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Putting sharps injury prevention back on the radar

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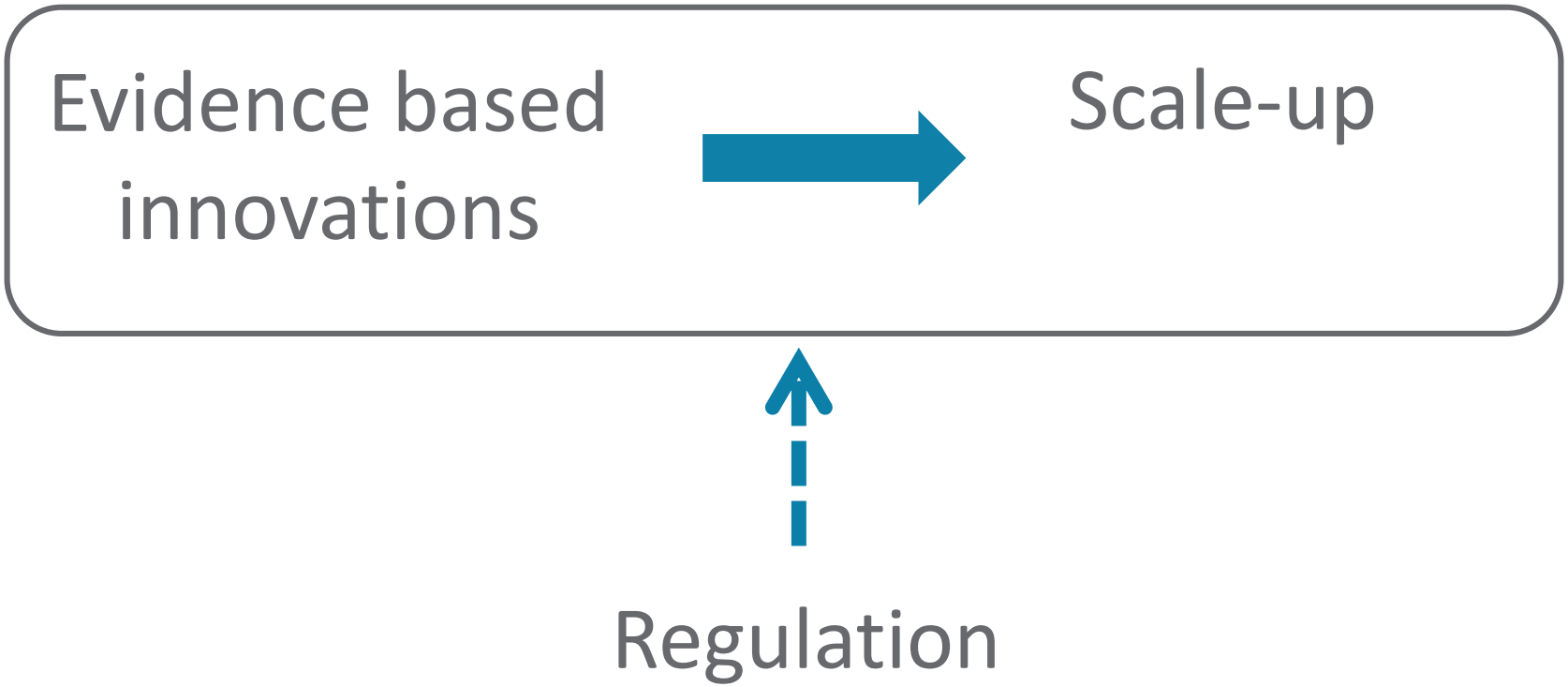
IPAC Eastern Ontario Education Day

Outline

- Burden and risk associated with needlestick injuries
- Safety engineered needles (what was the evidence that spurred change?)
- Ontario's regulation and supports for implementation
- Sharps injury trends (how did we do?)
- Lessons learned from implementation of these devices
- Why are needlestick injuries continuing to occur?
- Four reduction strategies

Common Goal



How was the burden of needlestick injuries presented pre-2007?

- “33,000 needlestick injuries annually in Ontario” (1)
- “Ontario is spending more than $66-million a year testing and treating workers who are injured” (1)
- More than 20 pathogens have been transmitted – including HIV, HBV, HCV
- Psychological impacts post-exposure

(1) Alliance for Sharps Safety and Needlestick Prevention. 2002. "Improving Canadian Health Care Worker Safety: The Case for Mandatory Implementation of Safety-Engineered Sharps Devices and Exposure Control Plans.“

What factors influence injury risk?

- Procedures
- Patient actions
- Emergency situations
- Crowding
- Fatigue
- Understaffing

Motaarefi et al. 2016. Factors associated with needlestick injuries in health care occupations: A systematic review. J Clin Diagn Res. 10(8):IE01-IE04.

Safety Engineered Needles

- Manual
- Semi-automatic (push of a button)
- Automatic (needle automatically retracts)
- Needleless Devices

Tosini et al., Needlestick injury rates according to different types of safety-engineered devices: Results of a French multicenter study. Infection Control and Hospital Epidemiology. 2010;31(4):402-7.

Image credit: https://www.fishersci.ca/shop/products/bd-eclipse-hypodermic-needles-7/p-2770520

Safety Engineered Needles: The Evidence

- Toronto East General Hospital reports an 80% reduction in one year following the transition manual safety engineered needles for blood collection and injections. (1)
- Rigorous systematic reviews have identified considerable variation in outcomes (2)

(1) Visser L. Toronto hospital reduces sharps injuries by 80%, eliminates blood collection injuries. Healthcare Quarterly 2006;6(1):68-70; (2) Reddy et al., Devices with safety features for preventing percutaneous exposure injuries in healthcare staff. Cochrane Database of Systematic Reviews 2017, Issue 11. Art. No.: CD009740. DOI: 10.1002/14651858.CD009740.pub3

Ontario's regulation on needle safety

- When a worker is to do work requiring the use of a hollow-bore needle on a person for a therapeutic, preventative, palliative, diagnostic, or cosmetic purpose, in any workplace. (O. Reg. 439/09)
- …the employer shall provide the worker with a safety-engineered needle that is appropriate for the work. O. Reg. 474/07, s. 3 (1).
- "**safety-engineered needle**" means,
  - a hollow-bore needle that is designed to eliminate or minimize the risk of a skin puncture injury to the worker
  - a needleless device that replaces a hollow-bore needle

Ontario's regulation (continued)

2008:

- Hospitals
- Psychiatric facilities

2009:

- Laboratories, and specimen collection centres
- Long-term care homes

2010:

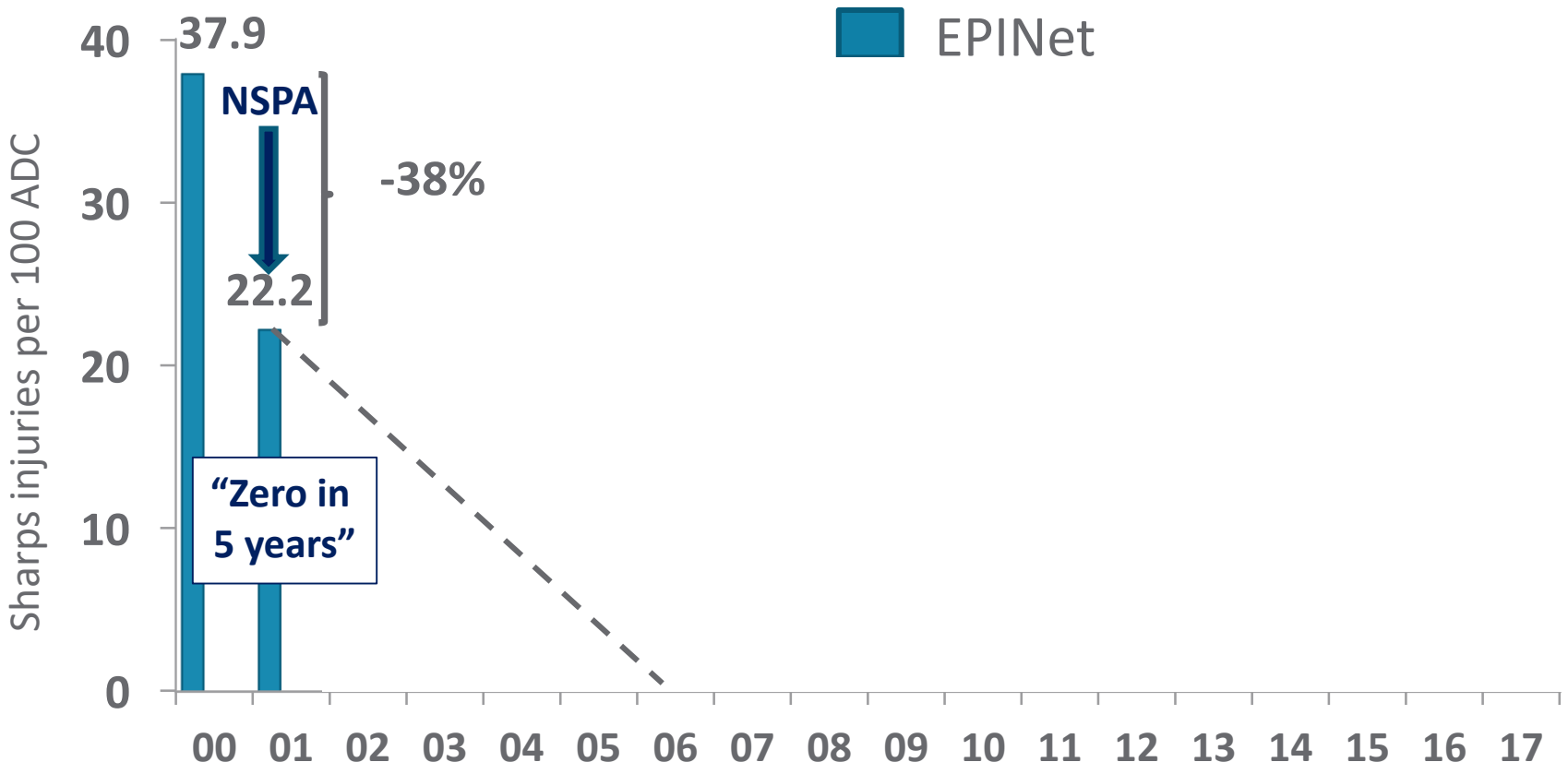
- Doctors' and dentists' offices
- Community health centres
- Family health teams
- Home care services
- Public health programs
- Health support services to students in schools

Supports for implementation

- Tools
- Training
- Technical assistance
- Data/monitoring
- Inspections and enforcement

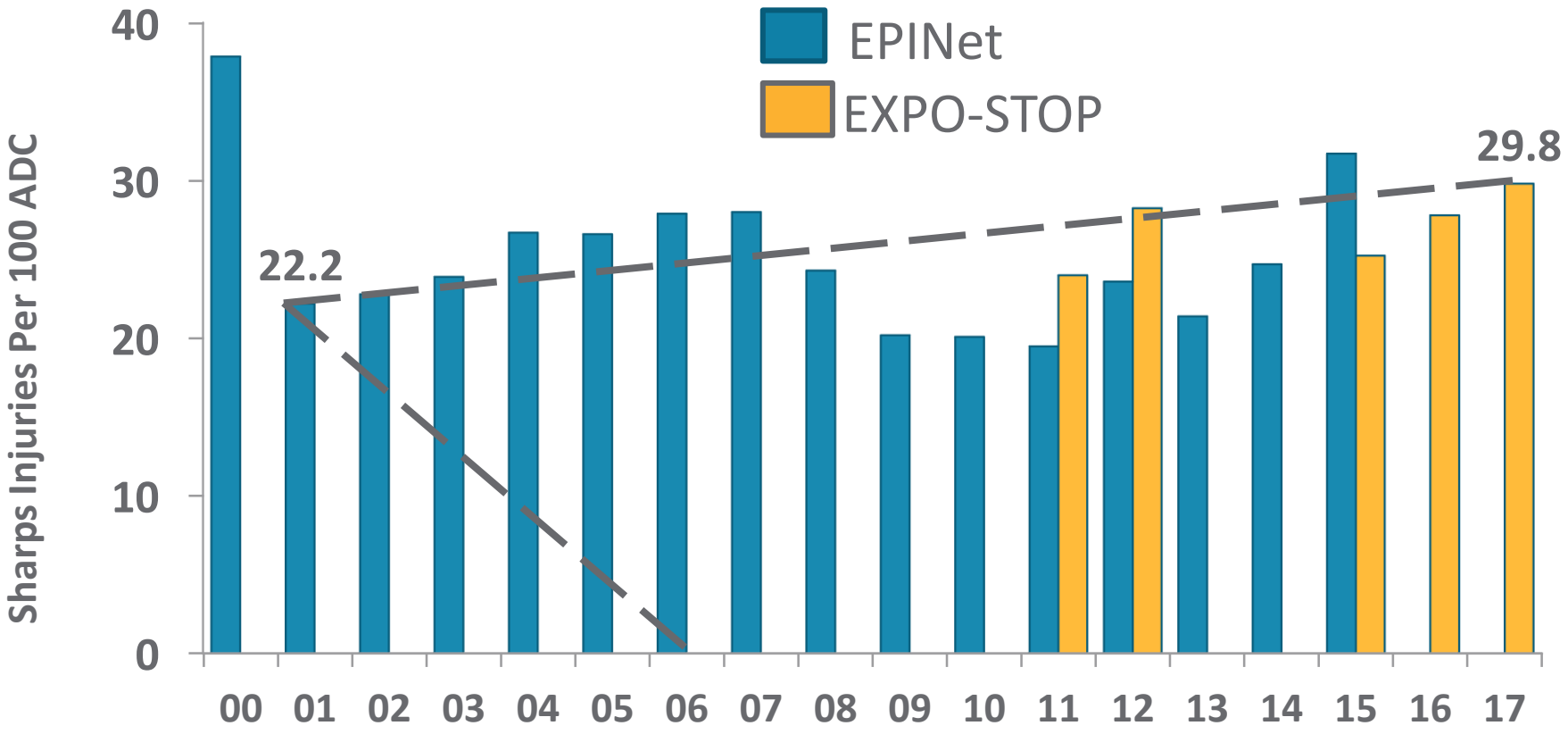
Wandersman et al. 2012. Toward an evidence-based system for innovation support for implementing innovations with quality: Tools, training, technical assistance, and quality assurance/quality improvement. Am J Community Psychol. 50:445-459.

U.S. Trends Sharps Injuries



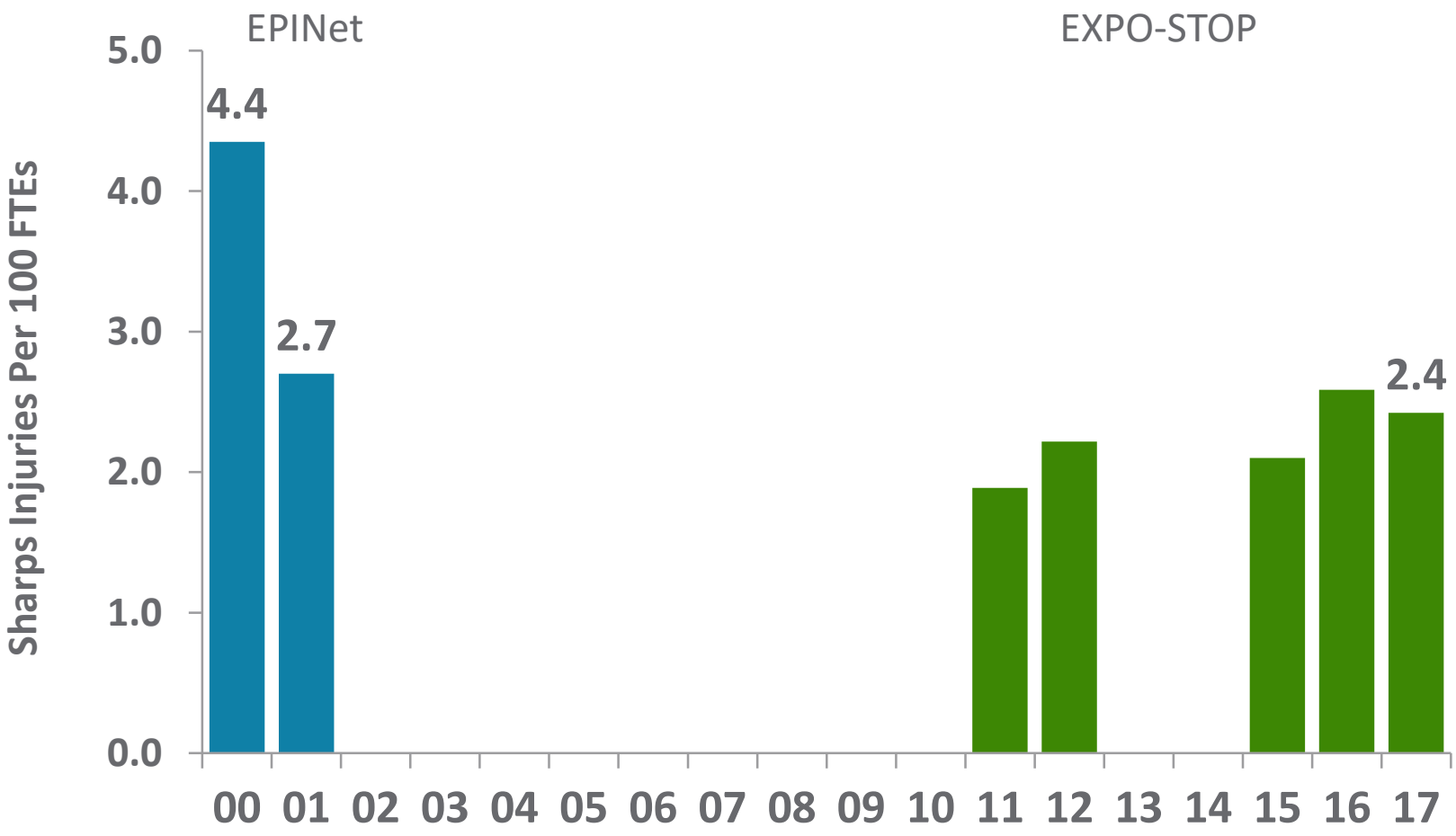
International Safety Center. U.S. EPINet Sharps Injury and Blood and Body Fluid Exposure Surveillance Research Group. Blood and Body Fluid Exposure Report for 2000-2001. Reports available at https://internationalsafetycenter.org/exposure-reports/archived/
Grimmond 2018. Sharps injury incidence in US and Successful Reduction Strategies. US Seminars April 26-28, 2018.

U.S. Trends Sharps Injuries



International Safety Center. U.S. EPINet Sharps Injury and Blood and Body Fluid Exposure Surveillance Research Group. Blood and Body Fluid Exposure Report for 2000-2015. Reports available at https://internationalsafetycenter.org/exposure-reports/
Grimmond T & Good L. Exposure Survey of Trends in Occupational Practice (EXPO-S.T.O.P.) 2015. Am J Infect Control 2017; 45(11): 1218–23
Grimmond 2018. Sharps injury incidence in US and Successful Reduction Strategies. US Seminars April 26-28, 2018.

U.S. Trends Sharps Injuries (full-time equivalents)



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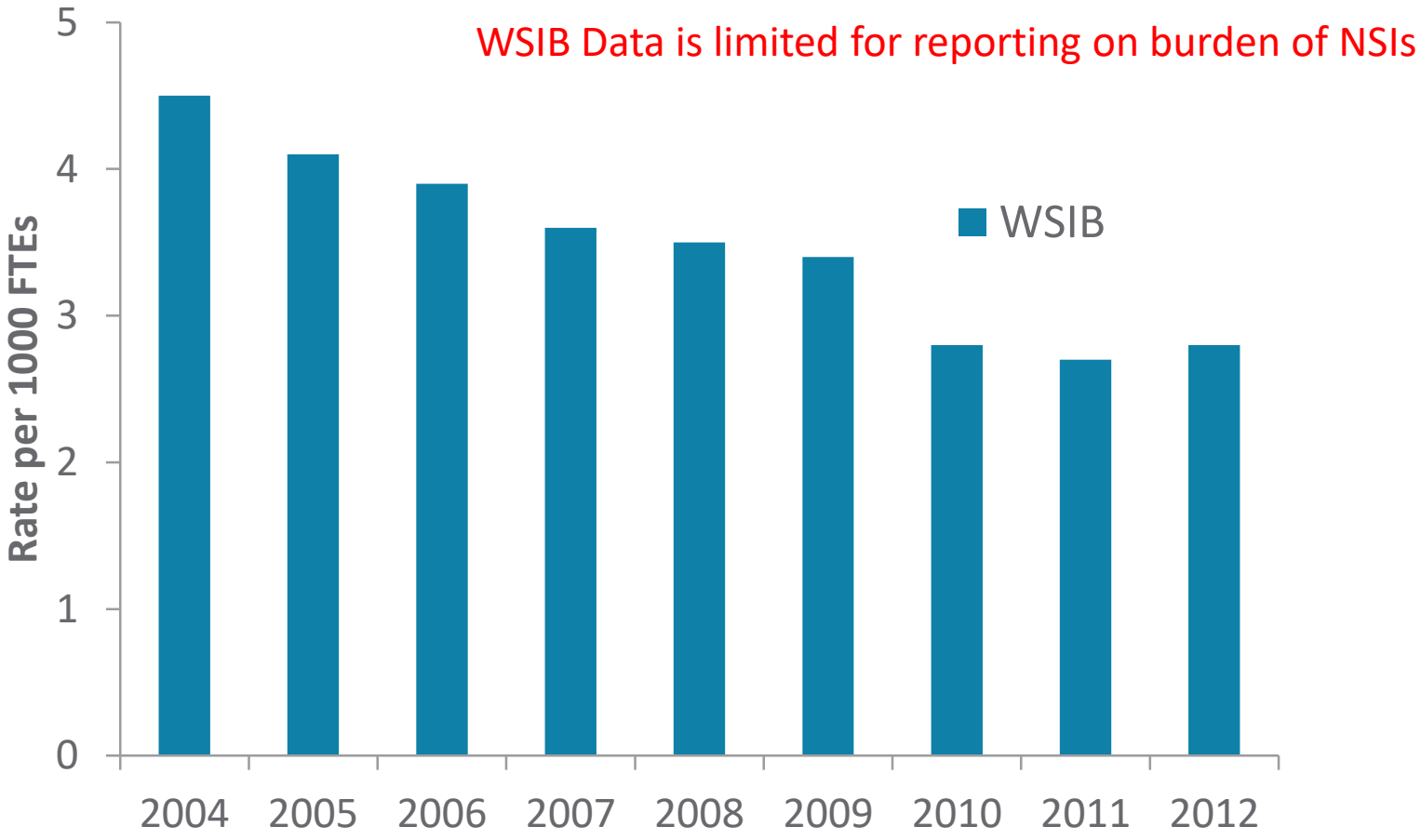
Ontario Needlestick Injury Trends



Chambers A, et al. 2016. Trends in needlestick injury incidence following regulatory change in Ontario, Canada (2004-2012): an observational study. BMC Health Services Research 15: https://doi.org/10.1186/s12913-015-0798-z.

Hospital Case Studies

- Too often we report the impact of system level interventions with an absence of information to explain unexpected or less than optimal results which provides no direction for next steps…

- **Objectives**:
  - To examine how acute care hospitals managed the integration of SENs
  - To identify remaining issues associated with the use of these devices.

Chambers et al., Barriers to the adoption of safety-engineered needles following a regulatory standard: Lessons learned from three acute care hospitals. Healthcare Policy. 2015 11(1):90-101.

Results: Three Case Reports

	Hospital A	Hospital B	Hospital C
Characteristics	Large teaching hospital	Multi-site community hospital	Large teaching hospital
Transition to Safety Needles	2007, in response to safer needle regulation	2006, in response to a workplace inspection order	2003, voluntary transition
Types of SENs	Mix of semi-automatic & manual	Mix of semi-automatic & manual	Mix of semi-automatic, manual, & passive
Implementation Supports Used	Training	Tools, Training, Technical Assistance	Not available
Rate of NSIs per 100 beds:			
Time 1*	11.9	15.3	8.3
Time 2**	8.6	6.2	1.6
% Change	↓28%	↓60%	↓81%

*1yr prior to the transition ; **3 years post-implementation

Highlights of the Results

- Implementation Issues (learning curve, product hoarding, safety device misuse)
- Implementation Planning - the importance of adequate time to meaningfully engage staff
- Sustainability – no strategies sustained, no future plans to consider passive devices or safety sharps

Why have injuries not decreased as expected?

- Safety device use
- Effectiveness of safety engineered needles (“we completed our transition phase”)
- Risk perception
- Limited provincial data (“no data, no problem, no action”)

Reduction strategies (Good and Grimmond 2017)

- Education and training
- Communication
- Investigation
- Engagement

Good L & Grimmond T. Proven Strategies to Prevent Bloodborne Pathogen Exposure in EXPO-S.T.O.P. Hospitals. J Assoc Occ Hlth Prof 2017:36(1);1-5.

Our work is not yet done…

Thank you!

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At Work Article
http://www.iwh.on.ca/at-work (Winter 2014)

Final report:
http://www.iwh.on.ca/other-reports

IWH Plenary Slides on the Safer Needle Study:
http://www.iwh.on.ca/plenaries/2013-nov-19

Questions for you

- Would you say that needlestick injury prevention is “on the radar” in your facility?
- Can you share any prevention strategies your facility has used that were successful (exposure prevention, incident reporting)?
- What types of challenges have you experienced keeping this (and other topics) on the radar?