Pesticide Protective Behaviors of Latino Migrant and Seasonal Farmworkers in NC

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Objectives

Participants will be able to:

Describe actual versus self-reported pesticide protective behaviors of Latino migrant and seasonal farmworkers in NC

Describe social considerations that are unique to Latino migrant and seasonal farmworkers undergoing cancer treatment in NC

Discuss the importance of clinical documentation of occupational exposures to research

Background

Pesticides may have adverse health effects

- Acute: nausea, vomiting, headache, dizziness, skin rash
- Chronic: damage to nervous system, reproductive problems, cancer risk[1-6]

The Agricultural WPS mandated pesticide protective behaviors (PPB) be taught to *field workers* within 5 days in the field and every 5 years

- wearing long-sleeved shirt, long pants, closed shoes, socks
- washing of hands and face before eating, drinking, using the bathroom, smoking, and chewing gum or tobacco[7]
  - gloves have shown some efficacy but are not mandated
  - hand sanitizer has been shown to *increase* pesticide metabolites

Recent WPS changes require annual training and no grace period (1/2/2017)

Selected Study Goals

Compare and contrast **observed and reported behaviors** of Latino migrant and seasonal farmworkers to those mandated to be taught in EPA's WPS.

Identify Latino migrant and seasonal **farmworkers' and growers' perceived barriers and strategies** to counter barriers to using the behaviors mandated to be taught in EPA's WPS.

Study Locations

Three tobacco farms in one county in North Carolina

Variation in farms (# of workers ranged from 5-60)

Study Design

Recruited 3 growers; all from Certified Safe Farm program[8]

Neither growers nor farmworkers knew the focus on pesticides

Collected data sequentially across the 3 farms

All farmworkers participated, N= 72*

Observed farmworkers in the field (6-12.5 hrs)

Questionnaires and targeted interviews for farmworkers on following Sunday evening

Growers interviewed last

*71 in observational data

Participant Description

Personal Characteristic	Farmworker (N=72)	Grower (N=3)
Gender (male)	96%	100%
Age (mean)	33 (18-68)	51 (43-59)
Education (middle school or less)	89%	0%
Years in agriculture (mean)	6 (US) / 12 (total)	41
Pesticide safety training	97%	100%
Training 2012 or later	97%	100%
From Mexico	97%	
On work contract	90%	

Observation Tool

Time (30 min Intervals)	Closed shoes	Socks	Long sleeves	Long pants	Eating	Wash hands before eating	Wash face before eating	Drinking	Wash hands before drinking	Wash face before drinking	Wear gloves	Notes:
:31-:00												
:01-:30												
:31-:00												
:01-:30												
:31-:00												

Findings: Observed vs. Self-Reported Behavior (Mandated)

Behavior	All of the time Yes	Some or most of the time Sometimes	Never No	Wilcoxon test
Clothing				
Wearing closed shoes * 3 type				-.378 (p=.705)
Observed	65	6	0	
Reported	66	5	0	
Wearing socks **				.000 (p=1.00)
Observed	11	0	2	
Reported	70	1	0	
Wearing long sleeves				**-2.197 (p=.028)**
Observed	**64**	6	1	
Reported	**69**	1	1	
Wearing long pants				-1.414 (p=.157)
Observed	70	1	0	
Reported	71	0	0	
Washing				
Washing hands before eating***				**-4.768 (p=.000)**
Observed	**7**	0	34	
Reported	**65**	4	2	
Washing face before eating				**-4.542 (p=.000)**
Observed	**0**	0	41	
Reported	**46**	15	10	
Washing hands before drinking****				**-4.064 (p=.000)**
Observed	**0**	7	62	
Reported	**41**	15	15	
Washing face before drinking				**-1.896 (p=.058)*******
Observed	**0**	0	69	
Reported	**31**	18	22	

Findings: Barriers to PPB & Farmworker strategies

Nothing (70%)

Wetness (40%):

- "The shirt starts getting wet and that's how one starts having contact with the pesticide"
- "When one starts to sweat, the pores open and the anxiety begins. If you are not careful to bathe or wash your hands before eating something, since you have your pores open, you get dizzy or vomiting because as a worker, you have your pores open because of the sweat."

Heat (33%)

Laziness (10%)

Have supplies on hand

Prepare a backpack and change

Communicate warnings

Training; (<1% time spent on washing behaviors)

Use "suero"

Drink milk

Use medications and ointments

We observed the regular use of hats, water-resistant outerwear

The Role of Experience and Training

Those with more training had more perceived susceptibility to illness and were more likely to find protective behaviors effective

Those with more experience used less protective clothing

Training video spent 1% of the time on washing behaviors

Opportunities for Research

Self-report should not be used in place of actual behavior

Include non-tobacco, non-safety oriented farms

Explore efficacy of farmworker strategies such as use of hats and water-resistant outerwear to minimize exposures to pesticides

Opportunities for Practice

Education to reinforce the importance of washing behaviors in the field

Tailored training in tobacco should include behaviors that decrease risk for GTS and pesticide exposure

Utilization of moderately experienced workers as peer trainers

More frequent training may be beneficial

Provision of adequate supplies must be 100% of time per Field Sanitation Regulation

Farmworkers and growers can work together around safety issues

If you want to read more…

Walton, A.L., LePrevost, C.E., Linnan, L., Sanchez-Birkhead, A., Mooney K. (2017). Benefits, Facilitators, Barriers and Strategies to Improve Pesticide Protective Behaviors: Insights from Farmworkers in North Carolina Tobacco Fields. *International Journal of Environmental Research and Public Health,* 14 (7):E677.

Walton, A.L., LePrevost, C., Wong, B., Linnan, L., Sanchez-Birkhead, A., Mooney K. (2017). Perceived threat and protective behaviors among Latino farmworkers. *Journal of Agromedicine,* 22(2):140-147.

Walton, A.L., LePrevost, C., Wong, B., Linnan, L., Sanchez-Birkhead, A., & Mooney, K. (2016). Observed and self-reported pesticide protective behaviors of Latino migrant and seasonal farmworkers. *Environmental Research*. 147, 275-283.

Questions about the study?

Where we've gone from here

Invited by NCFWHP to improve handwashing educational materials

Conducted a series of focus groups and administered questionnaires

Created and distributed the toolkit at NCFWHP

Seeking funding to test it's efficacy among farmworkers and farmworker health outreach workers across the state

Formed a Farmworker Health Research Collaborative with outreach workers

Shifting gears… clinical experience informing research

My experience as a hematology oncology nurse caring for young Latino men working in agriculture with ALL

Focus on protective behavior given my prior skills and experiences and my interest in the observational method

Continued to care for patients while conducting my research and saw fewer Latino migrant and seasonal farmworkers on our units- shift in where they seek care?

Lessons learned working with patients

Language barriers go beyond the obvious

Migration makes follow-up care hard

Providers have to be willing to spend time and energy questioning their own assumptions, gathering information

There may be dual families

Bringing family in at end of life or bringing patients home to die may be considered "catastrophic"

The caregiver may be very non-traditional; question your assumptions

Outreach worker insights

Lessons learned examining documentation of providers

In a chart review of 115 patients, 98 were asked about their occupation

Using industry/occupational codes, 35% of the sample were at high risk for leukemia[9]

Exposure assessment was done for 2 people (pesticides-farmworker, asbestos-factory worker)

I PREPARE card- ATSDR- how to do an environmental exposure assessment beyond employment[10]

To read more about this study:

Walton, A. L., Leak Bryant, A., Wong, B., Mooney K. (2016). A Missed Opportunity: Understanding the Value of Documenting Occupational Exposure to Carcinogens in Adults with Acute Leukemia. *Journal of the Advanced Practitioner in Oncology, 7*, 532-537.

Questions about the clinical care component?

Feel free to contact me for additional information at:

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