Injury morbidity surveillance at primary healthcare facilities:

Lessons learnt from periodic cross-sectional surveys and considerations for future surveillance efforts

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Overview

• Background
• Current injury surveillance efforts
• Aim and objectives
• Methods
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Burden of injuries

- **Injuries are preventable** and warrant a **public health approach to prevention** (Krug, 2000 & 2004)

- The Global Burden of Disease Study 2010 highlighted the need for greater policy action on injury prevention (Lozano et al, 2012).

- Prevention requires a comprehensive approach backed by reliable evidence.

- **Lack of morbidity and mortality surveillance systems** - barrier for effective injury prevention especially in sub-Saharan Africa (WHO AFRO, 2010)

- Injuries burden in South Africa is significant:
  - Quadruple burden of disease (Chopra et al, 2009)
  - Mortality rates due to interpersonal violence – 8 (113.4 per 100 000) and 5 (21 per 100 000) times global average for males and females (Norman et al, 2007)
Current injury surveillance systems in South Africa

• What is a surveillance system? The **ongoing** and **systematic collection, analysis, interpretation and dissemination** of health information (Holder et al, 2001).

• Current surveillance systems focus on mortality:
  – National injury mortality surveillance system (NIMSS)- mortuary-based system
  – Provincial injury mortality surveillance system (PIMSS) – expansion of NIMSS in WC, MP and Gauteng
  – Stats SA – vital registration (death certificates)
Current injury surveillance systems in South Africa

- Morbidity data are scarce. There is no nationally standardised system for collection of data on injury morbidity within the health sector.
  - No injury-specific indicators in the National indicator dataset (NIDS), KZN however has included indicators in their PIDS (Lutge et al, 2015)
  - Localised hospital and facility-based systems and surveys
  - No systematised data systems to monitor intimate partner violence. Clinical forensic units - collect data on sexual assault/ domestic violence cases
  - National Traffic Information System (eNATIS), Dept of Transport – specific to transport injuries
  - SAPS statistics – issues with underreporting (do not include those who do not report)
Fatal injuries
Injuries resulting in hospitalisation
Injuries resulting in visits to 24hr emergency centre/casualty
Injuries resulting in visits to other primary care facilities
Injuries treated outside the health system, treated at home, not treated or not reported

Differing fatal and non-fatal injury profiles

Mortality
- Violence: 41%
- Transport: 24%
- Unintentional: 18%
- Self-harm: 6%
- Other: 11%

Morbidity
- Violence: 61%
- Transport: 23%
- Unintentional: 11%
- Self-harm: 2%
- Unknown: 3%

Source: Morden et al 2016: WC Mortality Profile
Source: Mureithi et al 2013: HST Report on RA of injury morbidity burden in 3 high-violence communities in the WC
Background to this study

- Injury prevention initiatives within WC:
  - PMISS
  - Selected high-risk area approach
  - Western Cape Liquor Act (WCLA)
  - WC Integrated Violence Prevention Policy Framework

- This 3-year study was a collaboration between the WCDOH, UCT and SAMRC. It also forms part of 2 IDRC-funded studies: “Evaluating the effectiveness of the Western Cape Liquor Act in Khayelitsha and Evaluating the effectiveness of urban upgrading interventions in selected low-income communities in the Western Cape”.

- Key intention:
  - to inform the long-term goal of institutionalising injury morbidity surveillance - one of the key components of the WCG’s Integrated Provincial Violence Prevention Policy Framework.
Aim & objectives

• To establish a profile of non-fatal injuries presenting to selected primary/district-level facilities in Cape Town
  – Assess trends in injury-related morbidity
  – Identify key variables that would be useful for future surveillance efforts
  – Determine how one could institutionalise injury morbidity surveillance
Methods

• Conducted repeat periodic cross-sectional surveys
  – 6-monthly over 3 years (Sept 2013- Sept 2015)
  – Data collection occurred over a one week period in each survey (24-hours/ day)
  – In 2 high-violence communities in the Cape Town Metropole – Khayelitsha & Nyanga/ Gugulethu

• Basic demographic data and details on cause and location of injury were collected on all individuals seen in the Emergency Centre by data collectors using a basic two-page questionnaire loaded onto a proprietary software app (Mobenzi Researcher) on a low-cost mobile phone.

• Data were then automatically uploaded onto a virtual study database- exported for further cleaning and analysis
<table>
<thead>
<tr>
<th>Variables</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td>Age, gender</td>
</tr>
<tr>
<td>Reason for visit</td>
<td></td>
</tr>
<tr>
<td>Triage code</td>
<td>According to SA Triage Scale</td>
</tr>
<tr>
<td>Details on injury</td>
<td>Time, date, activity, place/scene of injury</td>
</tr>
<tr>
<td>Cause of injury</td>
<td>Violence/transport/unintentional/self-harm</td>
</tr>
<tr>
<td>Specific cause/method</td>
<td>Sharp object/blunt object/assault/firearm/fall/burn/poisoning</td>
</tr>
<tr>
<td>Violent injuries</td>
<td>Perpetrator details: known/unknown, gender, number, relationship to patient. Type of violence: interpersonal, crime-related, gang-related</td>
</tr>
<tr>
<td>Transport injuries</td>
<td>Traffic user (pedestrian/passenger/driver) / type of vehicle involved</td>
</tr>
<tr>
<td>Location</td>
<td>Sub-area in community where injury occurred – for GIS analysis (identify high-risk areas)</td>
</tr>
<tr>
<td>Alcohol/drug use</td>
<td></td>
</tr>
</tbody>
</table>
Lessons learnt

• A **simple 2-page tool** enabled the collection of detailed data on injuries that established a risk profile of presenting injury cases including demographics, cause, perpetrator, alcohol use and high-risk areas.

• Most data were readily available in the patient folders or casualty registers - variable completeness and quality

• Only variables **NOT** routinely documented:
  – Alcohol/ drug use
  – Perpetrator details
  – Time of injury
  – Where injury occurred – useful for targeted prevention, provide data for GIS analysis
Lessons learnt

• Emergency centre registers/ clinical patient notes introduced fields for:
  – Separate tallying of trauma cases (register)
  – Indicating if a patient had an injury
  – Mode of injury (Violence/ road injury/ sexual assault/ other) – rarely completed

• Cross-sectional surveys:
  – Relatively quick and simple to implement
  – 24-hour surveillance labour intensive therefore costly. Cost of data collectors most significant cost – sustainability in the long-term

• Mobile data collection allowed real-time availability of data, quick turn-around times. Although initial set-up cost relatively high (compared to paper), subsequent maintenance costs were low.
Recommendations

• **Clearly distinguish between injury and non-injury cases** in casualty registers – simple measure can provide information on overall injury burden

• Identify, agree on and pilot a **core set of routine indicators/variables** that are locally appropriate and standardised nationally.
  – External cause of injury
  – Place of injury (relevant for targeted prevention efforts)
  – Suspected alcohol use

• Explore possibility of use of mobile applications for injury surveillance – experience from GSH Electronic Trauma Health record (Zargan et al, 2013).
Conclusion

• Data on non-fatal injury burden is important in depicting the true burden of injuries and would complement existing mortality data.

• The cost of periodic cross-sectional surveys may be prohibitive in the long-term necessitating the need to institutionalise surveillance.

• However, questions remain on how they would be collected and how much would it cost to add to current routine data collection systems.

• Policy action for injury prevention needs to be informed by evidence.

• As we move towards an era of increasing use of mhealth for other forms of data, perhaps this would be an opportunity to integrate injury surveillance into routine data collection systems at a national level.
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THANK YOU!

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