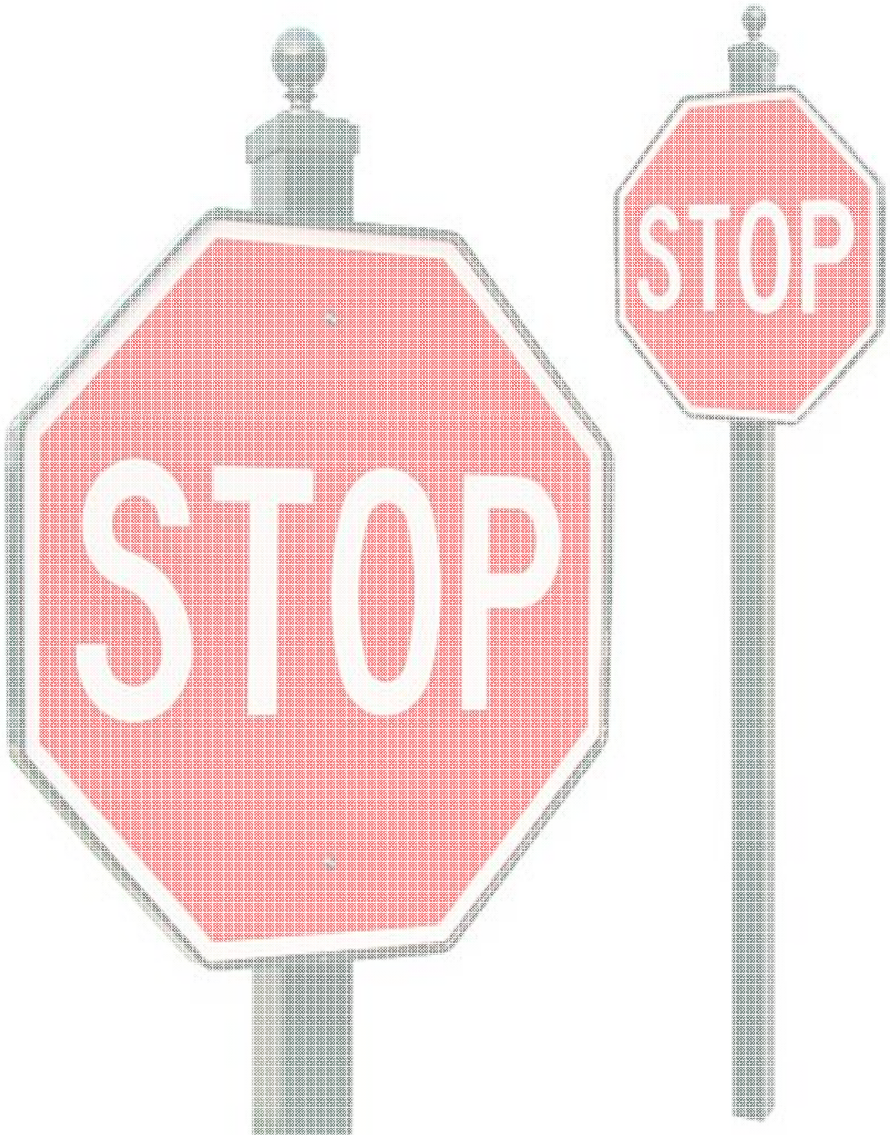
Instituto Nacional de Salud Pública

Principles of Injury Surveillance

Ricardo Pérez Núñez

Outline

- **Definition**
  - Key elements
  - Types
  - Steps
- Rationale
- Attributes
- Concluding remarks



Definition of health surveillance

The ongoing, systematic collection, analysis and interpretation of data essential to the planning, implementation and evaluation of practice, closely integrated with the timely dissemination of these data to those who need to know. The final aspect of the surveillance chain is the application of these data to prevention and control*

* World Health Organization, Injury Surveillance Guidelines. 2001, World Health Organization: Geneva.
Concha-Eastman, A. and A. Villaveces, Guidelines for the epidemiological surveillance on violence and injuries. 2001, Pan American Health Organization/World Health Organization: Washington, D.C.

As opposed to “health surveys” commonly “one-time” events

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Requires appropriate planning and sufficient resources (financial & human) to ensure each component is undertaken

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→**Of the problem:** deaths, non-fatal events, disability
→**Populations at risk:** sex, age groups
→**Exposition to risk factors:** alcohol, helmet, SB

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Requires engagement between those maintaining the system and those developing & implementing policies & practices

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Requires regular monitoring to ensure collection of relevant data for prevention and control purposes

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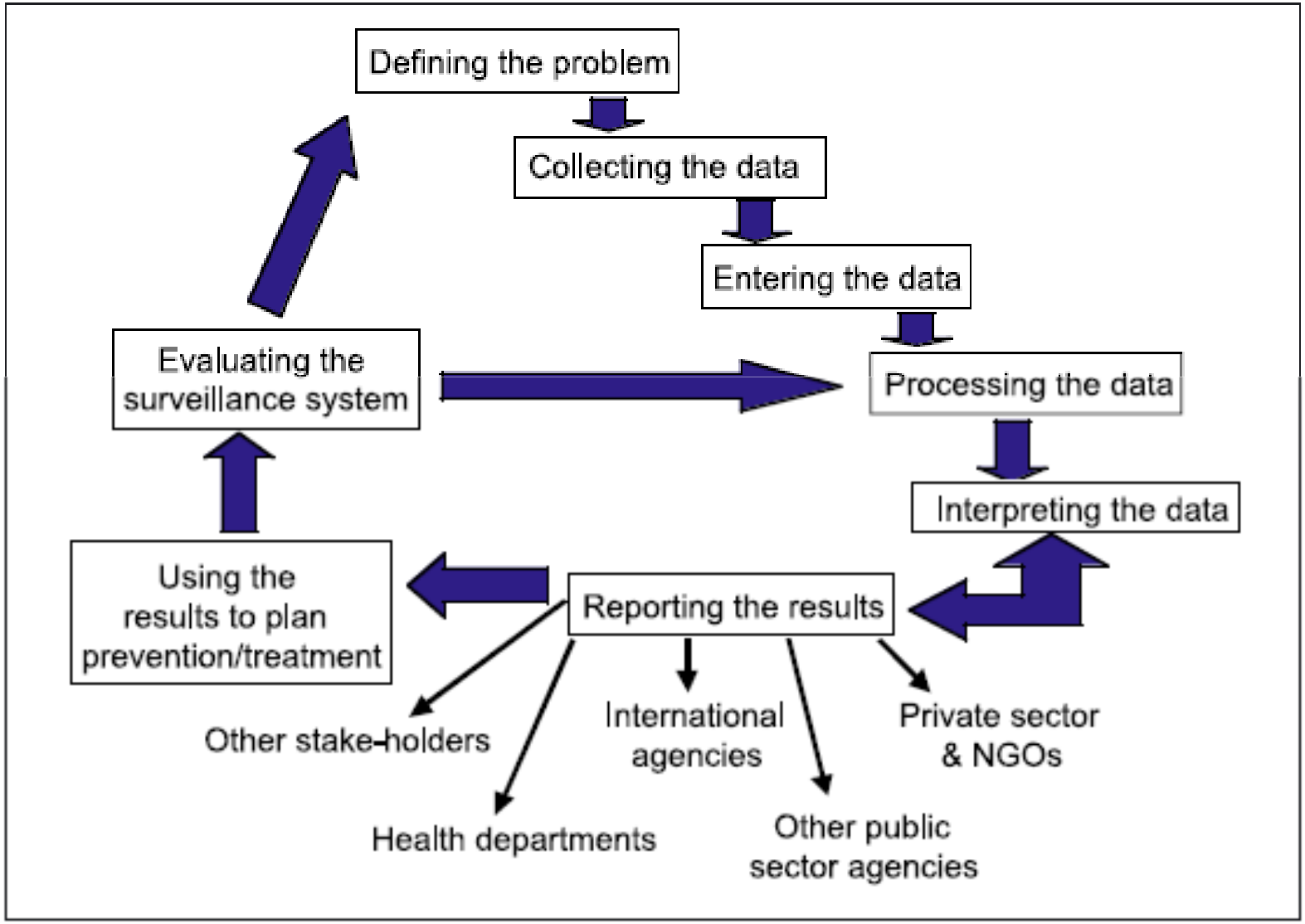
Two approaches

- Active surveillance
  - Requires active identification of “cases” as key activity ($)
- Passive surveillance
  - Relevant information collected in course of other activities (i.e. death certificates)
  - Usually requires less expenditure of resources

* World Health Organization, Injury Surveillance Guidelines. 2001, World Health Organization: Geneva.

Steps required for surveillance



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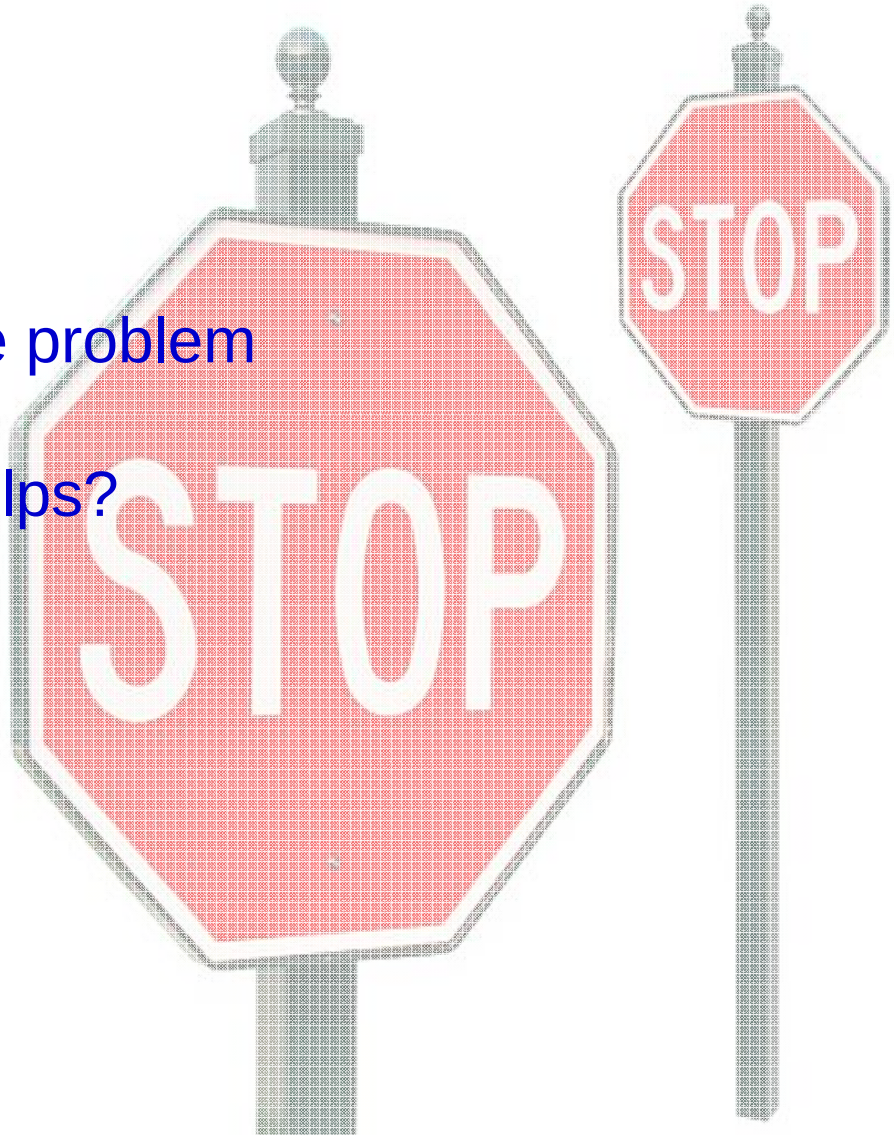
Outline

- Definition
- **Rationale**
  - Injuries: a present & future problem
  - Why injury surveillance?
  - How injury surveillance helps?
- Attributes
- Concluding remarks



Global injury death rates and percentage change in 1990 and 2010

	Age-standardised death rates (per 100 000)		
	1990 (95% UI)	2010 (95% UI)	%Δ
Injuries	82·0 (77·2–90·3)	74·3 (66·8–81·3)	–9·3
Transport injuries	19·4 (15·4–23·6)	20·5 (16·1–27·1)	5·9
Road injury	18·4 (15·4–22·7)	19·5 (15·4–25·6)	6·2
Pedestrian injury by road vehicle	5·8 (4·2–6·7)	6·8 (5·0–9·1)	17·6
Pedal cycle vehicle	1·1 (0·9–1·4)	1·2 (0·9–1·5)	7·8
Motorised vehicle with two wheels	2·6 (2·0–3·3)	3·0 (2·3–3·4)	14·4
Motorised vehicle with three or more wheels	6·8 (5·5–8·4)	7·0 (5·6–8·5)	2·4
Road injury other	2·0 (1·0–3·7)	1·5 (0·7–3·0)	–25·2
Other transport injury	1·0 (0·8–1·3)	1·0 (0·8–1·2)	–0·0

* Lozano R, et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010 . Lancet 2012; 380: 2095–128

Change in leading causes of *deaths* between 1990 and 2010

1990 Mean rank (95% UI)		2010 Mean rank (95% UI)		% Change (95% UI)
1.0 (1-2)	1 Ischemic heart disease	1 Ischemic heart disease	1.0 (1-1)	35% (29 to 39)
2.0 (1-2)	2 Stroke	2 Stroke	2.0 (2-2)	26% (14 to 32)
3.0 (3-4)	3 Lower respiratory infections	3 COPD	3.4 (3-4)	-6% (-12 to 0)
4.0 (3-4)	4 COPD	4 Lower respiratory infections	3.6 (3-4)	-18% (-24 to -11)
5.0 (5-5)	5 Diarrheal diseases	5 Lung cancer	5.8 (5-10)	48% (24 to 61)
6.1 (6-7)	6 Tuberculosis	6 HIV/AIDS	6.4 (5-8)	396% (323 to 465)
7.3 (7-9)	7 Preterm birth complications	7 Diarrheal diseases	6.7 (5-9)	-42% (-49 to -34)
8.6 (7-12)	8 Lung cancer	8 Road injury	8.4 (5-11)	47% (18 to 86)
9.4 (7-13)	9 Malaria	9 Diabetes	9.0 (7-11)	93% (68 to 102)
10.4 (8-14)	10 Road injury	10 Tuberculosis	10.1 (8-13)	-18% (-35 to -3)
15.8 (13-19)	15 Diabetes	11 Malaria	10.3 (6-13)	21% (-9 to 56)
35.3 (28-40)	35 HIV/AIDS	15 Preterm birth complications	14.4 (12-18)	-28% (-39 to -17)

•Institute for Health Metrics and Evaluation. Available on:
http://www.healthmetricsandevaluation.org/gbd/visualizations/gbd-2010-change-leading-causes-and-risks-between-1990-and-2010 .

Comparison of leading causes of death: 1990, 2010 and 2030

RANK	1990	2010	2030
1			
2			
3			
4			
5			Road traffic injuries
6			
7			
8		Road traffic injuries	
9			
10	Road traffic injuries		

• Institute for Health Metrics and Evaluation.
•Global status report on road safety: time for action. Organization. WH, editor. Geneva, Switzerland: World Health Organization; 2009.

Decade of Action

- The overall goal is to stabilize and then reduce the forecast level of RT fatalities around the world by 2020. This will be attained through:
  - improving the quality of data collection at the national, regional and global levels
  - monitoring progress and performance on a number of predefined indicators at the national, regional and global levels

Source: WHO Global Plan for the Decade of Action for Road Safety 2011-2020.

Decade of Action

- Pilar 1: Road Safety Management
  - Activity 3: Develop a national strategy through:
    - establishing and maintaining data collection systems necessary to provide baseline data and monitor progress in reducing RTI and fatalities and other important indicators such as cost, etc.
  - Activity 6: Establish and support data systems for on-going M&E to include a number of process and outcomes measures including

Source: WHO Global Plan for the Decade of Action for Road Safety 2011-2020.

Why injury surveillance?

As injury researchers-practitioners-advocators committed with the Decade of Action, our ultimate goal is **to prevent and reduce** the burden of injuries

Reasons for doing surveillance?

- Need for data
  - standardized classification of injuries
  - comparisons between countries
  - trends and changes over time
  - injury related to other country/regional conditions (socioeconomic level)
  - determine changes in characteristics of population over time and geographical area
  - evaluate interventions

How injury surveillance helps?

- Enables definition of the “problem” in the first place:
  - Extent and nature of the problem
  - In relation to other health problems
  - Provides impetus to “want to do something”
  - Provides rationale for support from funders/stakeholders

How injury surveillance helps?

- Enables measurement of success in reducing or preventing:
  - Exposition to risk factors of interest
  - Injuries: both fatal and non-fatal
  - Negative outcomes: disabilities

→Baseline and follow-up information

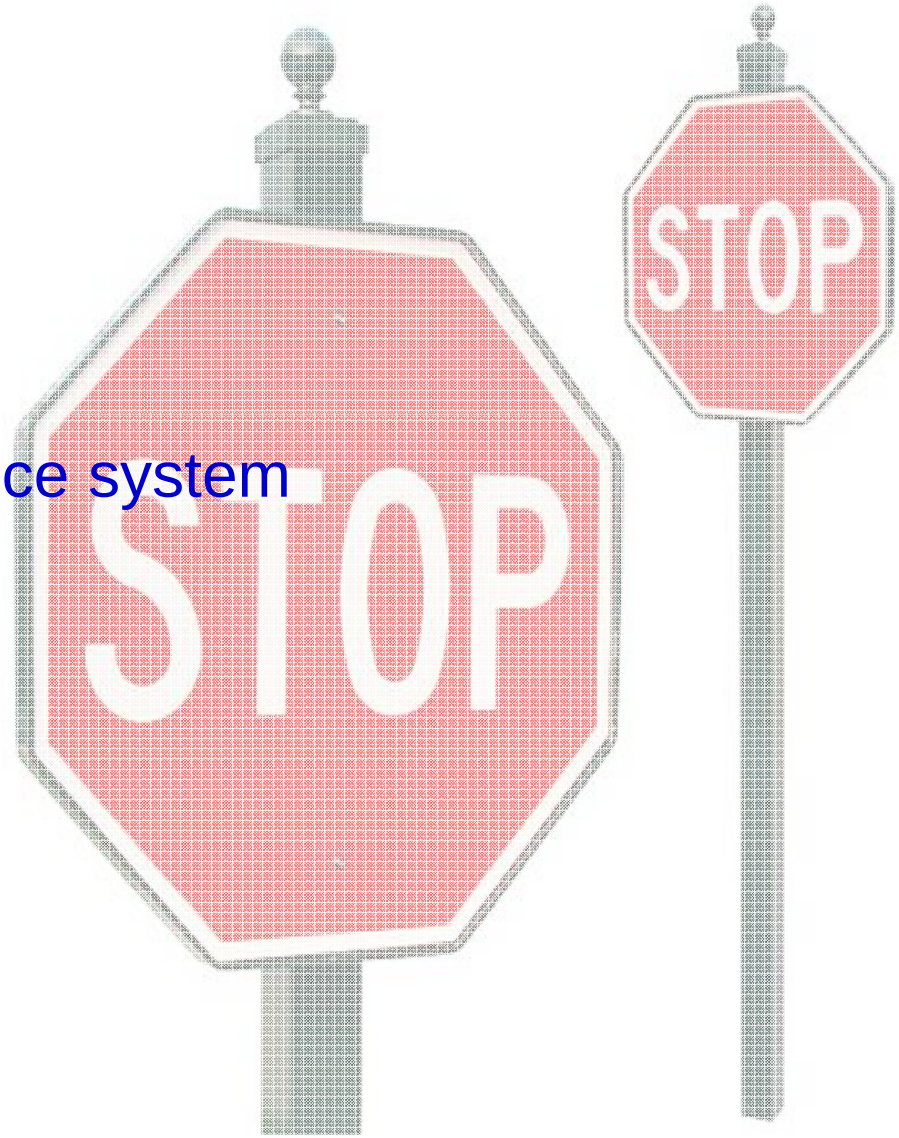
  - Trends over time

How injury surveillance helps?

- Provides information that facilitates development and implementation of interventions
  - Information that assists in the design of interventions: Who, What, Where…
  - Can help argue for more resources!

Outline

- Definition
- Rationale
- **Attributes**
  - Of a good injury surveillance system
- Concluding remarks



A good surveillance system is…

- Simple:
  - Minimizes error and contributes to sustainability
- Flexible:
  - Ability to respond to changing needs – add/remove data points
- Acceptable:
  - To both those operating the system and end users

A good surveillance system is…

- Reliable:
  - Excellence and quality as inherent principles
- Useful:
  - Practical and affordable
- Sustainable:
  - System must blend effortlessly with other ongoing activities

A good surveillance system is…

- Timely:
  - In both collection and importantly presentation
- Secure and confidential:
  - Should never reveal information on individuals
  - Essential for ongoing viability

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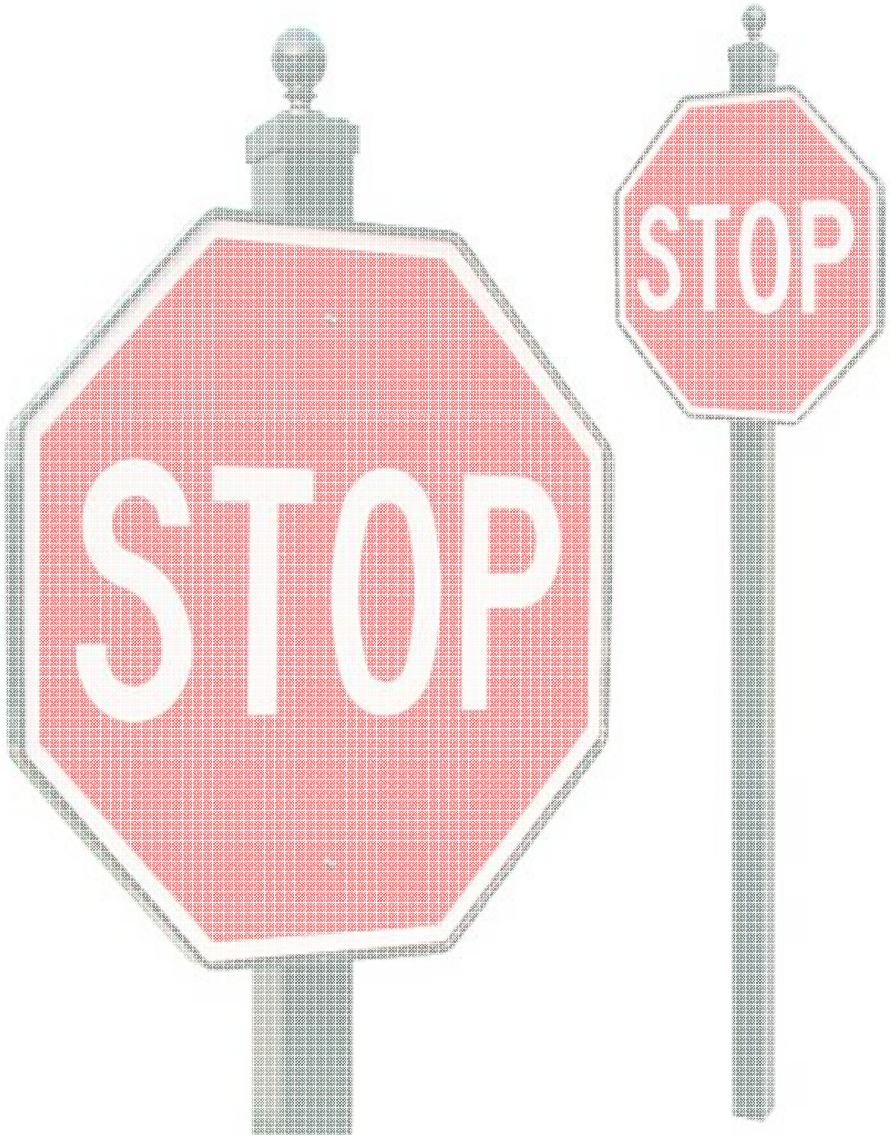


Concluding remarks

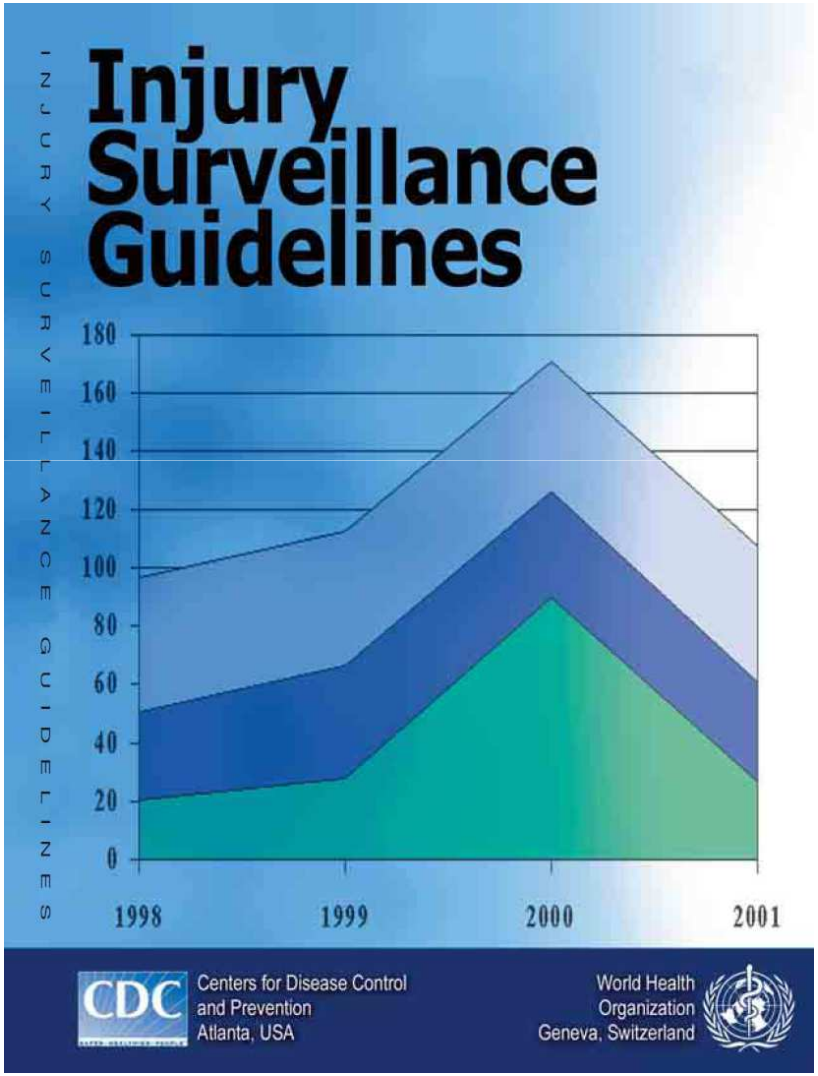
- Injury surveillance is a key element in preventing and reducing the global – and local- burden of injury

- In order to achieve the Decade of Action goals, countries need injury surveillance systems

Concluding remarks

Establishing a good injury surveillance system requires a planned and systematic approach

To obtain more information…



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Gracias...

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