

**Workshop on Evidence-Base for Risk Management in Living Spaces  
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# **REFLECTIONS ON PUBLIC SAFETY – *A UK EXPERIENCE***

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**County Hall, London**



# LONDON in the 1960s

## Acute effects of AIR POLLUTION



# LONDON in the 2010s



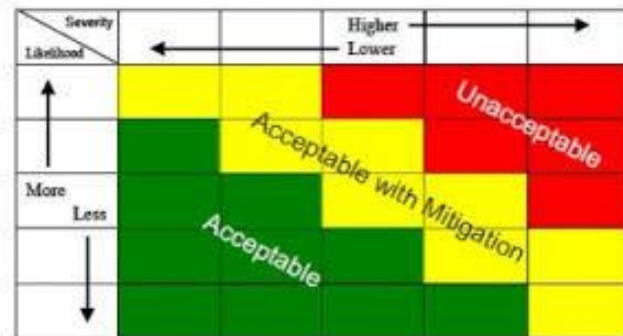
Predicted number of deaths =  
f(dose, dose-response function, number of  
people exposed)

# **WHAT ABOUT ACCIDENTAL INJURIES?**

# THE CASE OF LONDON UNDERGROUND



Subjectively this is a high risk situation



# THE CASE OF LONDON UNDERGROUND



But objectively the risk is very low.

We know this because of the *injury data base*

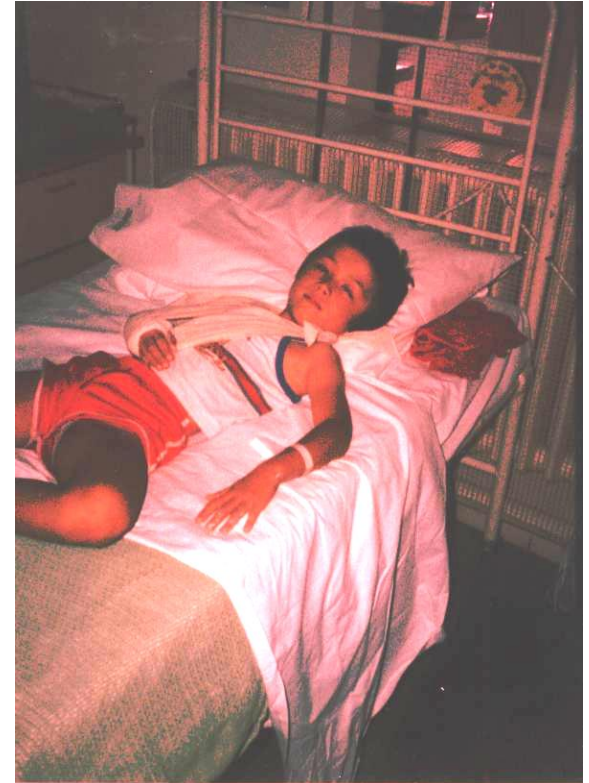
The Injury Data Base is currently the only way of getting  
*objective data*

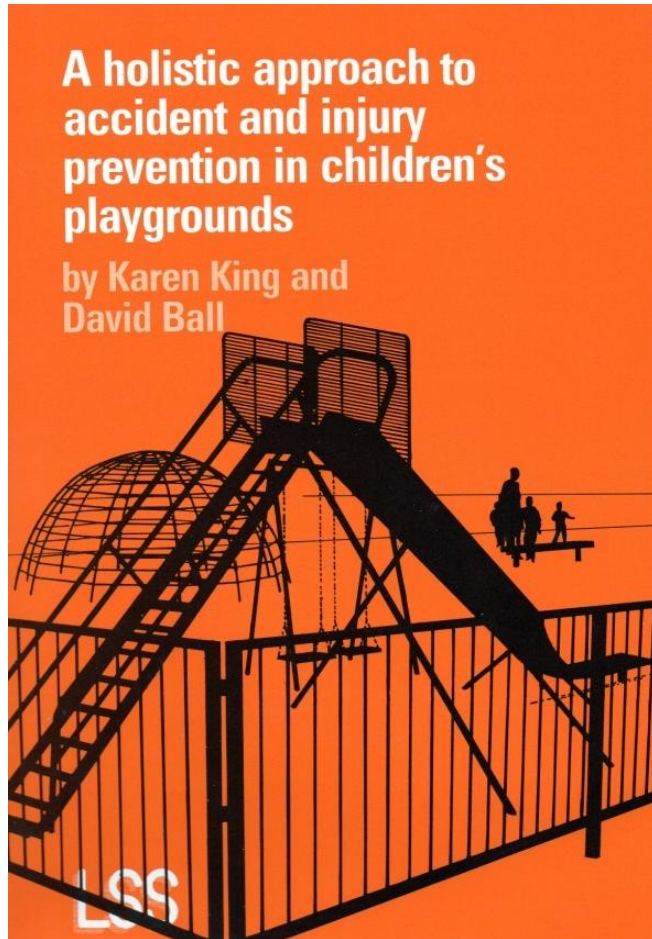
# **ONE EXAMPLE OF THE USE OF AN INJURY DATA BASE**



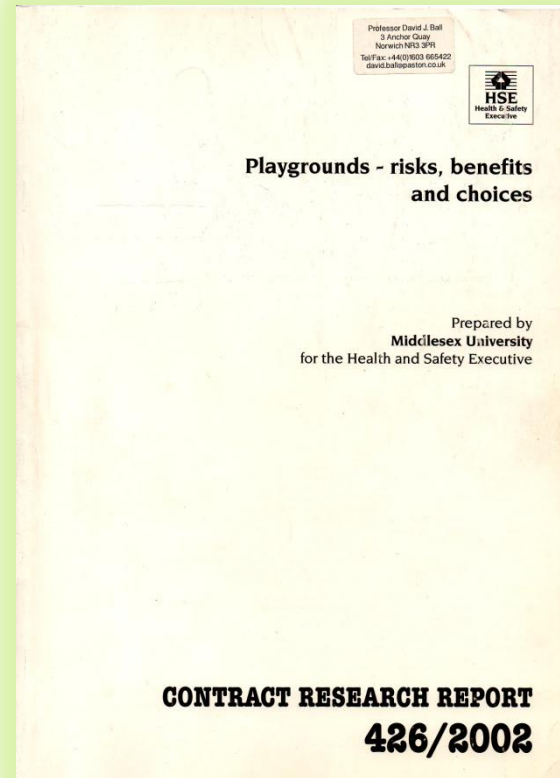
# CHILDREN'S PLAYGROUNDS

*– a hot topic since 1986*





← Statistical analyses using  
injury data bases



Some findings → 10

	Fatalities	Hospital admissions	Hospital attendances	Other medical treatment	Non-medically treated
Equipment-related	<b>0.3</b>	3,600	<b>41,700</b>	100,000	~0.4 million
Equipment-related and non-equipment related	-	4,200	49,000	110,000	~0.5 million

Playground accidents: annual average, UK estimate

# How significant are these numbers?

a) 41,700 hospital attendances from playgrounds compares with 2.25 million due to home and leisure accidents (i.e. 2% playground – related)

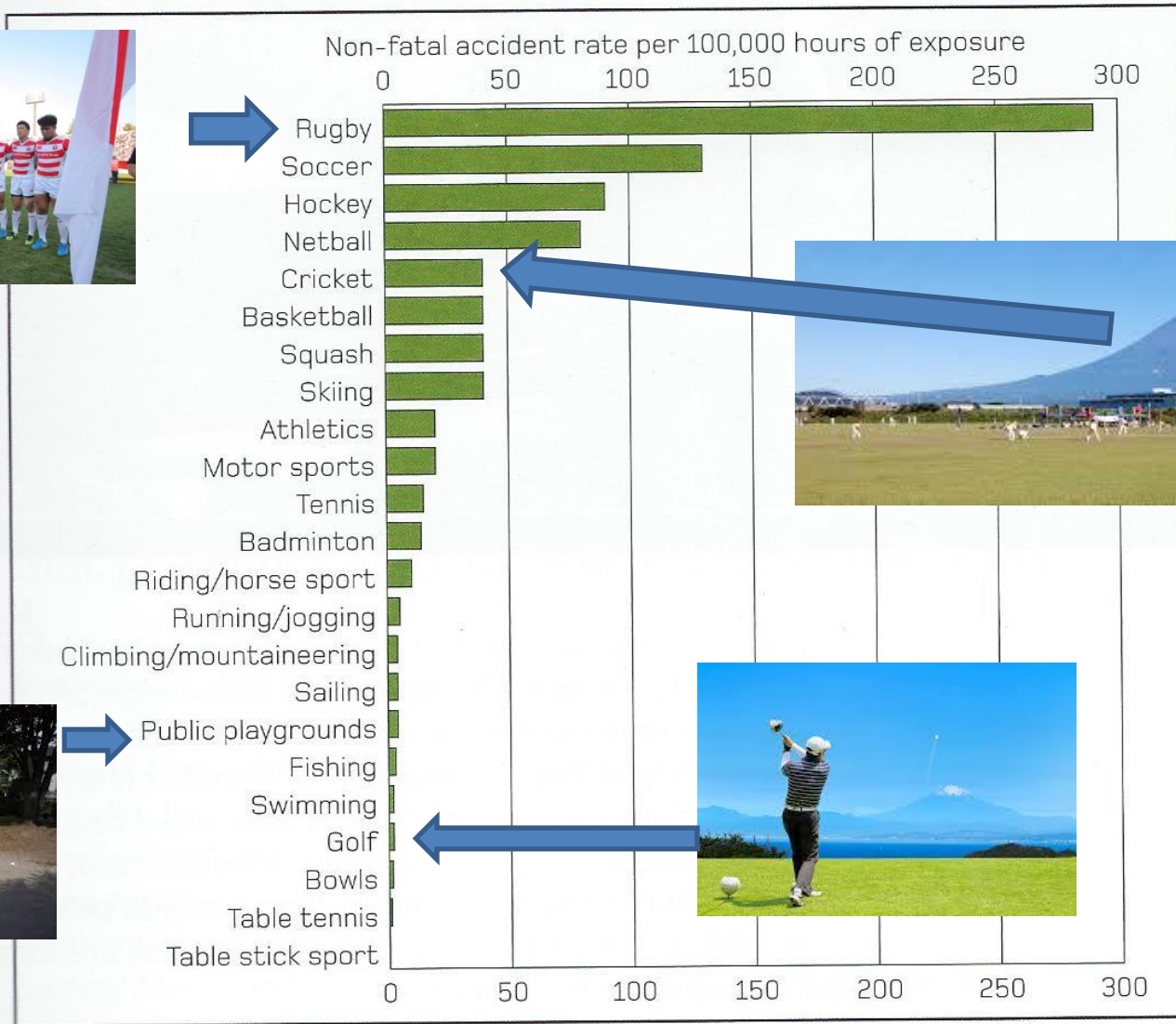
b) 0.3 fatalities per year from play compares with ~500 per year from accidental injury

c) Calculate risk of hospital attendance per 100,000 hours of participation -

12 million children, 1.5 hours per week of play, suggests

~ 4 cases per 100,000h of exposure to outdoor play equipment

Figure 1: Non-fatal injury rate based on A&E attendances

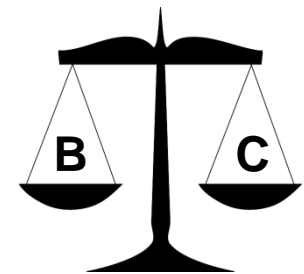


# THE ECONOMICS OF CONSUMER SAFETY

Premise: A safety intervention *should* be made if the benefits of the intervention (the reduced risk) exceed the costs



**Decision rule:**  
**Proceed if  $B > C$**



# BUT, HOW CAN CONSUMER SAFETY BE VALUED?

Two main methods:

- revealed preference



- expressed preference 

QUESTION: Imagine you are in Tokyo. You wish to travel to Nagaoka by train and two train companies (A & B) offer a service. The services are identical except that the trains run by A are more likely to result in fatal accidents. Your risk of death on A is 1 in 50,000 whereas on B it is half of that i.e. 1 in 100,000. The fare on train A is \$100. How much more would you be prepared to pay to travel on the safer train B?



**An EXPRESSED PREFERENCE QUESTION**



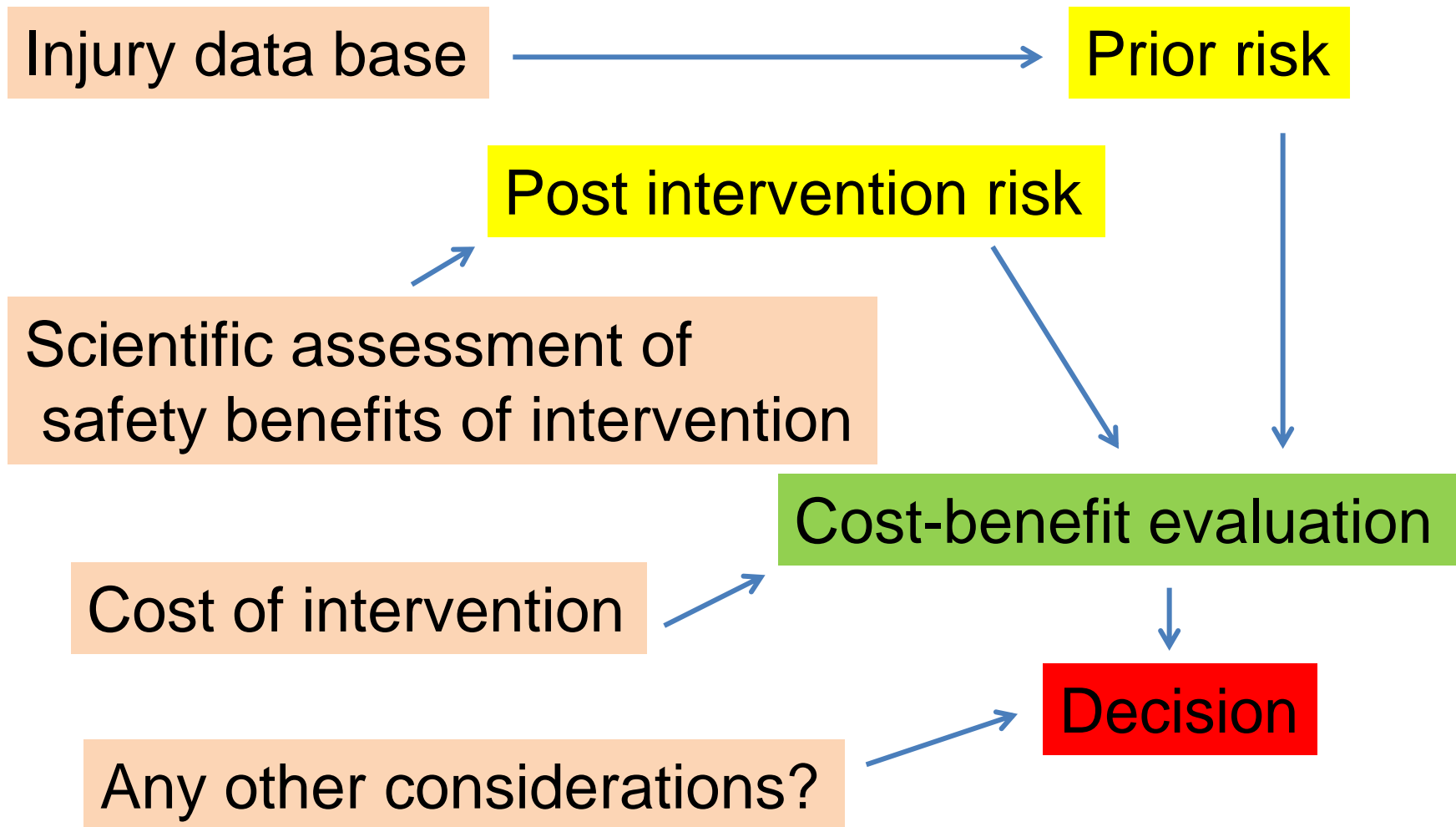
If you answer \$50, the implied value of your life would be:

$$\$50 / (1/50,000 - 1/100,000) = \$5 \text{ million}$$

Based on a nationally representative sample,  
the value of a statistical life in the UK  
is currently ~ £1.5M (~200M Yen)

(Non-fatal injuries can be valued by  
the same 'willingness to pay' approach,  
or by scaling)

# ASSESSING A CONSUMER SAFETY INTERVENTION





Scientific analysis shows that the safety benefits of rubber surfaces are  $\ll$  their cost

# COMPLEXITY



**Kensington High Street, London**



**Kensington High Street (after ‘improvement’)**



## The challenge posed by cycle helmets

# TWO PARADIGMS



**Children must be kept safe**



Somewhere in Portugal

**RATIONAL ACTOR PARADIGM**



**Children need danger**



Toddlers at a Norwegian kindergarten

**THE ADAPTIVE PARADIGM**



# CONCLUSIONS

- public safety is an important challenge
- however, it is complex and not easily achieved
- subjective assessments of public risk are unreliable
- understanding how to invest in public safety requires, as a starting point, **a good injury data base**

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## Complexity and public safety

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