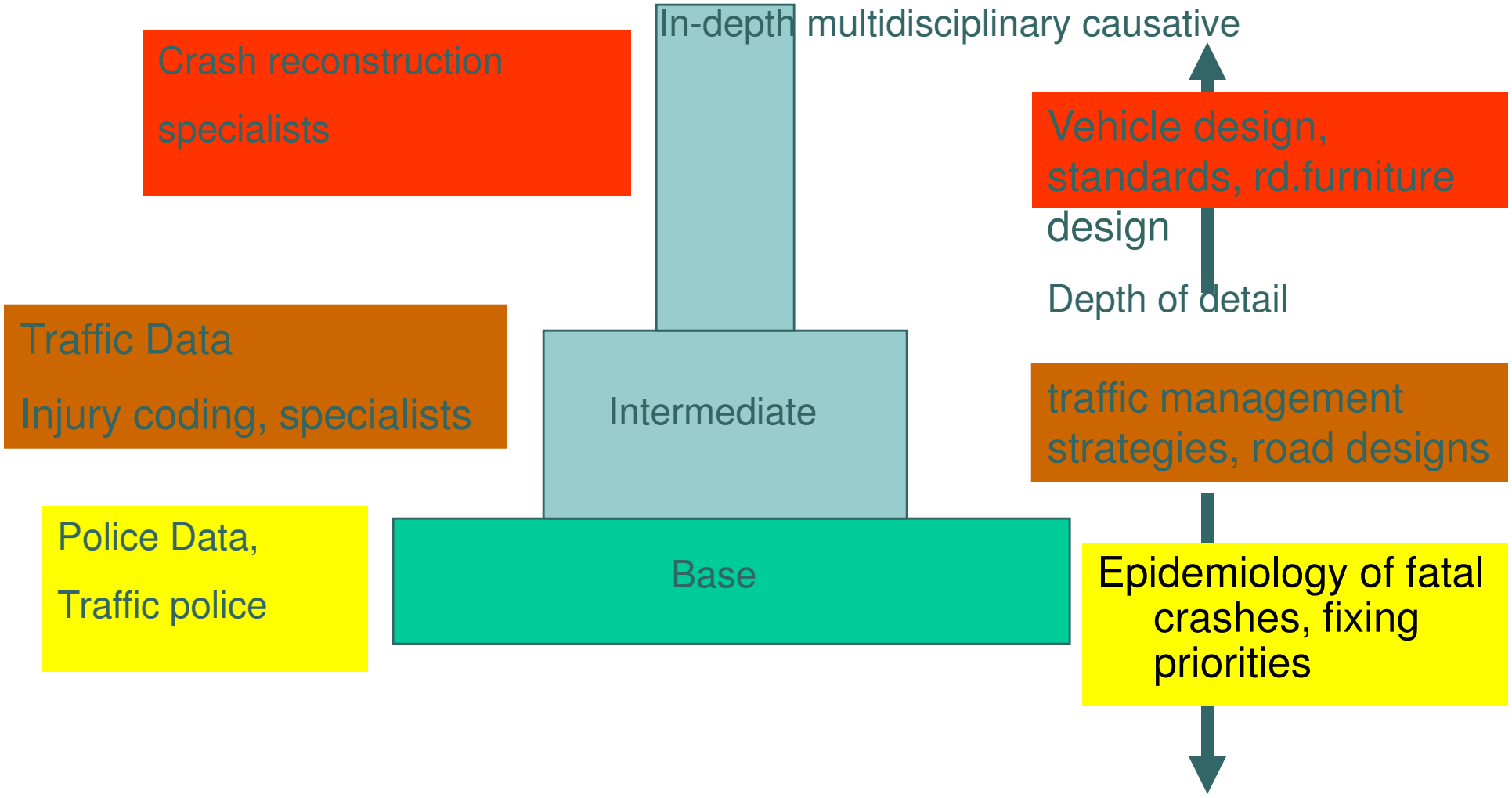
Km location of type of RTCs



Basis for detailed analysis(safety audit)

- Based on preliminary statistical analysis we have identified the following potential safety concerns:
- 35% of the road crashes are observed at the intersection area only.
- 22% of the rollover crashes occur due to vehicle hitting high median kerb or other fixed object/utilities present within 1-2 meters of the shoulder edge.
- Kilometer 42,52,54,55,57,60,61 and 62 have high rate of crashes and kilometer 60-62 have the highest rate of crashes per kilometer
- 23% of the crashes occur near the toll plaza area between the km 60 and 62.
- 6% of crashes involve a cyclist and/or a pedestrian.
- 60% of the fatal crashes occur in the morning and evening peak hours
- Hit and run cases contribute 12% in the total number of crashes

Levels of data collection



Accuracy of Police data?

- Fatalities ~ 5% under reported compared to hospital data
- Injury RTCs 15-20 times under reported
- Large variation between health ministry death registrations and police data

Future Directions

- FIRs should be freely available (Haryana and Punjab FIRs on web)
- Specialist groups in research and academic institutes for secondary level analysis(evaluation of design standards, construction guidelines,etc)
- Specialists groups in Academic institutes in collaboration with automotive industry for vehicle standards