

What to Expect in the Fundamentals and Knowledge Chapters of the HSM (P06-0127)

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Project Team

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Brief Overview

- NCHRP 17-27 will develop Parts I and II of HSM:
 - Chapter 2: Fundamentals
 - Chapter 3: Roadway Segments
 - Chapter 4: Intersections
 - Chapter 5: Interchanges
 - Chapter 6: Special Facilities
 - Chapter 7: Road Networks
- Provide best available safety-related knowledge

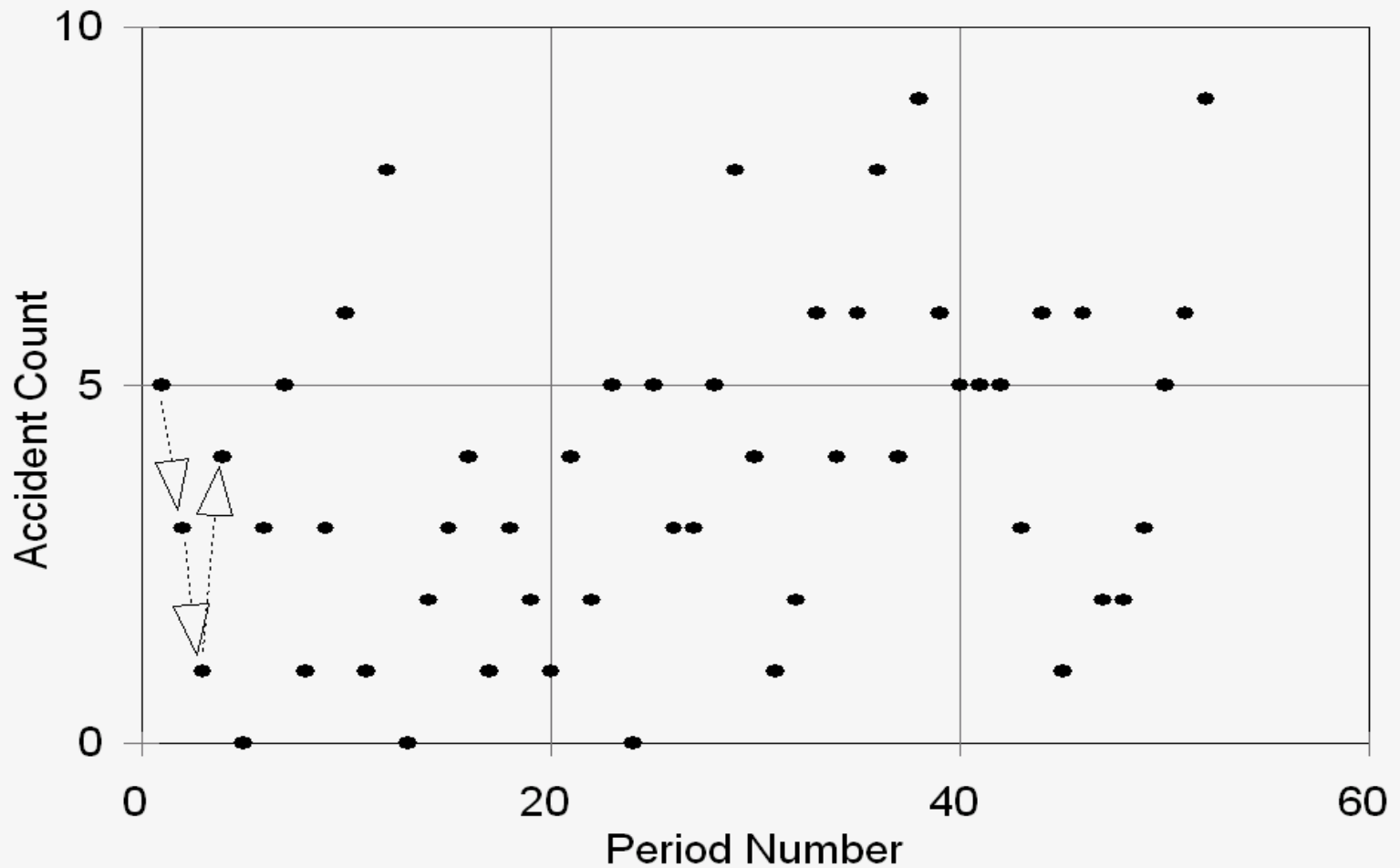
Project Status

- Critical review of published research (over 600 publications to date)
- Develop syntheses for each chapter based on “Review Process”
- Creation and expansion of the “Knowledge-base”
- Development of chapters

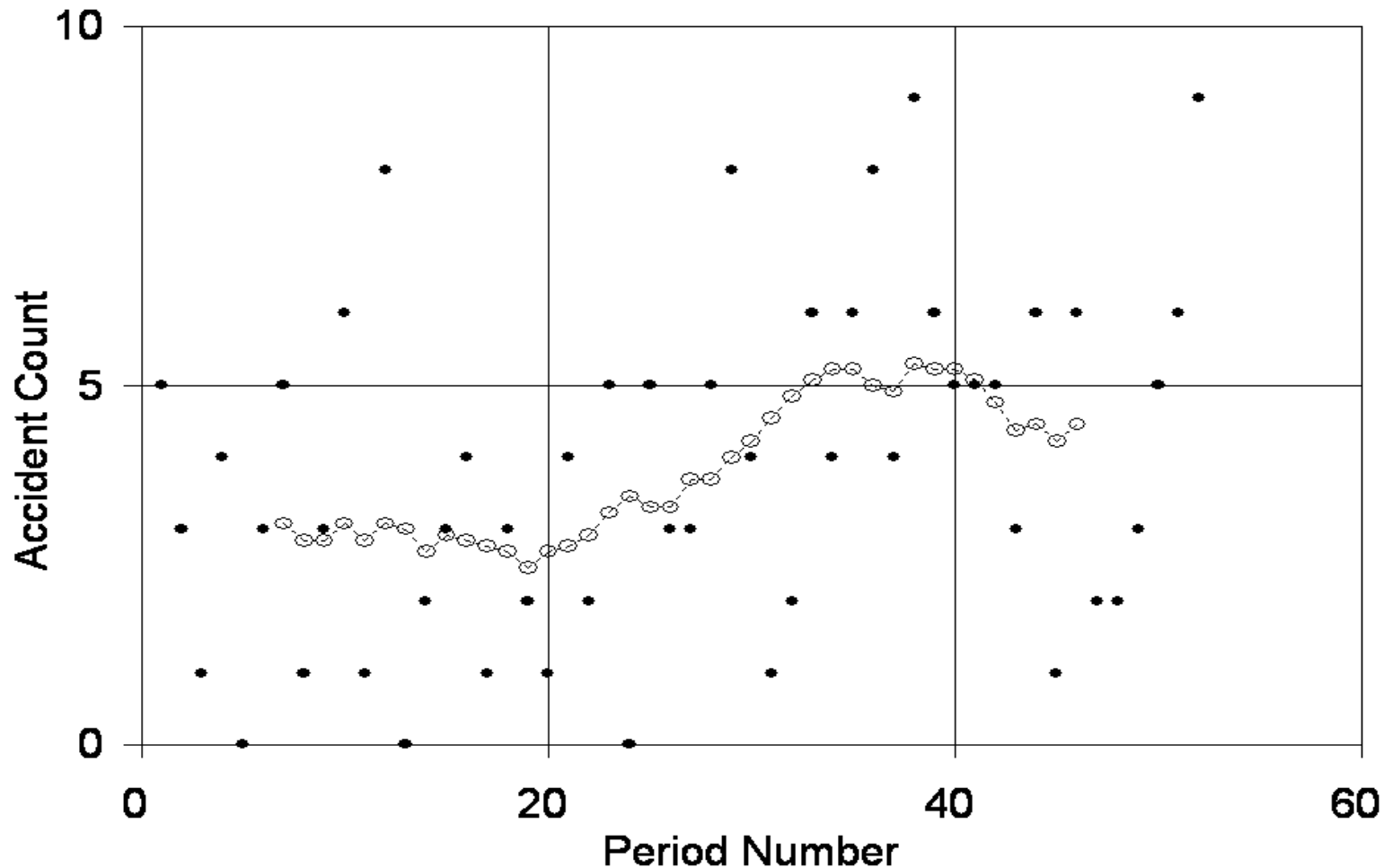
We don't need data...

... UNLESS we can learn from it!

Just collecting data....



Processing and analyzing provides knowledge



Chapter 2

Fundamental questions

- How to measure the safety of a location?
- What information can we learn from different crash data sources?
- How to assess the change in safety of a location or corridor?

More fundamental questions

- What is the impact of speed on safety?
- How to quantify the effect of treatments?
- What is the perception-response time and traveled distance at different situations?
- Given the crash type; what are the most common errors by road users which contribute to the crash occurrence?

Chapters 3-7

Knowledge of safety effects

- What is the expected impact of a treatment at a given location?
 - Accident or Crash Modification Factors or Functions (AMFs or CMFs)
- What is the degree of precision of the expected impact?
 - Standard error

Chapters 3 to 7 - AMFs

Treatment/ Element	Setting & Road type	Volume	Accident type & severity	AMF	Std. Error
Centerline rumble strips	Rural two- lane roads	5,000 to 22,000 veh/day	All types, all severities	0.86	0.05
			All types, injury	0.85	0.08

Typical Data Needs

- Several years of
 - Crash data – individual and crash reports
 - Exposure data – AADT / road segment; entering AADT / intersection approach
 - Roadway Inventory – intersection attributes, segment attributes
- Location ID - common identifier
- Speeds
- Road User characteristics

Conclusions

- Part I and II will provide the fundamentals and knowledge presently available to us
- “Data needs” will depend on the questions and studies each one of us want to consider, and how we intend to process and analyze
- The quality and completeness of the data are for another day.

THANK YOU

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Chapters 3 to 7 - AMFs

Treatment/ Element	Setting & Road type	Volume	Accident type & severity	AMF	Std. Error
Continuous rolled- in shoulder rumble strips	Urban and rural freeway	Any volume	All SV ROR, injury	0.87	0.21
			All SV ROR, all severities	0.82	0.12
Continuous rolled- in shoulder rumble strips	Rural freeway	Any volume	All SV ROR, injury	0.93	0.28
			All SV ROR, all severities	0.79	0.18