PESTICIDES

PESTICIDES

Self Assessment/Pre-Test

(to be completed before reading Pesticides content)

1. Which of the following does NOT describe pesticides?
   a. toxic chemicals
   b. used to combat weeds, rodents, insects and fungi
   c. administered through solid, liquid and gaseous forms
   d. medicines for plants

2. What is a possible route by which pesticides can get into the body?
   a. skin
   b. eyes
   c. breathing
   d. through the mouth
   e. all of the above

3. After working in the fields, what actions should be taken immediately upon arriving home?
   a. shower with soap and water
   b. change out of pesticide exposed clothing
   c. place dirty clothes in a separate dirty laundry bin
   d. all of the above

4. What actions should be taken if skin is exposed to pesticides?
   a. remove contaminated clothing
   b. wash the skin with soap and water
   c. if symptoms of pesticide exposure develop, go to the doctor and bring any available information about the pesticide
   d. all of the above

5. Which parts of the body are most sensitive to pesticide absorption?
   a. legs, feet, ankles
   b. armpits, forehead, jaw, scrotum
   c. hands, buttocks, toes
   d. chest, thighs, ears

6. Which of the following are possible health effects of pesticide exposure?
   a. drooling, pin-point pupils, trouble breathing
   b. itchiness, skin rash, headaches
   c. burning in nose and throat, vomiting
   d. all of the above

Self Assessment/Pre-Test: Pesticides- 2

7. How can farmworkers reduce the risk of pesticide exposure?
   a. wear clothing that covers the skin
   b. wash hands before touching the face or using the toilet
   c. stay out of areas that have been treated
   d. never drink or wash with irrigation water
   e. shower immediately upon arriving home
   f. keep pesticide exposed clothing separate from family laundry
   g. all of the above

8. Reusing empty pesticide containers is NOT dangerous.
   a. True. With soap and water, pesticide containers can be made clean enough for reuse.
   b. False. Pesticide containers should never be reused, as they will contain residues even after they have been washed.

9. Which of the following exposures to pesticides does NOT require seeking medical attention immediately?
   a. pesticides in the eyes
   b. ingestion / swallowing of pesticides
   c. skin exposure with NO symptoms of pesticide poisoning after decontamination
   d. inhalation / breathing of pesticide fumes
   e. skin exposure with symptoms of pesticide poisoning after decontamination process

10. The restricted re-entry period:
   a. prevents acute pesticide poisonings
   b. does not prevent low-level chronic pesticide exposure
   c. must be respected by all farmworkers, except only those with special training and a respirator
   d. should be posted by the farmer with a re-entry date
   e. all of the above

Answers: 1(d), 2(e), 3(d), 4(d), 5(b), 6(d), 7(g), 8(b), 9(c, 10(e)

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Supporting Information for Outreach Workers

(updated Aug 2014)

What are pesticides?
Pesticides are poisonous chemicals that are used to kill insects, weeds, fungi or rodents. Most pesticides are not natural, but are the products of a laboratory. There are a few pesticides, however, that are based on chemicals found in nature. Pesticides are named according to the type of pest they are meant to combat. The three main groups are insecticides, herbicides, and fungicides.

How are pesticides used?
Pesticides come in several different forms: liquids or sprays, powders, granules and gases. Each of these is applied in different ways. For example, liquids may be added to irrigation water and sprayed directly onto crops. Powders and granules may be distributed by crop-duster planes or applied directly to the soil.

What are restricted entry intervals (REI)?
The restricted entry interval is the period of time that must be waited before reentering a pesticide treated field. Every pesticide has a designated restricted entry interval, and the only exception to the restriction is for individuals who have special training and wear special protective clothing and equipment. The grower should always post the name of the pesticide, when and where it was applied, the restricted entry interval, and when it is safe to reenter the field. The re-entry period is designed to prevent acute poisonings, but does not prevent low-level chronic exposure to pesticides.

How do pesticides enter the human body?
Pesticides have several opportunities to enter the body. The primary route is through our largest organ, the skin. Pesticides may also get into the eyes, be breathed in through the nose or mouth, or may be swallowed upon contact with the mouth. Pesticides may also be drunk accidentally or as part of a suicide attempt. It is essential to wash hands before smoking, eating, drinking, chewing gum, or using the toilet. These are all times that pesticides on the hands might touch the mouth or other mucus membrane skin and cause pesticide poisoning.

How can farmworkers be exposed to pesticides?
Pesticides linger on the surface of plants long after the treatment. Pesticides can also be found in the soil, in irrigation water, on equipment used on or near the fields, and on clothes. Pesticides may also drift into areas not directly being treated.

Supporting information for outreach workers: Pesticides- 2

What determines how much of the chemical is absorbed into the body?
There are several factors that influence the absorption of pesticides into the body. The first factor is the part of the body exposed to the pesticide. For example, the skin on the forehead is 43 times more absorbent than the skin on the arch of the foot. In other words, if the same amount of pesticide were to fall on both the forehead and the foot, the pesticide would enter the body 43 times faster through the forehead. Some parts of the body that are especially susceptible are the forehead (43x), the armpit (26x), the jaw (93x), and the scrotum (300x). The other significant factor in pesticide absorption is the condition of the skin. Skin that is damaged with cuts, abrasions or rashes absorbs pesticides more readily than healthy skin. Hot, sweaty skin will absorb more pesticide than cool, dry skin.

Another factor influencing absorption is the concentration of the pesticide. The pesticide mixers and applicators are at particularly high risk for poisoning as they are mixing the concentrated form into water that then can be sprayed. The label of each pesticide lists the training and/or personal protective equipment the pesticide mixer must legally be provided with in order to work with this pesticide. "The label is the law."

What are the acute health effects of pesticides?
Pesticides can cause skin rashes or pain in the nose, throat or eyes. They may also cause vomiting, sweatiness, headache, muscle pain and cramping. Other signs of pesticide poisoning include dizziness, drooling, trouble breathing and small or pin-point pupils. Pesticides may affect some individuals more than others.

What are the possible long term effects of pesticide exposure?
There are various chronic or delayed health effects of pesticide exposure, such as sensitization and allergic reactions, infertility in men, miscarriages, birth defects, degenerative neurological diseases like Parkinsonism, developmental delay, ADHD and autism in children, and certain types of cancer.

How can farmworkers reduce the risk of pesticide exposure?
Farmworkers can:

- Wear clothes that cover the skin such as: long pants, long-sleeved shirts, socks, shoes, gloves and a hat.
- Wash hands with soap and water before eating, drinking, smoking or using the toilet.
- Stay out of areas where pesticides are being/have been applied. This includes areas with a sign and areas that the boss designates that are not marked with a sign. If pesticide is drifting into an area where workers are working, get out!
- Never take empty pesticide containers home. Even if rinsed out, the residue of the pesticide lingers in the container and is dangerous.
- Never bring agricultural chemicals into the home. Many chemicals that are legally used in the field are not permitted to be used at home due to toxicity.
- Change immediately out of pesticide exposed clothes before coming into contact with family or friends. Keep pesticide exposed clothes in a separate dirty laundry bin for washing. Shower with soap and water upon arriving home each day.
- Keep children away from areas where pesticides might be found.
- Do not drink, bathe or wash food in irrigation ditches because irrigation water may contain pesticides.

How can farmworkers protect their families / housemates from pesticide exposure?

- Practice routine decontamination by washing hands before eating, drinking, using tobacco products, chewing gum or using the toilet while at work.
- Refrain from hugging, picking up children, or lounging in the house in pesticide contaminated clothing to avoid exposing others.
- Shower with soap and water as soon as possible upon arriving home.
- Put on fresh or uncontaminated clothing after showering.
- Store contaminated clothing in a separate dirty laundry bin from other clothes.
- Wash pesticide exposed clothing separately, and with caution. Gloves are a good idea to protect hands from being exposed during the action of washing. If possible, clothes should be rinsed and the water drained before continuing with the rest of the wash cycle. Hanging laundry out to dry in the sun can help break down any residual pesticide contamination in clothes.
- Clothing should be washed before wearing again.
- Do not take empty pesticide containers for use in the home. Even after washing them out, they may still contain residues and be unsafe.
- Do not store pesticides in an unlabeled container.

What steps should a farmworker take if he/she believes that a pesticide exposure has taken place?

- Practice the appropriate steps for decontamination.
- Inquire if other workers have similar symptoms.
- Report the symptoms to the boss or foreman.
- Ask for the name and/or label of the pesticide
- Leave the field if possible.
- Go to the clinic for diagnosis. Bring the label or name of the pesticide to the clinic.
- Know that growers have a legal obligation to transport workers with acute pesticide poisoning to medical care and provide the medical provider with information on the pesticide involved.

What is the correct procedure to follow. . .

if a worker's skin has been exposed to pesticides?

- Remove contaminated clothing from the part of the body that was exposed.
- Rinse the pesticides off with water.
- Wash the area with soap and water as soon as possible.
- Put on clean, uncontaminated clothing.
- If symptoms of pesticide poisoning develop, encourage the worker to seek medical care and/or call poison control (1-800-222-1222) for advice, with worker's permission
- Try to access the label of the pesticide to read warnings and take the label to the provider

if a worker swallows a pesticide?

- Seek medical attention, either by calling 911 or poison control, or by driving to the doctor if it would be faster than waiting for assistance to arrive.
- Collect the name of the pesticide, the first aid instructions from the container, and the dates of application (if appropriate). Taking the label from the pesticide container might be useful if there is no other way to convey the information.
- If it is impossible to call for help, or while waiting for help to arrive, follow the first aid directions on the pesticide label.

if a worker gets pesticides in the eyes?

- Immediately rinse the eye with a gentle stream of clean water or with an eye flush kit for at least 15 minutes.
- Seek medical attention immediately.
- Bring the label to the provider

if someone breathes a pesticide?

- The first step is to get the worker to fresh air immediately, but not if it compromises another worker's safety. If the victim is in an enclosed area, a rescue should not be attempted without proper breathing equipment and adequate training in its use.
- Call for help if there is no one immediately available who is trained to use a respirator. Tell the 911 operator the nature of the emergency so response can be quick and appropriate. Firemen often have respirators.
- Move the victim to a location with fresh, circulating air and loosen the worker's clothing to ease breathing.
- If the worker is not breathing, begin artificial respiration and call for medical help.
- Find the label or name of pesticide involved and give to emergency responders and providers.

In all cases of acute pesticide poisoning (exposure with symptoms), the outreach worker should fill out the Acute Illness Response Form. If the farmworker chooses to seek medical care, this form should be shared with the provider. Outreach workers are an important resource to providers in these cases. They should offer to help with contacting the grower and in tracking down the name and label of the pesticide involved. They can inform providers of the grower's legal requirement to provide this information to the provider. They can remind providers of the provider's legal requirement to report acute pesticide poisoning within 48 hours to the State Department of Public Health. Reporting can be done by calling Poison Control. This is a report to a state registry of pesticide poisonings. There will be an investigation if it is an occupational poisoning. Reports can be made without the farmworker's name if the farmworker prefers.

Reports of pesticide violations are made to a different department, the State Department of Agriculture (919-733-3556). This department has the authority to fine growers for violation of regulations. This is not a legally mandated report. Outreach workers should only report violations with the farmworker's permission as this may have many ramifications on the farmworker's life. Department of Ag will take anonymous reports which trigger a "routine" inspection of the grower. Of course, it will not focus on the acute poisoning that may be most concerning to the outreach worker. Decisions about reporting

pesticide violations may be discussed with the central office staff that has had experience with this.

Key educational messages:

- Wash before eating, smoking or using the bathroom.
- Observe Restricted Entry Intervals
- Remove clothes and wash as soon as possible after work.

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Self Assessment/Post-Test

(to be completed after reading Pesticides content)

1. What is a pesticide?

2. How can pesticides get into the body?

3. Where are pesticides found?

4. What actions can a farmworker take to decontaminate a skin exposure?

5. What should a farmworker wear to protect the body while working in the field?

6. What are the two factors that affect how much pesticide is absorbed into the skin?

7. Name 5 common symptoms of pesticide exposure.

8. A farmworker should wash his/her hands before which activities?

9. What can a farmworker do to protect the people that he/she lives with?

10. What are some long term health effects of pesticide exposure?

11. What are the correct steps to take if pesticides get into the eyes?

12. What are the correct steps to take if pesticides are swallowed?

Self-Assessment/Post-Test: Pesticides - 2

13. What are the correct steps to take if pesticides are inhaled?

14. Why are restricted entry intervals important?

PESTICIDES

Self Assessment/Post-Test Answers

1. What is a pesticide?
   [A pesticide is a toxic chemical used to kill weeds, insects, rodents, or fungi.]

2. How can pesticides get into the body?
   [Pesticides can enter the body through the skin, mouth, nose, or eyes.]

3. Where are pesticides found?
   [Pesticides linger on plants and soil long after the treatment. Farmworkers may contact the chemical while working in the fields, on equipment, on clothing, in irrigation water, and through drift.]

4. What actions can a farmworker take to decontaminate a skin exposure?
   [Remove clothing from the site of exposure, rinse with water, wash with soapy water, put on clean clothes, watch for other signs or symptoms of pesticide poisoning]

5. What should a farmworker wear to protect the body while working in the field?
   [long-sleeved shirt, long pants, socks, full shoes, gloves, a hat, bandana to cover face if needed]

6. What are the two factors that affect how much pesticide is absorbed into the skin?
   [(1)the part of the body and (2)the condition of the skin – wounds, hot/sweaty]

7. Name 5 common symptoms of pesticide exposure.
   [skin rash, burning in throat or nose, headache, cramps, vomiting, diarrhea, sweatiness, muscle pain and twitching, pin-point pupils, drooling, trouble breathing]

8. A farmworker should wash his/her hands before which activities?
   [eating, drinking, smoking, chewing gum, touching face, using toilet]

9. What can a farmworker do to protect the people that he/she lives with?
   [not make physical contact until showered and clothes are changed, keep pesticide exposed clothing in a separate dirty laundry container, not bring home pesticide containers, wash clothing separately and hang in sun to dry, do not store pesticides in an unlabeled container]

10. What are some long term health effects of pesticide exposure?
    [infertility in men, birth defects, miscarriages, cancers or tumors, sensitization and allergic reactions, nervous system problems, mental and psychological effects]

11. What are the correct steps to take if pesticides get into the eyes?
    [immediately rinse the eye with copious amounts of clean water for at least 15 minutes, seek medical care]

12. What are the correct steps to take if pesticides are swallowed?
    [call 911 or drive victim to medical care if that is faster than waiting on the ambulance; call poison control or use first aid directions on pesticide container while waiting for medical help to arrive; try to take the label of the pesticide with the victim to the medical center]

13. What are the correct steps to take if pesticides are inhaled?
    [get the worker to fresh air and loosen clothing, perform rescue breathing if worker is not breathing, call 911 for medical care; if worker is in an enclosed area, only rescue the victim if trained and equipped with respirator, otherwise, seek assistance from someone who is trained]

14. Why are restricted entry intervals important?
    [Restricted entry intervals can help prevent acute pesticide poisonings. They do not, however, prevent low-level chronic exposure to pesticides.]

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Teaching Objectives

The facilitator and farmworker participants will discuss:

1. **What are the routes of pesticide entry into the body; where and how do farmworkers come into contact with pesticides?**
   a. routes of entry include skin, breathing, swallowing, eyes
   b. residues on plants, clothing and equipment; irrigation water; drift

2. **What are means to reduce the risk of pesticide exposure? How can pesticides be kept out of the home?**
   a. protective clothing that covers skin, head, hands, mouth
   b. wash hands before touching any part of face
   c. stay out of areas where pesticides have been applied
   d. never take empty containers or agricultural chemicals home
   e. change out of clothing immediately upon arriving home, keep exposed clothing in separate location from family clothes, shower before coming into physical contact with anyone
   f. do not use irrigation water for drinking, rinsing, washing hands, cooling off

3. **What are the acute and long-term health effects of pesticide exposure?**
   a. acute effects include skin rashes, vomiting, headache, sweatiness, muscle pain, pin-point pupils, drooling and trouble breathing
   b. long-term effects include sensitization, allergic reactions, infertility in men, miscarriages, birth defects, tumors, mental health effects, nervous system effects

4. **What is the correct first aid procedure for pesticide injury and poisoning? What are the steps for emergency decontamination?**
   a. skin exposure / emergency decontamination
   b. eye exposure
   c. swallowing
   d. breathing

5. **What are restricted entry intervals?**
   a. every pesticide has a designated REI
   b. everyone must heed the REI except those trained in the use of protective equipment
   c. prevents acute exposure, but does not prevent low-level chronic exposure

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Motivating/Learning Activity

The motivating / learning activity is an opportunity to support knowledge acquisition and comprehension among participants on a given health topic. These activities should be interactive and should begin to engage farmworkers in critical thought about the application of health information.

This is an opportunity to engage the group and to assess the comfort level and knowledge on the subject. You may find that the workers are very familiar with the topic and only require a review. Or, you may find that the subject is completely new for the workers or that there are misconceptions or mistaken ideas among the group. For this reason, it is a good idea to briefly note comments by the workers for further discussion.

A few suggested activities are:

- Cabbage game with questions related to pesticides (where can you be exposed, what are the routes of exposure, what are symptoms, treatment, prevention strategies)

- Read El Terror Invisible (the fotonovela) aloud, invite questions from the participants

- Use video, either *El Terror Invisible* or *Siguiendo El Sol,* as the primary teaching tool with questions and discussion afterwards

- Use a photo of scene or symptoms and invite workers to describe what they see, what they perceive the problem to be

- Use the EPA flipchart to guide a discussion on pesticide exposure and prevention

- Read birth defects or spraying case study from *Farmworker News* and follow-up with discussion of prevention and treatment

- Use jeopardy game to review specifics about pesticide exposure (especially if the group seems familiar with the topic)

- Brainstorming activity: using a volunteer for the anatomical model, identify the routes of entry, have group brainstorm how pesticides could enter through those four routes, and ways to prevent those occurrences

- Demonstration: have a worker act out and explain the steps for decontaminating self and clothing after working in a field where pesticides were used. Other participants can ask questions or suggest corrections or alternative methods.

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Empowerment Activity

The goal of an empowerment activity is to develop skills, learn a new task, consider action to change one's situation, and / or begin exploring how to help oneself.

This is an important opportunity to identify what the farmworkers can do to prevent pesticide exposure themselves.

- Do they have access to long-sleeved shirts, hats, long pants, full coverage shoes, gloves?
- Can they obtain one change of clothes for each day of work in the fields?
- Can they find a box to hold pesticide-contaminated clothes separately from other laundry?
- Can they rig an outside laundry line to hang pesticide-exposed clothing in the sun to dry after washing?
- Do they know the correct first aid in case of a pesticide exposure?

A few suggested activities are:

Bring unlabeled bottles and/or cups that contain various liquids to illustrate how easy it is to mistakenly drink pesticides if they are put into unlabeled containers

Reality check – If you talk about the different entry points for pesticides, the biggest one (literally!) is the skin! Covering the body and washing with soap and water are the best prevention!

Teach first aid for farmworkers:

- Do not enter an enclosed area to rescue a worker without the proper personal protective equipment
- How to rinse eyes and for how long
- If worker comes in contact with pesticide, remove pesticide-contaminated clothes and wash skin with soap and water – immediately!
- If inhaled, remove the individual to less contaminated spot
- Call 911 for eye exposure, inhalation, and swallowing of pesticides. For a skin exposure, decontaminate and watch for signs of pesticide poisoning.
- Call poison control with the name of the pesticide if there is any doubt about the correct course of action.

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Sample Class Plan

Subject: **Pesticide Exposure**
Date:
Time:
Topic: What are the routes of pesticide entry into the body; where and how do farmworkers come into contact with pesticides?
(teaching objective 1 from pesticide module)

Key points, information, skills or activities

As a result of this health education session, participants will:

1. Recall that routes of entry include skin, breathing, swallowing, eyes
2. Recognize that pesticide residues may be on plants, clothing and equipment; irrigation water; drift

Teaching methods

Brainstorming
Discussion
Using visual aids
Cabbage game
Participatory reading of fotonovela
Video reinforcement

Materials and preparation needed

Chart or board to record participants' ideas
Cabbage game prepared with relevant questions
Anatomical model or poster of human body
Video and/or fotonovela
Pictures/drawings of farmworkers in field
Case study from *Farmworker News*

Supporting media

Language and reading-level appropriate brochures or flyers to distribute
NCFHP-approved content in case of questions

Sample Class Plan: Pesticides-2

To begin, invite farmworker participants to identify their experiences with pesticides, what they know and what they'd like to know about the subject.

1. Explain the routes through which pesticides may enter the body.

- The primary route of entry for pesticides is through the skin.
- Other opportunities are through the eyes, the mouth, and by breathing pesticides into the throat and lungs.
- Understanding the routes of entry helps identify best avenues to prevent pesticide exposure – [primarily, cover the skin!] - and allows brainstorming of ways that pesticides could come into contact with those entry points.

Learning activities

-Use a drawing of a worker in the field; invite participants to identify possible routes of entry.
-Watch part of the video to witness the exposure section.
-Read the fotonovela as a group.
-Use an anatomical model to identify routes

2. Describe the potential exposures for farmworkers to come into contact with pesticides.

- Pesticides may be in the soil, on the plants, on hand implements or farm equipment, in the irrigation water, or it may drift on the air.
- It is important for a worker to take precautions at all times, even when there is not a known pesticide application, since pesticides are invisible.

Learning activities

-Brainstorm all the objects that farmworkers touch in the fields; are these possible means of exposure?
-View video and discuss the invisibility of pesticides and the potential of contacting pesticides while working
-Read case study from Farmworker News; identify potential means of exposure

Suggested review activities (choose one or two)

-play the cabbage game with a variety of questions to assess learning
-ask if there were any points that were unclear
-invite questions from the group
-distribute written/pictorial materials to reinforce the information learned

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Support for Learning Activities

These are a few suggested questions for the cabbage game. Feel free to write your own questions in addition to or instead of these. If the question is true/false, have the worker or another participant restate the sentence so that it will be true.

What are the four routes by which pesticides can get into the body?
Can skin exposure to pesticides cause pesticide poisoning?
Name 5 common symptoms of pesticide poisoning.
Name 3 long-term or chronic effects of pesticide exposure.
How can not washing hands at work lead to swallowing pesticide residues?
How can not washing hands at work lead to eye exposure?
Name 3 things you should never do at work until after you have washed your hands.
Irrigation water is a safe place to wash hands and rinse off food. True or false?
What 2 things should you do as soon as you get home from working in areas where pesticides have been used?
Pesticide containers can be used at home with no health risks to my family. True or false?
How should you wash and dry your work clothes?
What are 5 things you can do to reduce your risk of pesticide exposure?
What is the correct first aid for a skin exposure to pesticides?
What is the correct first aid for an eye exposure?
What is a restricted entry interval?

List of follow-up questions for fotonovela, photograph or case study activity:
What is happening in this picture / story / case study?
What caused the fieldworker to be exposed to pesticides?
What could (character name here) have done differently to prevent pesticide exposure?
What are other ways that farmworkers can be exposed to pesticides?
What was the correct first aid response to the pesticide exposure in the story / picture / case study?
What are the symptoms of pesticide exposure illustrated in the story / picture / case study?
How can the farmworker protect family or housemates from pesticide exposure?
What are some long-term effects of pesticide exposure?
What are the four entry points for pesticides on the human body?
Which pesticide exposures always indicate a trip to the medical center?

If using a photograph or case study to initiate discussion and workers identify other conditions besides the target health education topic, the facilitator may say: "That is one problem that _____ may experience, but that isn't the problem today. What other conditions/problems can cause _____ to look or feel this way?"

Support for learning activities: Pesticides-2

Possible Jeopardy questions (with suggested point values):

100-What are the four routes by which pesticides can get into the body?
100-How can not washing hands at work lead to swallowing pesticide residues?
100-How can not washing hands at work lead to eye exposure?
100-Can skin exposure to pesticides cause pesticide poisoning?
200-Name 5 common symptoms of pesticide poisoning.
200-Name 3 long-term or chronic effects of pesticide exposure.
200-Name 3 things you should never do at work until after you have washed your hands.
200-What 2 things should you do as soon as you get home from working in areas where pesticides have been used?
300-Pesticide containers can be used at home with no health risks to my family. True or false?
300-Irrigation water is a safe place to wash hands and rinse off food. True or false?
300-When should you call 911 for emergency help?
400-How much water should a worker drink each day?
400-How should you wash and dry your work clothes?
400-What are 5 things you can do to reduce your risk of pesticide exposure?
500-What is the correct first aid for a skin exposure to pesticides?
500-What is the correct first aid for an eye exposure?
500-What is a restricted entry interval?

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Recommended Resources for Outreach Workers

Manual **Protect Yourself from Pesticides-Guide for Agricultural Workers**
Protejase de los Pesticidas-Guia para los Trabajadores Agricolas
EPA
1993
43pgs English/Spanish
Farmworkers
This manual provides all of the information required by the Worker Protection Standard for training farmworkers. It includes illustrations with captions in both English and Spanish. The issues covered are: how to protect oneself from pesticides, where pesticides are encountered, how pesticides can hurt you, what to do if pesticide exposure occurs, and how the law protects the farmworker. A review is given at the end. The information is presented is basic and readable. This manual is also available in Creole, Vietnamese, Chinese, Tagalog, Ilokano, Polish and Laotian (the order number is different for languages besides Spanish and English).
Available online at
http://nepis.epa.gov/Exe/ZyPDF.cgi/P10097QT.PDF?Dockey=P10097QT.PDF

Manual **Recognition and Management of Pesticide Poisonings**
Reconocimiento y Manejo de los Envenenamientos por Pesticidas
EPA
1999
236pgs English/Spanish
Health care providers, Migrant centers
This manual serves as a tool to assist health professionals in better recognizing and treating pesticide-related illnesses. The manual focuses on acute/short term health problems that may occur in the agricultural and non-agricultural sectors. Signs and symptoms of poisonings, toxicology, confirmation of poisoning and treatment approaches are listed for different pesticide products. The index of sign and symptoms, as well as the index of pesticide products is helpful for quick reference. Although this book is directed at health professionals and includes technical information, it is a good resource to have on hand in all clinics or near farms in case of an emergency. This manual does not focus on prevention, but rather outlines treatment.
There are two separate manuals, one in English and the other in Spanish.
Available online at
English:
https://www.csu.edu/cerc/researchreports/documents/RecognitionandManagementofPesticidePoisonings.pdf
Spanish: http://nepis.epa.gov/Exe/ZyPDF.cgi/2000047M.PDF?Dockey=2000047M.PDF

Flyer **What to do when clothes are soiled with pesticide**
Iowa State University Extension
2000
2pgs English
Agricultural employers, Farmworkers
This flyer gives the precautionary steps to take when laundering pesticide-soiled clothing. This resource reminds the reader that pesticide contamination may be invisible. It also warns that washing only reduces risk of exposure, but does not eliminate it. This is one of the more comprehensive resources on this subject.
Iowa State University Extension-PM 16636-(Free-single copies)
Available online at: http://www.extension.iastate.edu/Publications/PM1663B.pdf

Flyer **Learn about pesticides and clothes**
Iowa State University
1995
2pgs English
Agricultural employers, Farmworkers, Families of growers and farmworkers
This resource explains why proper laundering of pesticide contaminated clothing is important, which clothing is best to wear, and how to safely launder the garments. A pesticide clothing safety quiz is given, along with a box highlighting a few of the most important tips.
Iowa State University Extension-PM 1265f-(Free-single copies)
Available online at: http://www.extension.iastate.edu/Publications/PM1265F.pdf

Manual **WPS Training for Fieldworkers: Teaching Workers How to Protect Themselves from Pesticide Hazards in the Workplace**
University of California Statewide Integrated Pest Management Project
1997
91 pages; English
Outreach workers
This instructor's manual is designed to be used with the video, **Protecting Yourself From Pesticide Hazards in the Workplace.** The manual provides an instructor with ideas and examples of interactive activities to increase comprehension of the pesticide-related workplace hazards and ways workers can avoid these hazards. The video and accompanying activities cover all the points that must be addressed when conducting Worker Protection Standard (WPS) training for fieldworkers. The manual is available online in a pdf format which is suitable for copying. Both the manual and video are public-domain resources. The manual also provides an appendix of clear and simple drawings that can be used to illustrate significant points within the training session and to generate discussion.
PDF available online at: http://www.ipm.ucdavis.edu/PDF/PUBS/wpstraining.pdf
The public-domain video is available from each state pesticide regulatory agency and Cooperative Extension Service pesticide safety education coordinators.

Manual **Preventing Agricultural Chemical Exposure: a safety program manual**
The PACE Project: Wake Forest University Environmental Justice and Community-Based Participatory Research projects
2003
86 pages, English/Spanish
Outreach workers, Farmworkers
The Preventing Agricultural Chemical Exposure among North Carolina Farmworkers (PACE) Project uses a community participation framework to ensure that the community plays a significant role in identifying and resolving health problems resulting from pesticide exposure. This training manual provides step-by-step instructions on the procedures for organizing a pesticide safety program for migrant and seasonal farmworkers.
Available at http://nasdonline.org/196/d000145/preventing-agricultural-chemical-exposure-a-safety-program-manual.html

Fotonovela **Aunque Cerca . . . Sano**
Migrant Clinicians Network
2002
16 pages, Spanish
Farmworkers with children
A Spanish language comic book developed by the Migrant Clinician's Network and Farm Safety 4 Just Kids, this story helps migrant farmworkers teach their children to avoid pesticide exposure, and helps outreach workers conduct meaningful interventions when necessary. Most relevant for farmworker families.
Available online at:
http://www.migrantclinician.org/files/aunquecercasanocomic%202015%20-20mb.pdf

Manual and fotonovela **A Little bit of poison… will it kill you?/ Poco veneno… ¿no mata?**
Migrant Clinicians Network
2006
Manual: 44 pages, English or Spanish
Comic book: 16 pages, Spanish
Farmworkers, outreach workers
The manual is a guide for training community health workers or 'promotores de salud' to implement community-based pesticide education activities. The manual offers information about health risks from pesticide exposure and ways to lessen these risks. Also, it includes useful information and tips for community health workers on how to successfully work in the community. The accompanying comic book provides an engaging and accessible resource for discussing the dangers of pesticides in the home. Both resources are suitable for farmworkers of all literacy levels, as they accompany most/all text with helpful illustrations. The manual is most relevant for training community health workers and the comic is designed for families.
English manual:
http://www.migrantclinician.org/files/resourcebox/poison_manual_eng.pdf
Spanish manual:
http://www.migrantclinician.org/files/resourcebox/veneno_manual_sp.pdf
Fotonovela: http://www.migrantclinician.org/files/pocovenenocomicless20.pdf

Fotonovela **Lo que bien empieza… bien acaba**
Migrant Clinicians Network
2015
16 pages, Spanish
Farmworkers, outreach workers
This comic book is intended for female farmworkers of reproductive age. It outlines the health risks that pesticide exposure presents to both their health and the health of their children. It is written in a very accessible manner and the illustrations help to make it easy to understand. This is a great resource to underscore the importance of pesticide protection to women. It is available online at no cost.
Available at
http://www.migrantclinician.org/files/lo%20que%20bien%20empiezacomic%202015-20mb.pdf

Brochure **El terror invisible**
Wake Forest University School of Medicine, PACE project
6 pages; Spanish
Farmworkers
This comic strip style brochure is clearly formatted and explains how although pesticides may be invisible and odorless, they can still cause long-term health problems. There is a brief listing of the main points in pesticide exposure prevention, but the authors did not thoroughly explain the importance of separating pesticide exposed laundry from other clothing for washing. The literacy level and images are both appropriate for farmworkers in general, although this is not the most complete material to serve the purpose of farmworker education.
Available online at: http://www.migrantclinician.org/files/resourcebox/elterror.pdf

Video clip **El terror invisible**
Wake Forest School of Medicine, PACE project
2002
Spanish with English subtitles
Farmworkers
This clip is part of a 53 minute video that includes a pesticide education section, a handler section and finally a brief section on green tobacco sickness called El Monstruo Verde. In the first segment, a Spanish-speaking designated trainer helps his co-workers learn about pesticide safety. Topics include 1) short- and long-term health effects of exposure to pesticides and their residues, 2) symptoms of exposure, 3) signs of pesticide poisoning, 4) ways to reduce exposure to pesticide residues, and 5) legal protections for workers. This segment includes information for field workers as required by the Worker Protection Standard. The education stresses potential exposure through pesticide residue on crops and addresses some traditional health beliefs found among latino communities. There is an emphasis on empowerment and workers determining actions that they can themselves take to reduce the risk of pesticide exposure.
Available through:
Wake Forest University Environmental Justice and Community-Based Participatory Research projects
Thomas Arcury, Principal Investigator, Casa a Campo
tarcury@wfubmc.edu (336) 716-9126
Department of Family and Community Medicine , Medical Center Boulevard
Winston-Salem, NC 27157-1084

Medical Briefing Kit **Pesticides and Human Health: A Resource for Health Care Professionals**
Physicians for Social Responsibility and Californians for Pesticide Reform
60 pages, softbound, English
Health Care Professionals
This resource kit utilizes and references over 150 studies that link pesticides with a variety of acute and chronic conditions, including cancer, neurological damage, reproductive and developmental hazards, and immune-system and endocrine disruptions. The format covers pesticide health effects by toxic endpoint symptomatically and is referenced with endnotes. This guide adheres to the Precautionary Principle: "when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. The proponent of an activity, rather than the public, should bear the burden of proof."
Available at http://www.psr-la.org/files/pesticides_and_human_health.pdf

Educational resource **Pesticides and Farmworker Health Toolkit**
NC State University Toxicology Program
Spanish and English
Outreach workers, farmworkers
The Toolkit is an engaging and highly visual educational resource designed to teach pesticide safety to Spanish-speaking agricultural workers with limited formal education. The Toolkit is available with specific information for a variety of crops, including tobacco, tomatoes, and Christmas trees. Each toolkit includes a DVD for trainers, illustrated handouts in Spanish (available online for free), interactive materials such as charade cards, and more. The toolkit is available for purchase online for $65.
Available at https://tox.sciences.ncsu.edu/extension/pesticides/

Brochure **Cultivating the seeds of knowledge: what you should know about pesticides**
North Carolina Department of Labor, Agricultural Safety and Health Section
2 pages front/back, English
Outreach workers, Farmworkers
This brochure, though written only in English, describes what pesticides are, how they threaten the human body, common symptoms, long-term health effects, safety and first aid tips, and offers some discussion of workers' legal rights with regard to pesticides. The document is geared toward tobacco workers, and offers information about pesticides commonly used in tobacco, as well as acknowledging that pesticide exposure can be diagnostically confused with green tobacco sickness.
Available online at: http://www.nclabor.com/ash/postengl.pdf

Recommended Resources for Outreach Workers - 6

Manual **Pesticide Hazards, Field Sanitation, and Heat Illness for Farmworkers: A Training Curriculum for Lay Health Educators**
Farmworker Justice
2014
117 pages, English or Spanish
Outreach workers, farmworkers
This training curriculum is intended for organizations wanting to train lay health educators on the importance of pesticide safety, field sanitation, heat illness and workers' rights. It briefly covers what it means to be a lay health educator and how to be an effective community educator. It reviews basic concepts related to pesticide exposure, poor field sanitation, heat illness on humans, and rights to a safe workplace. The curriculum includes fairly concrete lesson plans and contains a wide range of helpful information on the health risks of pesticides for farmworkers and their families and a concise review of the laws regarding pesticides and farmworker labor.
Available online at https://www.farmworkerjustice.org/resources/health-and-safety-resources (under "Health and Safety Training Materials")

Lesson plan **What you need to know about pesticides**
National Center for Farmworker Health
2013
7 pages, English and Spanish
Outreach workers, farmworkers
This lesson plan is intended to provide basic, practical information to farmworkers regarding pesticides. It covers what pesticides are, symptoms of pesticide contact, and pesticide protection methods. It includes suggestions for reading and listening activities. It is available online at no cost.
English available at:
http://www.ncfh.org/uploads/3/8/6/8/38685499/whatyouneedtoknowaboutpesticides.pdf
Spanish available at:
http://www.ncfh.org/uploads/3/8/6/8/38685499/loquenecesitassaberdelospesticidas.pdf

Newsletter **Farmworker News: Pesticide Edition**
National Center for Farmworker Health
January 2010
4 pages, two columns, English and Spanish
Outreach workers, farmworkers
This newsletter contains 4 articles, each of which is relevant to farmworkers working with pesticides. These include a mother/daughter conversation about the importance of washing hands after handling pesticides, illustrations of the symptoms of pesticide exposure and possible long-term effects, prevention methods, and a case study of a California farmworker who was hospitalized for pesticide poisoning.
Available at:
http://www.weebly.com/editor/uploads/3/8/6/8/38685499/custom_themes/919123595410423472/files/2010Pesticides.pdf

Article **Cuidado con los Pesticidas**
Farmworker News Vol 8 Issue 2
Spring II 2002
Two columns Spanish/English
Outreach workers, Farmworkers
This brief article summarizes the main points of pesticide safety in a clear and concise manner. The discussion includes: a working definition of pesticides, prevention strategies, possible locations of exposure to pesticides, how they can hurt farmworkers, and what to do if a worker is exposed.
Available online at:
http://www.weebly.com/editor/uploads/3/8/6/8/38685499/custom_themes/919123595410423472/files/02-issue_02.pdf

Article **Los Pesticidas Pueden Causar Defectos en sus Hijos**
Farmworker News Vol 7 Issue 2
Spring 2001
Two columns Spanish/English
Outreach workers, Farmworkers
This brief case study discusses Maria's experience of having two children who were both born with a birth defect that may have been caused by pesticide exposure due to her work in orange fields in Florida. The case study ends by prompting farmworkers to think of ways to prevent pesticide exposure and offers several suggestions.
Available online at:
http://www.weebly.com/editor/uploads/3/8/6/8/38685499/custom_themes/919123595410423472/files/01-issue_02.pdf (page 4)

Article **Una Familia de Trabajadores Agricultores es Rociada con Pesticida**
Farmworker News Vol 7 Issue 5
Fall 2001
Two columns Spanish/English
Outreach workers, farmworkers
This case study details a situation in which a family was sprayed by pesticides while working in the fields. The follow-up conversation to this case study should include a discussion of how the exposure to pesticides might have been prevented.
Available online at:
http://www.weebly.com/editor/uploads/3/8/6/8/38685499/custom_themes/919123595410423472/files/01-issue_05.pdf (page 4)

Brochure **Darle un buen uso a los pesticidas**
Paso del Norte Health Foundation
2 pages, Spanish
Outreach workers, farmworkers
This colorful trifold brochure gives advice on how to handle domestic pesticides and explains the steps to take after an accidental exposure to pesticides in the home. It's written in a straightforward manner and contains illustrations to drive the points home. It does a great job of explaining the risks associated with household items like insecticide, especially in homes with children.
Available at
http://www.migrantclinician.org/files/resourcebox/TrCaptico_pesticidas.pdf