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Injury surveillance – a good use of limited resources?

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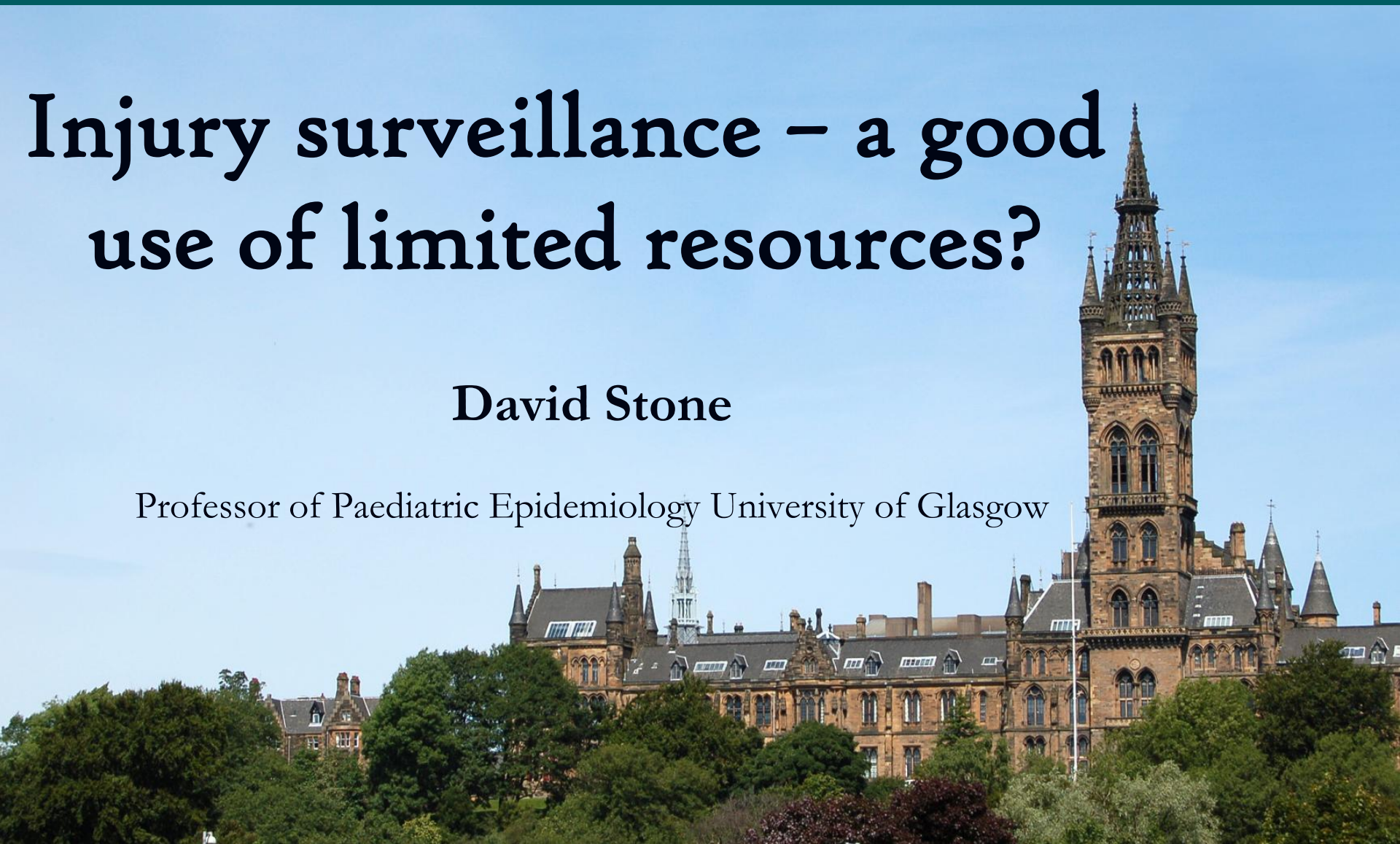


What is surveillance?

- Original meaning "continuous observation"
- Part of public health intelligence
- Sometimes synonymous with monitoring
- Implies as link to action of some kind

Examples of specialised public health surveillance systems

- Infectious diseases
- Cancer
- Congenital anomalies
- ***Injury***

INJURY SURVEILLANCE – definition

The ongoing and systematic collection, analysis, interpretation and dissemination of health information

Source: Holder Y, Peden M, Krug E et al (Eds). Injury surveillance guidelines. Geneva, World Health Organization, 2001

Injury surveillance -
an expanded definition

The ongoing and systematic collection, analysis, interpretation and dissemination of - ***and public health response to -*** *health information*

Stone 2012

OBJECTIVES OF INJURY SURVEILLANCE

- to detect trends in incidence
- to identify risk factors/ causes
- to develop preventive and control measures
- to evaluate impact of prevention

Injury surveillance levels in relation to injury pyramid

- Mortality
- Morbidity
- Hospitalisations
- Emergency departments
- Exposures
- Risk factors

ED or not ED? That is the question

- "Injury surveillance" almost synonymous with emergency department based data collection
- Non-ED settings should also be considered
- Multiple sources of data should be used if possible

Examples of non-ED based injury surveillance

- Routine mortality and morbidity data
- Routine hospitalisation data
- Specialised trauma registries
- Specialised settings (schools, workplaces etc)
- Population surveys
- Media monitoring

Why ED based injury surveillance is appealing

- ED often serves a defined, local population
- Almost all types and severities of injury present
- Large numbers, wide age range
- Data collection straightforward (in theory)

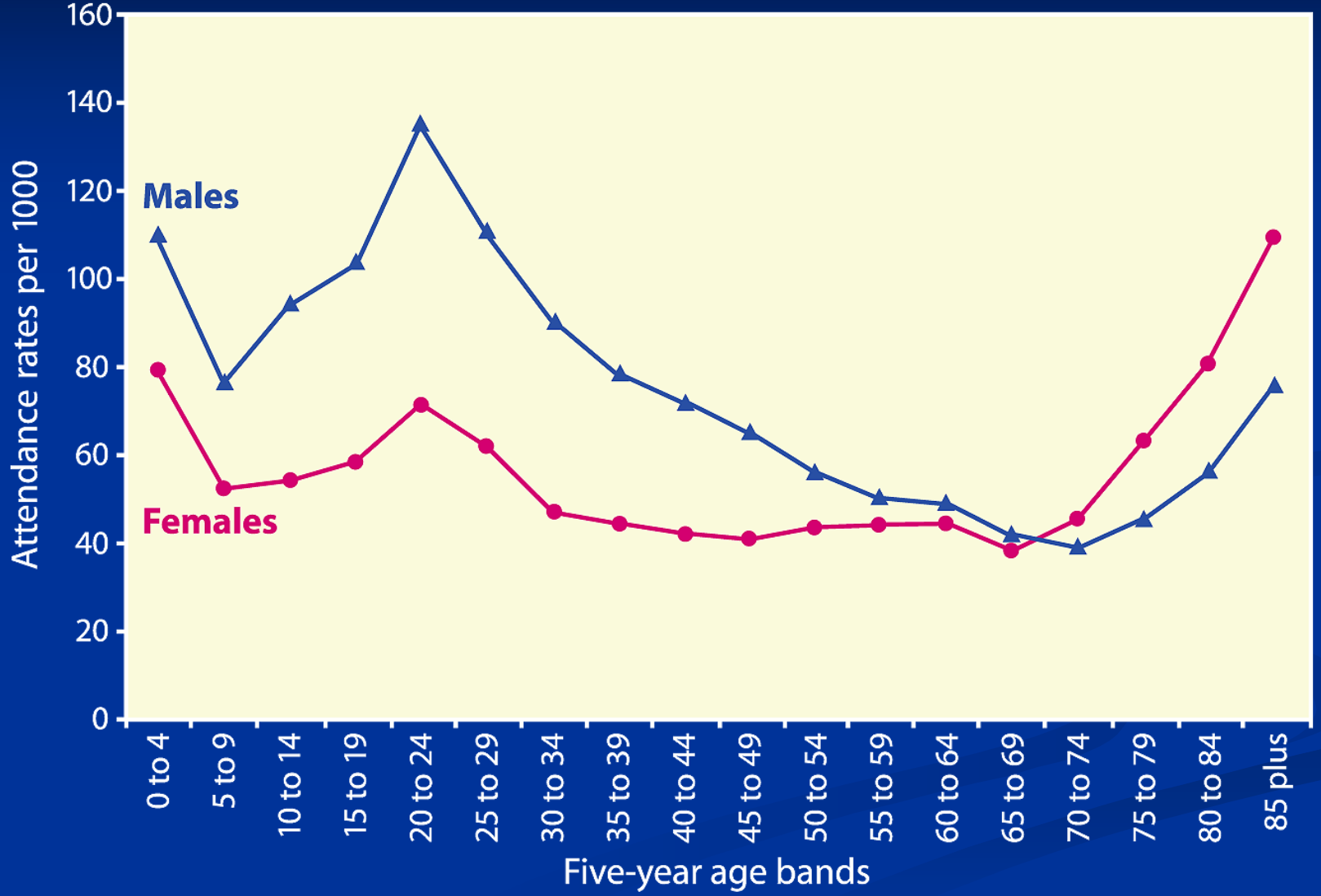
Why ED based injury surveillance is challenging

- Resource and personnel demands
- Takes second place to clinical care in busy EDs
- Absence of clear denominators, bias
- Ensuring total coverage (including nights, weekends)

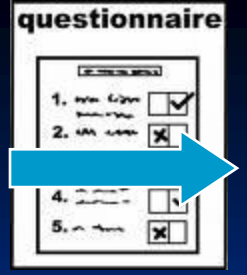
Examples of ED based injury surveillance systems

- *Victorian Injury Surveillance System (VISS)*
- *All Wales Injury Surveillance System (AWISS)*
- *National Electronic Injury Surveillance System (NEISS)*
- *Canadian Hospitals Injury Reporting and Prevention Programme (CHIRPP)*

Age- and sex-specific attendance rates per 1000 for injury at emergency departments in north-west London



CHIRPP



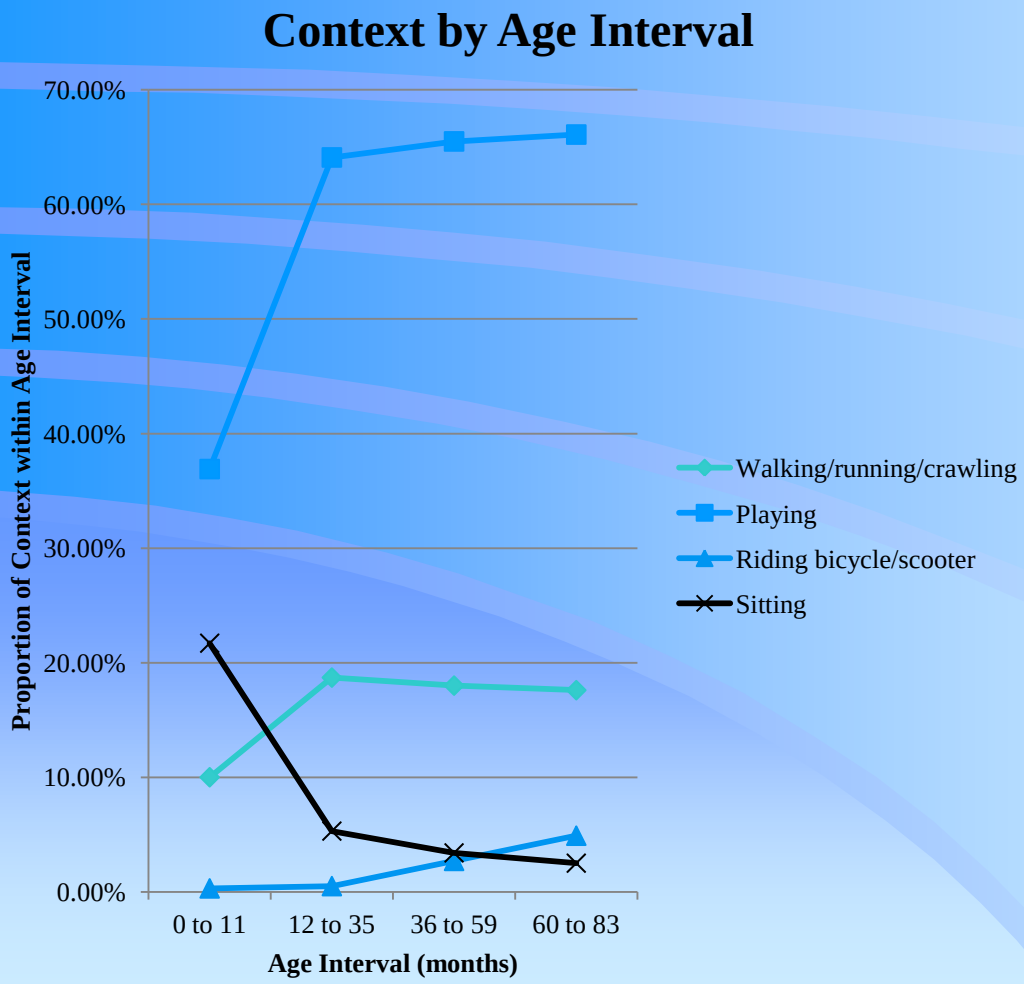
Canadian Hospitals Injury Reporting and Prevention Programme

- Electronic injury surveillance programme
- Questionnaire at presentation to ED
  - Mechanism, location, circumstances
  - Nature, body part(s), treatment(s)
- CHIRPP form completed for child; data coded, entered and stored on a computer

CHIRPP in Glasgow (Y-CHIRPP)

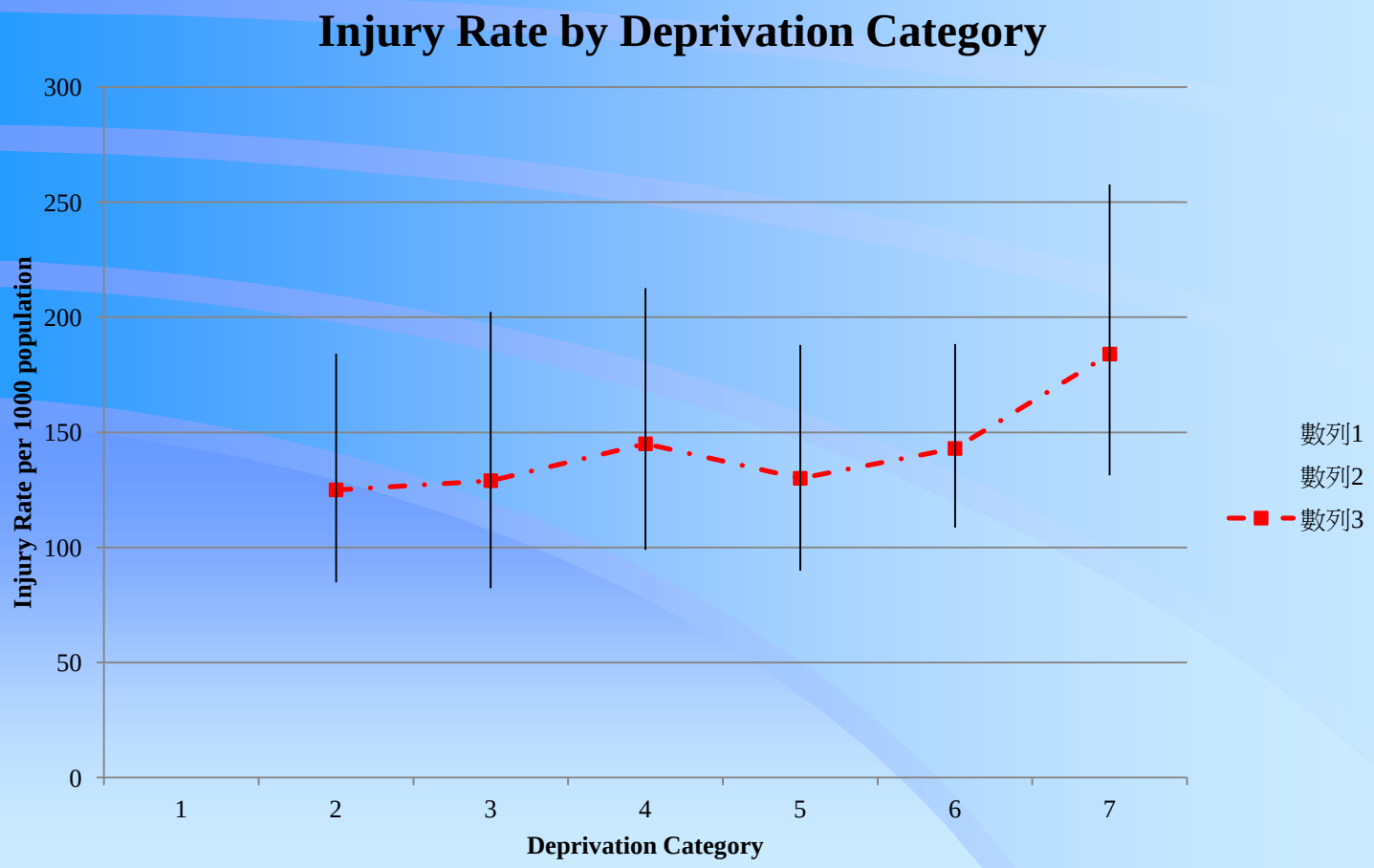
- Ran at Yorkhill Hospital, Glasgow 1996-2005 (approx 12,000 cases per annum)
- Primary aim was to monitor and prevent injuries in children aged 0-12 years
- Secondary aim was epidemiological research

Y-CHIRPP research: Example 1 - what child was doing (McInnes 2007)



- 62% occurred during play
- Lowest proportion 0-11 months (37%) rising to 64% in 12-35 months then plateau
- 17% occurred while child was on the move

Y-CHIRPP research: Example 2 - Social deprivation and injury risk (McInnes 2007)



Aims of qualitative evaluation of Y-CHIRPP

- To determine whether Y-CHIRPP failed and, if so, why?
- To draw generalisable lessons about ED based injury surveillance

Methods

- Retrospective review of all written material relating to Y-CHIRPP
- Semi-structured interviews with staff involved in running the system
- Analysis of the above to identify
  - the process of injury surveillance
  - any changes made
  - strengths and weaknesses (WHO criteria)

Attributes of a good injury surveillance system

- Simplicity
- Flexibility
- Acceptability
- Reliability
- Utility
- Sustainability
- Timeliness

Source: Holder Y, Peden M, Krug E et al (Eds). Injury surveillance guidelines. Geneva, World Health Organization, 2001

Results: strengths and weaknesses of Y-CHIRPP

- Largely met criteria of simplicity, flexibility and acceptability

- Failed to meet criteria of reliability, utility, sustainability and timeliness

Costs of running Y-CHIRPP

- Difficult to estimate
- Heavy reliance on ED staff
- Additional costs of data collection, entry, processing approx. £20,000 in total (£2 per case)
- Even these costs were unsustainable when scaled up (12-15,000 cases per annum)

Conclusions re Y-CHIRPP

- Injury surveillance in a busy children's ED is feasible
- Y-CHIRPP was only partially successful and proved unsustainable
- Relied excessively on busy clinical and administrative staff
- **Key problem: lack of perceived preventive utility**

Recommendations re Y-CHIRPP

ED based injury surveillance requires three key supporting posts:

- Permanent (preferably senior) ED staff member
- Data manager to ensure data collection and analysis
- Injury prevention practitioner or "translational researcher"

Ethico-legal aspects of surveillance of children in UK

- UK Data Protection Act 1998 – privacy, confidentiality, consent: *"Information will not be collected from children under 12 without first obtaining the permission of a parent or guardian."* UK Information Commissioner

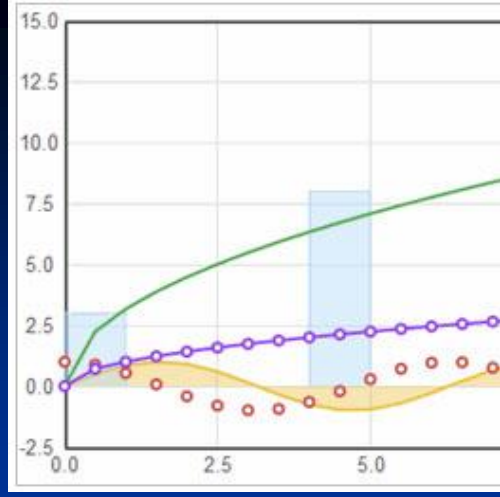
- Children's Act Scotland (1995) – *competent child can consent, best interests of child paramount* (unlike rest of UK)

- International – UN Convention of Rights of the Child, European Convention on Human Rights, EU Directives

ED based injury surveillance – five bottom-line messages

- Easy to propose, hard to do
- More than data collection and analysis – must be linked to action
- Needs local commitment, data management skills and liaison with other agencies
- Resource demands challenge sustainability
- Take account of ethico-legal context

An inconvenient truth: *More data won't always lead to more prevention*



- Most injuries presenting to EDs are minor
- Evaluation studies tend to focus on process rather than outcomes
- Evidence that injury surveillance systems prevent injury incidence is non-existent
- Prevention can be implemented without surveillance - beware the cry *"If only we had more data!"*

Is injury surveillance a good use of limited resources?

- Answer unclear – depends on rationale, resource allocation, local skills and leadership

- Injury surveillance – broadly defined - is a valuable but insufficient aid to prevention

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