

Exposure Injury Reduction Strategies: Results that Protect Lives

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Since 2011, the Association of Occupational Health Professionals in Healthcare’s (AOHP) EXPO-S.T.O.P. study (Exposure Survey of Trends in Occupational Practice), has provided “high-level” national blood and body fluid exposure data.¹⁻⁴ With Massachusetts and EPINet databases providing valuable detailed “How” data^{5,6}, it is gratifying to see EXPO-S.T.O.P. develop into the largest “How many” survey, with 224 hospitals across 33 states supplying their 2017 percutaneous and mucocutaneous exposure data this year.⁷ The national rates, presented at the 2018 AOHP Conference, are shown in the table below:

A study of this breadth assists organizations in comparing their exposure rates with a national rate; however, rate comparisons alone will not bring about the vital goal of eliminating potentially life-threatening body fluid exposures to healthcare workers. To reach this goal, proven “Best Practice” safety strategies must be *put into practice* and must

become the new normal. Each year, the EXPO-S.T.O.P. study has identified hospitals that have achieved exposure rates significantly below the national average. We can learn from the occupational health professionals practicing at these “Exposure Aware” organizations as we progress on our shared journey toward eliminating bloodborne pathogen (BBP) exposures among those in our care.

In 2017, we interviewed clinicians from “Exposure Aware” hospitals, who shared many of their strategies for achieving their remarkably low rates. Common themes emerged: Education and Training; Communication; Implementation; and Engagement.⁸ At this year’s AOHP National Conference we wanted to expand on these “Best Practice” tips, so in addition to sharing preliminary 2017 data, we asked audience members to share “What’s Working” and “What’s Not” when it comes to their own experiences with reducing exposure injuries.

We asked participants what innovations they have implemented that have reduced BBP exposures at their facilities. And just as important, the group was asked to share challenges they were still experiencing, recognizing that BBP exposure prevention tests even the most successful programs. In addition, we reached out to colleagues from hospitals recognized as this year’s “Exposure Aware” facilities who were unable to attend the conference, and several took the time to share some of their successful strategies. Once again, responses are grouped to previously identified themes.

Education and Training—Members shared:

- “What worked for us is A LOT OF EDUCATION... at New Hire Orientation, Unit Orientation, Annual Refresh, and every time an employee sustained an exposure.”
- “We have employees complete a module on exposure when a stick or splash occurs.”
- “We emphasize ‘coaching’ rather than a disciplinary focus.”

Communication—Members shared:

- “We had a ‘Go Slow with Sharps’ campaign to raise awareness of risk while using needles and other sharps.”
- “‘Face Shield is the New Glove’ campaign has helped employees incorporate this safety precaution into their everyday practice.”
- “We were able to reduce insulin administration-related sticks from 49% of our injuries to zero by changing to a retractable device. Communicating this success to Administration has made an impression.”

EXPO-S.T.O.P. 2017 Percutaneous & Mucocutaneous National Exposure Hospital Rates

Category	Rate/100 Full Time Equivalentents (FTE)	Rate/100 Occupied Beds
Percutaneous Exposures		
Overall (All Hospitals)	2.5	27.7
• Non-Teaching Hospital	• 2.0	• 16.5
• Teaching Hospital	• 2.7	• 32.4
Mucocutaneous Exposures		
Overall (All Hospitals)	0.87	9.6
• Non-Teaching Hospital	• 0.72	• 6.0
• Teaching Hospital	• 0.93	• 10.9

- “After standardizing to a ‘Safe Zone’ and a needle accountability process in the OR, daily huddles were implemented, used to identify problems or issues with the new process, correct deviation from standard, and celebrate success.”

Investigation—Members shared:

- “When an exposure happens, the employee is counseled by the Employee Health nurse on HOW and WHY the incident occurred.”
- “We ask the associate to describe in detail how they used the safety device. This is a good way to discover bad habits without being disciplinary.”
- “If any poor practices are discovered, the manager discusses this practice at a staff meeting because others may be doing the same things.”
- “I ask ‘How could this have been prevented?’”

Engagement—Members shared:

- “All blood and body fluid exposures are reported to Environment of Care, Infection Control, and Process Improvement monthly.”
- “Commitment to the ‘Neutral Zone’ by the whole surgical team was key to bringing down exposures in our OR.”
- “When an exposure occurs, we require that the employee’s manager participate in the root cause analysis of what factors went wrong.”
- “We have a commitment by leadership to support the new processes, and monitoring it daily and holding each other accountable have been the key to the success of preventing sharps exposures in our OR.”

In addition to sharing successful initiatives, participants were also open about challenges experienced in the area of BBP exposure. Some of these included:

- Resistance to change in the OR: “Some older surgeons are ‘stuck in their ways’ and won’t consider using a ‘Neutral Zone’ or things like blunt sutures.”
- Cost as a barrier: “Between Group Purchasing contracts and overall financial challenges, it is very difficult to champion change to a new, potentially safer needle.”

- Employees with repeat exposures: “We have employees getting multiple sticks in one year—what is the best way to deal with this?”

One factor acknowledged repeatedly in exposure discussions is that of increased workloads on all staff, including occupational health departments. Ironically, greater workloads mean more exposures in both nurses^{9,12} and doctors,¹³⁻¹⁴ and we believe the stress, rushing, and fatigue that accompany higher workloads may be a contributing factor in the significant rise (19%) in sharps injuries in the last three EXPO-S.T.O.P. national surveys.^{4,7} We also believe that under such stress, fail-proof and simple safety-engineered devices are crucial, as is competency-based training.⁸

A Deeper Look

Several AOHP colleagues shared details of their success in reducing exposures at their facilities.

Jane Burnson, Employee Health at a hospital in the Midwest, shared her experience:

We review all sharps injuries and compile and study the data for trends/issues. We have an ongoing campaign on safety; our mascot is a Porcupine. We have education that starts with orientation and continues through annual Computer Based Learning. We continually place posters at employee entrances that feature safety. We do a deep dive with every sharps injury and identify issues/provide education as indicated. All are reported through our Environment of Care and Infection Prevention committees. We are working on putting together a “Post Exposure Huddle” similar to our “Post Fall Huddle” to gather information immediately after it occurred and to address any safety issues of an urgent nature.

Kerry Cassens, Director of Employee Health at a hospital in the Southwest, shared her experience:

At our 260-bed hospital, there was a problem with preventable sharp injuries (SI) occurring in the Operating Room (OR) and in the Sterile Process-

ing Department (SPD). I had previously met with managers of OR-SPD to discuss SI concerns without resolution of SI, so involved senior leadership to make OR-SPD SI prevention a priority. In response, the OR manager and SPD manager convened a task force, including educator and front-line staff, to design and implement a sharp safety plan. The plan included creating a “safe zone” in the OR and the circulating nurse removing sharps from the instrument casket prior to return to SPD. Daily huddles were held in OR to review sharp safety process and near misses and to hardwire the new processes. In 12 months pre-implementation there were 13 SI in OR-SPD; in five months post-implementation there have been zero SI events. Keys to success were involving front line staff, setting clear expectations and processes for sharp safety, and daily monitoring of effort/results.

OR and Emergency Department are where currently 30% of our SI occur. It is important to stress consistent monthly trending of sharp injuries. We have implemented a team member safety committee site specific with follow up for every injury. We have engaged the medical chief of staff at each of the hospital sites so we can stress the importance of safety for providers. Last, if an injury occurs, the team member is required to sit with the Employee Health nurse where coaching regarding safe injection practices occurs, return demonstrations are completed, and the injured healthcare worker has an opportunity to provide feedback regarding opportunities for improvement.

Pamela Morcom, Supervisor, Employee Health at a hospital in the Pacific Northwest, related her experience:

In 2008 we made several changes that have resulted in a reduction in both Sharps Injuries (SI) and splash exposures. The first change was to implement needles with a retractable feature. Prior to this time, 49% of our needlesticks were from insulin syringes that were not retractable. Since implementation, our insulin administra-

tion-related SI rates have gone to zero. Splashes were increasing, so we developed our education program “Face Shield is the New Glove”. Staff are to wear the mask with face shield when disposing of body fluids, flushing J-peg, emptying hemovacs, or any other time there is a chance of a splash. We reinforce education when rounding with the Safety Officers. We also educate staff to slow down whenever they have a sharp in their hand and to speak up if they see a co-worker doing something unsafe. After a needlestick or body fluid splash, Employee Health writes up Lessons Learned, which includes an SBAR to review what went wrong. These are sent to the Charge Nurses to review with staff at their huddles. Anytime we are looking at a new product, staff trial it and give their feedback.

Jill Peralta-Cuellar, Manager, Employee Health Services at a hospital on the West Coast, related her experience:

We use a process known as Collaborative Injury Prevention (CIP) for all types of employee injuries and find it especially effective for sharps injuries and blood exposures. The CIP group is above and beyond the incident investigation that is done routinely by the management team. The CIP meeting occurs with the employee, the employee’s manager/director, and the Employee Health RN. What will trigger the engagement of the CIP is when one of the following **happens in a 12-month period**:

- There have been 3 injuries reported.
- 2 injuries with 1 or both going to claim.
- 2 or more of the same injury (sometimes we will extend the look-back period if they have had one or more sharps or blood exposures in the past).

I mentioned this in the discussion because, at times, staff will have more than one blood exposure or sharps injury, especially in high risk areas such as Operating Room or Diagnostic Imaging. We find that the CIP groups have been highly successful in coming up with new ideas to look at the

situations related to the exposure/injury, eliminate risk factors, and bring risky habits forward so they are openly discussed and problem solved.

Sheri Tadlock, Supervisor of Occupational Health at a hospital in the Midwest, related her experience:

My campaign to reduce body substance exposures (BSE) began in January of 2017. I had only been in my position since November of 2015. I have worked at my facility for 39+ years, mostly as a bedside nurse. When I came to this position, I was naïve and appalled by all of the needle sticks because we have had safety needles for many years. My first step was to audit supplies to verify that all of the needles were safety needles. I identified four that were not; all four are used to draw medication for anesthesia or procedures and changed prior to being used for the patient.

My second step was to collect data and report the data to committees that included staff as well as management. As I began reporting to the various committees, I would comment if the stick/splash/exposure was preventable. Many groups I speak to are mandated, such as the Environmental Safety Committee and Pharmacy Therapeutics and Infection Committee. These committees are comprised of management and physicians, not necessarily end users.

Early in 2017, I presented my data to our Nurse Quality and Nurse Practice Committee. This committee is made up of one bedside nurse from each nursing unit. I present my data to them biannually.

I am required to review the incident with each employee and complete the “Body Substance Exposure Employee Counseling and Instruction Sheet”. It is at this time I have chosen to speak with the employee to see if they have any thoughts or ideas as to how this BSE could have been prevented. I also ask if they have any questions or concerns. Many times, it is simple as demonstrating how a

passive safety device works or teaching younger staff how to “pop” the tab on the newer port-a-cath hubs.

Natalie Guynn, Occupational Health Nurse Practitioner at a large teaching hospital in the Southeast, had a success story regarding resources:

Although our facility and workload have grown over the last 10 years, we’ve had minimal changes in Occupational Health staffing. Our exposures were steady, but zero being our aim, we needed to increase our prevention programs and offer additional support to staff.

We lobbied hard, and our facility created a position for an Occupational Health Prevention Specialist. With this newly created role, we will focus more time on decreasing blood and body fluid exposures. This individual is an RN with clinical experience and knowledge of OSHA laws. She will work directly with employees experiencing exposures and managers of departments, and will also reach out to committees within our facility. She will meet with vendors that provide products to our health system to ensure we are providing the best products and educational resources for our staff. We are excited to see the changes we can make for the safety of those we serve. With extra resources we will strive to reduce the number of incidents and cost of injuries to the health system. We will provide feedback in the future as this position was filled in July 2018.

Also, in addition to this position, because of our patient volume increase, we are incorporating several additional clinical staff from the float pool to assist in our clinic.

The above comments show that a reduction in exposures requires a steely resolve, having zero as our aim, and incorporating “Best Practice” strategies into the daily work of our employees. But it is difficult to achieve alone – it requires teamwork with colleagues with similar determination. Finding “champions” in clinical units and the OR is es-

sential. And we encourage those experiencing challenges to partner with and be encouraged by those who have overcome similar issues.

Leadership support is also a vital factor as confirmed by Gershon, who states, “Employees who perceived strong senior leadership support for safety and who received high levels of safety-related feedback and training were half as likely to experience blood or body fluid exposure incidents.”¹⁶

We need to remember that what we are doing is required by law. With the requirement to annually seek and evaluate safer technologies to assist in reducing staff exposures, the OSHA 2001 Needlestick Safety and Prevention Act¹⁷ adds legal force behind our continued efforts to protect our colleagues.

About the Authors

Linda Good and Terry Grimmond** are lead investigators on the AOHP Expo-S.T.O.P. study. Jane Burnson, Kerry Cassens, Lucy Castellanos, Natalie Guynn, Peg Johnson, Dawn Lantz, Pamela Morcom, Jill Peralta-Cuellar, and Sheri Tadlock are AOHP members who shared their experiences with exposure reduction.*

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References

1. Grimmond T and Good L. EXPO-S.T.O.P.: A national survey and estimate of sharps injuries and mucocutaneous blood exposures among healthcare workers in USA. *J Assoc Occ Hlth Prof* 2013;33(4):31-36.
2. Grimmond T and Good L. EXPO-S.T.O.P. 2012: Year two of a national survey of sharps injuries and mucocutaneous blood exposures among healthcare workers in USA hospitals. *J Assoc Occ Hlth Prof* 2015;35(2):52-57.
3. Brown C, Dally M, Grimmond T and Good L. Exposure Study of Occupational Practice (EXPO-S.T.O.P.): An update of national survey of sharps injuries and mucocutaneous blood exposures among healthcare workers in U.S. hospitals. *J Assoc Occ Hlth Prof* 2016;36(1):37-42.
4. Grimmond T and Good L. Exposure Survey of Trends in Occupational Practice (EXPO-S.T.O.P.) 2015: A national survey of sharps injuries and mucocutaneous blood exposures among health care workers in US hospitals. *Am J Infect Control* 2017;45(11):1218–1223. doi.org/10.1016/j.ajic.2017.05.023.
5. Massachusetts Department of Public Health, Occupational Health Surveillance Program. Sharps Injuries among Hospitals Workers in Massachusetts. Findings from the Massachusetts Sharps Injury Surveillance. Data and Statistics – years 2002 to 2015. <https://www.mass.gov/lists/needlesticks-and-other-sharps-injuries-data-and-statistics> Accessed Oct 14, 2018.
6. International Safety Center. EPINet Sharps Injury and Blood and Body Fluid Data Reports. 2000 – 2017. <https://internationalsafetycenter.org/exposure-reports/>. Accessed Oct 14, 2018
7. Grimmond T and Good L. EXPO-S.T.O.P. 2017: Exposure benchmark research—preliminary results. AOHP National Conference presentation. Glendale Arizona, Sept. 8, 2018.
8. Good L and Grimmond T: Proven strategies to prevent bloodborne pathogen exposure in EXPO-S.T.O.P. hospitals. *J Assoc Occ Hlth Prof* 2017;37(1)23-27.
9. Trinkoff AM, Le R, Geiger-Brown J, Lipscomb J. Work Schedule, Needle Use, and Needlestick Injuries Among Registered Nurses. *Infect Control Hosp Epidemiol* 2007; 28:156-164.
10. Patrician P, Pryor E, Fridman M, Loan L. Needlestick injuries among nursing staff: Association with shift-level staffing. *Am J Infect Control* 2011;39:477-82.
11. Rohde KA, Dupler AE, Postma J, Sanders A. Minimizing Nurses’ Risks for Needlestick Injuries in the Hospital Setting. *Workplace Health Saf* 2013;61(5):197-202.
12. ANA 2008 Study of Nurses’ Views on Workplace Safety and Needlestick Injuries. An Independent Study Sponsored by American Nurses Association (ANA) and Inviro Medical Devices. <https://www.nursingworld.org/~4ad48c/globalassets/docs/ana/inviro-fast-facts--6-17-2008.pdf>. Accessed Oct 30, 2018
13. Makary MA Al-Attar A, Holzmüller CG, Sexton JB, Syin D, Gilson MM, Sulkowski MS, Pronovost PJ. Needlestick Injuries among Surgeons in Training. *N Engl J Med* 2007;356:2693-9.
14. Rodriguez-Jareño MC, Demou E, Vargas-Prada S, Sanati KA, Škerjanc A, Reis PG, Helimäki-Aro R, Macdonald EB, Serra C. European Working Time Directive and doctors’ health: a systematic review of the available epidemiological evidence. *BMJ Open* 2014;4:e004916. doi:10.1136/bmjopen-2014-004916.
15. Wicker S, Stirn AV, Rabenau HF, Gierke L, Wutzler S, Stephan C. Needlestick injuries: causes, preventability and psychological impact. *Infection*. 2014 Jun;42(3):549-52. doi: 10.1007/s15010-014-0598-0. Epub 2014 Feb 14.
16. Gershon RRM, Karkashian CD, Grosch JW, et al. Hospital safety climate and its relationship with safe work practices and workplace exposure incidents. *Am J Infect Control* 2000;28:211-21. doi:10.1067/mic.2000.105288.
17. OSHA Bloodborne Pathogens Standard 1910.1030. US Department Labor, Occupational Safety and Health Administration. Jan 18, 2001. http://www.osha.gov/pls/oshaweb/owadis.show_document?p_table=STANDARDS&p_id=10051. Accessed Oct 24, 2018.

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