# Contributing Factors in Pesticide–Related Illness Agricultural Workers, WA (2003-2008)

PIRT Panel

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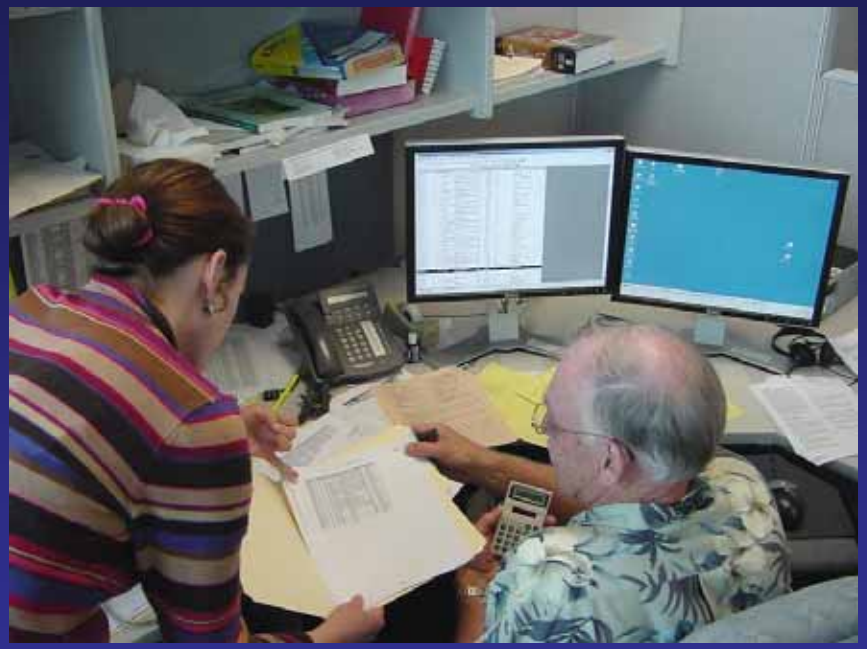
Illness Monitoring and Prevention

# Acknowledgements




Pesticide Program

- Tito Rodriguez
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- Jennifer Sievert
- Joanne Prado
- Lynden Baum

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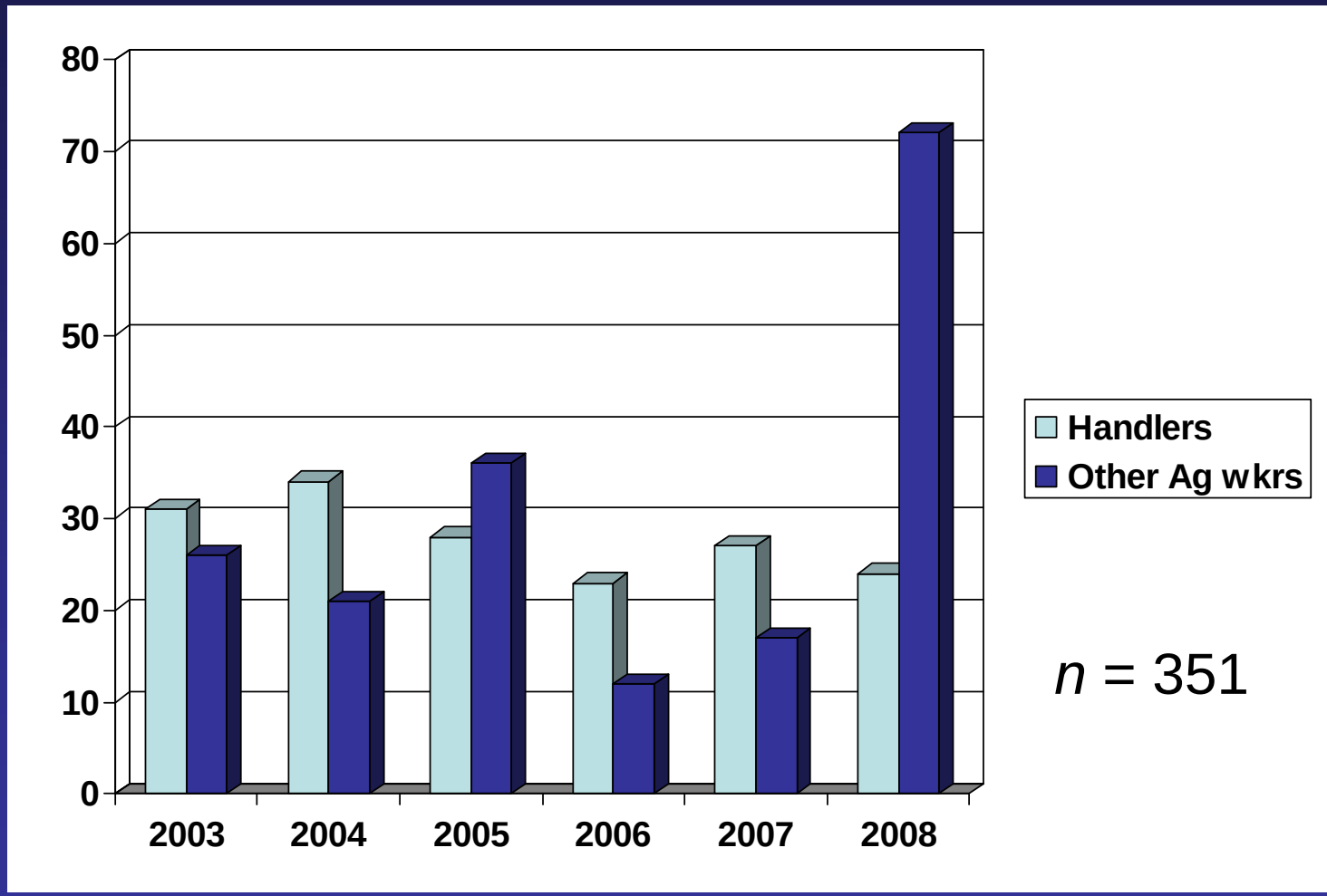
# Pesticide-related illness/injury Handlers vs. Other Ag Workers



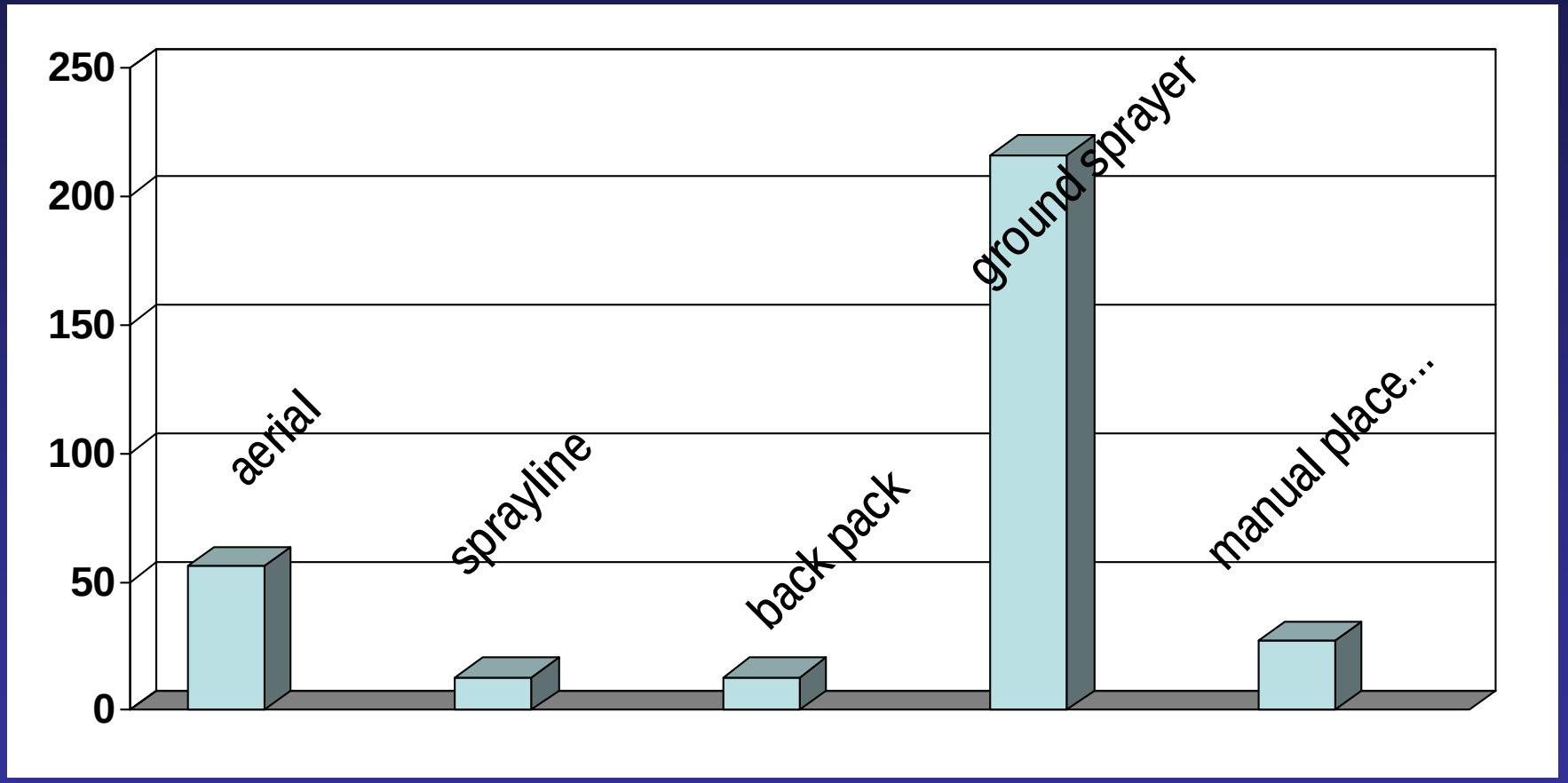
# Who is getting sick?

| | **Handlers (*n* = 167)** | **Other Ag Wkrs (*n* = 184)** |
|---|---|---|
| % male | 98 % | 61% |
| % Hispanic | 82% | 89% |
| Preferred language=Spanish | 73% | 82% |
| Age (median, range) | 33 (16-74) | 32 (14-65) |
| Task when exposed | Mostly (75%) applying | Harvesting, Thinning |

# Crop Type

- Half of all workers were exposed to pesticides applied in fruit orchards (apples, cherries, pears, other)
- Other are grapes, potatoes, corn, hops, nurseries, alfalfa (one large incident)

# Type of equipment involved in reported cases is mostly tractor-pulled ground sprayers like the orchard air blast sprayer.



Air blast sprayer applying dormant spray

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# Prevention – Target groups

## Handlers

- Tree fruit
- Ground sprayer
- Male
- Hispanic
- Spanish speakers

## Other Workers

- Fruit Pickers/thinners
- Orchard workers
- Male / female
- Hispanic
- Spanish speakers

# Prevention

| Outreach | Messages |
|---|---|
| Employers | ? |
| Workers | ? |
| Enforcement (L&I/WSDA) | ? |
| Policy/Labels (EPA) | ? |

# Interview tools

- **How could your exposure have been prevented?**
- **Do you have suggestions for how we could help others prevent a similar problem?**
- **Why, why, why…**

| Contributing Factors Identified | Handlers |
|---|---|
| Posting or notification didn't occur. | 2 |
| People were exposed in the treated area during application. | 1 |
| Structure not adequately ventilated before allowing people to re-enter. | 1 |
| Early re-entry. | 0 |
| Required eye protection not worn. | 42 |
| Other required PPE not worn. | 41 |
| PPE in poor repair, not maintained, not worn correctly. | 29 |
| Spill or splash (not involving equipment failure) | 10 |
| Product not stored properly / within reach of children. | 0 |
| Decontamination not adequate or timely. | 11 |
| Misuse of a pesticide. | 0 |
| Other label violations identified. | 8 |
| No label violation identified but person still became exposed/ill. | 56 |
| Equipment failure. | 19 |
| Drift. | 3 |
| Applicator not properly trained and/or supervised. | 24 |
| Other. | 5 |
| Unknown. | 15 |

# Why are Handlers being exposed?

- **53% handlers (89/167) were missing required PPE or had identified problem with PPE.**

| Type of PPE problem | # cases |
|---|---|
| Missing proper eye PPE | 40 |
| Missing other required PPE | 41 |
| PPE worn incorrectly, poorly maintained | 29 |

# Missing eye PPE – Handlers (*n* = 42)

- **Had it on but removed it (7).**
- **Sunglasses, safety glasses when goggles required (8).**
- **Not wearing any eye PPE (27).**

- **Why:**
- **“Didn’t think I needed it”**
- **Employer didn’t provide**
- **Inadequate supervision of applicator**

- **Accidents = cofactor (10)**
- **Workers missing eye PPE often were missing other PPE (18)**

# Eye protection - training messages

## Workers

- If cleaning/fixing, setting up, need handler's PPE.
- Goggles protect better than safety glasses
- Accidents happen - Protect your eyes

## Employers

- Must check for PPE compliance, must provide PPE (youth, language barriers).

## EPA

Label language

# Other required PPE not worn – handlers (*n* = 41)

- **Gloves (28)**
- **Respiratory PPE (15)**
- **Rubber boots (6)**
- **Apron when mixing (4)**
- **Coveralls, headgear, Chem.-resist suit (2 ea)**

# Why not wearing gloves? (*n*=28)

- Wearing wrong glove type (4)
- Missing gloves (24)

Why

- Multiple errors – lack of preparation and training (11)
- Handling tasks other than Mix/Load/Apply (8)
- “Didn’t think I needed them”
- Took off to blow nose (1)
- Too hot (1)
- Took them off for a task – dexterity (1)

# Why not wearing respirator? (*n*=15)

- Cleaning, fixing equipment, moving opened containers (6)
- Multiple errors: lack of supervision (6)
- “In a hurry” (1)
- Caught on trellis wire, flipped off (1)
- Worker not motivate to always wear (1)

# Gloves, respirators not worn – training messages

## Workers

- Gloves usually required. Check label.
- Keep PPE for ALL handlers tasks.

## Employers

- Must provide PPE and full training and supervision when PPE required.
- Check for correct glove type.

# PPE in poor repair, not maintained, not worn correctly (*n* = 29)

- **Largely respirator issues (18)**
  - **Cartridges (wrong filter, leaving in too long) (8)**
  - **Poor fit (6)**
  - **Wearing damaged respirator (4)**

- **Goggles (5)**
  - **Poor fir ( mist getting in on side when turn head)**

# Respirators – training messages

## Workers

- STOP if you smell chemical through mask.
- "Fit-check" before each use (no break in seal when you turn your head)

## Employers

- Follow guidelines for cartridge change-out.
- Must do proper fit-test

| Contributing Factors Identified | Other Wkrs |
|---|---|
| Posting or notification didn't occur. | 20 |
| People were exposed in the treated area during application. | 16 |
| Structure not adequately ventilated before allowing people to re-enter. | 0 |
| Early re-entry. | 19 |
| Required eye protection not worn. | 2 |
| Other required PPE not worn. | 5 |
| PPE in poor repair, not maintained, not worn correctly. | 1 |
| Spill or splash (not involving equipment failure) | 2 |
| Product not stored properly / within reach of children. | 1 |
| Decontamination not adequate or timely. | 2 |
| Misuse of a pesticide. | 1 |
| Other label violations identified. | 4 |
| No label violation identified but person still became exposed/ill. | 41 |
| Equipment failure. | 2 |
| Drift. | 100 |
| Applicator not properly trained and/or supervised. | 7 |
| Other. | 7 |
| Unknown. | 7 |

# Pesticide drift (*n* = 100 cases)

- **Proximity of workers to sprayers.**
  - **Adjacent block (11)**
  - **5-20 meters (12)**
  - **21-50 meters (4)**
  - **>50 meters (9)**
- **Supervisor or sprayer thought workers were at safe distance (73*).**
- **Lack of notification/communication with neighbor farm (72*) or with work crews at same farm (11)**
- **Windy conditions reported (15)**

* Includes two incidents with 12 and 46 workers.

# Prevention of drift cases

## Handlers

- Watch for work crews and irrigators

## Workers

- If feel drift, tell supervisor, leave area, decon.

## Employers

- Notify adjacent farms when spraying perimeter blocks
- Coordinate on farm communication between sprayers and workers

## EPA

- Guidance on safe distance from air blast sprayer

# Early Re-entry – Other Workers (n = 20)

- Workers appear to rely more on verbal notification from employer, go where employer tells them to.
- Communication issues are the main factor
- Workers did not see posted signs (14)
- Irrigation workers (2) diff. entry points?
- 5 workers in 3 incident in >9 days early on 14 day REI

# Prevention early Re-Entry

## Employers

- **Post fields** to eliminate confusion by work crews and their supervisors (also because it is the law!).
- Need central system to track REIs: check before crew assignments, special workers (crop advisors, irrigators).

# Male Hispanic handlers working in tree fruit (in Spanish).

- Important to wear all required PPE (pay attention to goggles, gloves).
- Check the fit of your goggles and respirator every time.
- Important to communicate with foremen of other work crews, irrigators on farm.
- Spray drift from air blast sprayers can travel far especially when trees are bare.
- Make sure thinners and other workers are a safe distance.

# Male and female Hispanic field workers (in Spanish)

- If a sprayer comes near your work area, find your foremen and move.
- Report drift to your foremen and decontaminate exposed skin and clothes.

# Employers

- Provide workers with all PPE required on pesticide label.  Maintain cartridges, gear.
- Ensure that unlicensed handlers receive good supervision and wear all required PPE.
- Keep workers out of harms way: facilitate communication between spray crews and others.
- Notify adjacent farms when spraying blocks along the property line.
- Post treated field and track REIs centrally.

# Prevention planned

- Disseminate data to others doing training of handlers and employers.
- Review findings from ChE monitoring to integrate messages (L&I, PNASH).
- Build training modules around case studies for handlers.
- Outreach to growers

# Thank you