Injection Safety in Pakistan

Dr Arshad Altaf
SIGN-Pakistan
Overview

- Why Pakistan?
- Evidence on injection safety in Pakistan
- HIV and unsafe injections
- Hepatitis B and C among healthcare workers and the community
- Progress
- What should be done
Introduction

• Pakistan is the sixth most populated country
  – At the moment 176 million (UNICEF)
  – Two third (66%) population lives in rural areas
  – 80% healthcare provided by private sector (World Bank)
  – Average house hold 7.2 (National Institute for Population Studies)

• Hepatitis B & C one of the serious and challenging issues

• HIV gaining strong hold
  – Low to concentrated level of the epidemic among drug injectors and male sex workers
Popularity of injections

- Healthcare providers (trained and untrained) prescribe a lot of injections
- Patients in Pakistan like injections
- Number of injections per person per year
  - 13.6
- Review in 1998-9 had estimated for Pakistan, Egypt and Moldova
  - 8.5
- Private sector
  - Economic incentive, provider’s initiative/patient’s demand leads to reuse
  - Difference in healthcare provider’s prescription and injection practices as practice area changes (middle class to slum area)
  - Cost of prescription with an injection rupees 45-50 ($0.60)

References:
Types of injection prescribers

Int J Quality Health Care 2005

- Physician in public facility: 9%
- Dispenser in public facility: 12%
- Physician in private facility: 63%
- Dispenser in private facility: 16%
- Hakeem/Homeopath: 0%
- Chemist: 0%
Epidemiological evidence suggest

- Facility based observations of informal and private sector suggests
  - 93% injections unnecessary
  - 75-94% injection equipment reused
- Public sector
  - 12% injections provided with a used syringes
- Conclusion
  - Unsafe injections which include an unnecessary injection and reuse of disposable syringe is the primary reason for transmission of hepatitis B and C infections

Sources:
1. Epidemiological studies (12) from 1997-2004
2. Ministry of Health Survey 2002
Injections in health care settings: a risk factor for acute hepatitis B virus infection in Karachi, Pakistan

Table 5: Multivariate logistic regression model of risk factors for acute HBV, Karachi, Pakistan, 2000-2001

<table>
<thead>
<tr>
<th>Exposures</th>
<th>Adjusted odds ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of injections †</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nil</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>4.0</td>
<td>1.4, 11.1</td>
</tr>
<tr>
<td>More than one</td>
<td>6.3</td>
<td>3.2, 12.4</td>
</tr>
<tr>
<td><strong>Number of household members</strong></td>
<td></td>
<td></td>
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<tr>
<td>1-6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7 or more</td>
<td>1.9</td>
<td>0.95, 3.9</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
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<tr>
<td>Urdu</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sindhi</td>
<td>5.4</td>
<td>1.7, 18.0</td>
</tr>
<tr>
<td>Punjabi</td>
<td>1.3</td>
<td>0.44, 4.1</td>
</tr>
<tr>
<td>Pashto</td>
<td>2.5</td>
<td>1.1, 5.8</td>
</tr>
<tr>
<td>Hindko</td>
<td>3.7</td>
<td>0.97, 14.0</td>
</tr>
<tr>
<td>Others</td>
<td>1.4</td>
<td>0.41, 4.9</td>
</tr>
</tbody>
</table>
## Risk factors for hepatitis C virus infection in male adults in Rawalpindi–Islamabad, Pakistan

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² Diarrhoeal Disease Branch, Centers for Disease Control and Prevention, Atlanta, GA, USA

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cases n (%)</th>
<th>Controls n (%)</th>
<th>Adjusted OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–24</td>
<td>4 (7.1)</td>
<td>56 (31.3)</td>
<td>1.0</td>
<td>–</td>
</tr>
<tr>
<td>25–34</td>
<td>12 (21.5)</td>
<td>69 (38.5)</td>
<td>2.8</td>
<td>1.0–8.5</td>
</tr>
<tr>
<td>35–44</td>
<td>15 (26.8)</td>
<td>37 (20.7)</td>
<td>4.6</td>
<td>1.5–14.4</td>
</tr>
<tr>
<td>45–70</td>
<td>25 (44.6)</td>
<td>17 (9.5)</td>
<td>27.2</td>
<td>8.4–88.2</td>
</tr>
<tr>
<td><strong>Therapeutic injections received in past 10 years</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>11 (19.6)</td>
<td>69 (38.5)</td>
<td>1.0</td>
<td>–</td>
</tr>
<tr>
<td>1–10 injections</td>
<td>21 (37.5)</td>
<td>69 (38.5)</td>
<td>2.8</td>
<td>1.1–7.1</td>
</tr>
<tr>
<td>10+ injections</td>
<td>24 (42.9)</td>
<td>41 (23.0)</td>
<td>3.1</td>
<td>1.2–7.9</td>
</tr>
<tr>
<td><strong>Frequency of facial shave from barber</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>17 (30.4)</td>
<td>75 (41.9)</td>
<td>1.0</td>
<td>–</td>
</tr>
<tr>
<td>Occasionally</td>
<td>28 (50.0)</td>
<td>94 (52.5)</td>
<td>0.8</td>
<td>0.3–1.9</td>
</tr>
<tr>
<td>Daily</td>
<td>11 (19.6)</td>
<td>10 (5.6)</td>
<td>5.1</td>
<td>1.5–17.0</td>
</tr>
<tr>
<td><strong>Armpit shave by barber</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>29 (51.8)</td>
<td>132 (73.7)</td>
<td>1.0</td>
<td>–</td>
</tr>
<tr>
<td>Yes</td>
<td>27 (48.2)</td>
<td>47 (26.3)</td>
<td>2.9</td>
<td>1.3–6.5</td>
</tr>
</tbody>
</table>
Burden of hepatitis B & C in Pakistan
(EMHJ Vol 16, Suppl 10; 2010)

- Huma Qureshi et al, MOH, Pakistan Medical & Research Council and Federal Bureau of Statistics
- Study in four provinces in 2007
- Representative sample of 47,043
- Seroprevalence of HBV 2.5%
- Seroprevalence of HCV 5%
- Adding these two equals 7.5% (>1.3 million infected persons)
- Strong association between reuse of injection equipment and disease transmission once again established
Burden among HCW

- **In southern Pakistan** ([J Pak Med Assoc. 2006 Jan;56(1 Suppl 1):S48-50.](#))
  - Hepatitis B, 6%
  - Hepatitis C, 2.4%

- **In north west** ([J Ayub Med Coll Abbottabad. 2008 Jul-Sep;20(3):27-9.](#))
  - Hepatitis B, 30%
  - Hepatitis C, 40%
Type of injections received by population in Sindh

Int J Quality Health Care 2005

Therapeutic injections
Infusions
Vaccinations

Proportion of type of injections

Urban
Rural Area
Overall
Use of new syringe for injections in Sindh Pakistan, 2005; facility observations

![Bar chart showing the proportion of new syringe use among different providers in Sindh, Pakistan, 2005. The chart compares Public, GP, and Unqualified Provider categories.]
### National HIV Surveillance

<table>
<thead>
<tr>
<th>City</th>
<th>IDUs (400)</th>
<th>MSWs (200)</th>
<th>HSWs (200)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karachi</td>
<td>23.1% (19.0, 27.2%)</td>
<td>3.1% (0.7, 5.5%)</td>
<td>3.6% (1.2, 6.1%)</td>
</tr>
<tr>
<td>Hyderabad</td>
<td>30.5% (26.0, 35.0%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Larkana</td>
<td>28.5% (24.0, 33.0%)</td>
<td>0.5% (-0.5, 1.48)</td>
<td>27.6% (21.4, 33.9%)</td>
</tr>
<tr>
<td>Faisalabad</td>
<td>12.3% (9.0, 15.5%)</td>
<td>0</td>
<td>2.5% (0.3, 4.7%)</td>
</tr>
<tr>
<td>Sargodha</td>
<td>22.8% (18.7, 26.9%)</td>
<td>Not Done</td>
<td>Not Done</td>
</tr>
<tr>
<td>Lahore</td>
<td>14.5% (11.0, 17.9%)</td>
<td>1.0% (-0.4, .4%)</td>
<td>2.5% (0.3, 4.7%)</td>
</tr>
<tr>
<td>DG Khan</td>
<td>18.6% (14.5, 22.7%)</td>
<td>Not Done</td>
<td>Not Done</td>
</tr>
<tr>
<td>Peshawar</td>
<td>12.8% (8.6, 17.2%)</td>
<td>0</td>
<td>1.2% (-0.5, 2.9%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20.8% (19.4, 22.3%)</td>
<td>0.9% (0.3, 1.5%)</td>
<td>6.4% (5.0, 7.7%)</td>
</tr>
</tbody>
</table>

Approximately 15-20% IDUs are home based; visit GPs irregularly
Progress in injection safety

- Events started since inception of SIGN Secretariat
- Breakthrough in 2004 with national event; collaborators SIGN, MOH, GAVI/EPI
- 2005 National Hepatitis Control Programme Launched with the objective of treating and controlling hepatitis in the country
  - Focused on the curative part mostly
- Center for Injection Safety established in 2006
  http://safeinjections.org/
Progress contd.

- In Sindh province, The Chief Minister’s Programme launched in 2009 with the objective of preventing acute and chronic hepatitis infection, raising public awareness and strengthening health system
- **Key achievements:**
  - 24,000 provided treatment
  - 280,000 immunized against hepatitis B
  - 325,000 new born immunized
- **Issues**
  - Patient has to pay for his/her own PCR
  - No option for treatment for non responders
  - Programmed already burdened by high number of Hep C patients
Progress contd.

- Injection practices improved particularly by those who have received some kind of training (mostly government docs who have their private practice in the evening)
- Unsafe injection practices not improved among:
  - Fresh medical graduates opening small clinics due to unemployment in public sector
  - Non qualified (para medics) practicing in rural setting who also do house calls [“mobile doctors”]
What should be done

• No programme has so far developed an organized BCC campaign for raising awareness on injection safety
• National study to determine the latest status of injection practices
• Pilot to develop “Model Injection Safety Clinics”
• Use of technology, RUP devices in the curative sector (Priority Medical Device “4 A”)
What should be done contd.

• A position of WHO Programme Officer or National Professional Officer to work as liaison between the provinces and centre

• Supporting Center forInjection Safety to provide trainings at different levels

• Pushing the GOP to pass injection safety/medical device legislation
Thank you for your attention