International Trends in Sharpes Injury Prevention
Dr. Terry Grimmond, Grimmond and Associates, New Zealand
A Webber Training Teleclass

Objectives...
1. Recall hierarchy of controls to reduce SI
2. Outline international trends in SI rates and prevention.
3. Describe surveillance evidence confirming impact of safety devices on SI.
4. Identify 2 strategies to make implementing safety-devices easier and more effective.

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Hierarchy of Controls to Reduce SI
- Elimination of hazards
  - Needleless IV systems
  - Procedures without sharps (patches, laser, etc)
- Engineering Controls
  - Sharps injury prevention devices
- Administrative Controls
  - Protective Policies e.g. Universal Precautions
  - Resources demonstrating commitment to safety
  - SI Prevention Committee/Training on safe devices
- Work Practice Controls
  - No re-capping; no needle removal; sharps container nearby
- Personal Protective Equipment

http://www.osach.ca/products/SEMS/background4.html

Disclosures
- Grimmond and Associates are consultants to The Daniels Corporation, a producer of reusable sharps containers.
- No corporate sponsorship was requested or received.

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**How do we Measure Sharps injuries?**

**Denominators**
- per 100 Licensed Beds
- per 100 Occupied Beds
- per 1000 FTE (Total or workgroup)
- per 100,000 Devices

**Early SI Research**
(McCormick & Maki)
1975-79
- Total SI/1000 Employees: 60
  - During disposal: 25%
  - Injections (IV/IM): 22%
  - Blood draw: 17%
  - Waste, Linen collection: 17%
  - Recapping: 9%
  - Surgery: 0%

**Their Recommendations...**
- Increase staff education
- Sharps Containers in every Pt room
- No recapping
- Encourage reporting

**1975-79**
Rate/1000 Employees
- Nurses: 69
- Drs: 16
- Housekeepers: 127

**2nd Study (McCormick & Maki)**
1st Study 1975-79
- Total SI/1000 Employees: 60
  - During disposal: 25%
  - Injections (IV/IM): 22%
  - Blood draw: 17%
  - Waste, Linen collection: 17%
  - Recapping: 9%
  - Surgery: 0%

2nd Study 1987-88
- Total SI/1000 Employees: 188
  - During disposal: 4%
  - Injections (IV/IM): 16%
  - Blood draw: 13%
  - Waste, Linen collection: 20%
  - Recapping: 10%
  - Surgery: 16%

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2nd Study (McCormick & Maki)  
<table>
<thead>
<tr>
<th>Year</th>
<th>Nurses</th>
<th>Drs</th>
<th>Housekeepers</th>
<th>Phlebotomists</th>
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</thead>
<tbody>
<tr>
<td>1975-79</td>
<td>69</td>
<td>16</td>
<td>127</td>
<td>n/av</td>
</tr>
<tr>
<td>1987-88</td>
<td>180</td>
<td>150</td>
<td>306</td>
<td>407</td>
</tr>
</tbody>
</table>

2nd Recomm. (1991)…  
- Prevent sharps containers overfilling  
- Transfer all phlebotomy to Phleb. Team  
- OR protocol for transfer of used sharps  
- Encourage HBV vaccination  
- Education not complete answer  
- Must adopt Safety Devices (? $ on PPE)  
  (Janine Jagger proposed SD in 1988)

Examples of Safety devices…  
- Needleless IV delivery systems  
- Needles that retract into syringe or tube holder  
- Hinged or sliding shields attached to needles  
- Protective encasements to receive an IV stylet  
- Self-blunting needles  
- Blunt suture needles  
- Sheathed scalpels  
- Sharps Containers

An Effective Safety device has…  
- Engineering to reduce BBP hazard  
- Published proof of SI reduction  
- High clinical acceptance  
- Passive Safety (if clinically OK)  
- Affordability  
- Compliance (FDA, Standards, etc)

Factors influencing staff acceptance of Safety devices…  
- Perceived risk of infection  
- Design of device  
- Training in use of device  
- Length of time to become adept  
- Ease of use  
- Required changes in technique  
- Previous experience with safety devices

Other features recommended by staff  
- Device is needleless  
- Safety feature is integral  
- Is passive  
- Easily activated with one hand behind sharp  
- Has obvious activation e.g. “click”  
- Safety feature can’t be deactivated at disposal  
- Performs reliably  
- Easy to use and practical  
- Comes in a variety of sizes/gauges  
- Is safe and effective for patients

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Who Gets Stuck?

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2007</th>
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<tbody>
<tr>
<td>Drs</td>
<td>15%</td>
<td>34%</td>
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<tr>
<td>Nurses</td>
<td>48%</td>
<td>36%</td>
</tr>
<tr>
<td>Tech/Atten/Phleb</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>Supp Serv</td>
<td>7%</td>
<td>3%</td>
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</table>

Data from combined EPINet, Mass DoH

The Top Four Stickers….

<table>
<thead>
<tr>
<th></th>
<th>Mass</th>
<th>EPINet</th>
<th>France</th>
<th>Can</th>
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<tbody>
<tr>
<td>Hypo needle</td>
<td>29%</td>
<td>33%</td>
<td>33%</td>
<td>32%</td>
</tr>
<tr>
<td>Suture n.</td>
<td>23%</td>
<td>22%</td>
<td>7%</td>
<td>12%</td>
</tr>
<tr>
<td>Scalpel</td>
<td>7%</td>
<td>8%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Butterfly n.</td>
<td>9%</td>
<td>6%</td>
<td>6%</td>
<td>8%</td>
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</table>

Doing What Procedure?

<table>
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<tr>
<th></th>
<th>USA</th>
<th>France</th>
<th>Can</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injection</td>
<td>24%</td>
<td>23%</td>
<td>24%</td>
</tr>
<tr>
<td>Suturing</td>
<td>23%</td>
<td>7%</td>
<td>13%</td>
</tr>
<tr>
<td>Blood draw</td>
<td>13%</td>
<td>16%</td>
<td>15%</td>
</tr>
<tr>
<td>Cutting</td>
<td>9%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Line procedures</td>
<td>9%</td>
<td>10%</td>
<td></td>
</tr>
</tbody>
</table>

Container-associated SI

- During disposal
- Protrusion
- Bounce-out
- Penetration
- Left on Container

% of total SI

<table>
<thead>
<tr>
<th></th>
<th>US</th>
<th>Can</th>
<th>Fr</th>
<th>Jap</th>
</tr>
</thead>
<tbody>
<tr>
<td>SI</td>
<td>6-10%</td>
<td>12%</td>
<td>7%</td>
<td>12%</td>
</tr>
</tbody>
</table>

>90%

Trends in Sharps Containers

- All patient rooms
- Counter-balanced doors
- Larger apertures (take care with hand entry)
- Larger size (take care with strain injuries)
- Movement to Reusables (ecology, safety)
- Safer containers (Standards)

Strengthening of Sharps Container Standards

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<tr>
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<tbody>
<tr>
<td>Perform Tests</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Design Specs.</td>
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<td>+++</td>
<td>+++</td>
<td>+++</td>
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Impact of enhanced container-engineering on container-assoc SI

EU July 2009
First EU wide agreement between Hospital and Healthcare trade unions and employers to prevent medical sharps injuries

www.epsu.org/a/5500

HCW Risk in Developing Countries
• High % patients BBP +ve
• High incidence sharps injury
• Low use of safety devices
• High workloads (through emigration, death)
• High viral loads in patients
• Less access to ARV Rx
• Injection culture


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Is SI rate Decreasing? USA - EPINet

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Is SI rate Decreasing?  USA – Mass DoH

Is SI rate Decreasing?  (Australia)

Is SI rate Decreasing?  (France)

Am Nurses Assoc - 2008 Study Workplace Safety and Sharps Injuries

- 700 nurses, independent nationwide survey.
- 64% said SI & BBP major concerns.
- 55% believe their workplace safety climate negatively impacts their own personal safety.
- 75% SI involved a standard (non-safety) syringe.
- 74% stuck by a contaminated needle.
- 66% said insufficient opportunity to influence selection of sharps safety devices.

www.nursingworld.org

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Key Steps in Selection & Implementation of Sharps Safety Devices

1. Organize a product selection and evaluation team
2. Set priorities for product consideration
3. Gather information on use of the conventional device
4. Determine selection criteria
5. Obtain information on available products
6. Obtain device samples
7. Develop a product evaluation form
8. Develop and implement a product evaluation plan
9. Tabulate and analyze results
10. Select and implement preferred product
11. Monitor post-implementation

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Si Resources
- Workbook for Designing, Implementing, and Evaluating a Sharps Injury Prevention Program. www.cdc.gov/sharpsafety/
- The International Health Care Worker Safety Center at the University of Virginia. www.healthsystem.virginia.edu/internet/epinet/
- Safer Medical Device Implementation in Health Care Facilities. www.cdc.gov/niosh/topics/bbp/safer/
- NIOSH. Selecting, evaluating, and using sharps disposal containers. www.cdc.gov/niosh/sharps1.html
- Premier Safety Institute. www.premiersafety.com/needlestic

Workbook for Designing, Implementing, and Evaluating a Sharps Injury Prevention Program. www.cdc.gov/sharpsafety/
Safer Medical Device Implementation in Health Care Facilities. www.cdc.gov/niosh/topics/bbp/safer/
NIOSH. Selecting, evaluating, and using sharps disposal containers. www.cdc.gov/niosh/sharps1.html

The Next Few Teleclasses
- 17 Feb. 10 (South Pacific Teleclass): Influenza H1N1 – The Southern Hemisphere Experience. Speaker: Dr. Lance Jennings, Christchurch School of Medicine
- 18 Feb. 10 Stopping URI's and Flu in the Family. Speaker: Dr. Elaine Larson, Columbine University
- 25 Feb. 10 Influenza in the Hospital – Who Gets It From Whom Speaker: Dr. Allison McGeer, Mount Sinai Hospital, Toronto
- 4 Mar. 10 (Novice) An Introduction to Infection Prevention and Control in Healthcare. Speaker: Gail Bennett, ICP Associates Inc.
- 11 Mar. 10 (Novice) MRSA Prevention Basics. Speaker: Dr. Bill Janis, Jason & Janis Associates
- 18 Mar. 10 (Novice) How to Prepare for CIC Certification Without Becoming Certifiable. Speaker: Susan Cooper, Southeastern Ontario Infection Control Network
- 23 Mar. 10 (Free Teleclass) Voices of CHICA. Speaker: Directors & Guests of the Community & Hospital

www.webbertraining.com/schedulep1.php

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