WHO Global Injection Safety Campaign and Prevention Strategies

Arshad Altaf, MBBS MPH
Consultant
Injection Safety
WHO HQ
Geneva, Switzerland
Disclosure of speaker interest

No (potential) conflicts to report
Global use of injections

16 billion injections worldwide

- Medical injections: 90%
- Immunization: 5%
- All others: 5%
Drivers of unnecessary and unsafe injection

1. Prescriber (trained or untrained)
2. Provider-nurse or paramedic (trained and untrained)
3. Patients and communities
Reasons for unnecessary injections

- Belief that injections are *stronger medications* (Pakistan)
- Belief that injections *work faster* (Romania)
- Belief that the injection pain is a *marker of efficacy* (African countries)
- Belief that a drug is *more efficient when entering directly* (Colombia, Thailand)
- Belief that injections represent a *more developed technology* (many developed countries)
- Belief among health workers that *giving an injection is a directly observed therapy* and ensures compliance with treatment
- Financial incentives for injection prescribers
Reasons for unsafe injections

- Lack of awareness among injection prescribers, providers and patients
- Saving money by using the same syringe and needle
- Lack of supplies
- Lack of disposal infrastructure for used injection equipment
Data from countries with high burden of unsafe injections

- **Egypt**: case control study—persons receiving more than ten injections per year were found to be responsible for the spread of HCV in the country *(BMC Infect Dis. 2012 Nov 12;294)*

- **India**: unsafe injections have been estimated to be responsible for 46% of the hepatitis B and 38% of the hepatitis C infections in the country *(Indian J Community Med. 2012 Apr;37(2):89-94)*

- **Uganda**: Data from a demographic health survey indicated that men and women who reported receiving over five injections in the past 12 months had higher HIV prevalence compared to those who had not *(Demographic and Health Research, 2008)*

- **Pakistan**: In the national hepatitis survey, the prevalence of hepatitis C was 4.9% and 2.5% for hepatitis B; significant association was also found between infections and those receiving injections *(East Mediterr Health J. 2010;16 Suppl:S15-23)*

- **Cambodia**: In an HIV outbreak among adults and children, the HIV positive cases were five times more likely to have received an intramuscular or intravenous injection in the preceding six months *(MMWR. 2016 Feb 19;65(6):142-5)*
Sharps Injuries among Hospital Workers by Procedure or Purpose for which Device was Used, N=19,485

Findings from the Massachusetts Sharps Injuries Surveillance System, 2002-2007
Overuse and reuse of injections

Review in 2000 (16 billion injections)

- 40% given with used injections equipment and up to 70% in some countries
- >70% injections unnecessary
- Unsafe injections caused
  - 21 million hep B infections
  - 2 million hep C infections
  - 260,000 HIV infections

Hutin et al. BMJ 2003 Nov;327(7423):1075

Estimates of 2010

- Proportion of reuse 5.5%
- Unsafe injection caused
  - ~1.7 million hep B infections (reduction also attributed to impact of hep B vaccination)
  - ~315,120 hep C infections
  - ~33,877 HIV infections
- Reductions credited to global injection safety efforts

## Region wise proportion of reuse of injections

<table>
<thead>
<tr>
<th>Review of 2000</th>
<th>Proportion of reuse of injections</th>
<th>Estimates of 2010</th>
<th>Unsafe injection per person per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>South East Asia region D</td>
<td>75%</td>
<td>South East Asian</td>
<td>14%</td>
</tr>
<tr>
<td>Bangladesh, Bhutan, North Korea, India, Maldives, Myanmar, Nepal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern Mediterranean region D</td>
<td>70%</td>
<td>Eastern Mediterranean</td>
<td>57%</td>
</tr>
<tr>
<td>(Afghanistan, Djibouti, Egypt, Iraq, Morocco, Pakistan, Somalia, Sudan, Yemen)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Pacific region</td>
<td>30%</td>
<td>Western Pacific and African</td>
<td>17%</td>
</tr>
<tr>
<td>(Cambodia, China, Mongolia, Vietnam, Palau, Nauru, Fiji, Kiribati and others)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African D and E regions</td>
<td>17-19%</td>
<td>African</td>
<td>17-19%</td>
</tr>
</tbody>
</table>
WHO and SIGN

- Injection safety programme in WHO started in 1998
- Safe Injection Global Network (SIGN) alliance formed
- Coalition of stakeholders aiming to achieve safe and appropriate use of injections worldwide
The beginning push on winnable war!

- Immunization services
- WHO/UNICEF/UNFPA joint statement
- All countries to use AD (auto disable syringes)
- Ensuring sufficient numbers-bundling

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**Safety of injections**

WHO-UNICEF-UNFPA joint statement on the use of auto-disable syringes in immunization services

1. The use of standard single-use disposable syringes is a major step in the global effort to control, prevent and eliminate avoidable deaths due to preventable diseases. All countries are encouraged to adopt and use auto-disable syringes in their immunization programs to ensure safety and prevent needle-stick injuries.

2. The auto-disable syringes, which are readily available, are designed to prevent needle-stick injuries and reduce the risk of disease transmission through the sharing of contaminated syringes and needles.

3. WHO, UNICEF and UNFPA joint statement on auto-disable syringes. auto-disable syringes should be used in all immunization campaigns.

4. WHO, UNICEF and UNFPA, in their joint statement on auto-disable syringes, recommend the use of auto-disable syringes in all immunization campaigns to prevent needle-stick injuries and reduce the risk of disease transmission.

5. All countries are encouraged to adopt and use auto-disable syringes in their immunization programs to ensure safety and prevent needle-stick injuries.

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World Health Organization
Development of tools

AIDE-MEMOIRE
for a national strategy for the safe and appropriate use of injections

A safe injection does not harm the recipient, does not expose the provider to any avoidable risks and does not result in any waste that is dangerous for other people.

Words of advice
- Conduct an initial assessment
- Secure government commitment and support for the safe and appropriate use of injections
- Establish a national injection safety coalition, coordinated by the Ministry of Health
- Develop a national policy and plan
- Develop a systematic strategy for behaviour change among patients and health-care workers to decrease injection overuse and achieve injection safety
- Ensure the continuous availability of injection equipment and injection control supplies
- Set up a waste management system for the safe disposal of sharps
- Monitor the impact of activities on injection frequency, injection safety and injection-associated infections

MANAGING AN INJECTION SAFETY POLICY

A framework to benchmark, assess, plan, implement and evaluate a national strategy for the safe and appropriate use of injections

(This document has been revised in light of the injection safety guidelines of 2015)
WHO recommendation for safe and appropriate injections

1. Formulating national policies and plans for safe and appropriate use of injections
2. Ensuring quality and safety of injection equipment
3. Facilitating equitable access to injection equipment
4. Achieving rational use of injections
Country support

- Burkina Faso (2000)
- Syria (2007)
- United States (2008)
- India (2009)
- Pakistan (2009)
- Ethiopia (2009)
Annual SIGN meetings

- Annual meetings held to facilitate collaborations and synergies among participants of the safe injection global network with the objectives to
  - Review progress achieved
  - Exchanging information and ideas
  - Identifying up coming key issues and future challenges

- 1998-2010
Member States to switch to exclusive use of reuse prevention (RUP) syringes by 2020
  – Use syringes with sharp injury protection (SIP) where possible

Call to countries to develop standards for rational use of injections and ensure supply

Call to countries to develop national policies and implementation strategies with special focus on curative settings

Call to partners to fund procurement of safety engineered syringes in supported projects

Call to industry to switch to safety engineered syringes
### International prices mentioned in 2015 policy

<table>
<thead>
<tr>
<th>Category</th>
<th>Purpose of safety feature</th>
<th>International prices USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional single use syringe without safety feature (ISO 7886-1)</td>
<td>No reuse or sharps injury prevention feature</td>
<td>0.03-0.04</td>
</tr>
<tr>
<td>Auto-disable syringe for immunization (ISO 7886-3)</td>
<td>Prevents reuse of the syringe</td>
<td>0.04-0.06</td>
</tr>
<tr>
<td>Reuse prevention (RUP) for therapeutic injections (ISO 7886-4)</td>
<td>Prevents reuse of the syringe</td>
<td>0.05-0.08</td>
</tr>
<tr>
<td>Sharp injury prevention (SIP)-with a plastic shield (ISO 23908)</td>
<td>Prevents accidental NSI among HCW, waste handlers and the community</td>
<td>0.13-0.24</td>
</tr>
<tr>
<td>SIP+RUP shield plus reuse prevention feature</td>
<td>Prevents reuse and accidental NSI</td>
<td>0.08-0.10</td>
</tr>
<tr>
<td>SIP+RUP automatic retractable</td>
<td>RUP with passive SIP feature</td>
<td>0.15-0.39</td>
</tr>
</tbody>
</table>
Safe engineered syringes
**WHO guideline** on the use of safety-engineered syringes for intramuscular, intradermal and subcutaneous injections in health care settings

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**Table 3. Description and sample images of safety features**

<table>
<thead>
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<th>Description of safety feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD syringes for immunization (ISO 7888)</td>
<td>The features include clips, other mechanisms inside the barrel of the syringe. Once the plunger is discarded past the point of the safety mechanism, it cannot be pushed backwards which prevents refilling and re-use of the syringe. Weak spots on the plunger will cause it to break if the user attempts to pull it back a second time.</td>
</tr>
<tr>
<td>RUP syringes for therapeutic injections (ISO 7888 – Part 4: sterile hypodermic syringes for single use; Part 4: syringes with RUP feature)</td>
<td>RUP features are essentially the same as AD technologies. The main differences are that RUPs include variable dosing and some of them allow multiple plunger aspirations. Some models also include a weak spot in the plunger that causes it to break if the user attempts to pull back on the plunger after the injection.</td>
</tr>
</tbody>
</table>
Global campaign-pilot countries

Three countries identified for injection safety pilot as part of the global injection safety campaign:

1. India
2. Egypt
3. Uganda
Key process indicators for the global campaign

1. In depth review of available data
2. Baseline assessment using standardized tool (WHO Tool C)
3. Inventory of policies leading to national policy
4. Assessment of procurement and supply management areas
5. Model to determine economic impact of cost saving on health system after investing in injection safety
6. Integration with other ongoing programmes
7. Health-care workers training
   A. On Safety engineered syringes (RUPs/SIPs)
   B. Rational use of injections
8. Engagement of industry to produce and supply safety engineered syringes
9. Communication campaign based on global campaign using various tools e.g. print, electronic, mobile
10. End of project evaluation
New tools

BEST INJECTION PRACTICES GUIDELINES

A safe injection does not harm the recipient, does not expose the provider to any avoidable risk, and does not result in any waste that is dangerous for other people.

USE STERILE INJECTION EQUIPMENT

Always use a sterile syringe and needle from new, undamaged packaging.

For each injection, and to reconstitute each unit of medication.

Prevent contamination of injection equipment and medication.

Always follow product-specific recommendations for use, storage, and handling.

Prepare each injection in a clean, designated area.

DO NOT use any medications with visible contamination or breaches of integrity (e.g., cracks, leaks).

DO NOT use a needle or syringe if the packaging has been punctured, torn or exposed to moisture.

Discard a needle that has touched any non-sterile surface.

Prevent contamination of the vials:

Wipe the access diaphragm (safety) with 70% alcohol (isopropanol or ethanol) on a swab or cotton-wool ball before piercing the vial, and allow to air dry.

Pierce the septum with a sterile needle every time it is used.

Select pop-open ampoules whenever possible.

If using an ampoule that requires a metal file to open, protect fingers with a clean barrier (e.g., small gauze pad) when opening.

Use single-dose vials every time it is possible. Only use multi-dose vials if there is no alternative, keeping in mind the high potential of contamination.

NEVER use a needle in the stopper of the vial.

USE WHO-RECOMMENDED SYRINGES

WHO recommends syringes with re-use prevention (RUP) features for all injections. RUP syringes with a sharp injury protection (SIP) feature are highly recommended wherever possible.

PROVIDING SAFE INJECTIONS

HEALTH WORKERS MUST ENSURE EVERY INJECTION IS SAFE

Unsafe injections are driving the spread of deadly infectious diseases among patients, health workers and communities including hepatitis B, C and HIV.

Health workers can significantly reduce or eliminate infections associated with injections and needle-stick injuries. By following the simple steps summarized in this leaflet every time you give an injection you will protect yourself, your patients and your community.

SAFETY INJECTION OVERVIEW

A safe injection does not harm the recipient, does not expose the provider to risk and does not result in waste that is dangerous to others. When giving an injection, always:

- Ensure patients are protected each and every time they receive a medical injection.
- Injections must always be administered in a clean and hygienic environment.
- Re-use of syringes and needles is a violation of patient safety.
- Only give injections when they are truly needed.
- Provide all medical injections with safety-engineered syringes.
- Supply a new needle and syringe for each patient.
- Use a single-dose vial every time it is possible.
- Only use multi-dose vials if there is no alternative keeping in mind the high potential for getting contaminated.
- Dispose of used needles and syringes responsibly.

For further information please visit:
http://www.who.int/injection_safety/en/
The seven steps of a safe injection

A safe injection does not harm the **recipient**, does not expose the **provider** to any avoidable risk, and does not result in any waste that is dangerous for **other people**.

1- Clean work space
2- Hand hygiene
3- Sterile safety engineered equipment
4- Sterile vial of medication and diluent
5- Skin cleaning
6- Appropriate collection of sharps
7- Appropriate waste management
A safe injection does not harm the recipient, does not expose the provider to any avoidable risk, and does not result in any waste that is dangerous for other people.

1. Patient demand of safe injection
2. Clean work space
3. Hand hygiene
4. Sterile safety engineered equipment
5. Sterile vial of medication and diluent
6. Skin cleaning
7. Appropriate collection of sharps
8. Appropriate waste management
Please join us to sustain the global injection safety campaign!!

http://www.who.int/injection_safety/en/