Sharps Injuries – Why Aren't We At Zero?
Dr. Terry Grimmond, New Zealand
A Webber Training Teleclass

Sharps Injuries – why aren't we at zero?

Terry Grimmond, FASM, BAgrSc, GrDpAdEd&Tr

Hosted by Jane Barnett
jane@webbertraining.com

Learning Objectives

01 Discuss SI trends & impact of Safety Engineered Devices

02 List 5 reasons why SI still occur

03 Discuss 5 proven strategies used by low-incidence hospitals

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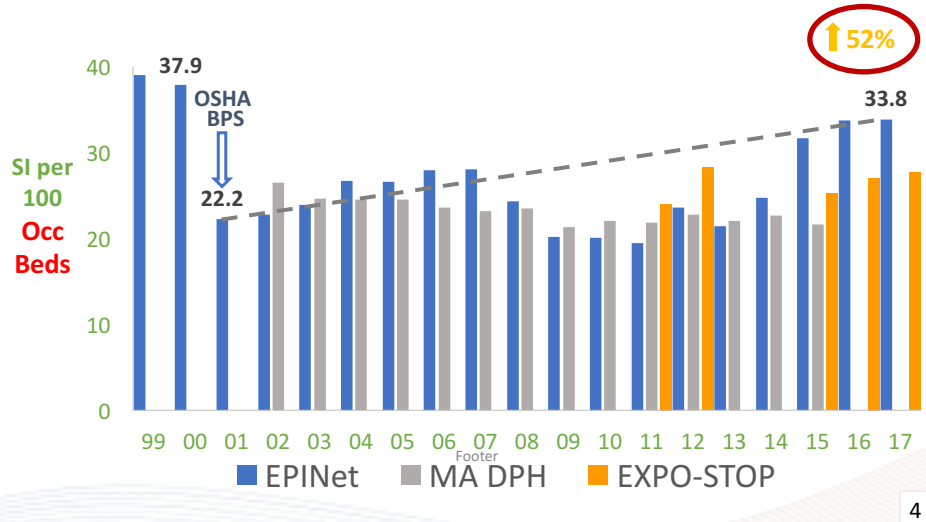
U.S. Sharps Injury (SI) Trends 1999 - 2017

Using "Occ beds"= "*Significant SI rise since 2001*"



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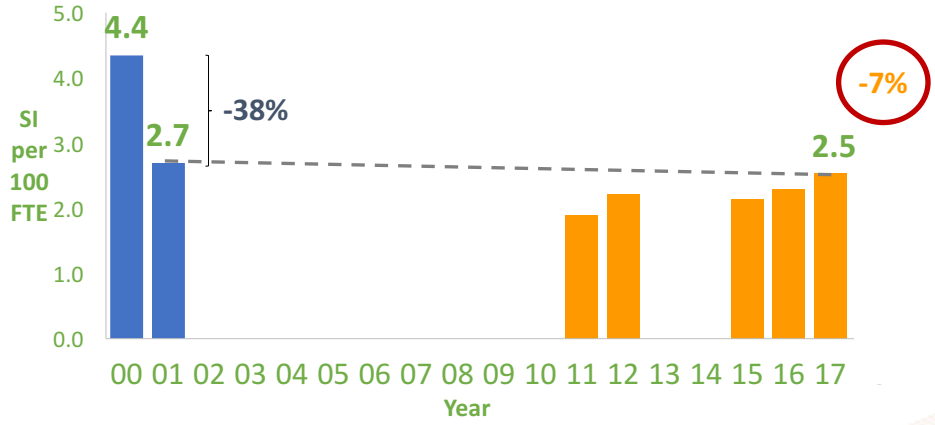
But if we change denominator…

U.S. Sharps Injury Rate per 100 FTE



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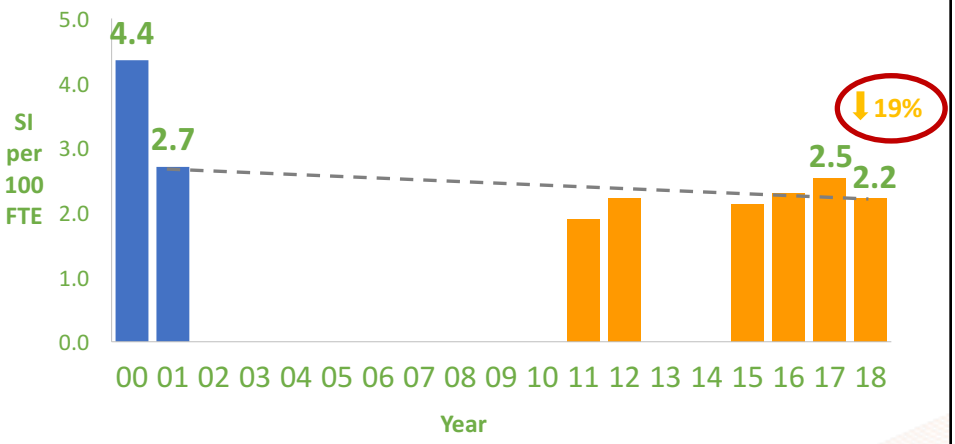
And in 2018….a long-awaited decrease



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EXPO-S.T.O.P Hospitals – 2011 - 2018

Year	Hospitals	Hospital size (Aver Overnight Inpatient Census)	No. states/terr
2011	125	6 - 975	29
2012	157	5 - 985	32
2013	94	1 - 984	28
2014	94	1 - 984	28
2015	182	1 - 924	38
2016	170	1 - 898	38
2017	224	2 - 950	33
2018	**281**	**1 - 925**	**37**

Note. 2018 Bias: 43% are teaching hospitals (national aver 20%)

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EXPO-STOP SI Rates	2011	2016	2017	2018	
SI/100 Occupied Beds	24.0	27.0	27.7	**26.2**	
Non-teaching hospitals	17.8	17.5	16.5	**17.1**	
Teaching hospitals	27.4	33.3	32.4	**30.7**	
SI/100 FTE	1.9	2.3	2.5	**2.2**	Range
Non-teaching hospitals	1.3	2.0	2.0	**1.8**	**0–8.3**
Teaching hospitals	2.0	2.5	2.7	**2.4**	**0.6–5.7**

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EXPO-STOP: Nurse SI rates in hospitals

	2011	2015	2016	2017	2018	
Nurse SI/100 Nurse FTE	N/Av	**3.2**	2.8	**2.7**	**2.9**	**Range**
Non-teaching hospitals	N/Av	**2.7**	3.1	**2.7**	**2.5**	**0–6.8**
Teaching hospitals	N/Av	**3.4**	2.7	**2.7**	**3.1**	**0–8.7**

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EXPO-STOP Trends: Who gets stuck?

SI Cohort	2011	2016	2017	2018
Nurse SI as % of Total SI	N/Av	36.4%	37.6%	**39.8%**
Doctor SI as % of Total SI	N/Av	35.6%	32.7%	**29.0%**
Surgery SI as % of Total SI	37.2%	39.0%	39.9%	**40.5%**

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EXPO-STOP Annual Trends: Mucocutaneous (MC)

	2011	2016	2017	2018
MCE as % of Exposures	27.3%	26.2%	25.6%	**27.0%**
MC/100 ADC	9.0	11.2	9.6	**9.6**
Non-teaching hospitals	7.1	6.5	6.0	**7.3**
Teaching hospitals	10.1	13.9	10.9	**10.7**
MC/100 FTE	0.69	0.82	0.87	**0.78**
Non-teaching hospitals	0.59	0.58	0.72	**0.82**
Teaching hospitals	0.71	0.92	0.93	**0.77**

Note. EPINet 2018: 58% of MCE were to eyes; Only 6% were wearing eye protection

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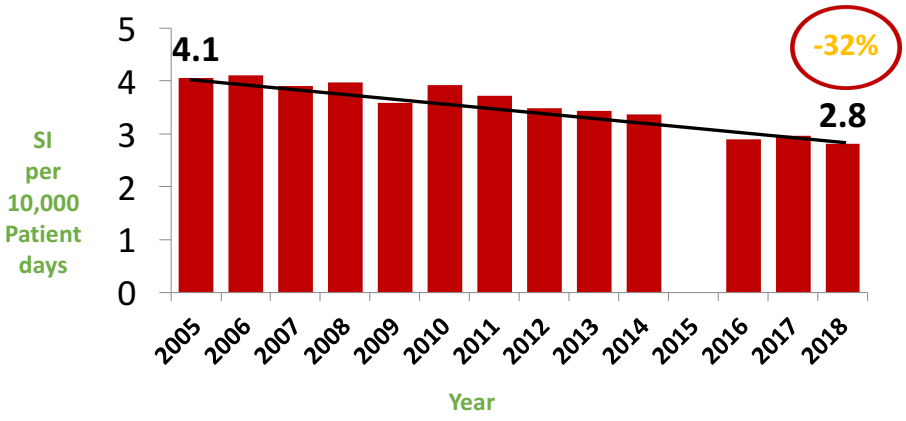
What's happening in Australia?



Australian Council on Healthcare Standards (ACHS). Infection Control v5. Retrospective data in full.
https://www.achs.org.au/media/169585/infection_control__version_5.pdf

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Is Australia's reduction genuine?

- Australia's "Patient days" is different from other countries -so cannot compare (Per "100 FTE" common internationally).
- Definition has been constant, so the fall is likely genuine, but could "Patient Days" have fewer non-sharp procedures?
- Puzzlingly, compared to other countries, adoption and correct use of SED in Australia was not "high" (slide 23)

- Next… 2014 ACIPC-member survey using SI/100 FTE…

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Australia – 2014 ACIPC national survey[1]

307 hospitals (public & private) from 6 states

Total SI/100 FTE = 3.1

Nurse SI/ 100 Nurse FTE = 3.1

[1]Grimmond T, Vause N, Parker J. 2014 ACIPC Sharps Injury Survey - Final Results. Paper at ACIPC National Conference, Nov 2016, Melb, Australia.

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What's happening in New Zealand and Canada?

Unknown (no national database)
(Note. A national database is possible as all hospitals collect exposure data)

Last known SI papers…

- **Canada: 2017**[1] (11 Ont hosp)**: Total SI = 2.0/100 FTE**
- **NZ: 2011**[2] (1 District Hlth Board)**: Nurse SI = 6.8/100 FTE**

(Note: USA **2018**: Total SI = 2.0/100 FTE; Nurse SI = 2.9/100 FTE)

1. Van huule H. It's not Okay – Taking a Stand Against Sharps Injuries. Paper presented at Daniels Health Symposium, Toronto ON, Apr 2018.
2. Fullerton M, Gibbons V. Needlestick injuries in a healthcare setting in New Zealand. NZMJ 2011;124:33-9.
https://global-uploads.webflow.com/5e332a62c703f653182faf47/5e332a62c703f6dc9e2fdc09_content.pdf

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What's happening in UK?

Unknown – (Scotland has database; None in England, Wales or Nth Ire.)

(Note. A UK database is possible as all hospitals collect exposure data.

Last known SI paper…

- **Scotland 2018**[1]**: Total SI rate = 1.9/100 FTE**

(USA **2018**: Total SI = **2.2/100 FTE**)

1. Annual Surveillance of Significant Occupational Exposures, p59, Healthcare Associated Infection. Annual Report 2018. Health Protection Scotland.
https://hpspubsrepo.blob.core.windows.net/hps-website/nss/2776/documents/1_HAI-Annual-Report-2018-final-v1%201.pdf

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Annual estimates of HCW sustaining SI

(Hospital and non-hospital settings)

U.S.A: 300,000 (800/day)
Australia: 30,000 (80/day)
Canada: 50,000 (140/day)
UK: 90,000 (250/day)
NZ: ?

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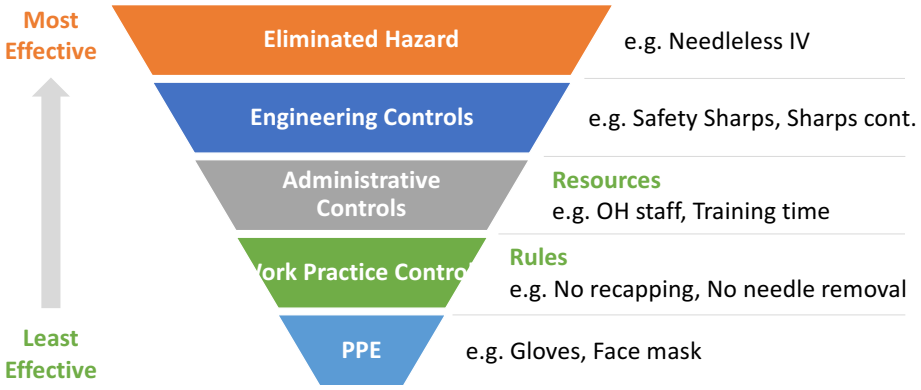
Hierarchy of hazard controls



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Why have SI not decreased as expected? (i.e. to CDC's "zero")

- **Legislation is not enough** (Convert LAW into LORE)
- **SI fallen off radar** (fewer SI papers published; no national databases. *"No data, No problem, No Action"*
- **Complacency**
  - *"But HIV & HCV are treatable"* (there are 60 BBP!)
  - *"But we supply SED"* (SED not all avail/safe/activated)
- **Competing resources** (OH *vs* Infect Prev $ - *both* are HAI)
  - Need more resources for SI investigation, SED selection & *Competency-based* training
- **Unequal weighting** (unlike back injury - SI rarely "days off")

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If SED commercially available for most procedures…. why are SI still so frequent?

Could it be that SED are:

- Not readily available to staff?
- Available but not used?
- Used but not activated?

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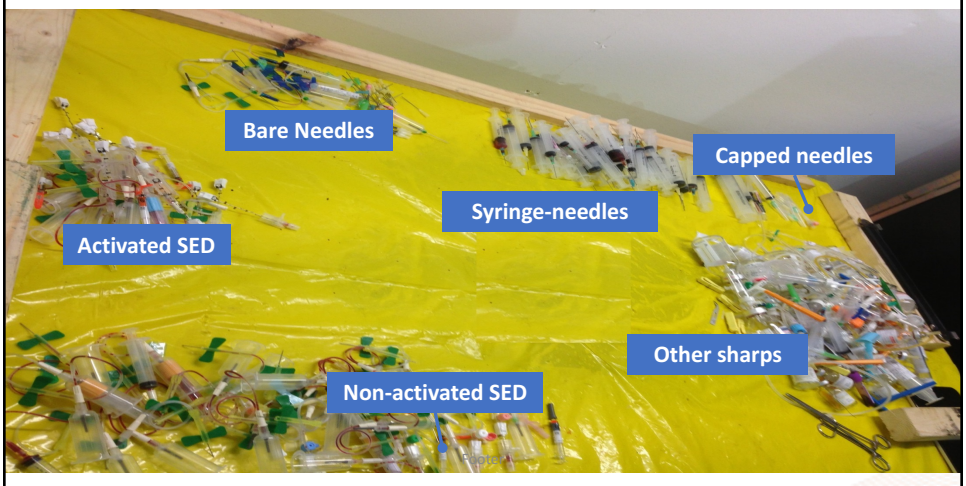
Sharps Container Audits



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Audits of disposed hollow-bore needles

	USA (29 hosp) 2018[1]	Can (ON) (7 hosp) 2016[2]	Aust (27 hosp) 2013[3]	UK (7 hosp) 2016[4]
% HBN that were SED	89%	86%	30%	93%
% SED NOT activated	4%	9%	19%	22%
% HBN "sharp" at disposal	9%	18%	54%	20%
% of Needles capped	5%	23%	21%	1%

SED Safety Engineered Device

1. Grimmond T. Safety Engineered Device Usage and Activation in Six Western U.S. Hospitals. J Assoc Occ Hlth Prof 2019;38(4):14-18 (plus data to be published)
2. Grimmond T. Use and activation of safety engineered sharps devices in 6 Ontario Hospitals. (data to be published)
3. Grimmond T. Frequency of use and activation of safety-engineered sharps devices: a sharps container audit in 5 Australian capital cities. Hlth Inf 2014;19(3):95-100.
4. Grimmond T. UK safety-engineered device use: changes since the 2013 sharps regulations. Occ Med 2019;69:352-8.

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SED:
Can we increase frequency & correctness of use?

EPINet 2018[1]: Sharps injuries

- "HCW did not use SED" = 59%
- SI was "during or after activation" of SED = 53%

	Best to date	AIM[2]
% HBN that were SED	89%	98%
SED not activated	4%	0%
Discarded "sharp"	9%	2%
Discarded capped	5%	0%

Can we do better?

- YES!

1. International Safety Center. EPINet Sharps Injury and Blood and Body Fluid Data Reports. Years 2000 to 2018. https://internationalsafetycenter.org/exposure-reports
2. Grimmond T. UK safety-engineered device use: changes since the 2013 sharps regulations. Occ Med 2019;69:352-8

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Common Themes from "Exposure Safe" Hospitals[1,2]

- **Education AND Training**
  Competency-based training; Throughout employment;
- **Communication:** Creative safety campaigns; Make rates known to all; Share successes with admin.
- **Investigation: (behaviour vs product)**
  How? What with? Why? How can we/you prevent? Safest SED?
- **Engagement:** Commitment by leaders, staff & Managers; Staff to take responsibility for their own safety.
- **Persistence!**

1. Good L & Grimmond T. J Assoc Occ Hlth Prof 2017; 37(1): 23-27. https://aohp.org/aohp/Portals/0/MembersOnlyDocuments/Education/WEB027-1.pdf
2. Good L, Grimmond T, et al. J Assoc Occ Hlth Prof 2018;38(4):10-13. https://aohp.org/aohp/Portals/0/MembersOnlyDocuments/Education/WEB027-2.pdf

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OH Manager Interviews (10 lowest SI Incidence hospitals)[1,2]

- *"We investigate root cause of every SI and look for trends. We concentrate our remedial actions on these (change product/training)."*
- *"My first step in lowering SI was to work with Supply Dept and verify all needles were safety devices. Four non-safety were found and changed."*
- *"After adopting an SED-only policy, I visited every clinical unit and removed every non-safety device. I found heaps."*
- *"Non-safety devices cannot be brought/used in our hospital without approval from the Safety C'tee. And it's backed by our CEO!"*
- *"Every new staff member (incl Drs) is trained to competency on their respective SED at orientation, again every 2 years, and after any SI."*

1. Good L & Grimmond T. J Assoc Occ Hlth Prof 2017; 37(1): 23-27. https://aohp.org/aohp/Portals/0/MembersOnlyDocuments/Education/WEB027-1.pdf
2. Good L, Grimmond T, et al. J Assoc Occ Hlth Prof 2018;38(4):10-13. https://aohp.org/aohp/Portals/0/MembersOnlyDocuments/Education/WEB027-2.pdf

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To get best return on your resources

Focus on your highest prevalence sharps exposures e.g.

Sutures & closures; Neutral zone	Needles and Butterflies	Insulin Syringes	Eye Splashes

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We urgently need do more…one SI is one too many.

- Need increase our individual resolve to reduce SI
- Need more SI publications
- Need national annual SI database in ALL countries

There is strong *patient* safety…why not an equal push for *staff* safety?

We raised staff protection for COVID, let's do it for SI

Zero SI must remain our aim!

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Thank You!

All references available upon request to
terry@terrygrimmond.com

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www.webbertraining.com/schedulep1.php	
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July 16, 2020	*(FREE Teleclass)* THE BUZZ AROUND MOSQUITOES AND MOSQUITO-BORNE DISEASES Speaker: **Dr. Marcia Anderson**, Environmental Protection Agency
July 23, 2020	IMPROVEMENT OF HOSPITAL ENVIRONMENTAL CLEANING AND DISINFECTION PRACTICES FOLLOWING AN EIGHT-MONTH OUTBREAK Speaker: **Corey Weisgerber** and **Terrence Shaw**, Regina General Hospital, Saskatchewan
August 6, 2020	CLEANING AND DISINFECTION IN THE ERA OF SARS-COV-2 Speaker: **Dr. Curtis Donskey**, Louis Stokes VA Medical Center, Cleveland, Ohio
August 13, 2020	AHEAD - A CONSOLIDATED FRAMEWORK FOR BEHAVIOURAL INFECTIOUS RISKS IN ACUTE CARE - PART 2 Speaker: **Prof. Hugo Sax** and **Dr. Lauren Clack**, University of Zurich Hospitals, Switzerland
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