Necessary Drugs; Unnecessary Exposures

An Examination of Chemotherapy Safe Handling Among Oncology Healthcare Workers

Catherine Graeve, MPH, BSN, PhD Student
Environmental and Occupational Health Nursing
University of Minnesota
Acknowledgements

• National Institute for Occupational Safety and Health (NIOSH)
• Centers for Disease Control and Prevention,
• Department of Health and Human Services
• Midwest Center for Occupational Health and Safety
  (NIOSH Training Grant Number T42 OH008434)
Objectives

1. Describe importance of safe handling of hazardous drugs for healthcare workers
2. Describe one study which implemented an intervention to improve safe handling
3. Discuss the implications for other cancer care facilities
Cancer

Chemotherapy

A Survivor!
Healthcare workers exposure is …

- Repeated
- Unnecessary
- Full of Barriers to Safe Handling
“Over 8 million healthcare workers are potentially exposed to hazardous drugs in the workplace”

(Connor, 2010)
Chemotherapy Hazards

- Carcinogenic  (NIOSH, 2004)
- Mutagenic    (McDiarmid et al. 2010)
- Teratogenic  (Lawson et al. 2012, Fransman, 2007)
Safe Handling Guidelines

Guidelines:
• NIOSH 2004
• American Society of Health System Pharmacists

NOT mandated or Universal

Washington was the first state to pass hazardous drug safe handling legislation in 2011.

States adopted or considering Hazardous Drug Policy
Goal of Research
Setting

One Healthcare System, 4 units

1. Oncology
2. Bone Marrow Transplant
3. Outpatient Infusion
4. Pharmacy
Methods

1. Survey about PPE use and organizational factors.

2. Wipe sample for chemotherapy residue.

3. Develop and implement a worksite intervention.

4. Resample and resurvey.
Results

Survey Results
• 101/163 = 62% Response Rate (Pre)
• 71/98 = 72% Response Rate (Post)

Surface Contamination Results
• 76 unique site/drug tests
• 5 + pre-test (of 27)
• 6 + intervention (of 12)
• 3 + post-test (of 27)
Outpatient Infusion

**Intervention:**

Treat patient bay area as room for PPE use

Before: Paclitaxel 10.6 Nanograms
After: Below the Limit of Detection
Inpatient Oncology

**Intervention:**
- Test Bag: 3440 Nano. Ifosfamide
- Move chemotherapy check location

**Before:** 11 Nano. Ifosfamide
**After:** Below the Limit of Detection
Inpatient Bone Marrow Transplant

Intervention

• Test bathroom floor 35 Nanograms Cyclop.
• Train Nursing Station Technicians
• New sprayer

Before: Bedside Table 1.5 Nano Cyclop.
After: Below the Limit of Detection
Reported PPE Use Score During Various Activities Pre and Post

- Double Gloves
- Re-used Disposable Gowns

Chart showing PPE Score with categories for Prep Pre, Prep Post, Admin Pre, Admin Post, Disposal Pre, and Disposal Post.
Conclusions

• Reported PPE use is lower than recommended
• The unit one works affects their safety behavior
• A thorough workplace analysis with surface monitoring is needed to know where to focus safety
• Involving workers and management is important in making changes
• Improvements can be made
Next Steps

• Hospital to explore funding for routine monitoring
• Cleaning study
• Policy work at state level
Implications for Healthcare Team

- **Nurses**: Be aware of hazardous drug policy if floating to areas where chemotherapy is administered
- **Oncology Nurses**: Review NIOSH guidelines and follow them; educate your co-workers
- **Oncology Managers**: Review your workflow and policy and encourage safety behavior
- **Administrators**: Monitor for surface contamination of chemotherapy
References


References

