

# Necessary Drugs; Unnecessary Exposures



## An Examination of Chemotherapy Safe Handling Among Oncology Healthcare Workers

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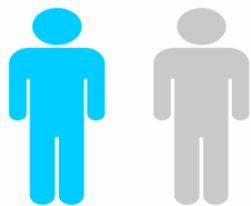
UNIVERSITY OF MINNESOTA  
**Driven to Discover<sup>SM</sup>**



# 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

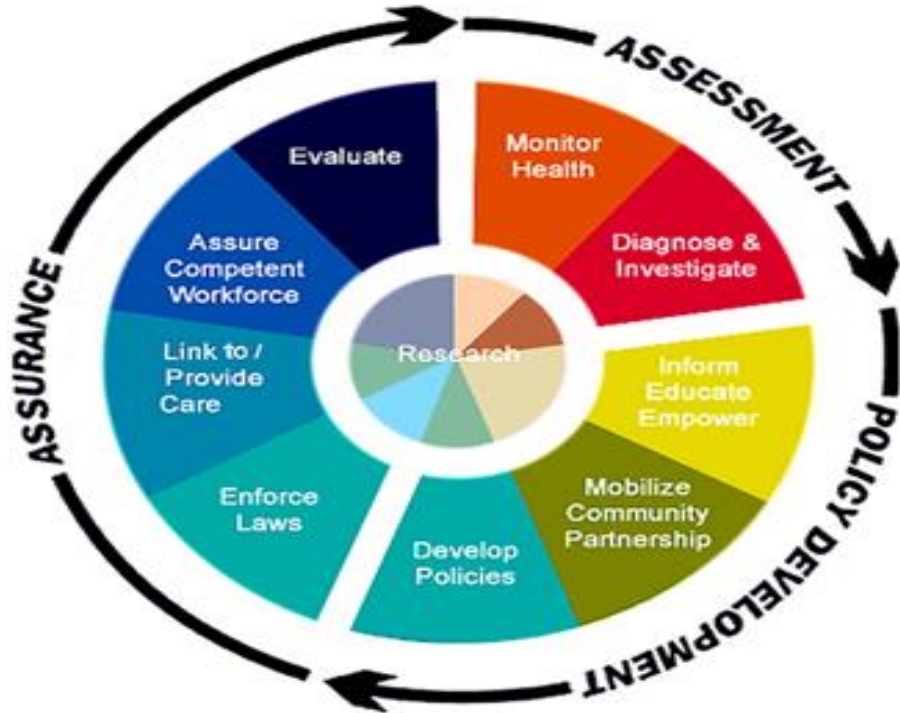
Cancer



Chemotherapy



# Public Health



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)



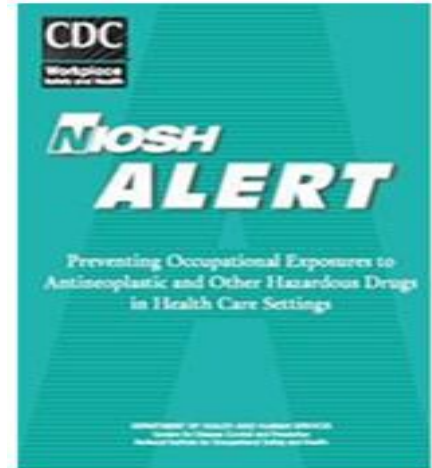
# Safe Handling Guidelines

Guidelines:

- NIOSH 2004
- American Society of Health System Pharmacists

**NOT** mandated or  
Universal

<http://www.cdc.gov/niosh/docs/2004-165/pdfs/2004-165.pdf>







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

<http://video.kcts9.org/video/1540491605/>

# States adopted or considering Hazardous Drug Policy



# Goal of Research



exposure



# 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

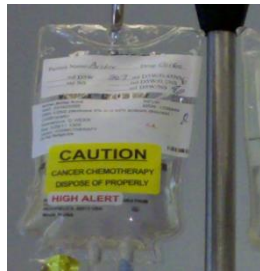


Before: Paclitaxel  
10.6 Nanograms  
After: Below the  
Limit of Detection

# Inpatient Oncology

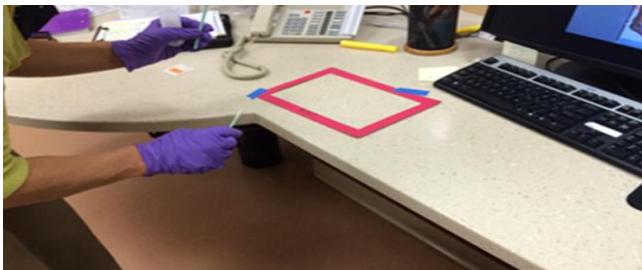
## Intervention:

- Test Bag:  
3440 Nano.  
Ifosphamide
- Move chemotherapy  
check location



Before: 11 Nano.  
Ifosphamide

After: Below the Limit of  
Detection





# Inpatient Bone Marrow Transplant

## Intervention

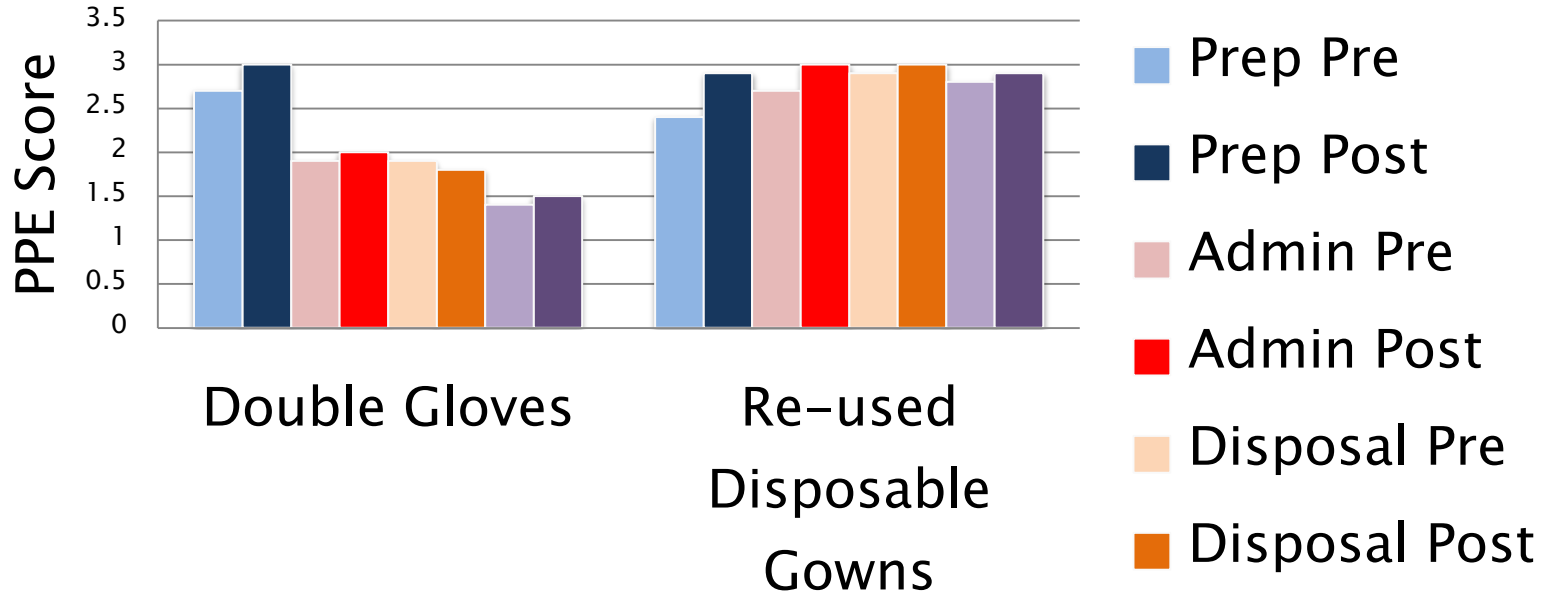
- Test bathroom floor  
35 Nanograms  
Cyclop.
- Train Nursing  
Station Technicians
- New sprayer



Before: Bedside  
Table 1.5 Nano  
Cyclop.

After: Below the  
Limit of Detection

# Reported PPE Use Score During Various Activities Pre and Post



# 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

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