Niños Seguros y Sanos
Safe & Healthy Children

Pediatric Environmental Health Education for Farmworker Families
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Introduction

Niños Seguros y Sanos (Safe and Healthy Children) is an initiative of Physicians for Social Responsibility (PSR), the Academy for Educational Development (AED), and Health Outreach Partners (HOP). We would like to thank the W.K. Kellogg Foundation for their generous financial support of the Niños Seguros y Sanos (Safe and Healthy Children) project.

The project aims to address environmental health in migrant and seasonal farmworker children by educating and empowering those that already have direct involvement and relationships with the children: physicians, nurses, outreach workers, promotoras, and health specialists among others.

The main goals of the Safe and Health Children Initiative are:

1. To develop an education and prevention program that reduces children’s exposure to chemicals and environmental hazards which can lead to health issues like learning and developmental disabilities, cancer, asthma, allergies, and other respiratory illnesses.
2. To build on the knowledge, awareness and ability of clinicians, outreach workers, and teachers to identify, prevent, and reduce environmental threats to children’s health.
3. To encourage and involve physicians and other health professionals to advocate for policies that decrease children’s exposures to environmental pollutants and toxic chemicals.

The initiative was launched as a pilot through Migrant and Seasonal Head Start (MSHS) Programs and Migrant and Community Health Centers (MCHC) in Michigan and Florida, using a Training of Trainers (abbreviated as TOT in this curriculum) method. The TOT method was used in order to train as many people in the field as possible, and to disseminate the curriculum in a cost-effective and timely manner. A pre-training assessment was created and administered to MSHS staff to ensure the curriculum addressed the specific environmental health concerns of the target population. Throughout the pilot phase staff from the MSHS and MCHC participated in evaluation measures and testing of additional educational materials to ensure that the end products would be culturally and linguistically appropriate.

The core TOT curriculum focuses on the ways that children are uniquely vulnerable to environmental toxins as well as how to prevent and reduce exposures. Trainings are based on proven educational and prevention materials and strategies, including PSR’s American Academy of Pediatrics endorsed Pediatric Environmental Health Toolkit, developed by PSR chapters in San Francisco and Boston in partnership with the Pediatric Environmental Health Specialty Unit at the University of California, San Francisco.
Established in 1930, the W.K. Kellogg Foundation supports children, families and communities as they strengthen and create conditions that propel vulnerable children to achieve success as individuals and as contributors to the larger community and society. Grants are concentrated in the United States, Latin America and the Caribbean, and southern Africa.

Physicians for Social Responsibility is the largest physician-led nonprofit organization working to prevent nuclear war and proliferation and to slow, stop and reverse global warming and toxic degradation of the environment.

Academy for Educational Development is a nonprofit organization working globally to improve education, health, civil society and economic development. Through their Migrant and Seasonal Head Start Technical Assistance Center, they serve more than 450 Migrant and Seasonal Head Start programs in 38 states.

Health Outreach Partners is a national nonprofit organization that works to build strong, effective, and sustainable grassroots health models by partnering with local community-based organizations across the country in order to improve the quality of life for low-income, vulnerable, and underserved populations.
Acknowledgments

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Curriculum Objectives

1. Help you to protect farmworker children from early exposure to environmental hazards that cause illness and disability across the lifespan.
2. Prepare you to be trainers of this curriculum.
3. Provide resources to help minimize health disparities among farmworker children.

WHAT IS A TRAINING-OF-TRAINER MODEL?
The Training-of-Trainer (TOT) model is an educational approach in which individuals are equipped with the skills and knowledge to teach another group about a specific topic. The focus of this model is on building a team of community-based trainers with the capacity to transfer knowledge and information. The model is known for contributing to community asset building and providing the opportunity to engage community members in curriculum-based hands-on learning.

HOW TO USE THIS CURRICULUM
The Safe and Healthy Children Curriculum has been developed for Training-of-Trainer (TOT) Facilitators. TOT Facilitators will use this curriculum to:

- Further their understanding of pediatric environmental health topics;
- Instruct their peers -- outreach workers, teachers, and health specialist-- on how to become trainers of this curriculum;
- Educate their peers as well as farmworker families on pediatric environmental health topics.

The curriculum can also be used by non-TOT Facilitators to further their understanding of environmental health topics and prepare them for environmental health educational efforts with farmworker families. There are specific activities and resources included in the curriculum that can be used to educate farmworker families. These activities and resources are marked with the following symbol for easy identification.

The curriculum is organized into the following seven modules:

- Module 1: Let’s Begin
- Module 2: Becoming a Trainer
- Module 3: Unique Vulnerability of Children
- Module 4: Prevent and Reduce Exposures
- Module 5: Community Support and Collaboration
- Module 6: Conclusion and Evaluation

Each module begins with a menu of key information for planning lessons and activities included in the module. These menus list the time, objectives, method of instruction, supplies, set-up requirements, and participant materials necessary for implementing the module. Additionally, each module includes an overview of individual activities, as well as suggested times and instructional steps for facilitating the activities.
**APPROACH**

The curriculum is guided by principles of adult learning and the Training-of-Trainer model. As such, it encourages active participation and dialogue, is relevant to and builds upon participants’ years of experience, provides practical applications, and creates opportunities for collaboration.

The curriculum includes:

- Whole group discussion
- Small group work
- Hands-on activities
- Demonstrations
- Facilitator instruction
- Handson practice in pairs
- Participant sharing

**TRAINING SCHEDULE-AT-A-GLANCE**

The following is a training schedule for the complete curriculum. It is recommended to provide short breaks every 2-2.5 hours. Facilitators can adapt the curriculum and timeframe to their particular audience. If you need assistance creating a customized agenda to meet your time and audience requirements please contact Health Outreach Partners at 510-268-0091.

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**Sample Training-of-Trainers Schedule**

<table>
<thead>
<tr>
<th>Modules</th>
<th>Estimated Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Let’s Begin</td>
<td>25 min.</td>
</tr>
<tr>
<td>2 Icebreaker</td>
<td>20 min.</td>
</tr>
<tr>
<td>3 Becoming a Trainer</td>
<td>35 min.</td>
</tr>
<tr>
<td>4 Unique Vulnerability of Children</td>
<td>50 min.</td>
</tr>
<tr>
<td>5 Prevent and Reduce Exposures</td>
<td>1 hr.</td>
</tr>
<tr>
<td>6 Community Support and Collaboration</td>
<td>45 min.</td>
</tr>
<tr>
<td>7 Conclusion and Evaluation</td>
<td>15 min.</td>
</tr>
</tbody>
</table>

**Entire length of training** 4 hr. 20 minutes
## Let’s Begin!

**TIME**  
25 minutes

**OBJECTIVES**  
By the end of this session, participants will:
- Get to know one another and understand the purpose, methodology, and structure of today’s training
- Share expectations and concerns about the training

**METHOD OF INSTRUCTION**  
- Facilitator instruction
- Participant sharing

**SUPPLIES**  
- Name tags and markers
- Binders (one for each student, one for facilitator)
- White board with markers
- Poster paper (either with a stand or with a sticky back) and markers

**SET UP**  
*Before Training:*
- On poster paper write out: “Ground Rules”
- Check to make sure the participant binders have all the necessary materials for this session

*Room Prep:*
- Arrange tables and chairs in a U-shape so that everyone can see one another as well as the white board
- Place a binder at each chair throughout the room
Welcome! (10 MIN.)

Help participants feel welcome, get to know one another, and understand the reason for today’s training. Explain how the topic of pediatric environmental health is relevant and pertinent to the work of the participants. Request participation throughout the day.

STEPS
1. Welcome participants and provide name tags.
2. Refer participants to the curriculum binder. Ask participants to flip through the binders. Tell participants you will provide them with an overview of the curriculum in a few minutes.
3. Once everyone is seated, introduce yourself and your involvement in the project. Then explain the purpose of the training, and the partners involved. Suggestions of what to say include:
   • Purpose: This is a training to help you build knowledge and skills about pediatric environmental health. After you leave today, you will be able to help farmworker families protect their children from early exposure to environmental hazards that cause illness and disability. Additionally, this training will help you become trainers on the topic of environmental health so that you can teach this important information to other outreach workers and farmworker families. More specific information about the project is found in your binder.
   • Partners involved: This training is based upon a collaboration between Physicians for Social Responsibility, the Academy for Educational Development, and Health Outreach Partners. Information about the three organizations is found in the binders. Funding for the project comes from the W.K. Kellogg Foundation. The three main organizations (PSR, AED, and HOP) worked closely with Migrant and Seasonal Head Start programs and Migrant and Community Health Centers in Michigan and Florida to assess, pilot, and evaluate the Safe and Healthy Children Initiative TOT curriculum.
4. Go over “housekeeping” items:
   • Location of restrooms
   • Location of water and snacks (if applicable)
   • Any other pertinent items
5. Go over Ground Rules (hang up poster paper with this information and refer to it) to foster a safe and respectful learning environment:
   • Turn cell phones off or to vibrate; please no texting or phone use during training
   • Be on time after break and lunch
   • Start sessions promptly
   • Respect each other’s opinions
   • Ask questions and participate
6. “Parking Lot” for questions – this is a separate sheet of poster paper where the facilitator writes participant’s questions or comments when they are not related to the topic at hand but may be addressed later in the training
7. Ask participants to open up their copy of the binder. Tell them that this is for them to keep and
is full of information and tools to help them in their work with farmworker families. Explain that the binder will be used throughout the day so that participants become familiar with the materials. Briefly go through the sections of the binder with the participants.

**Introductions & Expectations (10 MIN.)**

Give participants an opportunity at the beginning of today’s training to introduce themselves and share what they hope to get out of the training. Help participants to understand their opinions are valued and heard.

**STEPS**

1. Ask participants to go around the room and briefly introduce themselves. The introduction should include name, number of years working with farmworker families, and what they hope to get out of the training. As time is limited, please encourage participants to be brief. Let them know there will be opportunities throughout the day for sharing knowledge and experiences, including in the ice breaker. Explain how the day will be divided, including breaks and lunch.

2. On poster paper, write down what participants hope to get out of the training. Tell them you will refer to this again at the end of the day.

3. Based on participant input, briefly share which of their expectations will be fulfilled today. For expectations that cannot be fulfilled, explain why not (time constraints, not related to the topic, not requested in pre-assessment surveys, etc.). However, state that you will do your best to address all their concerns and questions either during breaks or after the training.

4. Share with the participants that during the course of the day and at any point in the future, you (and other facilitators, if applicable) are available to help and support them as they use this curriculum to train or educate others.

**Training Overview (5 MIN.)**

Set the tone for the day by explaining the day’s topics and activities as well as the overall training methodology (the process or approach the trainer uses to convey information and inform participants).

**STEPS**

1. Explain how the day will be divided, including breaks and lunch.

2. Explain that the training will be participatory and full of activities, discussion, and instruction. Tell participants that their input is highly valued. Express respect for the participants’ years of service to farmworkers and their families and request them to share their experience and knowledge of this throughout the day.
## Icebreaker

The *Cabbage Game*

<table>
<thead>
<tr>
<th>TIME</th>
<th>20 minutes</th>
</tr>
</thead>
</table>
| **OBJECTIVES** | By the end of this session, participants will:  
  • Feel comfortable as a group  
  • Know more about others in the group and what their experiences are with pediatric environmental health |
| **METHOD OF INSTRUCTION** | Hands-on activity |
| **SUPPLIES** | Approximately 20-25 sheets of colorful 8.5x11 inch paper (copy paper is fine) with environmental health and personal/fun questions written on them  
  • ICEBREAKER QUESTIONS (page 1.9) |

### SET UP

Before Training:

- On each sheet of paper write an open-ended question about or draw something related to pediatric environmental health. You can use the hand-out ICEBREAKER QUESTIONS (page 1.9) as a guide. For example, one sheet could have the question: “What is one of your biggest concerns about children and environmental health?” and another could have a drawing of a pesticide container with the comment: “Tell us about this drawing and what it means to your work.” On some of the sheets of paper, mix in fun personal questions like, “What’s your favorite food?” or “Where does your name come from?” All questions and drawings should be easy to answer and solicit discussion. The intent is for participants to share their experiences and who they are more than content specific knowledge (you don’t want them to feel like they’re being tested!). Be sure to have enough sheets with questions/drawings for each participant to have a turn.

- Once each sheet has something on it, crumple up one of them into a ball. Proceed to crumple the others over the ball in layers to make a bigger ball, or cabbage. Make sure it’s easy to take off one layer while the rest of the cabbage stays intact. When the game starts, the cabbage should be whole.

*Room Prep:*

- Ensure the classroom has enough space for participants to stand in a circle without chairs or other objects in the way.
Icebreaker (20 min.)

This ice breaker is a great way for the group to bond as a team. It also gives each participant the opportunity to share their knowledge and experience of environmental health in a relaxed and fun atmosphere.

**STEPS**

1. Instruct participants to form a circle. Show the ball of crumpled papers to the group and explain that it is a cabbage with many layers of leaves that can be peeled off. Do not explain all the steps — it is easier to do as the game proceeds.

2. Throw the cabbage to one of the participants. Ask this participant to peel off the first layer and take a look at what is written or drawn on it and then show it to the rest of the group. If needed, hold the cabbage while the participant holds the layer. Then direct the participant to briefly answer the question or comment on the drawing. Guide the participant as needed.

3. After the first participant finishes, have her/him throw the cabbage to another participant who will then repeat the process, continue until everyone has had a turn. (time permitting)

5. Conclude by thanking the group for sharing their experiences. Comment on the knowledge and experience the group already has on this topic and express how such direct work with farmworkers makes them excellent candidates to be trainers.

**Note:**

If there are fewer than 15 participants, there will be enough time for each one to take a turn peeling a layer of the cabbage and providing commentary. However, if there are 15 or more participants, there will not be enough time. If this is the case, put participants into pairs and allow each pair to share a turn. When the cabbage is thrown, one of the members of the pair will catch it and then together they will answer the question.

**Adaptations:**

Try adding fun music and playing “hot potato” style. A non-participant volunteer will control the music. As the music plays, the participants pass the cabbage around. When the music stops, the person holding the cabbage must peel off a layer and answer the question, or comment on the drawing.
Icebreaker Questions

Use these questions as a guide or come up with your own to use for the Icebreaker: Cabbage Game. Just be sure to keep the content simple and fun.

**Environmental-toxin related questions:**

1. What is one of your biggest concerns about children and environmental health?
2. What are different ways that children come into contact with chemicals?
3. What is one of the challenges you face helping families with environmental health?
4. What are ways the government protects children from toxic chemicals? What are ways that there needs to be more protection?
5. What are some ways to help families keep their kids healthy when the environment has many toxins?
6. How is asthma related to environmental toxins?
7. Do you think naturally occurring chemicals are safe or not safe?
8. What kinds of health issues have you seen in farmworker children that are related to environmental health?
9. What environmental toxins or hazards do the farmworker families you work with talk the most about?
10. In what ways is the community you work in addressing issues related to environmental health?

**Environmental-toxin related illustrations with questions**

*(note: the following is especially good for use with low-literacy persons.)*

1. Illustration shows half a page of cleaning products with skull and cross bones symbol and half a page of cleaning products labeled non-toxic.
   - *Question:* What do you think about these different types of cleaning products? How do they affect children?
2. Illustration shows a pesticide container.
   - *Question:* Tell us about this drawing and what it means to your work.
3. Illustration shows half a page with man-made chemicals (ex. bleach, pesticides) and half a page with naturally occurring chemicals (ex. mold and mildew, lead, mercury).
   - *Question:* What is the difference between these kinds of toxins?
4. Illustration of many types of food.
   - *Question:* How is food connected to environmental toxins?
Fun and personal questions:
1. What’s your favorite food?
2. Where does your name come from?
3. Where is your favorite place to travel?
4. If you were going to search for anything on the Internet in your free-time, what would it be?
5. What is the most amazing thing you have ever seen?
# Becoming a Trainer

<table>
<thead>
<tr>
<th>TIME</th>
<th>35 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJECTIVES</td>
<td>By the end of this session, participants will:</td>
</tr>
<tr>
<td></td>
<td>• Understand the Training of Trainers model</td>
</tr>
<tr>
<td></td>
<td>• Understand three principles of adult learning in order to be able to teach them effectively</td>
</tr>
<tr>
<td></td>
<td>• Learn two new skills to provide successful trainings to peers and outreach workers</td>
</tr>
<tr>
<td>METHOD OF INSTRUCTION</td>
<td>• Whole group discussion</td>
</tr>
<tr>
<td></td>
<td>• Facilitator instruction</td>
</tr>
<tr>
<td>SUPPLIES</td>
<td>• White board with non toxic markers</td>
</tr>
<tr>
<td></td>
<td>• Poster paper (either with a stand or with a sticky back) and non toxic markers</td>
</tr>
<tr>
<td>SET UP</td>
<td><strong>Before Training:</strong></td>
</tr>
<tr>
<td></td>
<td>• Ensure binders have appropriate participant materials for this session.</td>
</tr>
<tr>
<td></td>
<td><strong>Room Prep:</strong></td>
</tr>
<tr>
<td></td>
<td>• Arrange tables and chairs in a U-shape so that everyone can see one another as well as the white board.</td>
</tr>
<tr>
<td>PARTICIPANT MATERIALS</td>
<td>• Principles of Adult Learning (Page 2.17)</td>
</tr>
<tr>
<td></td>
<td>• Train-The-Trainer: Basic Training Guidelines (Page 179)</td>
</tr>
<tr>
<td></td>
<td>• Facilitation Checklist (Page 2.19)</td>
</tr>
</tbody>
</table>
Opening Discussion (10 min.)

This section provides an opportunity for participants to continue to open up, get to know one another, and share experiences. It is also an opportunity to describe the Training of Trainers model, including how it will be used today to prepare participants to help farmworker families understand environmental toxins and how to prevent their exposure.

Steps

1. Ask participants to share what their experience is providing training to other outreach workers. This can include what they have provided training on, their comfort levels providing training, how many trainings they have given, etc. Write their responses on the white board/poster. Then ask them what their experience is providing training to farmworker families.

2. Ask the participants if they have provided training to other outreach workers on the effects of environmental toxins on children. Then ask them to do the same if they have provided this kind of training to farmworker families.

3. Congratulate participants on the trainings they have done. Comment how outreach workers and other front line workers often make some of the best trainers because of their direct experience working with farmworkers and their creativity and determination in overcoming barriers that farmworkers face.

4. Remind participants that some of them will provide this same training to other outreach workers and that all of them can take ideas from it to teach farmworkers.

5. Explain the Training of Trainers (TOT) model. Below are suggested speaking points:
   • TOT means that a trainer, like me, trains new trainers, like you, to provide similar trainings. In the case of this training, I will teach you about how environmental toxins affect children so that you are then prepared to teach others on the same topic.
   • TOT not only teaches you about health topics, like environmental toxins, but also prepares you to be effective trainers. This means you’ll know what to say, how to manage time, how to stay on topic, how to use trainer tools, and more. These are skills you can use in other areas of your work as well.
   • To teach how to utilize and follow the TOT model can take several days. Since we have a lot to cover in a short amount of time, we won’t be able to provide detailed information about the TOT model. However, we will provide you with an overview, practice time, and reading materials.

6. Ask participants to share what they feel they need to learn or do today to be effective trainers. Record this on a sheet to put up in the room. Tell them they will refer to this in the next session as they practice being a trainer in order to help them stay focused.
Adult Learning (5 min.)

This section is a quick overview of the unique learning styles of adults. Though there is limited time for discussion and reflection, encourage participants to keep these learning principles in mind throughout the day and whenever providing training.

STEPS
1. State that after today, the hope is that participants will use knowledge gained from this training to train other outreach workers or farmworker parents. In order to feel comfortable teaching adults it is important to consider adult learning styles. Ask participants how they think adults learn. If time permits, write their responses on the white board or poster paper.
2. Use the handout PRINCIPLES OF ADULT LEARNING (page 2.17) to guide the participants and help them frame their thoughts. In particular be sure to stress:
   - Adults don’t just want to be talked at or told what to do. They want dialogue. No matter their education level, they have a wealth of life experiences to share, some of which may relate directly to the topic of discussion. Ask them about their experiences and opinions regularly.
   - Make the discussion topic relevant to the adult learner’s work or life. When adults can immediately see how they can apply new knowledge, they are more likely to feel engaged and participate in training.
3. Refer participants to the handout in their binder. Ask them to read this more thoroughly after the training, especially if they will be providing this or other training in the near future.
4. Tell participants that once they have a better understanding of how adults learn, they can begin utilizing different facilitation strategies to involve and engage their audience.

Training Facilitation Strategies (20 min.)

The purpose of this section is to provide an overview of what it takes to be an effective facilitator or trainer. Participants will have the opportunity to review training curriculum, explore training skills, and learn how to use a training observation tool. There is a lot to cover in this section so be sure to keep things moving, while at the same time observing participant body language and their comments regarding training pace. If they feel things are moving too fast, consider to what you can dedicate more time while shortening other pieces.

STEPS
1. Ask participants to examine how the information in the module Let’s Begin and Ice Breaker: Cabbage Game is grouped and presented (e.g. time, objectives, method of instruction, steps, etc.).
2. Guide a brief discussion to help participants consider:
   a. Training requirements (time, supplies, set up, materials for participants) – help trainers know how long to talk and allow for each section, what to collect and prepare before a training, how to set up a room and materials before and during a training, etc.
   b. Objectives – help trainers to stay focused on the main points in order to meet overall training/project goals
   c. Instruction methods – help trainers to see at-a-glance how information will be shared
   d. Step-by-step instructions – show trainers what they should say and do in each section, but with enough room for creativity and improvisation (it’s not a script but a guide)

Encourage participants not to disregard or quickly look over such information because it will help them to save time and to be organized and prepared trainers.

Point out that in addition to the above mentioned training preparation methods there are many other ways that a trainer can be prepared to provide trainings. One of them is having basic facilitation skills. These skills help facilitators to guide participants to effectively understand the content and know how to apply it in practical ways. This will be briefly covered now.

**BASIC FACILITATION SKILLS**

1. Recognize that some participants may already have many years of experience providing training and have strong facilitation skills. Encourage the experienced trainers to use what they know to help the non-experienced trainers today. However, request that they first allow the new trainers the opportunity to respond to questions and provide feedback.

2. Comment on how trainings can be set up in many different ways. A goal of this one is for it to be active and productive. Show participants some techniques on how to do this by directing them to the FACILITATION CHECKLIST (page 2.19), which will be used throughout the day to assess the entire training) in their binder. Tell them this is based on TRAIN-THE-TRAINER: BASIC TRAINING GUIDELINES (page 179) which is also in the binder and is a very good resource to review before they do their own trainings. Quickly show the group where this is located in the binder, but then ask them to follow along with the FACILITATION CHECKLIST as opposed to trying to flip through the many pages of the curriculum. Also tell the group that when they get to the Unique Vulnerability of Children and Prevent and Reduce Exposures modules there will be facilitation checklists specific to these topics in each module. (make sure all checklists are on their own page so they can be pulled out and used on there own)

3. Read out loud (or ask a participant to do so, time permitting) the main facilitation skills that are covered on the FACILITATION CHECKLIST (page 2.19):
   - Prepared for the Training
   - Established Confidence
   - Set the Tone
   - Facilitating Discussion: Led vs. Directed
• Facilitating Discussion: Stimulated Dialogue
• Facilitating Discussion: Facilitated Active Listening
• Facilitating Discussion: Handled Difficult Situations
• Wrapped Things Up

4. Go through each skill and ask participants what each means. Provide guidance as needed. Also ask participants to provide an example of what that skill might look like in an actual training. Use information from TRAIN-THE-TRAINER: BASIC TRAINING GUIDELINES (page 17) to guide you. Stay on time to allow dialogue among participants.

5. State that each of the facilitation skills could take a day to cover, but there is only enough time today for an overview along with some discussion and practice. Urge participants to read TRAIN-THE-TRAINER: BASIC TRAINING GUIDELINES (page 17) on their own, especially if they will be providing this or other training in the near future.

6. After going over the FACILITATION CHECKLIST (page 39), tell participants that this will be a tool they use throughout the rest of the day. It is used to:
   • Remind participants what facilitation skills to observe throughout the course of the training.
   • Help the participants keep in mind what they should/should not do as facilitators.
   • Allow participants to rate the trainer and to see how they will be rated when they provide the training.

Ask participants to either fill it out during the course of the training or at the end.
Principles of Adult Learning*

1. **Dialogue:** Adult learning is best achieved through discussion. Adults will learn new attitudes or skills when their life experiences are referenced during discussions with peers and/or an educator. Dialogue should be encouraged and used in formal trainings, informal talks, one-on-one counseling sessions, and all adult learning situations.

2. **Create a safe space for learning:** Adults are more receptive to learning when they are physically and psychologically comfortable.
   - Physical surroundings (temperature, ventilation, overcrowding, and light) can affect learning.
   - Learning is best when there are no distractions.

3. **Respect:** Appreciate your adult student’s contributions and life experiences. Adults learn best when their experience is acknowledged and new information builds upon their past knowledge and experience.

4. **Affirmation:** People need to be sure they are correctly recalling or using information they have learned. Learners should receive praise, even for small attempts.

5. **Sequence and reinforcement:** Introduce the easiest and most important ideas or skills, and then build upon them. Repeatedly reinforce key ideas and skills; people learn faster when information or skills are presented in a structured way.

6. **Practice:** Practice your health education activities by yourself before presenting them in front of adult students.

7. **Ideas, feelings, and actions:** Learning takes place through thinking, feeling, and doing; it’s most effective when all three occur.

8. **20/40/80 rule:** Adult learners remember more readily when visuals support verbal presentations; they learn even better when they repeatedly practice the new skill. Adults typically remember 20 percent of what they hear, 40 percent of what they hear and see, and 80 percent of what they hear, see, and do.
9. **Relevance to previous experience**: People learn at a much quicker rate when new information or skills are related to what they already know or can do.
   a. Immediate relevance: Learners should see how to use and apply what they have learned in their job or life immediately.
   b. Future relevance: People generally learn much better when they realize that what they are being taught will be of great use to them in the future.

10. **Teamwork**: Strive to help people learn from each other and solve problems together. This makes learning easier to apply to real life situations.

11. **Engagement**: Adults prefer to be active participants in learning rather than passive recipients of knowledge. People learn faster when they actively process information, solve problems, or practice skills.

12. **Accountability**: Ensure that learners know how to apply what they have learned.

13. **Motivation**: Wanting to learn.
   a. People learn faster and more thoroughly when they want to learn. The trainer’s challenge is to create conditions where people want to learn.
   b. Learning is natural; it’s as basic a function of human beings as eating or sleeping.
   c. Some people are more eager to learn than others, just as some are hungrier than others. In each person, there are different levels of motivation.
   d. All the principles outlined will help the learner become motivated.

14. **Clarity**
   a. Messages should be clear and concise.
   b. Words and sentence structures should be familiar. Technical words should be explained and the learner needs to understand the meaning.
   c. Messages should be visual. For example, if you inform a farmworker to wear appropriate clothing for pesticide and sunstroke protection, then show a real example of this type of clothing.

15. **Feedback**: Feedback informs the learner in what areas they are strong or weak.

---

*From Training Methodologies and Principles of Adult Learning: Application for Training in Infant and Young Child Nutrition and Related Topics*
### Facilitation Checklist* for Overall Training

Use this checklist throughout the day to assess the entire training. It is a tool to help remind participants what facilitation skills to observe throughout the course of the training, to help participants keep in mind what they should/should not do as facilitators and will allow participants to rate the trainer and to see how they will be rated when they provide the training.

<table>
<thead>
<tr>
<th>Facilitation skill</th>
<th>The Trainer</th>
<th>On a scale of 0-5, how was it? (0 is bad, 5 is excellent; N/A is not applicable)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared for the training</td>
<td>took the time needed to be ready for the training</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>knew the material</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>gave the training using her/his own words</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Established confidence</td>
<td>was credible (honest, had expertise, kept things moving)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>was confident giving the training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set the tone</td>
<td>explained what was expected</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>helped the group to relax and get to know one another (ice breaker)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>used activities as a way to help participants engage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>kept participants to the time requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Led vs. directed the discussion</td>
<td>drew out ideas from the participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>assured that key messages were covered</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>used transitions to move from one topic to another</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stimulated dialogue</td>
<td>encouraged opportunities for discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitated active listening</td>
<td>listened to participants while encouraging their input</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* partially based on Train the Trainer: Basic Training Guidelines from Alameda County Public Health Department (www.acphd.org)
<table>
<thead>
<tr>
<th>Facilitation skill</th>
<th>The Trainer</th>
<th>On a scale of 0-5, how was it? (0 is bad, 5 is excellent; N/A is not applicable)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handled difficult situations</td>
<td>handled difficult situations (someone talking too much, someone not talking at all, side conversations, lack of time, someone rambling on, etc.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OVERALL SCORE FOR THIS SKILL

| Wrapped things up at the end       | concluded by sharing key messages, objectives, and goals                      |                                                                                  |          |
|                                   | requested participants to evaluate the training                               |                                                                                  |          |

OVERALL SCORE FOR THIS SKILL
# Unique Vulnerability of Children

## TIME
50 minutes

## OBJECTIVES
By the end of this session, participants will:
- Describe three ways that children are uniquely vulnerable to environmental toxins
- Understand two techniques to help families learn about unique vulnerabilities
- Have increased skills and comfort as trainers

## METHOD OF INSTRUCTION
- Whole group discussion
- Small group work
- Hands-on activity
- Demonstration
- Facilitator instruction
- Hands-on practice in pairs

## SUPPLIES
- Clue Cards: Participant Version (page 3.33), Facilitator Version
- White board with markers
- Poster paper (either with a stand or with a sticky back) and markers
- FUN WAYS TO SPLIT INTO GROUPS OR PAIRS (page 3.27)
- Materials for demonstration (DEMONSTRATION: UNIQUE VULNERABILITY OF CHILDREN, page 3.56)
- Q&A REVIEW (page 3.58)

## SET UP
**Before Training:**
- Become familiar with Clue Cards: Facilitator Version (page 3.28) in order to concisely explain their key messages.

**Room Prep:**
- Put a table in front of the room visible to all participants.
- Put Clue Cards: Facilitator Version (page 3.28) on top of the table to be used during the section Instruction & Demonstration.
- Set out all supplies for the demonstration so it is ready to go.

See next page for list of Participant Materials
Protecting Children from Environmental Hazards

Opening Discussion (10 MIN.)
Starting with a discussion provides an opportunity for the group to share their current knowledge and experience related to the unique vulnerability of children to environmental toxins. This helps to frame the rest of the class and to allow the participants to be the experts.

STEPS
1. Tell participants that the next topic is about the unique vulnerability of children to environmental toxins.
2. Ask participants what the title—the unique vulnerability of children to environmental toxins—means to them. State that this title can seem technical but that it is, no doubt, something that everyone in the room has come across while working with farmworker families. Ask them why children are not just "little adults." Write their comments on the white board or poster paper.
3. Ask participants what they already know about this topic and what they want to learn.
4. In a power point, or brief discussion, go over examples of unique vulnerabilities of children and risk factors. Refer to the Key Concepts from the Pediatric Environmental Health Toolkit to help you. (include Key Concepts in the binder as a resource)
5. Remind the group to observe this session both as a student and as a facilitator. Ask them to have out their FACILITATION CHECKLIST for Unique Vulnerability of Children (page 3.25) and to watch for the skills listed on it. Tell them they will have opportunities in this session to think about how they would present this information if they were trainers.

PARTICIPANT MATERIALS
- Set of CLUE CARDS: PARTICIPANT VERSION (page 3.33)
- CLUE CARDS: FACILITATOR VERSION (page 3.28)
- Copy of DEMONSTRATION: UNIQUE VULNERABILITY OF CHILDREN (page 3.56)
- Checklist for You as the Trainer: DISCUSSION & FACILITATION CHECKLIST FOR UNIQUE VULNERABILITY OF CHILDREN (page 3.25)
- PEDIATRIC ENVIRONMENTAL HEALTH TOOLKIT (PEHT), Key Concepts (Additional PEHT materials can be downloaded from http://www.psr.org/resources/pediatric-toolkit.html)
Clue Cards Group Work  (15 MIN.)

(Note: Be sure to remove the Clue Card Facilitator version from the participants’ binders before beginning the session.)

In this section, participants will use visuals to determine children’s unique vulnerability to environmental toxins. They will then practice how they would explain these vulnerabilities to farmworker families in an easy-to-understand and informative way.

STEPS

1. Tell participants that this activity requires that they work in small groups. After working together, each group will present what they have learned to the larger group (in the next session).

2. Split participants into small groups (no more than 4 participants per group) by using FUN WAYS TO SPLIT INTO GROUPS OR PAIRS (page 3.27).

3. Give each group 2 to 3 clue cards from which they will figure out together what their cards mean in terms of vulnerability of children to environmental toxins. For some of the cards it will be easy to figure out what the vulnerability is and for others not as much. Depending on the number of participants, some groups may have some of the same cards.

4. Walk around the room to help groups and make sure they are staying on track. If they have finished, ask them to then practice how they would explain these vulnerabilities in an easy-to-understand way to the farmworker families with whom they work. Encourage them to think about stories, analogies, or other helpful teaching methods.

Instruction & Demonstration  (15 MIN.)

This section is a continuation of the Clues Cards Group Work.

STEPS

1. Thank the groups for working together to figure out the clue cards and to practice how they would teach this material to farmworker families.

2. Tell them that they will now take turns briefly presenting to the rest of the group about the unique vulnerabilities presented on their clue cards and how they would teach others about such vulnerabilities. Pick a group and ask them to begin.

3. While groups are presenting, assist and clarify as needed both with instruction and demonstration. Use the facilitator handout CLUE CARDS: FACILITATOR VERSION (page 3.28) as a guide.

4. After all the groups have had a chance to present and all the Clue Card concepts have been explained begin the Demonstration: Unique Vulnerability of Children page 3.56. Remind participants of the Clue Card that demonstrated how children eat more food and drink more water per pound of body than adults.

(Note: Be sure to remove the Clue Card Facilitator version from the participants’ binders before beginning the session.)
5. All messages on this handout must be mentioned, whether as part of discussion or during the demonstration. The demonstration will be done when participants are discussing how children drink more water and eat more food per weight than adults, and how children are on a restricted diet (often by their choice). Details of the demonstration are found in the facilitator handout on page 3.56.

6. Ask leading questions to help participants see how they can directly apply this knowledge when working with families. Examples include:
   a. How would you do a similar demonstration with the families you serve? What would you say?
   b. How would you discuss this vulnerability with a family? How would you make them feel comfortable and not judged?
   c. How would you build from the families’ experiences and knowledge when you are teaching them? How would you help them find their own answers?
   d. What would you do or say to make sure the families stay engaged with the topic?

7. Transition to the next section.
YOU AS THE TRAINER

Discussion & Facilitation Checklist* for Unique Vulnerability of Children

Discussion

With partners think about the pieces of the training that you have received so far – introduction, ice breaker, becoming a trainer, and the unique vulnerability of children. Discuss the questions below and write in your own answer:

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How much time do you think you would need to prepare in order to give this training to other outreach workers or to families?</td>
<td></td>
</tr>
<tr>
<td>2. What would you need to do to prepare yourself? (knowledge, materials, training techniques, practice, etc.)</td>
<td></td>
</tr>
<tr>
<td>3. How would you help participants to feel comfortable and welcome?</td>
<td></td>
</tr>
<tr>
<td>4. How would you prepare the demonstration used during the session: Unique Vulnerability of Children?</td>
<td></td>
</tr>
</tbody>
</table>

Knowing the answers to the questions above helps you to:
• Prepare for the training
• Set the tone

With your partner, take turns being the trainer and the observer by practicing the facilitation skills below. Don’t worry – this is just practice! Since this is new information you may feel a little uncertain.

1. Give an introduction as if you were just starting out the day then transition to the ice breaker (set the tone, lead vs. direct).
2. If available, use the bottles from the demonstration used in the session Unique Vulnerability of Children to practice giving the demonstration yourself (prepare for training).
3. Handle a situation where, during the clue cards activity, one participant looks confused, another is not staying on topic, and yet another looks uncomfortable (handle difficult situations).

While one of you practices being the trainer, the other will observe and rate your facilitation skills (use the table on next page).

* partially based on Train the Trainer: Basic Training Guidelines from Alameda County Public Health Department (www.acphd.org)
<table>
<thead>
<tr>
<th>Facilitation skill</th>
<th>The Trainer</th>
<th>On a scale of 0-5, how was it? (0 is bad, 5 is excellent; N/A is not applicable).</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared for the training</td>
<td>took the time needed to be ready for the training (for trainers that practice using the demonstration materials)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set the tone</td>
<td>provided an appropriate introduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>used transitions to move from one topic to another</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handled difficult situations</td>
<td>handled difficult situations (someone that is confused, someone not staying on topic, someone who is uncomfortable)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fun Ways to Split into Groups or Pairs

Here you will find fun and unique ways to split participants into small groups or pairs. These methods, which are like mini ice-breakers, accomplish the task at hand while also creating a relaxed and jovial atmosphere.

From “Fun Ways to Split Into Groups” - Girl Scouts of Northern California

Playing Cards
Decide how many groups you want and what size. For example, if you would like to have 5 groups of 5 and you wanted to randomly put them into groups then get 5 Kings, 5 Aces, 5 2’s, 5 Jacks, and 5 Queens (of course you will need more than one deck of cards) and shuffle them up. Pass them out and match up the five who get the Kings, Queens, etc. Decks of Old Maid cards work well for dividing into partners.

Arm Cross
Have everyone cross their arms across their chest. Amazingly, it almost always works out to about 50% cross right over left, and the other 50% cross left over right.

Finger Cross
Have participants close their eyes and then put their hands together so their fingers are interlocking and their palms are touching each other. Tell them to keep their palms together as is and then open their eyes and look down at their hands. If their right thumb is on top then they are one team and if their left thumb is on top then they go to the other team.

Adapted from “Creative Ways to Organize Students for Small Group Activities” – BEST Foundation for a Drug-Free Tomorrow,

Same Height
Have participants find other classmates about the same height as them.

Stickers
Use different types of stickers or colored stars or dots. Either put the stickers on the participants as they enter the room or put the stickers on their binders before handing them out. If you want five groups with five people per group, you would select five different types of stickers to put on five sets of students.

Adapted from “Team Builders: Eight Ways to Get into Groups” – University of First Age,
http://www.ufa.org.uk/uploaded_media/resources/1243868728-Activity%2053-%20Eight%20ways%20to%20get%20into%20groups.pdf

Alphabet Soup
Simply use the participants’ names to pair/group them. Use the first or last names and match by letters: a-f; g-k; l-q, etc. Vary the range to make the size of groups you want. To save time, plan this ahead of time (such as during a break).
## Clue Cards: FACILITATOR VERSION

<table>
<thead>
<tr>
<th>Clue Card</th>
<th>Vulnerability of Children</th>
<th>Key Messages to Convey</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1</td>
<td>Breathe more air and can absorb more through their skin compared to an adult.</td>
<td>Breathing rates steadily decrease by age. If a pollutant is in the air, children are likely to have a greater exposure due to both breathing more and activity habits. For example, ozone levels are highest in the afternoons and particularly in summer, exactly the time when children are most likely to be outdoors and very active in sports, etc. Ask participants: &quot;Have you ever watched newborns breathe? Their chests move up and down very rapidly.&quot; Newborns breathe twice as fast as an adult.</td>
</tr>
<tr>
<td>A.2</td>
<td>Breathe more air and can absorb more through their skin compared to an adult.</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Typically restricted diet</td>
<td>A young child’s typically restricted diet may lead to greater exposures to contaminants unique to certain foods, e.g. pesticides used specifically on grapes. Ask participants for real life examples about the eating habits of their children or children they work with. For example:  - What do your children or the children you work with like to eat?  - Do they eat a variety of foods?  - Do they get picky and only want to eat certain foods? Often kids get particular about what they will or will not eat. For example, they may only want to eat fish sticks and apple juice. By eating an abundance of a particular food they may be exposed to an excessive amount of chemical from that food (PCBs or mercury in fish, pesticides in apple juice). A child who consumes many glasses of apple juice each day, for instance, or will only eat grapes, may ingest higher concentrations of pesticides.</td>
</tr>
<tr>
<td>C</td>
<td>Drink more water and eat more food</td>
<td>Children are often exposed to chemicals more readily than adults. In the first six months of life children drink seven times as much water, and from one to five years consume three to four times more food for their weight than adults. If that water or food contains chemicals, the child will take in that much more than an adult.</td>
</tr>
</tbody>
</table>
### Vulnerability of Children

<table>
<thead>
<tr>
<th>Clue Card</th>
<th>Vulnerability of Children</th>
<th>Key Messages to Convey</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Hand-to-mouth behavior (young children)</td>
<td>Anyone who has come in contact with a child will understand that they are constantly putting things in their mouths, causing greater exposure to contaminants that may be on the object or part of the object itself. Normal play and hand-to-mouth behavior, which increase a child’s exposure to dust and dirt (carpet, lawns, playing fields), can increase toxicant exposure.</td>
</tr>
<tr>
<td>E</td>
<td>Exploratory behavior (young children)</td>
<td>Very young kids and babies spend a lot of time on the floor where they can come into contact with chemicals tracked in from outside the house (this is why we recommend people remove their shoes before coming indoors). Some pesticides are relatively heavy and tend to linger at about 2-3 feet off the ground, nose height for many crawling babies and toddlers.</td>
</tr>
<tr>
<td>F</td>
<td>High risk behavior (teens)</td>
<td>Teens are beginning to make personal choices. In doing so, they are highly influenced by their peers and often unaware or unconcerned about risks and dangers. High risk behavior includes smoking, drinking, not using sunscreen, not taking precautions when using cleaning products, not paying attention (i.e. cell phone in the first picture), etc. Additionally, since teens are new to making their own personal health decisions, they may not consider the short- and long-term implications of toxins to their health. Additionally teens begin to enter the work place and could be taken advantage of if they don’t know the laws and or proper precautionary steps to take. For example, they may work as landscapers and be asked to spray pesticides without proper training or protection; they may work in a restaurant that allows smoking or uses industrial cleaners; they may paint with high VOC paints etc.</td>
</tr>
</tbody>
</table>
### Vulnerability of Children

<table>
<thead>
<tr>
<th>Clue Card</th>
<th>Vulnerability of Children</th>
<th>Key Messages to Convey</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>Children have longer to live than adults</td>
<td>Children have longer to live than adults so an exposure has a longer time to potentially cause harm. Because children have more future years of life than most adults, they have more time to develop chronic diseases triggered by early exposures. Many diseases that are caused by toxicants in the environment require decades to develop. Many of those diseases, including cancer and diseases that can affect brain functioning, are now thought to occur in a series of stages that may not show up for decades. Exposure to cancer causing substances and other toxins early in life (including prenatal exposures) appear more likely to lead to disease than similar exposures encountered later.</td>
</tr>
<tr>
<td>H</td>
<td>Minimal testing to see how chemicals affect children</td>
<td>Nearly 75% of commercial chemicals produced at greater than a million pounds per year have undergone little or no toxicity testing (testing to determine harm to humans). What little toxicity testing has been done is primarily from studies in mature, adult animals.</td>
</tr>
<tr>
<td>I</td>
<td>Stages of growth and development</td>
<td>Often a chemical may be more harmful depending on what stage of development the child is in. Children have not yet developed the enzymes necessary to break down chemicals such as lead and organophosphate pesticides. Therefore if kids are exposed to these chemicals their bodies are less capable of protecting them, making children more vulnerable to the toxic effects. Children undergo rapid growth and development, and their developmental processes are easily disrupted. Organ systems in infants and children undergo very rapid change prenatally, as well as in the first months and years after birth. These developing systems are very delicate and are not well able to repair damage that may be caused by environmental toxicants. Thus, if cells in an infant's brain are destroyed by chemicals such as lead, mercury, or solvents, or if false signals are sent to the developing reproductive organs, there is high risk that the resulting dysfunction will be permanent and irreversible.</td>
</tr>
</tbody>
</table>
Vulnerability of Children

<table>
<thead>
<tr>
<th>Clue Card</th>
<th>Vulnerability of Children</th>
<th>Key Messages to Convey</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>Children absorb more of what they are exposed to per weight than adults</td>
<td>Children absorb more of what they are exposed to and sometimes their growing bodies cannot break down and eliminate the chemical or repair damage. For example, while an adult will absorb 10% of ingested lead, a toddler absorbs 50%.</td>
</tr>
<tr>
<td>K</td>
<td>Built environment</td>
<td>Linked with asthma. This includes the indoor environment, as well as the outdoor. Over reliance on the automobile and its resultant increase in ozone and fine particulate pollution (soot) contributes to the severity and frequency of attacks. The percentage of children with asthma has doubled over the past two decades, and is now the number one cause of school absenteeism attributed to chronic conditions.</td>
</tr>
</tbody>
</table>
¡No! ¡Solo quiero uvas!
That is all she wants these days. Grapes and food that is white.

No! I only want grapes!
That is all she wants these days.

Timeline of an adult

You are here

Left to live
Laboratorio de Prueba de Toxicidad

Tóxicos que no han sido puestos a prueba

¡Estupendo! Ya hemos puesto 200 químicos a prueba y solo nos falta 80,000 más.
Great! We just tested our 200th chemical only about 80,000 left to go.
## Demonstration: Unique Vulnerability of Children

This handout is to accompany the section Instruction & Demonstration in the session Unique Vulnerability of Children.

<table>
<thead>
<tr>
<th>TIME</th>
<th>30 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJECTIVES</td>
<td>Participants understand and remember ways that children are more vulnerable to environmental toxins.</td>
</tr>
<tr>
<td>SUPPLIES</td>
<td>2 Empty plastic gallon jugs with all labels removed</td>
</tr>
<tr>
<td></td>
<td>Empty plastic bottle, either ½ liter or smaller with all labels removed</td>
</tr>
<tr>
<td></td>
<td>Water</td>
</tr>
<tr>
<td></td>
<td>Liquid food coloring (blue)</td>
</tr>
<tr>
<td></td>
<td>Cardboard</td>
</tr>
<tr>
<td></td>
<td>Markers</td>
</tr>
</tbody>
</table>

### PREPARATION:
1. Cut the top off the gallon jugs and plastic bottle to create openings wide enough so that liquids can easily be poured into them.
2. The gallon jug is to represent an adult. Create a head for the jug by cutting out an oval shape from the cardboard. With markers make a simple face of an adult. Using strong adhesive glue or tape, secure the cardboard face to the top portion of the gallon jug.
3. The smaller and skinnier plastic bottle is to represent a child. Follow the same steps as above to create a face for the bottle.
4. Mix 5-7 drops of blue food coloring with approximately ½ a gallon of water in one of the gallon jugs.
5. Place all items on the table in front of the room. The faces of the plastic jug and bottle should face the audience.

### DEMONSTRATION:
Children drink more water, eat more food and typically have a more restricted diet than adults.

When participants are discussing the clue cards on the unique vulnerabilities of children to environmental toxins, they will most likely bring up how children drink more water and eat more food per weight than adults. Understanding this, the participants will come to the conclusion that if the water or food children drink/eat is contaminated then they are ingesting more toxins that an adult would. At this point begin the demonstration, as follows:
1. Agree that this true. Emphasize the points from CLUE CARDS: FACILITATOR VERSION (page 3.28)
   • This is an example of how children are often exposed to chemicals more readily than adults.
   • In the first six months of life, children drink seven times as much water as adults, and from one to five years old consume three to four times more food for their weight than adults.

2. Point to the gallon jug and tell the participants it represents an adult. Then point to the smaller bottle and state that it represents a child.

3. Pour approximately one cup of the blue water into the gallon jug and state how this demonstrates how much an adult drinks compared to a child. Then pour approximately 5 cups of water into the smaller bottle and state how it demonstrates how much the child drinks compared to the adult.

4. State that a young child’s typically restricted diet may lead to greater exposures to contaminants unique to certain foods, such as mercury in fish or pesticides in apple juice. A child who consumes many glasses of apple juice each day, for instance, may ingest higher concentrations of pesticides. Point out the amount of “apple juice” in the child sized bottle as opposed to the adult jug.

5. Visually participants will see the amount of toxins that children ingest. State that it is common to think of children as “little adults” but with this demonstration one can see that they take in more toxins per body weight than adults. Such vulnerability is of great alarm and a reminder to us all to take all precautions to protect children.

6. Pour out a little from the jug and the bottle and add a small amount of plain water to both. Explain that it is difficult for children’s bodies to metabolize and eliminate toxins. The adult will have much less of the toxin where as a lot of the toxin will still remain in the child.

7. Recognize that it can be difficult to get children to consume food and drinks they do not want to. However, state that it is important to consider what toxins may be in those foods and drinks they love so much and be sure to offer a variety of foods.

Q&A (10 MIN.)
Here participants will have an opportunity to ask specific questions about the unique vulnerability of children.

STEPS
1. Thank the group for their involvement in the previous activities. Tell them that they will now have an opportunity to ask questions related to the topic.

2. Ask them what questions they have about children’s vulnerabilities to toxins. Utilize the information listed on Q&A REVIEW (page 3.58) to prompt participants with questions should they not have their own. Also ask the group what they have seen in their work related to
vulnerability of children. Keep the group on topic by continually referring to the key messages presented in CLUE CARDS: FACILITATOR VERSION (page 3.28).

3. Transition to break. Thank participants for taking the time to build their knowledge on how children are particularly vulnerable to environmental toxins and to also practice training others on this. Helping families to understand how vulnerable children are helps them to remember to take extra precautions. The next section, after the break, will cover ways to help families prevent and reduce their children’s exposure.

Q&A Review

Facilitators: Use this as a guide (not a script) in the session Unique Vulnerability of Children under the section Q&A. It should be used to review information related to the children’s vulnerability to toxins and to prepare participants for the section that follows on preventing and reducing exposures. This handout should be used to prompt participants with questions should they not have their own. It is not necessary to discuss all items listed below, but instead draw from those that most supplement the discussion.

What is Integrated Pest Management (IPM)?
IPM is a program of prevention, monitoring, and control which can eliminate or drastically reduce the use of pesticides. The principles of IPM allow for the management of pest damage by the most cost effective means, and with the least possible hazard to people, property, and the environment.

What does a route of exposure mean?
The way people (or other living organisms) come into contact with a hazardous substance. Three routes of exposure are breathing (inhalation), eating or drinking (ingestion), or contact with the skin (dermal contact).

What is a window of vulnerability?
It is a period of time where the body’s defensive or protective processes are reduced, compromised or nonexistent.

If I’m exposed to a chemical does that mean I will get sick?
Not necessarily, it depends on many factors including:
• How much of the chemical got into your body. Sometimes, a small amount of a chemical could make you sick. Other times, you would not get sick from an exposure unless you were exposed to a large amount of the chemical;
• the type of chemical;
• the duration (how long the exposure was); and
• the frequency (how many times you were exposed).

Also, people respond to chemicals in different ways. Some people may be exposed to a chemical, but may not get sick.

Other people may be more sensitive to a chemical, and get sick from an exposure. (For example, children can be more sensitive to chemicals and may get sick more easily than adults.)

I only have to worry about man-made chemicals, right?
False, there are many naturally occurring chemicals that can cause harm including lead, mercury, arsenic and radon among others.

If a product is available to buy, hasn’t it been tested and proven to be safe?
Unfortunately this is not the case, there are thousands of chemicals on the market today and very few have been tested for safety.

My child is asthmatic, what can I do to lessen asthma attacks at home?
• Quit smoking and do not allow anyone to smoke in your home.
• Consider using a vacuum with a HEPA filter on it (if you cannot afford one maybe a couple families could chip in and share the cost).
• Reduce or eliminate pests and dampness in the home.
• Choose unscented least toxic products.

What can I do to lessen asthma attacks if I live in a multi-family home?
• Politely explain your concerns to your neighbors and ask for their cooperation. If they will not honor your request, try to organize a group of other concerned parents to alert the management.
Definitions

Acute: Occurring over a short time.

Chronic: Occurring over a long time.

Central nervous system: The part of the nervous system that consists of the brain and the spinal cord.

Carcinogen: A substance that causes cancer.

Solvent: A liquid capable of dissolving or dispersing another substance.

Volatile Organic Compounds (VOCs): Organic compounds that evaporate readily into the air.
## Prevent & Reduce Exposures

<table>
<thead>
<tr>
<th><strong>TIME</strong></th>
<th>1 hour</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBJECTIVES</strong></td>
<td>By the end of this session, participants will:</td>
</tr>
<tr>
<td></td>
<td>• Be able to identify three routes of exposure to various chemicals</td>
</tr>
<tr>
<td></td>
<td>• Recognize the health impacts of certain environmental hazards (pesticides, indoor air pollutants, lead and sun/heat exposure)</td>
</tr>
<tr>
<td></td>
<td>• Understand various prevention strategies to help protect children from exposures</td>
</tr>
<tr>
<td><strong>METHOD OF INSTRUCTION</strong></td>
<td>• Whole group discussion</td>
</tr>
<tr>
<td></td>
<td>• Facilitator instruction</td>
</tr>
<tr>
<td></td>
<td>• Hands-on activity</td>
</tr>
<tr>
<td></td>
<td>• Small group work</td>
</tr>
<tr>
<td><strong>SUPPLIES</strong></td>
<td>• White board with markers</td>
</tr>
<tr>
<td></td>
<td>• Poster paper (either with a stand or with a sticky back) and markers</td>
</tr>
<tr>
<td></td>
<td>• CASE STUDIES FACILITATOR VERSION (page 4.86)</td>
</tr>
<tr>
<td></td>
<td>• FUN WAYS TO SPLIT INTO GROUPS OR PAIRS (page 3.27)</td>
</tr>
<tr>
<td><strong>SET UP</strong></td>
<td><strong>Before Training:</strong></td>
</tr>
<tr>
<td></td>
<td>• Compile all educational materials and ensure they are in good condition for demonstration. Determine key information to share about each material.</td>
</tr>
<tr>
<td></td>
<td>• Become familiar with the case studies and their accompanying questions.</td>
</tr>
<tr>
<td></td>
<td>• Be sure to keep the participants’ copies of CASE STUDIES FACILITATOR VERSION (page 4.86) separate from the binder. They should only get this version once they have done the case studies on their own.</td>
</tr>
<tr>
<td></td>
<td><strong>Room Prep:</strong></td>
</tr>
<tr>
<td></td>
<td>• If not using the white board, hang up poster paper to use during Brainstorm &amp; Discussion.</td>
</tr>
<tr>
<td></td>
<td>• Place all educational materials on a table in front of the group for demonstration.</td>
</tr>
<tr>
<td></td>
<td>• Ensure there is space for participants to get into small groups.</td>
</tr>
</tbody>
</table>
Brainstorm & Instruction  (10 min)

This section allows participants the opportunity to explore the types of environmental toxins and methods for their prevention. Through brainstorming and instruction in a relaxed environment, participants are encouraged to share their current knowledge and add to it via facilitator instruction.

**STEPS**

1. Ask participants to brainstorm all the environmental toxins they can think of that affect farmworker children. Write their responses on poster paper or the white board. Prompt as needed in order to include the exposures listed in PEHT ENVIRONMENTAL HEALTH REFERENCE CARD (page 4.65) that relate to farmworker children. Be sure to leave space after each toxin in order to write more next to it from the next step.

2. Thank the participants and recognize their knowledge in this area. Point out that all the toxins can be dangerous when exposed to children of any age. State that there are certain stages of development when children are particularly susceptible to certain toxins, as discussed in the
Unique Vulnerability of Children. Comment that outreach workers play a key role in helping farmworker families: 1) consider what toxins are of most concern for their children depending on their ages and their stage of development, and 2) prevent and reduce their exposure.

3. Ask participants to go through the list again, reviewing each toxin, and brainstorm ways to prevent and reduce exposure to each one. Prompt the group as needed by using the PEHT ENVIRONMENTAL HEALTH REFERENCE CARD (page 4.65).

4. Again, thank the participants for sharing their knowledge on this topic. State that in their binders are educational materials and resources that they can use for reference and to give to families to help educate them, be sure to point out and briefly cover all the resources. Explain that the documents will further assist them in considering the relationship of ages and stages of development to toxins and prevention methods. Make sure to highlight the WHAT LURKS IN THE BATHROOM (page 4.71) and THE UNSEEN HAZARD (page 4.75) fotonovelas. These two resources are available in both English and Spanish and convey messages on how to protect families from mold and mildew as well as pesticides.

5. Tell participants that in their binders there is DISCUSSION & FACILITATION CHECKLIST: PREVENT & REDUCE EXPOSURES (page 4.79). They can distinguish this from the other checklists because it is green. This checklist is similar to the one utilized in Unique Vulnerability of Children. State that there is not time in today’s training to continue discussing and practicing facilitation skills, however, these checklists are provided so that the participants can continue practicing on their own. Encourage all participants to refer to and utilize this checklist, especially if they are going to provide this training and need additional practice.

Case Studies with Instruction (40 min)

Case studies help participants to connect classroom knowledge to the real world. Doing so provides participants with the opportunity to troubleshoot health concerns related to environmental toxins and how they would help farmworker families handle them. Participants learn how to use educational materials to inform themselves and the families they work with.

STEPS

1. Remind participants to continue filling out their FACILITATION CHECKLIST (page 4.79) and to observe this session both as a student and a trainer-to-be.

2. Tell participants that the next activity is to read and discuss case studies. Explain that first the whole group will do one case study together to get an idea of how this activity works. After this, participants will be split into groups where they will go over two more case studies. At the end, everyone will come back together as a whole group to discuss.

3. Tell participants that the case studies have examples of situations where farmworker children are exposed or may be exposed to environmental toxins. Explain that it is the job of the
group to consider how to handle this situation using various techniques, including the use of educational materials (see next point below). Explain that a set of questions accompanies each case study which will help the group to consider main points and stay on topic.

4. Briefly show participants the assortment of educational materials they can use (these should already be laid out as explained in Set Up: Room Prep). Go over each one explaining its purpose and intended audience.

5. Ask participants if they have any questions before beginning. Answer them and, if applicable, explain that many of their questions will be answered by going through the first case study together.

6. Direct participants to the case studies in their binders and ask a volunteer to read from CASE STUDIES PARTICIPANT VERSION (page 4.83) “Case Study #1: The Medina Family.” Note that at this point, participants should only have a copy of CASE STUDIES PARTICIPANT VERSION and not the facilitator version.

7. After reading the case study, ask the case study questions. Use CASE STUDIES FACILITATOR VERSION (page 4.86) to guide the discussion and to help participants understand key points.

8. Ask the participants if they have any questions regarding how to do the case studies.

9. Tell the participants that they will now be split up into four groups. Use FUN WAYS TO SPLIT INTO GROUPS OR PAIRS (page 3.27) as a way to divide the participants. Explain that in groups they will continue with “Case Study #2: The Gonzalez Family” which will involve reading it, answering the accompanying questions, and picking out which educational materials they will use for it. Time permitting, they can also go over “Case Study #3: The Santiago Family.” State that the group will reconvene and discuss at the end.

10. Provide the participants with approximately 15 minutes to go over the case studies. After this, ask the group to share what they learned.

11. Using CASE STUDIES FACILITATOR VERSION (page 4.86), guide the participants as needed. Ask the participants to demonstrate how they would use the educational materials and what they would say when using them.

12. At the end, hand out copies of CASE STUDIES FACILITATOR VERSION (page 4.86) to each of the participants. They should not be provided with a copy of this version before this time because it provides the answers to the questions. Explain that they can use this version to guide them when providing their own training or education on this topic.

13. Wrap up this session by congratulating the participants on their work and participation. Explain that one of the best ways to prevent and reduce exposures for farmworker children is through using resources and collaboration, which will be discussed in the session that follows.
## Hose, Arsenic

A heavy metal found naturally in the earth’s crust, as well as incorporated into certain products.

Acute high dose exposures can cause nausea, vomiting, hematemesis, diarrhea, abdominal cramping, and shock. Lower dose exposures can cause gastrointestinal symptoms and may result in a peripheral sensorimotor neuropathy. Chronic exposures produce fatigue, malaise, and low-grade bone marrow depression. Skin changes include Mee’s lines (white, transverse creases across fingernails), hyperkeratosis, hyperpigmentation, and acral keratinizations. Chronic exposure is also associated with heart disease, peripheral neuropathy (parasthesias, pain, ataxia). Arsenic is also a known carcinogen with dose-response increases in bladder, lung, and skin cancer as well as links to acute myelogenous leukemia, and cancer of the kidney and liver.

Arsenic is ingested or inhaled; not usually absorbed through the skin.

A common contaminant of drinking water (either naturally or as a by-product of mining, smelting, or the manufacturing of chemicals and glass).

A component of the wood preservative chromated copper arsenate (CCA), widely used to treat outdoor-use wood (decks, playground equipment, fences, porches).

Added to poultry feed as an antimicrobial, released into the environment through manure.

Test water (especially well water) for arsenic and filter/medicate if necessary. Reverse osmosis filtration systems can remove arsenic, but they are expensive.

Wash children’s hands after playing on CCA-treated wood (“pressure-treated wood”).

Seal CCA-treated wood structures every 1-2 years with sealant such as an oil-based stain or polyurethane, not paint.

Avoid using CCA-treated wood for growing fruits/veggies or anything for human consumption.

Never burn CCA-treated wood.

### Notes:

In 2002, the Environmental Protection Agency (EPA) reduced the maximum contaminant level of arsenic in public water from 50 ppb to 10 ppb. Complete compliance is due by 2006. As of 2004, arsenic is still found in many old water systems. After 2006, arsenic will remain intact for decades, children will be at risk for continued exposure even in the absence of new wood sales.
### Pediatric Environmental Health Toolkit

#### Environmental Health Reference Card

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<td><strong>Mercury</strong></td>
<td>A neurotoxic metal that exists in several different forms: Organic mercury – Includes methylmercury found in contaminated fish. Elemental mercury – “Quicksilver” – A liquid at room temperature, volatilizes readily to a colorless and odorless vapor. Used in thermometers, thermostat switches, sphygmomanometers, dental amalgams, fluorescent light bulbs, and button batteries. It is also used in magico-religious rituals such as in the Santeria religion, and in some folk remedies for gastrointestinal problems (empacho). Elemental mercury is also sometimes used by people who pan for gold as a hobby. Inorganic mercurial salts – Have been used in a number of consumer products ranging from teething powders to skin lightening creams. While banned in the US, they remain available on the world market.</td>
<td>Mercury in contaminated fish is the major source of human exposure to methyl mercury. The largest contributors of mercury to the environment are runoff from mines, industries that burn fossil fuels like coal, medical and municipal waste incinerators that burn mercury-containing products, and coal-alkali plants that make caustics. In addition, some mercury is released from natural sources. Elemental mercury released into the air eventually falls to earth contaminating waterways. Bacteria that live in water convert elemental or inorganic mercury to organic mercury, such as methyl mercury. Methylmercury bioaccumulates in the lean muscle mass of fish, with large predatory fish like swordfish, tuna, and shark having higher mercury levels. Less common sources of exposure include the direct exposure to elemental mercury via inhalation of mercury vapors, e.g. broken thermometers. Santana rituals.</td>
<td>In Waste Stream: Keep mercury out of the waste stream, dispose of mercury-containing products during hazardous waste days or at waste sites in community. Exchange mercury thermometers for digital at community recycling centers. Never vacuum up mercury from broken thermometers – carefully sweep up and dispose of as hazardous waste. In Food: Serve children a variety of fish and seafood low in mercury and other contaminants: Haddock, pollock, and shrimp are among the low fat, low mercury choices. Fish sticks are usually made from fish that are low in pollutants. Mackerel (king), and tilefish. Follow any fish advisories released by health officials at state or local level. Choose “chunk light” canned tuna instead of canned “solid white” albacore and fresh tuna. Limit the largest contributors of mercury to the environment are runoff from mines, industries that burn fossil fuels like coal, medical and municipal waste incinerators that burn mercury-containing products, and coal-alkali plants that make caustics. In addition, some mercury is released from natural sources. Elemental mercury released into the air eventually falls to earth contaminating waterways. Bacteria that live in water convert elemental or inorganic mercury to organic mercury, such as methyl mercury. Methylmercury bioaccumulates in the lean muscle mass of fish, with large predatory fish like swordfish, tuna, and shark having higher mercury levels. Less common sources of exposure include the direct exposure to elemental mercury via inhalation of mercury vapors, e.g. broken thermometers. Santana rituals.</td>
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</table>

**Mercury**

- Organic mercury – Includes methylmercury found in contaminated fish.
- Elemental mercury – “Quicksilver” – A liquid at room temperature, volatilizes readily to a colorless and odorless vapor. Used in thermometers, thermostat switches, sphygmomanometers, dental amalgams, fluorescent light bulbs, and button batteries. It is also used in magico-religious rituals such as in the Santeria religion, and in some folk remedies for gastrointestinal problems (empacho). Elemental mercury is also sometimes used by people who pan for gold as a hobby. Inorganic mercurial salts – Have been used in a number of consumer products ranging from teething powders to skin lightening creams. While banned in the US, they remain available on the world market.

**Mercury in contaminated fish is the major source of human exposure to methyl mercury.** The largest contributors of mercury to the environment are runoff from mines, industries that burn fossil fuels like coal, medical and municipal waste incinerators that burn mercury-containing products, and coal-alkali plants that make caustics. In addition, some mercury is released from natural sources. Elemental mercury released into the air eventually falls to earth contaminating waterways. Bacteria that live in water convert elemental or inorganic mercury to organic mercury, such as methyl mercury. Methylmercury bioaccumulates in the lean muscle mass of fish, with large predatory fish like swordfish, tuna, and shark having higher mercury levels. Less common sources of exposure include the direct exposure to elemental mercury via inhalation of mercury vapors, e.g. broken thermometers. Santana rituals.

**In Waste Stream:** Keep mercury out of the waste stream, dispose of mercury-containing products during hazardous waste days or at waste sites in community. Exchange mercury thermometers for digital at community recycling centers. Never vacuum up mercury from broken thermometers – carefully sweep up and dispose of as hazardous waste.

**In Food:** Serve children a variety of fish and seafood low in mercury and other contaminants: Haddock, pollock, and shrimp are among the low fat, low mercury choices. Fish sticks are usually made from fish that are low in pollutants. Mackerel (king), and tilefish. Follow any fish advisories released by health officials at state or local level. Choose “chunk light” canned tuna instead of canned “solid white” albacore and fresh tuna. Limit the largest contributors of mercury to the environment are runoff from mines, industries that burn fossil fuels like coal, medical and municipal waste incinerators that burn mercury-containing products, and coal-alkali plants that make caustics. In addition, some mercury is released from natural sources. Elemental mercury released into the air eventually falls to earth contaminating waterways. Bacteria that live in water convert elemental or inorganic mercury to organic mercury, such as methyl mercury. Methylmercury bioaccumulates in the lean muscle mass of fish, with large predatory fish like swordfish, tuna, and shark having higher mercury levels. Less common sources of exposure include the direct exposure to elemental mercury via inhalation of mercury vapors, e.g. broken thermometers. Santana rituals.

**Lead**

- A heavy metal and a proven neurotoxicant to the developing brain.

**Fetal or early childhood exposure linked with lower IQ scores, language and attention difficulties, and increased aggression and delinquency.** Other possible health effects: decreased growth, decreased hearing acuity, elevated blood pressure, and renal disorders. Centers for Disease Control (CDC) guidelines issued in 1991 define a blood lead level > 10μg/dl as elevated but recent research indicates that health effects may be present at much lower levels. Unintentional ingestion of lead-containing particles such as indoor house dust, paint, water, soil or foreign bodies. Lead is found in homes built before 1978 and in tap water may contain lead from pipes or lead solder or if originating from a lead contaminated source. Less common exposures include certain imported cosmetics and ceramic ware, vinyl mini blinds made before 1997, certain candles wicks and capsules, soft vinyl lunch boxes, and certain traditional herbal remedies and foods. Occupations or hobbies like painting and refinishing, cleaning and shooting of firearms, battery repair, stained glass making, and ceramics may result in lead poisoning.

**In Paint – Should be removed by trained professionals. Never sand or remove yourself. If you can’t safely remove, cover with wallpaper, tile, etc.**

**In Dust – To control exposure to lead dust, wash child’s hands after playing, wash floors and other surfaces regularly, especially window sills.**

**In Water – With lead pipe/holder concerns, consider naming cold tap water for 1-2 minutes first thing in the morning or after a long period of non-use to clear pipes, or consider filtration systems that will remove lead regardless of its source.**

**In Products – Don’t buy or use products with lead in them.**

**In Soil – Don’t grow food in soil with lead, or add a min. 6” layer of clean topsoil for gardening. Don’t let children play in lead-contaminated soil.**

**For more information:**

Physicians for Social Responsibility
1875 Connecticut Avenue NW, Suite 1012

Visit our website for links to additional resources:

www.psr.org
### Pediatric Environmental Health Toolkit

#### Environmental Health Reference Card

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<tbody>
<tr>
<td><strong>Polychlorinated biphenyls (PCBs), Dioxins, and Furans</strong></td>
<td>Fetal exposure to low levels of PCBs in the mother’s diet increases the risk of IQ deficits, hyperactivity, and attention deficits. Dioxins can also adversely affect reproductive health and brain development and are associated with endocrine defects including abnormalities of skin, hair, teeth, and nails. Dioxins are also known to cause cancer in humans.</td>
<td>Both PCBs and dioxins are called persistent organic pollutants (“POPs”) because they do not degrade easily and they persist for years in the environment. Both are lipid soluble and bioaccumulate in fatty tissues. Exposures are mainly through dietary fat, including fish, meat, and dairy products. PCBs and dioxins are now found ubiquitously in the environment. All of us have small amounts of PCBs and dioxins in our tissues.</td>
<td>The best way to minimize exposure is to select lean cuts of meat, low or nonfat dairy products, and to abide by local and state fishing advisories.</td>
</tr>
</tbody>
</table>

| **Asbestos** | The association between asbestos and both lung cancer and mesothelioma has been well documented, particularly for occupationally-exposed persons. Risk is higher in those exposed who are also smokers. | Exposures via inhalation generally occur when buildings containing asbestos are in poor condition or when asbestos is removed improperly. Vermiculite, produced from mined ore, is used for agricultural, construction and insulation purposes, and can be contaminated with asbestos. | Removal should be performed only by EPA or state-certified asbestos contractors. |

| **Water Pollutants** | Exposure can occur through drinking water. Inhalation of dermal exposure via showering/bathing can be significant. Exposure can also occur through swimming and other recreational activities. Water for irrigation of crops may be contaminated. Bottled water and well water are less regulated than municipal tap water. In the absence of known microbial contamination, boiled water is not necessary. Boiling can concentrate some chemical contaminants such as nitrates, heavy metals, and perchlorate. | Exposure can occur through drinking water. Inhalation or dermal exposure via showering/bathing can be significant. Exposure can also occur through swimming and other recreational activities. Water for irrigation of crops may be contaminated. Bottled water and well water are less regulated than municipal tap water. In the absence of known microbial contamination, boiled water is not necessary. Boiling can concentrate some chemical contaminants such as nitrates, heavy metals, and perchlorate. | Know your water source (e.g., surface water, ground water, well water, and bottled water). Work to protect it in your community. Read annual Community Consumer Confidence Reports on public water supply quality. Test well water regularly. Filter or take community action if necessary. For more extensive evaluation, treatment and prevention consult EPA, CDC, and state and local health departments. |

For more information:

**PSR** (Physicians for Social Responsibility)

1875 Connecticut Avenue, NW, Suite 1012


Visit our website for links to additional resources:

www.psr.org

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continued — >
In General – Typically associated with respiratory problems and may contribute to the development and exacerbation of asthma. But other organ systems may also be affected (see below).

Carbon monoxide – Intoxication is associated with environmental tobacco smoke (ETS). Prenatal exposure has been associated with decreased birth weight, increased risk of SIDS and decreased pulmonary function. Postnatal exposure is associated with an increased risk of asthma, respiratory tract infections, otitis media, breast and lung cancer, and heart disease.

Radon – Consider testing for radon; if unknown or high (above 4 pCi/L), ventilate well, avoid sleep and play areas in basement level – if high, consider remediation – Call 1-800-SOS-RADON.

Molds – Keep mold at bay by preventing excess moisture/water leaks and ensuring good ventilation. Molds can trigger allergic reactions, exacerbate asthma or cause infection in the immune compromised.

Solvents – Household cleaners, degreasers, arts and craft supplies, glues, “off-gassing” from newly installed carpets, flooring, particle board, and furniture. Avoid volatile adhesives.

Pesticides – Residues of some pesticides volatilize after application, and may concentrate at floor level. (See the section on pesticides for more information.)

Outdoor Air Pollutants

Ozone (O₃) – A free radical of oxygen (smog). Triggers asthma attacks, and may cause asthma in active children. Airway inflammation, decreased lung function.

PM – Linked to premature mortality, cardiovascular and respiratory disease.

SOx – Airway irritant, decreases lung function in asthmatics.

CO – Binds irreversibly to hemoglobin, reduces oxygen carrying capacity of the blood. Hypoxia, adverse reproductive outcomes.

NOx – Increased respiratory symptoms and illness in children, ozone precursor.

Diesel exhaust – Human carcinogen, associated with asthma attacks and may potentiate effects of allergens.

PAHs – Human carcinogens.

Ozone – Produced by a chemical reaction of sunlight on other air pollutants (nitrogen oxides and volatile organic compounds).

PM – Combustion byproduct produced by industrial sources and motor vehicles.

SOx – Emitted from power plants and other sources that burn coal and oil.

CO – Produced outdoors mainly by automobiles.

NOx – Produced by diesel vehicles, other petroleum combustion.

Diesel exhaust – Produced by trucks, buses, trains, boats, heavy equipment, and generators.

PAs – Produced from fires, other combustion processes.

The Air Quality Index (AQI) is reported in newspapers, on television, and radio and at www.epa.gov/airnow. Follow the associated activity recommendations (e.g., limit outdoor activities etc.), particularly if your child has asthma or respiratory illness.

Avoid wood fires and backyard burning whenever possible.

Avoid driving on “Spare the Air” days.

Community Measures:

Promote a “no idling” ordinance locally to limit motor vehicle emissions.

Replace old diesel school buses with cleaner alternatives whenever possible.

Avoid construction of schools adjacent to major roadways, railroad yards, and ports.

For more information:

Visit our website for links to additional resources: www.psr.org
Sun Exposure

Sunlight is comprised of visible light (400-700nm), infrared (>700nm and also known as heat) and UV radiation (<400nm) with UV radiation further divided into UV-A (320-400nm), UV-B (290-320nm), which is more skin-penetrating, and UV-C (<290nm). UVB is responsible for most of the acute and chronic sun damage to normal skin. UVB has increased on the earth’s surface due to damage to the earth’s protective stratospheric ozone layer.

Short and long term exposure to UV radiation have been linked with sunburn, tanning, skin aging (wrinkles, weakening elasticity, non-melanoma skin cancer (basal cell, squamous cell), malignant melanoma, photocarcinogenicity and phototoxicity, cataracts, and immunosuppression.

UV radiation is the single most preventable cause of melanoma, the U.S. incidence of which has risen more rapidly than any other cancer, with the exception of lung cancer in women. In 1930, the lifetime risk of melanoma was 1 in 1500; in 2001, it was 1 in 75.

Children and teens are exposed through direct contact to skin and eyes while outdoors or while using sunlamps and sunbeds. Also, non-intentional exposure occurs for those indoors, resulting in greater exposure. Approximately 25% of lifetime sun exposure occurs before the age of 18 years.

Cover up with tightly woven, light-colored clothing and wide-brimmed hat. Wear sunglasses with 99-100% protection against both UVA/UVB.

For children under 6 months, use sunscreen with an SPF of 15 or greater, and re-apply every 2 hours. Also consider using lip balm or lip cream containing sunscreen.

Do NOT use sunscreens that are combined with DEET or other insect repellants.

Watch for the UV Index on local weather forecasts in your area. Remind families that even on cloudy winter days, children can get sunburn.

Avoid sunlamps and tanning salons/booths.

Note: Babies with limited sun exposure and who are exclusively breastfed or receive less than 500 ml/day of formula may benefit from supplementation with vitamin D 200 iu/day.

Solvents

A solvent is capable of dissolving another substance. It is usually a liquid that is water-based or hydrocarbon-based. Examples include: benzene, toluene, trichloroethylene, formaldehyde, MIBE (methyl tertiary butyl ether).

Most are skin irritants and defatting agents, upper respiratory irritants, and hepatotoxic at sufficient doses. Acute and chronic neurotoxicity can occur and is dose-related. Some are known or probable carcinogens (eg. benzene has been linked to leukemia). Some are reproductive toxicants associated with spontaneous abortion or birth defects.

Solvents are volatile compounds and are readily absorbed through the lungs, as well as through the skin. They penetrate many types of gloves. Maternal exposure can contaminate human milk. Found in gasoline, degreasers, arts and craft supplies, nail products, paints, glues, varnishes, *off-gassing* from newly installed carpet, flooring, particle board, and furniture. Also found in dry cleaning products and freshly dry-cleaned clothes.

Common indoor and outdoor air, drinking water contaminants.

Replace products that contain volatile (typically petroleum-based) ingredients with those containing safer, "nontoxic" ingredients, such as water-based glues or paints, and citrus-based solvents. Avoid volatile adhesives. If using solvents, ventilate area.

Avoid dry cleaning clothes. Air dry-cleaned clothes outdoors before putting them in the closet.

Read annual Community Consumer Confidence Reports on public water supply quality or check your well water if there are industrial sites nearby.

Handle solvents with nitrile or butyl rubber gloves and a respirator, and keep them away from children.

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Handle solvents with nitrile or butyl rubber gloves and a respirator, and keep them away from children.
Pesticides are chemicals that are made to kill or reduce unwanted rodents, insects, weeds, bacteria or molds. There are over 900 pesticides registered in the US, most of which fall into the following categories:

**Insecticides** – Organophosphates, carbamates, pyrethrum and synthetic pyrethroids, organochlorines, and boric acid and borates.

**Herbicides** – Glyphosate (Roundup, Rodeo), Bipyridyls, Chlorophenoxy Herbicides (2,4-D, Weed-be-gone).

**Fungicides** – Substituted benzenes, thiocarbamates, ethylene bisdithiocarbamates, copper, organotin, cadmium compounds, elemental sulfur, and miscellaneous compounds such as captan, benomyl, and iprodione.

**Wood preservatives** – Chromated copper arsenate (CCA), Pentachlorophenol.

**Rodenticides** – Anticoagulants, cholecalciferol.

**Insect repellants** – N, N-diethyl-m-toluamide (DEET), Permethrin (Permanone, Duranon).

Exposure to high levels of pesticides can cause acute poisoning. Pesticides can also cause rashes, and may cause respiratory irritation. Low-dose exposure to pesticides may have chronic effects. Animal data suggest that even transient, low-dose exposure to certain classes of pesticides during brain development may cause hyperactivity and permanent changes in neurotransmitter receptor levels of the brain. Links have also been made with birth defects, mutations, adverse reproductive effects (primarily spontaneous abortion). Human epidemiologic studies have associated pesticide exposure with increased risk for leukemia, lymphoma, and brain cancers. Some studies link chronic pesticide exposures to neurodegenerative diseases such as Parkinson’s Disease.

Major sources of exposure include use in households, on gardens and lawns, in schools, agriculture, drift from spraying, and pesticide residues on certain fruits and vegetables. Other:

- **Run-off** and inappropriate disposal of pesticides that contaminates drinking water.
- **Pesticides in some lice removal shampoos.**
- **Pesticides in drinking or bathing water.**

### In Food:

- Peel or wash fruits and veggies.
- Buy organic if possible (look for USDA organic label).

Children that eat an organic diet have lower exposure to certain pesticides, especially foods that children eat most.

### In Home, Outdoors:

- Avoid spraying pesticides in the home, garden, and on pets. Keep unwanted insects or animals out of your house or apartment by sealing cracks and holes around doors, windowsills, and around baseboards.
- Get rid of standing water that helps breed insects, repair drips and holes. Clean up food crumbs and spills, and put away all food that will attract unwanted insects or animals.
- Remove shoes worn outdoors. Use a commercial-grade doormat.
- Use “Integrated Pest Management” (IPM) techniques that use pesticides as a last resort. If using pesticides, choose baits, traps, gels instead of spray, dusts, or pest strips (esp. indoors and where there are carpets, soft fabrics), and keep out of reach of children. Never spray near kids’ pillows, bedding, and primary spaces where kids crawl. Avoid “preventive” or scheduled lawn applications. Use only licensed professionals. (See AAP’s Pediatric Environmental Health handbook for specific guidance if using pesticides.)
- Try organic gardening methods.

### On Pets:

- Do not use chemical tick-and-flea collars, flea baths, or “dips” on your pets. Do not use lindane. Wash pets and their bedding frequently to keep away fleas. Do not use “flea bombs” in your home.

### On Children:

- Don’t use lice shampoo containing lindane on children.
What Lurks in the Bathroom?

Health Coordinator
Olalla

Mama Marisol

Mama Bibiana

1

Marisol and I would like to speak with you. My children have been getting sick a lot lately with many colds and they have trouble breathing. Marisol thinks that mold and mildew might be the cause.

2

Yes, Bibiana has leaky pipes in her bathroom. This can cause mold to grow. Mold causes allergic reactions and breathing problems in children. Bibiana, your children are having these problems.

3

I told Bibiana to clean away the mold in her bathroom. It’s making her children sick!

4

Here is some information about mold and mildew illnesses. Symptoms can include nasal congestion, irritation and inflammation of eyes, sinuses, skin and nose, breathlessness, headache, runny nose, fatigue, cough, sore throat, nose bleeds and many others listed in this brochure. The brochure also goes over how you can get rid of molds and mildew and to keep them away.

Yes, Bibiana to protect your children’s health it is VERY important that you get rid of the mold!
What Lurks in the Bathroom?

How can I clean away the mold and mildew in the bathroom?

Use a non-toxic solution to remove any mold and mildew in your home. You may need to replace your tiles or wallboard if you can’t clean the mold and mildew off. Commercial cleaners can contain dangerous chemicals and can be expensive. Why don’t you try a cost effective homemade cleaning recipe?

Keep the bathroom ventilated after cleaning it to keep the mold from coming back.

That’s correct. You’ll want to have proper ventilation, prevent moisture build up and have the water leaks repaired and sealed. Remember, this can happen in other rooms in your house too.

Is there anything I can do to stop it from coming back?

Thank you!

Remember, if you see any mold-related symptoms in your children, please make an appointment with the clinic doctor for them. And, if you have any other questions, please come to see me.

Non-toxic homemade cleaning solution: Use white vinegar or lemon juice full strength and scrub with a rough sponge. It’s a good idea to use gloves and a breathing mask as well.
¿Qué se encuentra escondido en el baño?

Marisol y yo quisiéramos hablar contigo. Mis hijos han estado enfermándose mucho recientemente de alergias y problemas respiratorios. Marisol piensa que la causa podría ser el hongo y la humedad en el ambiente en donde vive.

Sí, Bibiana tiene la tubería en su baño rota. Esto puede causar que el hongo y el moho crezca. El hongo y el moho pueden causar reacciones alérgicas y problemas respiratorios en los niños. Bibiana, tus hijos están teniendo estos problemas.

Le dije a Bibiana que llimpie el hongo y el moho en su baño porque estos les están causando enfermedades a sus hijos!

Sí, Bibiana para proteger la salud de tus niños es muy importante que elimines el moho y el hongo.

Aquí está un poco de información sobre los síntomas y enfermedades que pueden producir el hongo y el moho. Los síntomas varían desde congestión nasal, sinusitis, irritación e inflamación de los ojos, piel y nariz, problemas respiratorios, dolores de cabeza, catarro, cansancio, tos, dolor de garganta, sangrado de nariz y muchos otros síntomas que están descritos en este folleto. El folleto también describe como limpiar y eliminar el hongo y el moho.
¿Qué se encuentra escondido en el baño?

- Página 2 -

¿Cómo puedo limpiar el hongo y el mocho en el baño?

Usa una solución que no sea toxica para quitar el hongo y el mocho en tu casa. Es posible que tengas que cambiar tu cerámica o cobertura del baño. Los limpiadores comerciales pueden contener químicos peligrosos y pueden ser muy costosos. ¿Podrías usar una receta casera efectiva y económica?

¿Hay algo que pueda hacer para evitar que regrese el hongo y el mocho?

Mantén el baño ventilado después de limpiar el hongo y el mocho para prevenir que éste regrese.

Hacer eso es lo correcto. Necesitas tener ventilación adecuada y prevenir que el líquido se acumule. Tendrás que reparar y sellar la tubería de agua. Recuerda que esto también puede ocurrir en otros cuartos de tu casa.

¡Gracias!

Recuerda, si notas en tus hijos síntomas causados por el hongo y el mocho, haz una cita con el médico. Si tienes alguna pregunta que hacer por favor ven a visitarme.

Solución de limpieza casera no toxica: Usar vinagre blanco o jugo de limón concentrado y frotar el área con una esponja fuerte. Es buena idea usar guantes y ponerse una máscara sobre la nariz.
The Unseen Hazard

Mama Marisol

Bibiana! Are you still in your clothes from the field?

Don’t you know that the pesticides from the field are still on your clothes? You are exposing your daughter to pesticides right now!

Mama Bibiana

Yes, why?

I didn’t know that! I thought that I was doing enough by closing our windows and doors when the farmer sprays the fields.

No, it’s not enough because we can bring it in from the fields on our clothing. I keep my work clothes separate from my children’s clothing and leave my work boots outside.

Then, what about other things that we leave outside?

After the farmer sprays everything needs to be cleaned thoroughly before allowing the children to play with them. It’s best to keep outside items outside.

I’m going to go take these clothes off right now! Could you hold my daughter, please?
Here you go. She's so cute. Oh, I think I hear Olalla pulling up. She must be making her home visits. Let's see if she has any information with her about pesticides!

I’m afraid that I have been exposing my daughter to pesticides from the fields. Marisol said that I needed to change my clothes before holding my daughter and to keep my work clothes separate from the children’s clothes. Do I need to do anything else?

Olalla! Do you have a few minutes? Bibiana and I wanted to know more about pesticides.

Of course I do. I also have a few brochures with me on pesticide exposure.

All of Marisol's advice is good. In your home, you'll need to patch up any cracks or holes. Also, anything left outside needs to be washed thoroughly.

If you ever have any other questions, remember to stop by the Head Start office to see me.

Thank you for helping me to keep my children healthy!
Peligros que no vemos
- Página 1 -

¡No sabía eso! Yo pensé que obteníamos suficiente protección al cerrar las puertas y ventanas cuando el trabajador agrícola rociaba el campo.

¡Voy a cambiarme de ropa ahora mismo! ¿Puedes cargar a mi hija mientras me cambio, por favor?

Después que el trabajador agrícola pasa rociando, los juguetes y otras cosas que están afuera necesitan ser limpiados cuidadosamente antes que los niños jueguen con ellos.

¿Sabías que los pesticidas que se encuentran en el campo pasaron a tu ropa? ¡Estás arriesgando ahora mismo a tu hija a los peligros causados por los pesticidas!

Mama Marisol

¡Bibiana! ¿Estás todavía en la ropa que usaste en el campo?

Si, ¿porque?

No, no es suficiente porque podemos traer los químicos del campo en nuestra ropa cuando regresamos a casa. Yo separo mi ropa de trabajo, de la de los niños y dejo mis botas del trabajo afuera.
Peligros que no vemos

- Página 2 -

¡Aquí está! Es muy linda. Ah, creo oír a Olalla acercándose. Ella debe de estar haciendo sus visitas de hogar. Veamos si ella tiene alguna información sobre los riesgos de exposición a pesticidas.

Me preocupa el haber estado exponiendo a mi hija a los pesticidas del campo. Marisol dice que necesito cambiarme de ropa antes de cargar a mi hija y mantener mi ropa de trabajo separada de la ropa de mis niños. ¿Tengo que hacer aún algo más?

¡Olalla! ¿Tienes unos minutos? Bibiana y yo te queríamos preguntar un poco sobre los pesticidas.

Por supuesto que sí. También tengo algunos folletos sobre los peligros a la exposición de pesticidas.

Todos los consejos que te ha dado Marisol son buenos. Además tienes que cerrar cualquier hoyo o grieta que halla en tu casa y tienes que lavar cualquier cosa que haya quedado fuera expuesta a los pesticidas.

Si tienes alguna otra pregunta recuerda que puedes visitarme a la oficina de Head Start.

¡Gracias por ayudarme a mantener a mis hijos sanos!
Facilitation Tip:

Before you train others, go through the training material very carefully and think about what questions people might have and how you would answer them. This helps you to be prepared to handle unexpected questions when you are actually providing the training. Here’s an example:

It’s Monday and Rogelio is preparing to give a training on Wednesday about the unique vulnerability of children to environmental toxins. The first time he reads through his materials, he feels like he knows the content and is ready to give the training. He closes his binder and decides to go eat lunch. While at lunch his co-worker Laura inquires about his training. She asks some specific questions about the topic so she can then go help farmworker families with this issue. Rogelio answers her but not as well as he thought he could. He realizes that although he knows the content, he doesn’t always know the best way to answer questions. So he returns to his materials and thinks about what possible questions the training participants may have and how he would answer them. He looks at the material as if he just got hired as an outreach worker and has many questions. Rogelio learns that when he reviews the material in this way, he is much better prepared to handle all types of questions that can come up in the training.

YOU AS THE TRAINER

Discussion & Facilitation Checklist*
for Prevent and Reduce Exposures

*This can be used as a practice activity: Discussion*

With partners or in a small group think about the pieces of the training that you have received so far – introduction, ice breaker, becoming a trainer, the unique vulnerability of children, and prevent and reduce exposures. Discuss the questions below and write in your own answer:

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If you’re the trainer and are running short on time, what would you do to get back on track?</td>
<td></td>
</tr>
<tr>
<td>2. What would be ways for you to know whether or not participants understand the training?</td>
<td></td>
</tr>
</tbody>
</table>

Knowing the answers to the questions above helps you to:
• Prepare for the training
• Set the tone

* partially based on Train the Trainer: Basic Training Guidelines from Alameda County Public Health Department (www.acphd.org)
YOU AS THE TRAINER

Discussion & Facilitation Checklist*
for Prevent and Reduce Exposures

This can be used as a practice activity.

With your partner, take turns being the trainer and the observer by practicing the facilitation skills below. Remember – practice makes perfect. Practice now so that your facilitation skills keep improving!

1. Remind participants of the key messages during the session Prevent & Reduce Exposures. Remember, do this as if you are actually talking to a group that you’re training – there is a lot to cover so you need to keep bringing up the key messages (lead vs. direct).

2. Practice what you would say to keep participants engaged and to build off their strengths (stimulate dialogue, actively listen).

3. Get participation from everyone and not just a few people (handle difficult situation).

While one of you practices being the trainer, the other will observe and rate your facilitation skills (use the table below).

<table>
<thead>
<tr>
<th>Facilitation skill</th>
<th>The Trainer</th>
<th>On a scale of 0-5, how was it? (0 is bad, 5 is excellent; N/A is not applicable).</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Led vs. directed the discussion</td>
<td>assured that key messages were covered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stimulated dialogue</td>
<td>encouraged opportunities for discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitated active listening</td>
<td>listened to participants while encouraging their input</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handled difficult situations</td>
<td>handled difficult situations (same people talking while others are quiet)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* partially based on Train the Trainer: Basic Training Guidelines from Alameda County Public Health Department (www.acphd.org)
Facilitation Tip:

When you are training, before jumping in and answering questions, ask others or the group what they think. Carefully listen to the participants’ responses in order to learn more about them and their experiences. Think about how their experiences help them to learn and know about this topic. Then throughout the training remind them of this. For example:

Matilda is the facilitator of this training. In order to be prepared she thoroughly went through all the materials many times before providing it. During the training Matt, a participant, has questions about children's vulnerability to indoor air pollution. Even though Matilda knows the answer due to her hours of preparation, she instead asks Sandra, another participant, what she thinks. While answering, Sandra shares one of her work experiences helping a family. Matilda makes a mental note of these experiences. Several hours later during the training, Matilda needs an example to illustrate a point she is making and remembers what Sandra shared. She states: “Sandra told us earlier about how she ______. This is a great reminder to all of us to ______.” This helps Sandra to feel her comments were heard and valued and allows the rest of the group to apply real-life examples to what they are learning.
Case Studies
PARTICIPANT VERSION

#1: The Medina Family
Gloria and Sebastian Medina are farmworkers in rural Florida. For the last four years, they have lived in an old home, probably built in the 1950s, which is located on the grower’s property where they work. The paint on the outside of the house chips and regularly flakes off.

The Medinas used to migrate, but now stay where they are year-round. Their 5 year old son, Miguel, was recently diagnosed with Attention Deficit Hyperactive Disorder (ADHD) at the local clinic. Gloria has discovered that one of the activities Miguel likes best is to play outside, which also helps him to calm down. In order to keep a close watch on him, Gloria tells Miguel to play right near their home. He usually likes to play with his cars in the dirt or kick a ball around with a neighborhood friend.

Gloria has confessed to you that she and Sebastian want to have more children, but have been unable to conceive. She tells you that she feels this is strange because it was very easy to become pregnant with Miguel.

QUESTIONS:

1. What are the key points presented in this case study? (stated and implied)

2. What environmental toxins should you be concerned about and where are they found?

3. How do these environmental toxins impact health?

4. At what ages/stages are children most impacted by these environmental toxins?

5. What advice would you provide to the family?

6. How would you use the educational tools to help this family?
Case Studies

PARTICIPANT VERSION

#2: The Gonzalez Family
Juana Obando Gonzalez lives with her three children in a rural area of Michigan. Her oldest child, Paula, is 10 years old, Marco Felipe is 8 years old, and Juanita is 3 years old. They share an old trailer with a young couple, Max and Lupe, and their 5 month old baby. In the bathroom, the pipes behind the sink are exposed. Due to a small leak, there is mold and mildew along the wall and the floor in the bathroom. Juana and Lupe regularly clean the mold and mildew using bleach and commercial chemical cleaners. Juana sometimes asks her older children to also scrub the mold and mildew. They find it will go away for a time, but returns eventually.

Paula was recently diagnosed with asthma and Marco Felipe gets a lot of allergies. Lupe is concerned because her 5 month old baby has already had two respiratory tract infections.

QUESTIONS:

1. What are the key points presented in this case study? (stated and implied)

2. What environmental toxins should you be concerned about and where are they found?

3. How do these environmental toxins impact health?

4. What advice would you provide to the family?

5. How would you use the educational tools to help this family?
Case Studies

PARTICIPANT VERSION

#3: The Santiago Family
Humberto and Angela Santiago live in farmworker housing along a dirt road amongst fields of vegetables that are close to being harvested. The grower uses a crop duster to spray pesticides on the fields usually once each month. Humberto and Angela always wear protective gear when working the fields and they make sure their four children stay inside when the grower is spraying. When the grower isn’t spraying, the children are usually outside playing with other children. They don’t seem to mind playing outside during the hottest days of the summer. Humberto and Angela often pick up the kids on their way home from the fields.

The Santiago’s’ youngest daughter, Marlen, is more fair-skinned than the others and seems to get sunburned frequently. Angela sometimes keeps her inside to protect her from the sun, but it’s hard because Marlen becomes bored easily. The other kids have never had any major health problems but the oldest child, Azucena, a thirteen year old, has recently been getting headaches on a regular basis.

QUESTIONS:

1. What are the key points presented in this case study? (stated and implied)

2. What environmental toxin should you be concerned about and where are they found?

3. How do these environmental toxins impact health?

4. At what ages/stages are children most impacted by these environmental toxins?

5. What advice would you provide to the family?

6. How would you use the educational tools to help this family?
Case Study: FACILITATOR VERSION

#1: The Medina Family

Gloria and Sebastian Medina are farmworkers in rural Florida. For the last four years, they have lived in an old home, probably built in the 1950s, which is located on the grower’s property where they work. The paint on the outside of the house chips and regularly flakes off.

The Medinas used to migrate, but now stay where they are year-round. Their 5 year old son, Miguel, was recently diagnosed with Attention Deficit Hyperactive Disorder (ADHD) at the local clinic. Gloria has discovered that one of the activities Miguel likes best is to play outside, which also helps him to calm down. In order to keep a close watch on him, Gloria tells Miguel to play right near their home. He usually likes to play with his cars in the dirt or kick a ball around with a neighborhood friend.

Gloria has confessed to you that she and Sebastian want to have more children, but have been unable to conceive. She tells you that she feels this is strange because it was very easy to become pregnant with Miguel.

QUESTIONS:

1. What are the key points presented in this case study? (stated and implied)
   a. Live in an old home
   b. Live next to or very close to farming fields
   c. Family lives in the same place year-round
   d. Miguel was diagnosed with ADHD
   e. Miguel plays outside a lot, but sticks close to the home
   f. He plays in dirt and with objects that touch the ground
   g. Gloria is unable to conceive another child to date

2. What environmental toxins should you be concerned about and where are they found?
   a. Lead – since the house is old, the paint on it may contain lead. The paint chips probably have fallen on the ground and into the soil where Miguel plays. Homes built before 1978 may have lead contaminants in or around the house.
   b. Pesticides – the family lives around the fields where they work which are sprayed with pesticides. Pesticides may drift into the home as they are being sprayed on the fields and/or are easily brought in (on shoes, toys, balls, clothes, animals, etc.) from the outside.
3. How do these environmental toxins impact health?
   a. Increased blood lead levels in children can cause attention deficits, increased impulsiveness, reduced school performance, aggression, and delinquent behavior -- all symptoms of ADHD and learning disabilities.

   b. During pregnancy, lead can leach from the mother’s bones thereby exposing their unborn babies. Fetal and infant exposure may cause lowered intelligence, hyperactivity, decreased learning ability and short attention span.

   c. High lead exposure can cause infertility problems in men.

   d. Pesticides can cause rashes and respiratory illnesses as well as negatively impact the developing brain.

4. At what ages/stages are children most impacted by these environmental toxins?
   a. Lead exposure – children of all ages are at risk.
      • Children’s bodies absorb more lead than an adult body. Children absorb more of the lead they are exposed to than adults, which means that children have more lead in their bodies that can cause harm.
      • Hand to mouth - Young children often play in areas where there is lead or play with objects that touch contaminated soil and then they put their hands or contaminated objects in their mouths.
      • Human beings have a blood brain barrier which stops many harmful substances from reaching the brain. Fetal and infant brains have an immature blood brain barrier which allows more lead to reach the brain. The blood brain barrier is not fully developed until 6 months of age.
      • Brain development begins early in the uterus and continues well beyond birth into adolescence. Normal brain development requires very intricate processes that do not occur during any other life stage. For this reason, developing fetuses, infants, and children are uniquely vulnerable to disruption of these processes by environmental contaminants.

   b. Pesticides – Pesticides have not been studied as well as lead; there are various types of pesticides that people can be exposed to. The studies that we do have suggest that many pesticides are toxic to the developing brain, particularly the fetal and newborn brain. Pesticide exposure has also been linked to neurological diseases later in life, particularly Parkinson’s Disease.

5. What advice would you provide to the family?
   Education:
   a. Educate Gloria, Sebastian, and Miguel about the potential dangers of lead exposure and pesticide exposures.
   b. Teach the family to be aware of when the fields are going to be sprayed with pesticides and to
stay indoors with their windows and doors closed.
   i. Clean all outside toys after spraying and on a regular basis.
c. Ensure Miguel washes his hands regularly, especially after playing outside.
d. Teach the family to clean or remove their shoes before going inside.
e. Teach Miguel not to put his toys and/or hands in his mouth.
f. Encourage the family to clean the windows, floors, doors, and house regularly with a damp rag to keep down lead dust.
g. Make sure Miguel eats foods high in iron and calcium (like spinach and milk) – children with healthy diets absorb less lead.
h. Encourage the family to run cold water in the sink for a few minutes before cooking or drinking in order to flush the pipes of lead.

Action Steps:
   a. Miguel and the family should visit a doctor to get their blood lead levels tested.
      i. Ask the doctor or other providers about ways to have the soil around the house tested.
b. Keep Miguel from playing in the dirt around the house until it has been tested; make sure Miguel doesn't touch the chipping paint.

6. How would you use the educational tools to help this family?
   a. To give to families:
      i. PEHT’s posters and magnets – to give to the family to help inform and educate them; encourage the family to hang them up at home as fun reminders; also hang them in the school, daycare center and clinic
      ii. PEHT’s Pocket Card – to use as a guide when talking to the family
   b. To inform yourself:
      i. PEHT’s Key Concepts, Environmental Health Reference Card, and Rx Pads – to inform oneself before talking with the Medina family
      ii. Out of Harm’s Way Fact Sheet: Creating a Healthy Environment for your Child’s Development – to inform oneself before talking with the Medina family
Case Study: FACILITATOR VERSION

#2: The Gonzalez Family

Juana Obando Gonzalez lives with her three children in a rural area of Michigan. Her oldest child, Paula, is 10 years old, Marco Felipe is 8 years old, and Juanita is 3 years old. They share an old trailer with a young couple, Max and Lupe, and their 5 month old baby. In the bathroom, the pipes behind the sink are exposed. Due to a small leak, there is mold and mildew along the wall and the floor in the bathroom. Juana and Lupe regularly clean the mold and mildew using bleach and commercial chemical cleaners. Juana sometimes asks her older children to also scrub the mold and mildew. They find it will go away for a time, but returns eventually.

Paula was recently diagnosed with asthma and Marco Felipe gets a lot of allergies. Lupe is concerned because her 5 month old baby has already had two respiratory tract infections.

QUESTIONS:
1. What are the key points presented in this case study? (stated and implied)
   a. The families live in an old trailer.
   b. The pipes behind the sink are exposed and are leaking.
   c. Mold and mildew repeatedly build up on the walls and floor of the bathroom.
   d. Juana, Lupe, and their children regularly use bleach and other strong chemicals to try to clean away the mold and mildew.
   e. Paula has asthma, Marco Felipe has allergies, and the 5 month old baby has had two respiratory tract infections.

2. What environmental toxin/s should you be concerned about and where is it/are they found?
   a. Indoor air pollutants – mold/mildew, chemical cleaners, bleach.
   b. Mold and mildew are found on the wall and floor in the bathroom. They are caused by moisture from the small leak in the pipes.
   c. The commercial chemical cleaners and bleach are air pollutants in the home, and can cause respiratory symptoms and eye irritations. They are also highly toxic if ingested and can cause skin irritation and burns if they come in contact with exposed skin.
3. How do these environmental toxins impact health?
   a. Molds affect the eyes, nose, throat and respiratory tract. They can cause persistent respiratory infections and symptoms including sneezing, wheezing, coughing, runny nose and eye irritation. Some molds can be highly toxic to the lungs. Children should never clean up mold and adults should wear protective gloves and a breathing mask while cleaning up mold.

   b. Commercial chemical cleaners and bleach can cause respiratory symptoms and eye irritations. They are also highly toxic if ingested and can cause skin irritation and burns if they come in contact with exposed skin. Some cleaners can be toxic to the developing brain and may exacerbate asthma.

4. What advice would you provide to the family?
   a. Teach families to keep mold at bay by preventing excess moisture/water leaks and ensuring good ventilation.

   b. Help families to replace their toxic cleaning products (bleach and commercial cleaning products) with those containing safer “non-toxic” ingredients.

   c. Help families to determine if the floors or walls of their home will need to be replaced.

   d. Encourage Juana to not allow her older children to clean the bathroom until the problem is addressed.

   e. Encourage the family to not spend excessive amounts of time in the bathroom.

   f. When cleaning mold and mildew, wear a protective mask and gloves.

   g. Teach families how to make their own cleaning products. (See RECIPE CARDS, page 99)

   h. Encourage the families to talk to their doctors to see if the children’s health problems may be related to the mold and mildew, and/or the cleaning products.

5. How would you use the educational tools to help this family?
   a. PEHT’s posters and magnets – to give to the family to help inform them; encourage the family to hang them up at home as fun reminders; hang them in the school, day care center or clinic as well.

   b. PEHT’s Key Concepts, Environmental Health Reference Card, and Rx Pads – to inform oneself

   c. PEHT’s Pocket Card – to use as a guide when talking to the family

   d. Mini-novela on mold/mildew – to give to the family to inform them and solicit discussion

   e. Recipe Cards – to give to the family so they can make their own non-toxic cleaning products
Case Study:
FACILITATOR VERSION

#3: The Santiago Family

Humberto and Angela Santiago live in farmworker housing along a dirt road amongst fields of vegetables that are close to being harvested. The grower uses a crop duster to spray pesticides on the fields usually once each month. Humberto and Angela always wear protective gear when working the fields and they make sure their four children stay inside when the grower is spraying. When the grower isn’t spraying, the children are usually outside playing with other children. They don’t seem to mind playing outside during the hottest days of the summer. Humberto and Angela often pick up the kids on their way home from the fields.

The Santiago’s’ youngest daughter, Marlen, is more fair-skinned than the others and seems to get sunburned frequently. Angela sometimes keeps her inside to protect her from the sun, but it’s hard because Marlen becomes bored easily. The other kids have never had any major health problems but the oldest child, Azucena, a thirteen year old, has recently been getting headaches on a regular basis.

QUESTIONS:
1. What are the key points presented in this case study? (stated and implied)
   a. The family lives within an area that includes farm fields where pesticides are sprayed.
   b. The parents wear protective gear when working but, at times, drive to pick up the children in their work clothes after the work day is over.
   c. The kids play outside in the hot sun; Marlen is fair-skinned and gets sunburned frequently. Her mother attempts to keep her inside, but she becomes bored easily.
   d. Azucena has begun to get headaches on a regular basis.
   e. The kids stay inside when the fields are being sprayed.

2. What environmental toxin should you be concerned about and where are they found?
   a. Pesticides – There are close to 1000 chemicals registered as pesticides in the US, these include insecticides, herbicides, fungicides, rodenticides, fumigants and insect repellents. It’s very difficult to determine which type of pesticide a person was exposed to. However we do know that pesticides are designed to kill pests and the mechanism by which they do is often very similar to that which causes harm or kills humans. If possible help the family determine which pesticide or class of pesticide they may have been exposed to. Pesticides are found in the fields, the parents’ work clothes, and in air drifts when the grower is spraying.
   b. Sun/heat exposure – can cause sun burn and skin cancer.
3. **How do these environmental toxins impact health?**
   a. Pesticides - exposure to high levels of pesticides can cause acute poisoning. Pesticides can also cause rashes, and may cause respiratory irritation. Low-dose exposure to pesticides may cause hyperactivity, birth defects, leukemia, lymphoma, and brain cancer. Pesticide exposure has been linked to neurological diseases later in life, particularly Parkinson’s Disease.
   b. Sun exposure – can cause sun burn and skin cancer.
   c. Heat exposure – can cause dehydration and heat exhaustion.

4. **At what ages/stages are children most impacted by these environmental toxins?**
   a. Pesticides affect all children. Additionally, studies suggest that many pesticides are toxic to the developing brain, particularly the fetal and newborn brain.
   b. Heat exposure affects all children; however, babies and young children cannot regulate body temperature as well as adults and therefore are more susceptible to heat exhaustion.

5. **What advice would you provide to the family?**
   a. Teach the family and children about pesticide exposure and sun/heat exposure. Teach them that some effects of exposure are not seen for many years.
   b. Make sure the family closes all windows and doors when pesticides are being sprayed or on windy days; check the home for large cracks or holes in any of the walls or windows where pesticides can drift into the house and repair them immediately to reduce exposure to chemicals.
   c. Relay the importance of cleaning outside toys, furniture and other objects that may have been sprayed by the pesticides.
   d. Teach parents to remove their work clothes before returning home. If that’s not possible, teach them to wrap their children in a towel or blanket before picking them up. Be sure parents wash their work clothes separately from non-work clothes and keep work boots and other contaminated objects out of the house and away from their children.
   e. Make sure parents put sunblock of at least SPF 15 on all of the children at intervals specified on the label whenever they go outside; help the parents understand why sunblock should be put on all the kids and not just Marlen.
   f. Keep the children indoors during the hottest periods of the day (10am – 2pm). Have the children wear hats and sunglasses and light colored long sleeve clothing when possible.
   g. Teach the children to drink plenty of water during the day and to not play directly in the fields where pesticides have been sprayed.
   h. Encourage the kids to play in the shade whenever possible and do not run around or overexert themselves on very hot days.
i. If possible, recommend the family consider moving to other housing in order to keep the children away from pesticide exposure.

j. Encourage parents to make a doctor’s appointment for Azucena to see about her headaches and whether or not they may be related to pesticide exposure.

6. How would you use the educational tools to help this family?

a. PEHT’s posters and magnets – to give to the family to help inform them; encourage the family to hang them up at home as fun reminders; hang them in the school, day care center and clinic as well

b. PEHT’s Key Concepts, Environmental Health Reference Card, and Rx Pads – to inform oneself before talking with the Medina family

c. PEHT’s Pocket Card – to use as a guide when talking to the family

d. Out of Harm’s Way: Creating a Healthy Environment for your Child’s Development – to inform oneself before talking with the Santiago family

f. Mini-novela on pesticides – to give to the family to inform them and solicit discussion
Recipe Cards

The following cards are adapted from www.eartheasy.com - Solutions for Sustainable Living

**RECIPE FOR: ALL-PURPOSE CLEANER**

**INGREDIENTS:**
- 1/2 cup vinegar
- 1/4 cup baking soda (or 2 teaspoons borax)
- 1/2 gallon (2 liters) water

Mix ingredients. Store and keep. Use for removal of water deposit stains on shower stall panels, bathroom chrome fixtures, windows, bathroom mirrors, etc.

Another alternative is microfiber cloths which lift off dirt, grease and dust without the need for cleaning chemicals, because they are formulated to penetrate and trap dirt. There are a number of different brands. A good quality cloth can last for several years.

**RECIPE FOR: AIR FRESHENER**

**INGREDIENTS:**
Any of the following:
- Baking soda
- Houseplants
- Vinegar
- Coffee grounds
- Slice of lemon
- Water and cinnamon
- Dried herbs and flowers

Commercial air fresheners mask smells and coat nasal passages to diminish the sense of smell.

For odors around the house, place baking soda or vinegar with lemon juice in small dishes. Having houseplants helps reduce odors in the home. Placing bowls of fragrant dried herbs and flowers in room will also help.

Prevent cooking odors by simmering water and cinnamon or other spices on stove, or simmering vinegar (1 tbsp in 1 cup water) on the stove while cooking.

To get smells, such as fish and onion off utensils and cutting boards, wipe them with vinegar and wash in soapy water.

Keep fresh coffee grounds on the counter.

Grind up a slice of lemon in the garbage disposal.
RECIPE FOR: BATHROOM MOLD

INGREDIENTS:
• Hydrogen peroxide
• Water

Mold in bathroom tile grout is a common problem and can be a health concern. For stronger cleaning power add liquid castile soap. Mix one part hydrogen peroxide (3%) with two parts water in a spray bottle and spray on areas with mold. Wait at least one minute before rinsing or using shower.

RECIPE FOR: MOLD & MILDEW

INGREDIENTS:
Either of the following:
• White vinegar
• Lemon juice

Use white vinegar or lemon juice full strength. Apply with a sponge or scrubby.

RECIPE FOR: CARPET STAINS

INGREDIENTS:
Any of the following:
• White vinegar and water
• Corn starch
• Salt, borax, and vinegar

Mix equal parts white vinegar and water in a spray bottle. Spray directly on stain, let sit for several minutes, and clean with a brush or sponge using warm soapy water.

For fresh grease spots, sprinkle corn starch onto spot and wait 15–30 minutes before vacuuming.

For a heavy duty carpet cleaner, mix 1/4 cup each of salt, borax and vinegar. Rub paste into carpet and leave for a few hours. Vacuum.

RECIPE FOR: COFFEE & TEA STAINS

INGREDIENTS
• Vinegar
• Water

Stains in cups can be removed by applying vinegar to a sponge and wiping.

To clean a teakettle or coffee maker, add 2 cups water and 1/4 cup vinegar; bring to a boil. Let cool, wipe with a clean cloth and rinse thoroughly with water.
RECIPE FOR: **DEODORIZING**

**INGREDIENTS**
Any of the following:
- Warm water and baking soda
- Lemon or orange peel
- Baking soda
- Sliced onion

Plastic food storage containers - soak overnight in warm water and baking soda
In-sink garbage disposal units - grind up lemon or orange peel in the unit
Carpets - sprinkle baking soda and let sit for several hours, then vacuum.
Garage, basements - set a sliced onion on a plate in center of room for 12–24 hours

RECIPE FOR: **DISHWASHER SOAP**

**INGREDIENTS**
- Borax
- Washing soda

Mix equal parts of borax and washing soda, but increase the washing soda if your water is hard.

RECIPE FOR: **DISHWASHING SOAP**

**INGREDIENT**
- White vinegar

Commercial low-phosphate detergents are not themselves harmful, but phosphates nourish algae which use up oxygen in waterways.

A detergent substitution is to use liquid soap. Add 2 or 3 tablespoons of vinegar to the warm, soapy water for tough jobs.
**RECIPE FOR: DISINFECTANT**

**INGREDIENTS:**
- 2 teaspoons borax
- 4 tablespoons vinegar
- 3 cups hot water
- ¼ teaspoon liquid castile soap

Mix borax, vinegar and hot water. For stronger cleaning power liquid castile soap. Wipe on with dampened cloth or use non-aerosol spray bottle. (This is not an antibacterial formula. The average kitchen or bathroom does not require antibacterial cleaners.)

To disinfect kitchen sponges, put them in the dishwasher when running a load or put them in the microwave for one hour.

**RECIPE FOR: FLOOR CLEANER & POLISH – WOOD**

**INGREDIENTS:**
- Vegetable oil
- Vinegar
- Pure peppermint oil

Apply a thin coat of 1:1 vegetable oil and vinegar and rub in well.

For damp-mopping wood floors: mix equal amounts of white distilled vinegar and water. Add 15 drops of pure peppermint oil; shake to mix.

**RECIPE FOR: FLOOR CLEANER & POLISH – PAINTED WOOD**

**INGREDIENTS:**
- Washing soda
- 1 gallon hot water

Mix washing soda into hot water.

**RECIPE FOR: FLOOR CLEANER & POLISH – BRICK & STONE TILES**

**INGREDIENTS:**
- 1 cup white vinegar
- 1 gallon water

Mix white vinegar in water; rinse with clear water.
## Recipe for: Furniture Polish

**Ingredients:**
- **Varnished:**
  - Lemon oil
  - ½ cup warm water
- **Unvarnished:**
  - 2 teaspoons olive oil
  - 2 teaspoons lemon juice

For varnished wood, add a few drops of lemon oil into warm water. Mix well and spray onto a soft cotton cloth. Cloth should only be slightly damp. Wipe furniture with the cloth, and finish by wiping once more using a dry soft cotton cloth.

For unvarnished wood, mix olive oil and lemon juice and apply a small amount to a soft cotton cloth. Wring the cloth to spread the mixture further into the material and apply to the furniture using wide strokes. This helps distribute the oil evenly.

## Recipe for: Laundry Detergent

**Ingredients:**
- 1 cup Ivory soap (or Fels Naptha soap)
- ½ cup washing soda
- ½ cup borax

Mix Ivory soap (or Fels Naptha soap), washing soda and borax. Use 1 tbsp for light loads; 2 tbsp for heavy loads.

## Recipe for: Lime Deposits

**Ingredients:**
- ½ cup white vinegar
- 2 cups water
- Lemon juice

You can reduce lime deposits in your tea kettle by putting in white vinegar and water, and gently boiling for a few minutes. Rinse well with fresh water while kettle is still warm.

To remove lime scale on bathroom fixtures, squeeze lemon juice onto affected areas and let sit for several minutes before wiping clean with a wet cloth.

## Recipe for: Marks on Walls & Painted Surfaces

**Ingredient:**
- Baking soda

Many ink spots, pencil, crayon or marker spots can be cleaned from painted surfaces using baking soda applied to a damp sponge. Rub gently, then wipe and rinse.
**RECIPE FOR: METAL CLEANERS & POLISHES**

**Aluminum:** using a soft cloth, clean with a solution of cream of tartar and water.

**Brass or bronze:** polish with a soft cloth dipped in lemon and baking-soda solution, or vinegar and salt solution. Another method is to apply a dab of ketchup on a soft cloth and rub over tarnished spots.

**Chrome:** polish with baby oil, vinegar, or aluminum foil (shiny side out).

**Copper:** soak a cotton rag in a pot of boiling water with 1 tablespoon salt and 1 cup white vinegar. Apply to copper while hot; let cool, then wipe clean. For tougher jobs, sprinkle baking soda or lemon juice on a soft cloth, then wipe. For copper cookware, sprinkle a lemon wedge with salt, then scrub. A simpler method is to apply a dab of ketchup on a soft cloth and rub over tarnished spots.

**Gold:** clean with toothpaste, or a paste of salt, vinegar, and flour.

**Silver:** line a pan with aluminum foil and fill with water; add a teaspoon each of baking soda and salt. Bring to a boil and immerse silver. Polish with soft cloth.

**Stainless steel:** clean with a cloth dampened with undiluted white vinegar, or olive oil. For stainless cookware, mix 4 tbs baking soda in 1 qt water, and apply using a soft cloth. Wipe dry using a clean cloth. For stainless steel sinks, pour some club soda on an absorbent cloth to clean, then wipe dry using a clean cloth.

**RECIPE FOR: MOBILE BALLS**

**INGREDIENT:**
Any of the following:
- Cedar chips or cedar oil
- Lavender
- Rosemary
- Vetiver and rose petals
- Dried lemon peels

The common mothball is made of paradichlorobenzene, which is harmful to liver and kidneys.

Cedar chips in a cheesecloth square or cedar oil in an absorbent cloth will repel moths. The cedar should be ‘aromatic cedar’, also referred to as juniper in some areas. Cedar chips are available at many craft supply stores, or make your own using a plane and a block of cedar from the lumberyard.

Homemade moth-repelling sachets can also be made with lavender, rosemary, vetiver and rose petals.

Dried lemon peels are also natural moth deterrents - simply toss into clothes chest, or tie in cheesecloth and hang in the closet.

**RECIPE FOR: OIL & GREASE SPOTS**

**INGREDIENTS:**
- Baking soda

For small spills on the garage floor, add baking soda and scrub with wet brush.
**Protecting Children from Environmental Hazards**

**RECIPE FOR: OVEN CLEANER**

**INGREDIENTS:**
- ¾ cup baking soda
- ¼ cup salt
- ¼ cup water

Moisten oven surfaces with sponge and water. Use baking soda, salt and water to make a thick paste, and spread throughout oven interior (avoid bare metal and any openings). Let sit overnight. Remove with spatula and wipe clean. Rub gently with fine steel wool for tough spots. Or use Arm & Hammer Oven Cleaner, declared nontoxic by Consumers Union.

**RECIPE FOR: PAINT BRUSH CLEANER**

**INGREDIENTS:**
- Citrus oil based solvent

Non-toxic, citrus oil based solvents are now available commercially under several brand names. Citra-Solve is one brand. This works well for cleaning brushes of oil-based paints.

Paint brushes and rollers used for an on-going project can be saved overnight, or even up to a week, without cleaning at all. Simply wrap the brush or roller snugly in a plastic bag, such as used bread or produce bag. Squeeze out air pockets and store away from light. The paint won’t dry because air can’t get to it. Simply unwrap the brush or roller the next day and continue with the job.

Fresh paint odors can be reduced by placing a small dish of white vinegar in the room.

**RECIPE FOR: RUST REMOVER**

**INGREDIENTS:**
- Salt
- Lime

Sprinkle a little salt on the rust, squeeze a lime over the salt until it is well soaked. Leave the mixture on for 2-3 hours. Use leftover rind to scrub residue.

**RECIPE FOR: SCOURING POWDER**

**INGREDIENTS:**
- Baking soda

For top of stove, refrigerator and other such surfaces that should not be scratched, use baking soda. Apply baking soda directly with a damp sponge.
RECIPE FOR: SHOE POLISH

INGREDIENTS:
• Olive oil
• Lemon juice

Olive oil with a few drops of lemon juice can be applied to shoes with a thick cotton or terry rag. Leave for a few minutes; wipe and buff with a clean, dry rag.

RECIPE FOR: STICKERS ON WALLS

INGREDIENTS:
• Vinegar

To remove, sponge vinegar over them several times, and wait 15 minutes, then rub off the stickers. This also works for price tags (stickers) on tools, etc.

RECIPE FOR: TOILET BOWL CLEANER

INGREDIENTS:
• ¼ cup baking soda
• 1 cup vinegar
• Borax
• Lemon juice

Mix ¼ cup baking soda and 1 cup vinegar, pour into basin and let it set for a few minutes. Scrub with brush and rinse.

A mixture of borax (2 parts) and lemon juice (one part) will also work. Scrub with toilet brush as needed. This solution will clean and deodorize.

RECIPE FOR: TUB & TILE CLEANER

INGREDIENTS:
• Baking soda
• Vinegar

For simple cleaning, rub in baking soda with a damp sponge and rinse with fresh water. For tougher jobs, wipe surfaces with vinegar first and follow with baking soda as a scouring powder. (Vinegar can break down tile grout, so use sparingly.)
### RECIPE FOR: WATER RINGS ON WOOD

**INGREDIENTS:**
- Toothpaste
- Mayonnaise

Water rings on a wooden table or counter are the result of moisture that is trapped under the topcoat, but not the finish. Try applying toothpaste or mayonnaise to a damp cloth and rub into the ring. Once the ring is removed, buff the entire wood surface.

### RECIPE FOR: WINDOW CLEANER

**INGREDIENTS:**
- 2 teaspoons white vinegar
- 1 liter warm water

Mix white vinegar with warm water. Use crumpled newspaper or cotton cloth to clean. Don’t clean windows if the sun is on them or if they are warm because streaks will show upon drying.

The All-Purpose Cleaner (above) also works well on windows. Be sure to follow the recipe, because using too strong a solution of vinegar will etch the glass and eventually cloud it.
Recetas

Las siguientes recetas han sido adaptadas de la página web www.eartheasy.com – Soluciones para una vida mejor

RECETAS PARA: LIMPIADORES PARA TODO PROPÓSITO

**INGREDIENTES:**
- 1/2 taza de vinagre
- 1/4 taza de bicarbonato de soda (o 2 cucharitas de bórax)
- 1/2 galón (2 litros) de agua

Mezclar los ingredientes. Dejarlos reposar y guardarlos. Utilícelo para remover las manchas de depósitos de agua en las paredes o en las puertas de la regadera, en las diferentes partes del baño, en las ventanas, en los espejos del baño, etc.

Otra alternativa es una toalla de microfibra que ayuda a levantar la suciedad, engrasa y levanta el polvo sin la necesidad de utilizar químicos, ya que están hechos para penetrar y atrapar la suciedad. Hay un gran número de marcas de este producto. Una buena calidad de toallas puede durar por muchos años.

RECETAS PARA: PERFUMADOR DE AMBIENTES

**INGREDIENTES:**
Cualquiera de los siguientes:
- Bicarbonato de soda
- Plantas de interior
- Vinagre
- Granos de café
- Rodaja de limón
- Agua y canela
- Hierbas secas y flores

Los perfumadores de ambiente reducen los olores y disminuyen los olores.

Para olores alrededor de la casa, poner el bicarbonato de soda o el vinagre con jugo de limón en un plato pequeño. Tener plantas de interior ayuda a reducir los olores en la casa. Poner platos con la fragancia de hierbas secas y flores en los cuartos también podría ayudar.

Prevenga los olores de las comidas hirviendo agua y canela y otros ingredientes en una olla, o hierba vinagre (1 cucharada en 1 taza de agua) en la cocina mientras cocina.

Para eliminar los olores de pescados o cebollas de las tablas de picar o de los cubiertos, limpielos con vinagre y lávelos con agua y jabón.

Mantenga granos de café frescos en las repisas.

Muela una rodaja de limón en el triturador de basura.
**RECETAS PARA: MOHO EN LA REGADERA O TINA DE BAÑO**

**INGREDIENTES:**
- Peróxido de hidrógeno
- Agua

El moho que se acumula en el mármol de la tina de baño es un problema común que puede ocasionar preocupación por la salud. Mezcle el peróxido de hidrógeno (3%) con 2 partes de agua en una botella de “espray” y utilice esto para echar el líquido en las áreas del baño que necesite. Espere por lo menos 1 hora antes de enjuagar o de utilizar la tina de baño.

**RECETAS PARA: MOHO & HONGOS**

**INGREDIENTES:**
Cualquiera de los siguientes:
- Vinagre blanco
- Jugo de limón

Utilice vinagre blanco o jugo de limón para fortalecer el resultado. Aplíquelo con una esponja.

**RECETAS PARA: MANCHAS EN LA ALFOMBRA**

**INGREDIENTES:**
Cualquiera de los siguientes:
- Vinagre blanco y agua
- Maíz almidón
- Sal, bórax y vinagre

Mezcle por partes iguales el vinagre blanco y el agua en la botella de espray. Derrame el líquido directamente en las manchas, déjelo ahí por unos minutos y luego límpielo con una esponja utilizando agua media caliente con jabón.

Para limpiar manchas frescas de grasa, rosee el maíz almidón en el lugar donde está la mancha y espere por 15-30 minutos antes de pasar la aspiradora.

Para limpiar las alfombras de peso, mezcle 1/4 de taza con sal, bórax y vinagre. Frote la solución en la alfombra y déjelo ahí por unas pocas horas y luego pase la aspiradora.

**RECETAS PARA: MANCHAS DE CAFÉ Y TÉ**

**INGREDIENTES:**
- Vinagre
- Agua

Las manchas en las tazas pueden ser removidas aplicando el vinagre a una esponja y luego con esta remover las manchas.

Para limpiar una tetera o cafetera, agregue 2 tazas de agua y 1/4 de taza de vinagre; llève la solución a hervir. Déjela enfriar, límpie con un trapo limpio y enjuague bien con agua.
Protecting Children from Environmental Hazards

### RECETAS PARA: DESODORANTE

**INGREDIENTES:**
- Cualquiera de las siguientes:
  - Agua media caliente y bicarbonato de sosa
  - Limón o cascara de naranja
  - Bicarbonato de sosa
  - Rodajas de cebolla

Contenedores para guardar la comida – remoje toda la noche con agua media caliente y bicarbonato de sosa
Unidades de triturador de comidas – triture un limón o cascara de naranja en cada unidad
Alfombras – rosee el bicarbonato de sosa y déjelo ahí por algunas horas, luego pase la aspiradoras.
Garaje, sótanos – ponga una rodaja de cebolla en un plato en el centro del cuarto por 12-24 horas

### RECETAS PARA: JABÓN PARA LIMPIAR EL LAVAPLATOS

**INGREDIENTES:**
- Bórax
- Lavado de soda

Mezcle por partes iguales el bórax y el lavado de soda pero recuerde de agregar más lavado de soda si el agua se pone dura.

### RECETAS PARA: JABÓN LÍQUIDO PARA EL LAVAPLATOS

**INGREDIENTES:**
- Vinagre

Los detergentes bajos en fosfato no son dañinos, ya que el fosfato se alimenta de algas que consumen el oxígeno en las vías de agua.

El detergente a utilizar es el jabón líquido. Agregue 2 o 3 cucharas de vinagre en agua media caliente, agregue agua con jabón cuando la limpieza tenga que ser más profunda.
### RECETAS PARA: DESINFECTANTE

**INGREDIENTES:**
- 2 cucharaditas de bórax
- 4 cucharadas de vinagre
- 3 tazas de agua caliente
- ¼ cucharadita de jabón líquido

Mezcle el bórax, el vinagre y el agua caliente. Para profundizar la limpieza, agregue jabón líquido. Limpie con la ayuda de un trapo medio mojado y utilice una botella de espray que no tenga aerosol. (Esta no es una fórmula antibacterial. Las cocinas y los baños normalmente no necesitan un limpiador antibacterial.)

Para desinfectar las esponjas en la cocina, póngalas en el lavavajillas cuando vaya a lavar los platos y luego póngalo en el microondas por un minuto.

### RECETAS PARA: LIMPIADOR DE DRENAJE

**INGREDIENTES:**
- ¼ taza de sal
- 4 litros de agua
- ¼ taza de bicarbonato de soda
- ¼ taza de vinagre

Para limpieza suave del drenaje, mezcle ¼ taza de sal con 4 litros de agua, caliente (pero no hirviendo) y depositelo en el tubo del drenaje.

Para limpieza profunda, deposite aproximadamente 1/2 taza de bicarbonato de soda en el drenaje, luego 1/2 taza de vinagre. La reacción química de este resultado puede romper los ácidos de grasa en jabón y glicerina, permitiendo que se atore y que el agua no pase bien por el drenaje. Después de 15 minutos, ponga agua hirviendo para limpiar los residuos.

Cuidado: utilice solo este método en las tuberías de metal. Las tuberías de plástico pueden derretirse con el exceso de agua caliente. También recuerde no utilizar este método si ya utilizo otro producto comercial.

### RECETAS PARA: SUAVIZANTE DE ROPA

**INGREDIENTES:**

Para reducir los efectos de la electricidad en la ropa, mézcle las manos, y luego sacuda su ropa cuando las saque de la secadora. Otra alternativa es dejar que se seque en un cordel de ropa.
### RECETAS PARA: LIMPIADOR & BRILLO PARA PISOS – VINILO y LINÓLEO

**INGREDIENTES:**
- 1 taza de vinagre
- Unas gotitas de aceite de bebé
- Un galón de agua tibia
- ¼ taza de bórax

Mezcle el vinagre y unas pocas gotitas del aceite de bebé en agua tibia. Para limpieza más profunda, añadir el bórax. Use con moderación en linóleo.

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### RECETAS PARA: LIMPIADOR & BRILLO PARA PISOS – MADERA

**INGREDIENTES:**
- Aceite vegetal
- Vinagre
- Aceite puro de menta

Aplicar una capa delgada de 1:1 aceite vegetal y vinagre y frote bien.

Para pisos de madera húmedos: mezcle por cantidades iguales vinagre blanco destilado y agua. Agregue 15 gotas de aceite puro de menta; muévalo bien hasta que todo se mezcle.

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### RECETAS PARA: LIMPIADOR & BRILLO PARA PISOS – MADERA PINTADA

**INGREDIENTES:**
- Lavado de soda
- 1 galón de agua caliente

Mezcle el lavado de soda con el agua caliente.

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### RECETAS PARA: LIMPIADOR & BRILLO PARA PISOS – LADRILLO & MARMOL

**INGREDIENTES:**
- 1 taza de vinagre blanco
- 1 galón de agua

Mezcle el vinagre blanco con agua; enjuague con agua limpia.
**Protecting Children from Environmental Hazards**

**RECIPE FOR SHINE: FURNITURE BRILLIANCE**

**INGREDIENTS:**
- **Barnished:**
  - 1 tablespoon of lemon juice
  - 1/2 cup of warm water

- **Unbarnished:**
  - 2 tablespoons of olive oil
  - 2 tablespoons of lemon juice

For barnished wood, add a few drops of lemon juice to the warm water. Mix well and polish with a soft cloth. The cloth should be slightly wet. Clean the furniture with a soft cloth and then polish once more using a dry, soft cloth.

For unpolished wood, mix olive oil and lemon juice and apply in small amounts with a soft cloth. Squeeze the cloth to spread the solution over the material and apply to the furniture with broader movements. This can help distribute the oil evenly on the furniture.

**RECIPE FOR LAUNDRY DETERGENT**

**INGREDIENTS:**
- 1 cup of Ivory soap (or Fels Naptha)
- 1/2 cup of washing soda
- 1/2 cup of borax

Mix the Ivory soap (or Fels Naptha), washing soda, and borax. Use 1 tablespoon for light loads; 2 tablespoons for heavy loads.

**RECIPE FOR CAL DEPOSITS**

**INGREDIENTS:**
- 1/2 cup of white vinegar
- 2 cups of warm water
- Lemon juice

You can reduce cal deposits in your teapot by placing white vinegar and water and boiling for a few minutes. Then rinse well with clean water while the teapot is still hot.

To remove cal stains in different parts of the bathroom, squeeze lemon juice into the affected areas and let it sit for a few minutes before cleaning with a clean, damp cloth.

**RECIPE FOR WALL & PAINTED SURFACES SCRATCHES**

**INGREDIENTS:**
- Baking soda

Many ink, pencil, crayon, and marker stains on painted surfaces can be removed using baking soda applied to a damp sponge. Gently rub, then clean and rinse.
**Protecting Children from Environmental Hazards**

**RECETAS PARA: LIMPIADOR DE METALES & PARA PULIR**

**Aluminio**: Utilice un paño suave, lávelo con la solución de crema de tártaro y agua.

**De latón o bronce**: Pulir con un paño suave y mojado la solución de limón y bicarbonato de sosa, o vinagre y sal. Otro método que también se puede aplicar es un poco de salsa de tomate (kétchup) en un paño suave y frote sobre los lugares manchados.

**Cromo**: Pulir con aceite de bebé, vinagre o papel aluminio (el lado brillante del papel para adentro).

Cobre: Empape un trapo de algodón y póntalo en una olla con agua hirviendo con 1 cucharada de sal y otra cucharada de vinagre blanco. Apliquélo en el cobre mientras esté caliente; luego deje enfriar e impulse hasta que esté limpio. Para soluciones más profundas, rosee bicarbonato de sosa o jugo de limón en un trapo suave y limpie. Para los utensilios de cocina de cobre, rosee una rodaja de limón con sal y luego frote. Un simple método es aplicar un poco de salsa de tomate (kétchup) en un paño suave y frote sobre las manchas.

**Oro**: Limpiear con una pasta dental, o con una pasta de sal, vinagre y harina.

**Plata**: Pon una cacerola con agua llena de papel aluminio; agregue una cucharadita de bicarbonato de sosa y otra de sal. Haga que hierva y sumerja la plata. Pula con un paño suave.

**Acero inoxidable**: Limpie con un paño mojado en vinagre blanco sin diluir, o aceite de oliva. Para utensilios de cocina de acero inoxidable, mezcle 4 cucharadas de bicarbonato de sosa en 1 cuarto de agua, y aplicar la solución en un paño suave. Limpie hasta que seque utilizando el paño limpio. Para los fregaderos de acero inoxidable, vierta un poco de soda en un paño absorbente para limpiar, luego seque con un paño limpio.

**RECETAS PARA: BOLAS DE POLILLA**

**INGREDIENTES**:  
Cualquier una de las siguientes:  
- Virutas de cedro o aceite de cedro  
- Lavanda  
- Romero  
- Vetiver y pétalos de rosas  
- Cascaras secas de limón

Las bolas de la polilla común están hechas de paradiclorobenceno, los cuales son dañinos para el hígado y los riñones.

Las virutas de cedro en un paño o aceite de cedro en un paño absorbente pueden repeler polillas. El cedro debe ser un ‘cedro aromático’, este también puede ser referido como enebro en algunas zonas. Las virutas de cedro están disponibles en muchas tiendas de artesanías o también puedes hacer el tuyo utilizando un avión o un bloque de cedro del almacén de madera.

Polilla hecho en casa- el repelente también se puede hacer con lavanda, vetiver, romero y pétalos de rosas.

Las cascaras secas de limón son también disuasivos naturales de polillas – simplemente pégala a tu ropa cerca a tu pecho o amárrala con un paño y cuélgala en el closet.
Protecting Children from Environmental Hazards

**RECETAS PARA: MANCHAS DE ACEITE & GRASA**

**INGREDIENTES:**
- Bicarbonato de sosa

Para derrames pequeños en el piso del garaje, agregue bicarbonato de sosa y limpie con un cepillo mojado.

**RECETAS PARA: LIMPIADOR DE COCINA**

**INGREDIENTES:**
- ¾ taza de bicarbonato de sosa
- ¼ taza de sal
- ¼ taza de agua

Humezca la superficie de la cocina con una esponja y agua. Use bicarbonato de sosa, sal y agua para hacer una pasta gruesa y pásela dentro del interior de la cocina (evite las áreas de metal puro y cualquier otra abertura). Déjelo ahí toda la noche. Remover con una espátula y limpiar. Frote suavemente con lana de acero fino para manchas difíciles. O use 'Arm & Hammer Oven Cleaner', declarado no toxico según la Unión de Consumidores.

**RECETAS PARA: LIMPIADOR DE BROCHA PARA PINTAR**

**INGREDIENTES:**
- El aceite de cítricos a base de solventes

El aceite de cítrico, no toxico, a base de solventes esta ahora disponible en diferentes tiendas bajo diferentes marcas. 'Citra-Solve' es una de estas marcas. Esto funciona bien para la limpieza de brochas para pintar a base de aceite.

Las brochas para pintar o los rodillos pueden ser guardados toda la noche o hasta el máximo de una semana sin ser limpiados. Simplemente envuelva las brochas o los rodillos dentro de una bolsa de plástico, como las bolsas utilizadas para el pan o para comprar cosas en el mercado. Apriete la bolsa para dejar salir el aire y guárdela en un lugar donde no haya luz. La pintura no se seca porque el aire no llega. Simplemente envuelva las brochas y los rodillos y al día siguiente continúe con su trabajo.

Los olores de pintura fresco pueden ser reducidos si se pone un pequeño plato con vinagre blanco en el cuarto.

**RECETAS PARA: REMOVEDOR DE MOHO**

**INGREDIENTES:**
- Sal
- Limón

Rosee un poquito de sal en el moho, exprimir un limón sobre la sal hasta que este mojado. Deje la mezcla por unas 2-3 horas. Utilice las cortezas que quedan para limpiar los residuos.
### RECETAS PARA: DETERGENTE EN POLVO

**INGREDIENTES:**
- Bicarbonato de sosa

Para la superficie de la cocina, el refrigerador u otras superficies que no se puedan limpiar porque no pueden ser rayadas, use bicarbonato de sosa. Aplique bicarbonato de sosa directamente en la esponja.

### RECETAS PARA: BRILLO DE LOS ZAPATOS

**INGREDIENTES:**
- Aceite de oliva
- Jugo de limón

El aceite de oliva con unas gotitas de jugo de limón pueden ser aplicadas sobre los zapatos que tienen una capa gruesa de algodón o un paño de felpa. Déjelo por unos minutos, límpielo y saque el brillo con la ayuda de un trapo limpio y seco.

### RECETAS PARA: LAS CALCOMANÍAS EN LA PARED

**INGREDIENTES:**
- Vinagre

Para remover, pase con una esponja el vinagre sobre las calcomanías por varias veces, espere unos 15 minutos y luego remueva las calcomanías. Esto también funciona con las etiquetas de precios (calcomanías) en las herramientas, etc.

### RECETAS PARA: LIMPIADOR DE EXCUSADO

**INGREDIENTES:**
- ¼ taza de bicarbonato de sosa
- 1 taza de vinagre
- Bórax
- Jugo de limón

Mezcle ¼ de taza de bicarbonato de sosa y 1 taza de vinagre, póngalo en un recipiente y déjelo ahí por unos minutos. Limpie con un cepillo y enjuague.

Una mezcla de bórax (2 partes) y jugo de limón (1 parte) hará que esto también funcione. Limpie con un cepillo de baño cuando sea necesario. Esta solución limpiará y desodorizará.
Protecting Children from Environmental Hazards

**RECETAS PARA: LIMPIADOR DE MÁRMOL Y TINA**

**INGREDIENTES:**
- Bicarbonato de sosa
- Vinagre

Para una limpieza simple, frote con bicarbonato de sosa una esponja mojada y enjuague en agua limpia. Para mayor profundidad, limpie la superficie primero y, luego con bicarbonato de sosa, limpie como un detergente en polvo. (El vinagre puede rajar el mármol así que debe utilizarlo con precaución.)

**RECETAS PARA: MANCHAS DE AGUA EN LA MADERA**

**INGREDIENTES:**
- Pasta dental
- Mayonesa

Las manchas de agua en las mesas de madera o en los gabinetes son resultado de la humedad que es atrapada entre las capas pero no en el acabado. Trata de aplicar pasta dental o mayonesa en un trapo húmedo y con eso remueva las manchas de agua. Una vez que las manchas hayan salido, pule la superficie de madera entera.

**RECETAS PARA: LIMPIADOR DE VENTANAS**

**INGREDIENTES:**
- 2 cucharaditas de vinagre blanco
- 1 litro de agua media caliente

Mezcla vinagre blanco con agua media caliente. Use papel de periódico o tela de algodón para limpiar. No limpie las ventanas si el sol está en ellas o si está caliente afuera porque si no se notaran unas rayas cuando se seque.

Un limpiador para todo propósito (ver arriba) también puede funcionar para limpiar las ventanas. Asegúrese de seguir la receta adecuadamente, ya que la solución del vinagre puede ocasionar que el agua se pegue al vidrio o que se opaque.
Activities For Families

The following is a list of suggested activities that can be taught to parents to promote environmentally healthful behaviors among their respective families.

MUSIC FOR THE MIND

Children respond to singing because it is positive and friendly. If we sing important information to children, they are more likely to cooperate and apply the instructions or lessons introduced in the song's lyrics.

Pick a song that your child is familiar with and insert different lyrics to sing with the melody. Use directive statements in the song. For example, if you would like your child to remember to leave their shoes in a shoe box outside, remind your child of this action by singing instructions.

- An example lyric might be: Our shoes go in the shoebox, shoebox, shoebox. Our shoes go in the shoe box before we come inside.
- You can repeat the phrase, singing it in a familiar melody.

Most children will happily comply with this request when it is presented as a song and with a smile from their parent/s.

UNDERSTANDING CONCEPTS

One of the best ways to assist a young child in understanding a concept or thought is to ask them to write or draw a story about it. Consider the following activity.

- Talk to your child about the prevention messages, such as hygiene, eating the right foods, washing fruits and vegetables before eating, playing safely, and wearing appropriate clothing to protect themselves from the sun.
- Use a small pad of blank paper or staple several sheets of paper together.
- Ask the child to draw pictures that tell a story about how to keep themselves and their family healthy.
• Listen to the child tell their story, page by page, describing each picture included in the book.
• Write the words at the bottom of each page to accompany the illustrations.

This activity can reinforce education about environmental hazards in a way that children can understand and interpret appropriately for their ages. The world through a child’s eyes and words are effective teaching tools.

FOODS COME IN MANY COLORS
Parents can tell their children that it is healthy to have many foods on your plate that are different colors.

Children can help parents find healthy fruits and vegetables that can be prepared and fed to the entire family. Many young children, if given the opportunity, will openly identify foods of different colors in the grocery store or at the farmers’ market and remind their parent to “make sure” to pick up foods that are different colors. Consider the following activities:

• A parent can count the different colored vegetables found in the grocery store with their child.
• A parent can pick up two different vegetables in the store and ask their child which one they would prefer for a meal.
• Involve your child in meal preparation.

Giving your child a choice about what vegetable will be on the dinner table helps them feel important and an integral part meal planning. Children are more likely to cooperate at dinnertime and participate in eating the meal if they can recall participating in the planning of the meal.
WORKING TOGETHER
Talk with your child to help them understand how everyone works together to help keep the family healthy. Educate them on actions like:

- Washing fruits and vegetables before eating them
- Not putting toys in their mouth that have been outside
- Keeping clothing and shoes that have been exposed to hazardous substances outside

Very young children, under the age of three years, discover their world by putting objects in their mouths. Make sure to watch children closely and wash toys frequently.

GAMES AS TOOLS FOR LEARNING
When children are as young as preschool age, conversations and games can be initiated by the parent. For example:

- Ask your child to identify helpful family actions and keep track of them. Create a paper chain, with each ring representing a family member’s action. Observe the length of the chain.
- Take family photos of individuals applying healthful behaviors and place it in a photo album. Entitle the album, “Our Family Keeping Healthy,” or another title that is meaningful to your family. Review the photo album with your family and discuss the pictures.

By trying some of these activities with your child and/or introducing additional activities, you help your child understand how to contribute to the family’s health and wellbeing. These ideas can be learned at a very early age and supported throughout childhood.

Remember to share your ideas about new games with other parents and families. Share your family’s achievements with your child’s teacher. Be proud that you are doing your best to raise healthy children and teaching them lifelong skills. HAVE FUN!
Actividades Para Familias

MÚSICA PARA LA MENTE
Los niños responden al canto porque es positivo y amigable. Si nosotros les enseñamos información importante, a través del canto, ellos estarán más dispuestos a aplicar esta información.

Escoge una canción que conozca su niño. Remplace las palabras de la canción pero use la melodía. Use frases directas en la canción. Por ejemplo, si usted desea que su niño recuerde que tiene que dejar sus zapatos en una caja afuera de su casa, ayúdelo a recordar esta acción por medio de cantar la instrucción.

- Un ejemplo de la letra puede ser: Nuestros zapatos van en la caja de zapatos, en la caja de zapatos, en la caja de zapatos. Nuestros zapatos van en la caja de zapatos antes de entrar a casa.
- Puede repetir la frase y cantarla con una melodía conocida por su niño.

Niños cumplirán más alegremente con estos deberes cuando son presentados en canciones y con una sonrisa de sus padres.

ALFABETISMO EMERGENTE
Una de las mejores maneras de ayudar a un niño pequeño a entender información importante es pidiéndole a que escriba o dibuje una historia sobre la idea. Considere las siguientes actividades.

- Hable con su niño sobre los mensajes de cómo proteger la salud de la familia. Presente información como la higiene, la alimentación adecuada, el lavar las frutas y verduras antes de comer, el jugar con seguridad, y el vestirse adecuadamente para protegerse del sol.
- Use una pequeña libreta o ponga hojas en blanco juntas y asegúrelas con una engrampadora.
- Pídale al niño que dibuje una historia de cómo él y su familia se mantienen saludables.
- Escuche al niño describir los dibujos en su libreta.
- Después, escriba las palabras del niño para que las palabras acompañen los dibujos del niño.
• Los padres, hermanos y profesores del niño podrán usar la libreta para después leerle la historia al niño.

Esta actividad puede apoyar la educación de los niños sobre los peligros del medio ambiente. La actividad usa un modo en que los niños pueden entender e interpretar esta información de acuerdo a sus edades. El mundo a través de los ojos del niño son las mejores técnicas y herramientas que se deben usar para educar a un niño.

LAS COMIDAS VIENEN EN DIFERENTES COLORES
Los padres pueden enseñarles a sus niños a que coman alimentos saludables de diferentes colores.

Los niños pueden ayudar a los padres a buscar frutas y verduras saludables que pueden ser preparados para la familia entera. Si tienen la oportunidad, muchos niños pequeños identificaran sin problemas los alimentos de diferentes colores en los supermercados o en los mercados de aire libre. Los niños pueden recordarles a los padres a que escojan alimentos de diferentes colores. Considere las siguientes actividades:

• El padre puede contar junto con sus hijos las diferentes verduras de colores variadas en los supermercados.
• El padre puede escoger 2 tipos de verduras en los supermercados y preguntarle al niño cuál prefiere para sus comidas.
• Incluya al niño en la preparación de sus alimentos o comidas.
Darle a su niño opciones para escoger cuales verduras se comerán durante la cena puede ayudar al niño a sentirse especial e integral en planear los alimentos de la familia. Los niños estarán más dispuestos a cooperar durante la hora de la cena y comer los alimentos adecuadamente si están involucrados con planear los alimentos.

CÓMO Y CUÁNDO DEBEN LOS MIEMBROS DE LA FAMILIA AYUDAR
Habla con su niño para que le ayude a entender cómo todos en la familia trabajan juntos para mantenerse saludables. Enséñele que es importante:

- Lavar las frutas y verduras antes de comerlas
- No ponerse los juguetes que han estado afuera de la casa en la boca
- Mantener afuera de la casa la ropa y los zapatos que han estado expuestos a tóxicos

Los niños muy pequeños, menores de 3 años de edad, descubren el mundo poniéndose los objetos en la boca. Padres pueden considerar:

- Vigilar a su niño dentro y fuera de la casa para reducir que este expuesto a cosas peligrosas (como tóxicos)
- Frecuentemente lavar los juguetes
- Asegurarse que las cosas que están sucias no vayan a la boca de los niños.

JUEGOS
Padres pueden usar conversaciones y juegos para involucrar a sus niños en cómo proteger la salud de la familia. Por ejemplo:

- Pídele a su niño a que cuenta las acciones de su familia en proteger la salud. Haga una cadena de papel usando aros que sostengan la cadena. Cada aro representa a un miembro de la familia que hizo una acción saludable. Después, observe el largo de la cadena con su niño.
- Toma fotos familiares de cada individuo aplicando comportamientos saludables y póngalo en un álbum de fotos. Puede titular el álbum “Nuestra familia manteniéndose saludable,” o póngale otro título que sea importante para su familia. Revise su álbum de fotos con sus familiares y hablen sobre las fotos y las enseñanzas importantes.

En usar estas actividades con su niño o presentar
otras, usted puede ayudar a su niño a entender como contribuir a la salud de su familia y su bienestar. Estas ideas pueden ser aprendidas a una edad muy temprana y afirmadas durante la niñez.

Recuerde, comparte sus ideas sobre nuevos juegos con otros padres y familiares en el programa de cuidado de su niño. Comparta los resultados de su familia con la profesora de su niño. Siéntase orgulloso de estar haciendo lo correcto para criar niños saludables y enseñarles los hábitos o herramientas que lo ayudaran a vivir una vida sana. ¡DIVIERTANSE!
Your children eat, drink and breathe chemicals every day in their food, water, and air. Chemicals can also be found in things like paints and cleaners that are under your kitchen and bathroom sinks, in the basement, or in the garage. Children are at greater risk of harm from exposure to toxic chemicals.

Unfortunately, the safety of many common chemicals has not been fully evaluated. We do know, however, that many of these chemicals are unhealthy (or “toxic”) for a child’s brain. They are also unhealthy for the brains of unborn children.

Why Are Children at Greater Risk from Toxic Chemicals?

Children are not just “little adults.” Children can take in more toxic chemicals because, pound for pound, they eat, drink, and breathe more than adults. Children live closer to the ground where toxic chemicals often collect. When they play on the floor or carpet, they can breathe in toxic chemicals in dust. These chemicals in dust can come from inside the house (for example, a bathroom cleaner) or from outside (for example, bug sprays brought in from outside on the bottom of shoes). Children constantly put their fingers and other objects in their mouths, making it easier for toxic chemicals to get into their bodies.

Chemicals are also more dangerous to children because their brains and bodies are still growing and changing. Babies and children who come into contact with some toxic chemicals can have health problems for the rest of their lives. Because their brains may be affected, they may have problems with learning or behavior.

You can help. Inside are some steps you can take to make a healthier environment for your children and your family.
Out of Harm’s Way: Preventing Toxic Threats to Child Development

Creating a Healthy Environment for Your Child’s Development

Personal Guidelines for Parents and Future Parents1

Reducing Risks from Pesticides

Pesticides and herbicides (together we call them “pesticides”) are chemicals that are made to kill or keep away unwanted pests like mice, ants, roaches, and weeds. Pesticides can be toxic to people too, especially children. There are many kinds of pesticides that people use in their homes, in their gardens, and on pets. You might know them as “bug spray,” “ant traps,” “weedkillers,” or by other names — but many of these products are pesticides.

Avoid Pesticides on Food

Fruits and vegetables often have pesticides on them. Pesticides are used to keep insects or weeds away while the fruits and vegetables are growing. Some fruits and vegetables have more pesticides on them than others. For this reason it is good to feed your child many different kinds of fruits and vegetables, and also try to do the following things:

- Peel or wash fruits and vegetables. This can sometimes remove pesticides from the outside skin of the fruit or vegetable.
- If possible, buy “organic” foods that were grown without pesticides (unfortunately, they are often more expensive and not always available). Buying organic also helps support the farmers and sellers of organic foods. This will help make these foods cheaper to buy over time and more available to all people.

Don’t Use Pesticides in Your Home

Do not use pesticides in your house, apartment, or garden unless you have tried all other ways to get rid of unwanted insects or animals.

- Keep unwanted insects or animals out of your house or apartment by sealing cracks and holes around doors, windowsills, and around baseboards.
- Clean up food crumbs and spills and put away all food that will attract unwanted insects or animals.
- If you live in an apartment, the landlord or building manager may use pesticides to keep unwanted insects or animals out of the whole building. Talk to the manager of your apartment and ask him if he is using pesticides. If he is, tell him that pesticides can be bad for people, especially children and pregnant women. If he is spraying, ask him to stop, and tell him there are other ways to get rid of unwanted insects and animals. He can call the local public health department to find out other ways to get rid of pests. If he still wants to spray, you can tell him you do not want the spray in your apartment.

- You can also ask him to give you a warning at least 24 hours before he uses the chemicals, so that you and your family can be sure to stay away while he sprays and for some time after.
- If you live in a house or apartment that has too many unwanted insects or animals and you have tried to keep them away but can’t, try to use pesticides that are not so dangerous — like traps (that are contained), or gels that can be put in cracks and crevices — rather than sprays, and keep them out of reach of children and pets.

Don’t Use Pesticides in Your Garden

Choose plants that grow well where you live, (for example, plants that like a lot of water if you live in a rainy place) because they are stronger and keep away insects better.

Learn about plants that like to grow together and help keep pests off each other — they are called “companion” plants.

Learn about helpful insects like ladybugs that can keep away other unwanted insects.

Use safer methods to trap or kill pests, like using beetle traps, or a soap and water spray that smothers insects but doesn’t harm the plant.

You can find more ideas about keeping pests out of your garden in “organic gardening” books in the library, on the Internet, or in a bookstore.

Don’t Use Pesticides on Your Pets

Do not use chemical tick-and-flea collars or flea baths or “dips” on your pets. Keep your pet clean by washing and combing its hair. Keep its bed clean to keep away fleas. There are many good tips on how to keep unwanted insects off your pets on the Internet or at your local library.

Don’t Use Pesticides on Your Child

One of the most common pesticides you might use directly on your child’s body is in shampoo to get rid of head lice. Don’t use toxic shampoos to get rid of head lice. There are ways to help your children avoid catching lice from other children, like telling them not to share hats or pillows in schools and day care centers. If your child does get lice, ask your doctor about non-toxic treatments you can use.

Help Get Rid of Pesticides in Schools

Your child spends many hours a day in school. Talk to your child’s school principal and ask whether the school uses pesticides. If they do, ask them to find other ways to get rid of unwanted insects, animals, and weeds so that pesticides will not harm your child. Ask the school to make sure that you and other parents are told if and when pesticides are used. You may want to keep your child home that day, or tell your child to stay away from the places where the pesticides are being used that day.

In some states, like California, there are laws that require schools to tell parents, if they ask, about pesticides used at school. Many schools are beginning to try other alternatives to pesticides. You can tell your school about some of the groups listed below that can help them think of ways to reduce or stop using pesticides.

Find out more:

- The Northwest Coalition for Alternatives to Pesticides (NCAMP), has on-line fact sheets, links to a national directory of least-toxic pest-control companies, and has programs on pesticide use in schools and public buildings. It also provides information on proposed pesticide legislation. http://www.nwcamp.org/
- Beyond Pesticides, part of the National Coalition against the Misuse of Pesticides (NCAMP), has fact sheets, links to a national directory of least-toxic pest-control companies, and has programs on pesticide use in schools and public buildings. It also provides information on proposed pesticide legislation. http://www.beyondpesticides.org/
- The National Pediculosis Association, Inc. (NPA) is a non-profit health and education agency dedicated to protecting children from head lice. http://www.head-lice.org/
It may be hard to tell if your child has lead poisoning. A blood test is the only way to find out. Ask your doctor to check your child for lead each year, starting at age 6 months and continuing until age 6.

Avoiding lead in your home:

- Make sure the windows in your home are closed and do not let paint peeling. If the paint does have lead in it, it should be carefully taken off or covered up. If it is not done the right way, never sand or remove paint yourself. It can be very expensive to remove lead paint. For more information, visit the website at www.epa.gov/lead.

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Mercury in Thermometers

- Many people still have mercury thermometers. As of July 2002, mercury thermometers will no longer be sold in California due to a new law that passed in 2001. There is a national law that, if passed, may prevent most sales of mercury thermometers in all other states.

Don't throw your mercury thermometer in the trash, because when the trash is disposed of, mercury may end up getting into lakes and streams, and later, into the plants and fish that are in the water. When people eat the fish, they will also eat the mercury in the fish. Instead of throwing away your mercury thermometer, bring it to your town or county "household hazardous waste" disposal site. Some cities or counties have household hazardous waste disposal days when the trash collectors will pick up mercury products on that day.

Many cities and other groups are now collecting mercury thermometers so they can be disposed of safely. Call your County or City Health Department to find out if your community, fire department, or local hospital is planning an exchange, where you can turn in your old mercury thermometer and get a new digital thermometer for free.

Don't vacuum up mercury from a broken thermometer. This is very dangerous. The mercury will be spread around the house in the vacuum exhaust. Sweep it up with a broom, wear gloves and pick it up with tweezers, put the mercury and the gloves in a jar with a top, and bring it to your "household hazardous waste" disposal day. Do not put mercury in the sink, the toilet, or the trash.

Mercury in Fluorescent Lights

- Fluorescent lights that save energy contain mercury. Ask if your town recycles these items (most do not). If not, save them for a "hazardous-waste collection" day if one happens in your community. If you don’t have one in your community, find out where you can take your mercury products to a hazardous waste center.

Mercury in Batteries

- Some batteries (mainly small button batteries) contain mercury. Try to buy batteries with no mercury in them. Recycle those that have mercury with your community recycling, or at stores that recycle batteries.

Mercury in Religious Practices

- Some Latino and Afro-Caribbean traditions, including Santeria, Palo, Voodoo, and Espiritismo use mercury in rituals. It is sometimes worn as an amulet, sprinkled on the floor, added to oil lamps or swallowed. Never use mercury for rituals, it can contaminate your house and make you sick. The mercury for rituals is the same mercury that is in thermometers and light bulbs, and when put in the air, water, and on land can get into the plants and fish we eat. 9

Find out more:

- Health Care Without Harm can provide information on getting rid of mercury, how to exchange mercury thermometers, and how to clean up a broken mercury thermometer. Many of their materials are in several languages. http://www.noham.org
- You can also find out more information about community efforts to remove mercury by contacting Clean Water Fund in your community. http://www.preventingharm.org.

Reducing Risks from Solvents

A solvent is a substance (usually liquid) that is used to dissolve another substance. Solvents can get into the body by breathing, drinking, or through the skin. Solvents can harm the nervous system and brain.

Alcoholic beverages, gasoline, most furniture strippers, glues, adhesives, paint thinners, and some cleaning products and cosmetics contain solvents. Solvents can be in drinking water and can also be absorbed through the skin or inhaled in the shower. Most dry cleaning is done by using a toxic solvent.

Alcohol

- Pregnant women should stay away from alcohol throughout pregnancy and nursing. Since alcohol exposure very early in pregnancy may interfere with the baby’s brain development, it is wise for women to stop drinking alcohol as soon as they begin trying to get pregnant.

Solvents in Products

- Some jobs and hobbies (such as painting, model building, furniture refinishing, and auto repair) may involve exposure to solvents. Pregnant and breast-feeding women should not do these activities, and children should not be exposed. If you must work with solvents, do so only in areas that have a lot of fresh air circulating and avoid skin contact. When possible, use non-toxic, water-based products instead of products that contain solvents.

continued
Protecting Children from Environmental Hazards

Many cleaning and freshening products, including antibacterial soaps, bleach, ammonia, air fresheners, and some cosmetics may contain toxic ingredients. Try not to use them.

Eating more fruits, vegetables, beans, grains, and low-fat or nonfat animal products is healthiest for you and your child.

Eat Foods with Less Animal Fat

Eating foods with less animal fat is important because many harmful chemicals are stored in animal fat. Eating less fat is also good for your general health. Children can start to eat less fat once they are over 2 years of age. Animal fats are in meat, chicken, and fish and are high in many dairy products (especially cheese), processed foods made from ground meat and animal parts such as sausage, bologna, hot dogs, and canned and ground lunch-meats. Try to eat only low-fat animal products, such as nonfat or low-fat milk and cheeses, and lean meat, poultry, and fish. Cut the fat off meat before you cook it.

Eat a healthy diet before and during pregnancy and breast-feeding. That will help to protect your unborn baby or nursing child from harmful chemicals found in animal fat. The best protection of all is to eat foods that are low in toxic chemicals throughout your life.

Use Safer Household Products

Many cleaning and freshening products, including antibacterial soaps, bleach, ammonia, air fresheners, and some cosmetics may contain toxic ingredients. Try not to use them. Instead, try cleaning with basic soap and water that often can do just as good a job. You can make your own cleaning solutions with things like baking soda, soap, and vinegar. The use of scrubbing pads and brushes can also eliminate the need for toxic cleaning products.

Find out more:

Look in the library for books on nontoxic products you can buy, and also ones you can make yourself.

Use Safer Building Materials and Furnishings

Toxic vapors and dust are often present during home remodeling and new construction. Pregnant women and young children should stay away from areas where this work is being done.

Certain types of wood products (plywood, chipboard), carpeting, and furniture may give off harmful vapors (often you can smell them). When possible, choose nontoxic or less-toxic furnishings and building materials, such as solid woods and natural, untreated fabrics.

Solvents in Water

If you have well water, have it tested. If it has solvents in it, don’t drink it. You can buy water filters that will remove solvents from your drinking and shower water. Make sure the filter says “removes organic solvents.”

Dry Cleaning

Women who are pregnant, trying to become pregnant, or nursing should avoid any exposure to dry cleaning, including recently dry-cleaned clothes. Try to buy clothing that does not require dry cleaning. If you must dry clean an item, take off the plastic wrap when you pick it up. Then put the clothes in the car trunk for the drive home. Hang just dry-cleaned clothes outdoors before wearing them or putting them in the closet.

There are alternatives to traditional solvent-based dry cleaning. Wet-cleaning processes that use soap and water are extremely effective. Find out if there is a cleaner near you that uses wet cleaning, or urge your local dry cleaner to switch to safer cleaning methods.

If you live above or near a dry cleaner, a local health or environmental agency should help make sure that you are not exposed to fumes.

Find out more:

EPA Indoor Air Quality Hotline:
(800) 438-4318

EPA Safe Drinking Water Hotline:
(800)426-4791

Healthy Food Can Help

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Breast-Feeding is Best For Your Baby

Both baby formula and breast milk contain toxic chemicals from environmental pollution. However, the good things about breast-feeding are much more important than the dangers of chemicals in breast milk.

General Resources on Children’s Health Protection

Children’s Environmental Health Network A nonprofit organization working to promote a healthy environment, and protect the fetus and the child from environmental health hazards. Publications include: Lead Risk Assessment Form (English and Spanish); Tips For Parents – You Can Prevent Lead Poisoning (English and Spanish). 202-543-4033. http://www.cehn.org

Children’s Health Environmental Coalition (CHEC): A nonprofit organization dedicated to education about environmental toxins that affect children’s health. Go to CHEC’s “HealthElusive”, and find out how to make your home a healthier place. Or sign up for First Steps, a monthly email program for parents-to-be and parents that gives simple steps people can take to minimize toxic chemical risks to the unborn child and baby. 609-252-1915. http://www.chechnet.org/

References


Prevent & Reduce Exposures

Carpets

Carpets hold lots of pollutants, including lead and pesticides. Remove carpets if possible, especially from children’s bedrooms and play areas. Take off your shoes when you enter the house so you don’t bring in pollutants from outdoors.

Natural fiber area rugs are made without chemicals and, unlike wall-to-wall carpets, do not need to be glued with toxic chemicals. Try to buy carpets that do not need to be glued to the floor and that don’t have a chemical smell. Carpets and smaller rugs should be washed frequently to remove pollutants. Avoid using a vacuum unless it has a good filter for fine dust (check the label for “true HEPA” filter), because vacuuming can lift pollutants into the air.

Breast Tobacco

Children whose mothers smoked during pregnancy, or who were exposed to smoke from those around them smoking, are at risk for problems with learning and intelligence. Pregnant women should not smoke or be near others who are smoking.
Todas las sustancias químicas que los niños ingieren, beben y respiran pueden estar en los alimentos, en el agua y en el aire. También están en cosas como las pinturas y los productos de limpieza que se encuentran debajo del fregadero de su cocina o del lavabo de su baño, en el sótano o en la cochera. Los peligros de las sustancias químicas más comunes son mayores para los niños que para los adultos.

Por desgracia, no se sabe con certeza cuánto daño pueden causar muchas de las sustancias químicas más comunes. Sin embargo, sí sabemos que muchas de esas sustancias dañan el cerebro de los niños y de los bebés que aún no han nacido.

Hay cosas que usted puede hacer. A continuación explicamos algunas medidas que puede tomar para crear un ambiente más sano para sus hijos y para el resto de su familia.

¿Por qué para los niños son más peligrosas las sustancias tóxicas?

Los niños no son simplemente “pequeños adultos”. Los niños ingieren más sustancias tóxicas que los adultos dado que, tomando en cuenta su peso y su tamaño, ellos comen, beben y respiran más que los adultos. Los niños viven más cerca del suelo, donde muchas veces se acumulan las sustancias tóxicas. Cuando juegan en el suelo o sobre una alfombra, pueden aspirar las sustancias tóxicas que se encuentran en el polvo. Esas sustancias pueden entrar de algo que se encuentra dentro de la casa (por ejemplo, un producto para limpiar el baño) o de algo que está afuera (por ejemplo, insecticidas que alguien trae para adentro en las suelas de los zapatos). Los niños se meten los dedos y otros objetos en la boca todo el tiempo. Por eso es más fácil que las sustancias tóxicas entren a su cuerpo.

Además, las sustancias químicas son más peligrosas para los niños porque su cerebro y su cuerpo aún están creciendo y cambiando. Los bebés y los niños que entran en contacto con ciertas sustancias tóxicas pueden tener problemas de salud el resto de la vida. Como las sustancias pueden afectar el cerebro, es posible que tengan problemas de aprendizaje y de conducta.
Cómo ayudar a crear un ambiente sano para su niño

Recomendaciones para padres y futuros padres

Cómo disminuir los peligros de los pesticidas

Los pesticidas o insecticidas y los herbicidas (juntos los llamamos pesticidas) son sustancias químicas que sirven para matar o alejar a plagas como ratones, hormigas, cucarachas y mala hierba. Los pesticidas también pueden ser tóxicos para la gente, sobre todo para los niños. Hay muchos tipos diferentes de pesticidas que usamos en el hogar y en el jardín y que les ponemos a nuestros animales.

Evite los pesticidas que se hallan en los alimentos

Muchas veces las frutas y las verduras tienen pesticidas. Los pesticidas se usan para combatir a los insectos y a la mala hierba mientras las frutas y las verduras crecen. Algunas frutas y verduras tienen más pesticidas que otras. Por eso es bueno que le dé muchas frutas y verduras diferentes a sus hijos y que haga lo siguiente:

- Pele o lave las frutas y las verduras. Eso a veces quita los pesticidas que se encuentran en la cáscara o en la piel de las frutas y las verduras.
- Si puede, compre alimentos "orgánicos" que se cultivaron sin pesticidas. (Por desgracia, muchas veces esos alimentos son más caros y no siempre se pueden conseguir.) La compra de alimentos orgánicos también ayuda a apoyar a las personas que cultivan y venden esos alimentos. Con el tiempo, eso ayudará a que los alimentos orgánicos sean más baratos y más fáciles de conseguir.

No use pesticidas en su hogar

No use pesticidas en su casa, en su departamento o en su jardín, a menos que haya probado todas las demás formas de deshacerse de los insectos o los animales no deseados.

- Para que no entren insectos o animales a su casa o a su departamento, selle las grietas y los hoyos que haya alrededor de las puertas, las ventanas y los rodapiés.
- Guarde toda la comida que pueda atraer plagas, recoja las migajas y, si alguien derrama comida o líquidos, límpielos pronto.
- Si vive en un departamento, es posible que el dueño o que el encargado del edificio utilice pesticidas para deshacerse de las plagas en el edificio entero. Hable con el encargado de su departamento y pregúnte si utiliza pesticidas. De ser así, explíquele que los pesticidas pueden ser daninos para la gente, y en especial, para los niños y las mujeres embarazadas. Si rocía sustancias tóxicas en su edificio, pídale que ya no lo haga y explíquele que hay otras formas de deshacerse de las plagas. Puede llamar al departamento local de salud pública para obtener mayor información al respecto. Si a pesar de todo quiere seguir rocicando pesticidas, digále que no quiere que rocie su departamento. También puede pedirle que le advierta por lo menos con 24 horas de anticipación cuando vaya a usar los pesticidas. Así, usted y su familia podrán irse antes de que rocie y no regresen sino hasta después de algún tiempo.

- Si vive en una casa o en un departamento donde hay muchas plagas y no ha podido deshacerse de ellas a pesar de probar diferentes cosas, trate de utilizar pesticidas menos peligrosos. Por ejemplo, en vez de aerosoles use trampas o cebos (que no se esparcen por todo el ambiente) o utilice gel para rellenar las rajaduras y las grietas. Asegúrese de que nada quede al alcance de sus niños o de sus animales.

No use pesticidas en su jardín

- Escoge plantas que crecen bien en la zona donde vive porque así serán más resistentes a los insectos. (Por ejemplo, si vive en un lugar lluvioso, escoge plantas que crecen bien con mucha agua.)
- Entérese de cuáles plantas crecen bien y ayudan a repelerse los insectos–se les conoce como plantas “simbióticas”.
- Infórmese acerca de los insectos beneficiosos (como las catarinas o mariquitas) que pueden ayudar a deshacerse de insectos no deseados.
- Utilice métodos menos peligrosos para atrapar o matar a las plagas. Por ejemplo, ponga trampas para los escarabajos o rocíe las plantas con una mezcla de agua y jabón para ahogar a los insectos sin dañar a las plantas.

No use pesticidas en la escuela

- Hable con el director de la escuela. Pida que la escuela los usa. Tal vez le quiera que su hijo se quede en casa ese día. Si no, pida que se mantenga alejado de los lugares donde vayan a poner los pesticidas ese día.

Ayude a deshacerse de los pesticidas en las escuelas

- Si su niño pasa muchas horas del día en la escuela, hable con el director de la escuela y pregúntele si la escuela utiliza pesticidas. De ser así, pídales que la escuela encuentre otras formas de deshacerse de la mala hierba y de las plagas, para que las pesticidas no dañen a los niños. Pida que la escuela se asegure de avisarle a los padres cuando vayan a utilizar pesticidas (si es que la escuela los usa). Tal vez usted quiera que su hijo se quede en casa ese día.

Cómo disminuir los peligros del plomo

El plomo es un metal que antes se usaba con frecuencia en las pinturas y en las tuberías del agua y en las casas. El plomo aún se utiliza en algunos otros productos. La exposición al plomo puede dañar el cerebro de un niño y puede interferir con el desarrollo normal del niño.
Los niños menores de 6 años corren el mayor riesgo de envenenarse con plomo. Lo hacen poniéndose cosas en la boca que pueden estar contaminadas con polvo de plomo (como sus manos, sus juguetes o sus chupones), comiéndose astillas de pintura a base de plomo y mordisqueando los marcos de las puertas o de las ventanas que tienen pintura a base de plomo. Puede ser difícil darse cuenta si su niño se ha envenenado. La única manera de averiguarlo es mediante un análisis de sangre. Pídale a su médico que le haga el análisis a su niño una vez al año, a partir de los 6 meses de edad y hasta que cumpla 6 años.

Evite el contacto con la pintura a base de plomo
- Si vive en una casa construida antes de 1978, es probable que tenga pintura a base de plomo. Un especialista en pintura a base de plomo deberá analizar la pintura, sobre todo si se está pelando o astillando. Si la pintura contiene plomo, deberá cubrirse o quitarse cuidadosamente. Si la mejor opción es quitar la pintura, deberá hacerlo una persona capacitada que tenga una licencia especial para hacerlo. El proceso de qitar la pintura a base de plomo puede causar aún más problemas si no se lleva a cabo correctamente. Nunca lije o quite usted misma pintura que pueda contener plomo a que pueda tener por abajo pintura con plomo.
- Puede ser muy caro quitar la pintura a base de plomo. En las ciudades hay muchos programas para ayudar a la gente a qitar la pintura con plomo de sus casas. Llame al departamento de salud de su ciudad y pida información.
- Cuando no sea posible qitar la pintura con plomo de una forma segura, será necesario cubrirla o sellarla de forma que el plomo no pueda llegar al aire y al polvo para que sus niños no puedan comérsela o aspirarla. Quizás pueda cubrir las superficies pintadas con mosaico, papel tapiz, entablado o papel autoadhesivo (conocido como contacto paper, en inglés). Tenga cuidado de cubrir cualquier pintura suelta que haya en los marcos de las ventanas. Además, asegúrese de que no estén pintados los marcos interiores de las ventanas. De lo contrario, el polvo de plomo podría desprenderse al correr las ventanas hacia arriba y hacia abajo para abrirlas o cerrarlas.
- Si su casa hay pintura a base de plomo, lávele las manos a sus niños con frecuencia y también lave sus juguetes. Limpie con un trapo o un trapedor húmedo los pisos, los mostradores y otros lugares donde pueda haber polvo con plomo. Si necesita pasar la aspiradora, utilice una especial que filtre el polvo fino (asegúrese de que la etiqueta diga: true HEPA). Nunca utilice una aspiradora cualquiera o una escoba para quitar el polvo con plomo, puesto que podría esparcir el polvo aún más.

Plomo en otros productos
- No compre productos cuya etiqueta indique que contienen plomo o que usted sospeche que contienen plomo. Algunos de los productos que podrían tener polvo son las velas con mechas que contienen plomo, las cazuelas y las ollas con barniz a base de plomo, tientos para el pelo y ciertos lápices labiales. Las persianas angostas de vinilo (mini-blinds, en inglés) fabricadas antes de 1996 pueden contener plomo, que la luz del sol puede liberar al aire. Deshágase de las persianas de vinilo viejas y cubra sus ventanas con otra cosa.
- Puede haber plomo en el agua que toma sin que usted lo sepa, puesto que el plomo no cambia el sabor, el olor o el aspecto del agua. Para su seguridad, deje que el agua salga de la llave 1 ó 2 minutos en la mañana. Así se deshará del agua que pueda contener plomo de las soldaduras de la tubería. Deje que el agua corra hasta que esté lo más fría posible. (Las soldaduras de plomo se usan en las tuberías del agua hasta 1986 y aún se utilizan en las llaves y los enfiadíradores de agua.) También puede usar un filtro de agua que quite el plomo. (Lea la etiqueta antes de comprarlo.) Hervir el agua no quita el plomo. (Lea la etiqueta antes de comprarlo.) Hervir el agua no quita el plomo.

Plomo en la tierra
- Contrae a un especialista para que analice la tierra de su jardín. Si la tierra contiene plomo, no deje que sus niños jueguen allí. Una opción es que cubra la tierra con cemento o con ladrillos. No cultive verduras, hierbas u otros alimentos en la tierra. Si es necesario que cultive sus propias verduras, quite por lo menos una capa de 6 pulgadas de tierra y reemplace ala con nueva tierra limpia (no mezcle la tierra limpia con la tierra contaminada que quede abajo de ella). O simplemente añada una capa de por lo menos 6 pulgadas de tierra sobre la tierra que contenga plomo. Así tendrá macizos más elevados para sus verduras y otras plantas.

Cómo disminuir los peligros del mercurio
El mercurio es un metal que se utiliza en termómetros (y algunos otros instrumentos médicos), en tratamientos dentales, en los focos fluorescentes y en las pilas o baterías. Algunas personas también lo utilizan en ritos religiosos o para realizar experimentos científicos en las escuelas. El mercurio es dañino para el cerebro en desarrollo y puede causar problemas de aprendizaje.

Una de las cosas más importantes que hay que saber acerca del mercurio es que uno nunca debe tirar productos que contengan mercurio con el resto de la basura. Si algo contiene mercurio, debe considerarse como un “descuido peligroso” y debe tirarse en un lugar especial de donde no pueda salir y llegar a la tierra, al agua o al aire.

El mercurio en los alimentos
El mercurio nos entra al cuerpo principalmente cuando comemos pescado. El mercurio se encuentra en la carne-no en la grasa-del pescado. Es peligroso que las mujeres embarazadas y los niños pequeños coman pescado con grandes cantidades de mercurio. Entre ellos, cabe contar los siguientes: pez espada, cazón (tiburón), sierra, llofotátillo, atún fresco y muchos de los peces que viven en ríos y lagos contaminados.

El atún enlatado también contiene algo de mercurio. Los adultos no deben comer más de 7 onzas a la semana (como una lata pequeña) y los niños no deben comer más de 2 onzas a la semana (menos de la tercera parte de una lata pequeña). Si come pescado, escoge variedades que contengan menos mercurio y otros contaminantes, como bacalao, atún y gato.

Las siguientes son otras fuentes de proteína baratas y bajas en grasa: los frijoles, la carne magra de pollo y de pavo, y los huesos sin la yema. Algunos pescados grasos, como el salmón y el arenero, contienen ácidos grasos que son buenos para la salud. Sin embargo, también tienen sustancias tóxicas, como bifenilos policlorados (conocidos por las siglas PCB, en inglés), que pueden ser dañinas para los niños pequeños que contengan mercurio.

El mercurio en otros alimentos con ácidos grasos beneficiosos, como aceite de linaza, frijoles de soya, tofu y nueces de Castilla.

El mercurio en las semillas o aceite de linaza, frijoles de soya, tofu y nueces de Castilla.

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la mayoría de las ventas de termómetros de mercurio en todos los demás estados. Si tiene un termómetro de mercurio no lo tire a la basura. Al deshacérselo de la basura, el mercurio podría ir a dar a lagos y ríos y más tarde a las plantas y a los peces que viven en el agua. Cuando la gente se coma el pescado, también se comerá el mercurio que esté dentro del pescado. En vez de tirar su termómetro de mercurio, llévelo al lugar de su ciudad o de su condado designado para la eliminación de desechos domésticos peligrosos. En algunas ciudades o condados hay días especiales en que los recolectores de basura también recogen productos domésticos peligrosos, entre ellos los productos de mercurio.

Muchas ciudades y otros grupos ahora colectan termómetros de mercurio para poder deshacerse de ellos siguiendo las precauciones debidas. Llame al departamento de salud de su ciudad o de su condado para averiguar si su comunidad, los bomberos o un hospital de la zona está planeando un intercambio de termómetros. De ser así, usted puede llevar su termómetro viejo de mercurio y cambiarlo por un nuevo termómetro digital gratuito.

Nunca limpie el mercurio de un termómetro roto con una aspiradora. Eso es muy peligroso. El escape de la aspiradora esparrague el mercurio por toda la casa. Junte el mercurio con una escoba, póngase guantes y levante el mercurio con unas pinzas. Ponga el mercurio y los guantes en un frasco con tapa y lleve el frasco al lugar especial donde se deshagan de desechos domésticos peligrosos. No ponga mercurio en el lavabo, en el excusado (retrete) o en la basura.

El mercurio en las luces fluorescentes

Las luces fluorescentes que ahorran energía contienen mercurio. Averigüe si hay donde reciclar esas luces donde usted vive (en la mayoría de los lugares no las reciclan). Si no hay maneras de reciclarlas, guárdelas para el día en que los recolectores de basura colecten desechos peligrosos, si hay ese servicio en su comunidad. De lo contrario, averigüe dónde hay un centro de desechos peligrosos para que pueda llevar allí sus productos de mercurio.

El mercurio en las pilas

Algunas pilas o baterías (principalmente las que son pequeñas como botones) contienen mercurio. Trote de comprar pilas que no contengan mercurio. Recicle las pilas que contengan mercurio en el centro de reciclaje de su comunidad o en las tiendas que reciclen pilas.

El mercurio en las ceremonias religiosas

Algunas tradiciones latinoamericanas y afrocaribeñas, entre ellas la santería, el palo monte o palo mayombe; el vudú y el espíritismo, utilizan mercurio en sus ritos. A veces la gente se pone el mercurio como un amuleto, lo rocía en el suelo, lo añade a lámparas de aceite o se lo traga. Nunca use mercurio para los ritos: puede contaminar su hogar y hacer que usted se enferme. El mercurio para los ritos es el mismo mercurio que se encuentra en los termómetros y en los focos; cuando llega al aire, al agua o a la tierra puede ir a dar a las plantas y a los peces que comemos.

Cómo disminuir los peligros de los solventes

Un solvente es una sustancia (generalmente líquida) que se utiliza para disolver otras sustancias. Los solventes pueden entrar al cuerpo a través de la piel o si uno los bebe o los aspira. Los solventes pueden dañar el sistema nervioso y el cerebro.

Las bebidas alcohólicas, la gasolina, la mayoría de las sustancias para quitar el acabado de los muebles, los pegamentos, los adhesivos, los adelgazadores de pintura y algunos productos de limpieza y cosméticos contienen solventes. Puede haber solventes en el agua potable y uno también puede absorber solventes a través de la piel o inhalarlos en la ducha. La mayoría de las tintorerías utilizan solventes tóxicos para limpiar la ropa.

Alcohol

Las mujeres no deben beber alcohol cuando estén embarazadas o dando pecho. El alcohol puede interferir con el desarrollo del cerebro del bebé durante las primeras etapas del embarazo. Por eso es sensato que las mujeres dejen de beber alcohol en cuanto empiecen a tratar de embarazarse.

Solventes en diferentes productos

Algunas personas utilizan solventes en el trabajo o para sus pasatiempos (como pintar, construir modelos, dar acabados nuevos a los muebles o reparar automóviles). Las mujeres que están embarazadas o que están dando pecho no deben hacer esas actividades y es importante no exponer a los niños a ellas. Si es necesario que utilice solventes, hágalo únicamente en zonas donde circule mucho aire fresco y evite el contacto con la piel. Si es posible, use productos solubles en agua, que no sean tóxicos, en vez de productos que contengan solventes.

continúa
Cómo ayudar a crear un ambiente sano para su niño

Los alimentos sanos pueden ayudar a proteger a su niño

Lo más sano, tanto para usted como para su niño, es comer más frutas, verduras, frijoles, granos y productos animales desgrasados o bajos en grasa.

Coma alimentos con menos grasas animales

- Es importante comer alimentos con menos grasas animales porque muchas sustancias dañinas se almacenan en la grasa de los animales. Una dieta baja en grasas también es más saludable en general. Los niños pueden empezar a comer menos grasa a una vez que cumplan 2 años de edad. Las grasas animales se encuentran en la carne, el pollo y el pescado. Los productos de leche (sobre todo el queso) y los embutidos, las salchichas, el chorizo, las carnes frías y las carnes molidas y enlatadas. Trate de comer únicamente productos animales bajos en grasa, como leche y quesos descremados o semi-descremados y carne magra, ya sea de res, pollo o pescado. Quitele la grasa a la carne antes de cocerla. Es importante comer alimentos con menos grasas animales porque muchas sustancias dañinas se almacenan en la grasa de los animales.

Lavado en seco

- Las mujeres que están embarazadas, que están tratando de embarazarse o que están dando el pecho no deben exponerse al lavado en seco; entre otras cosas, no deben ponerse ropa que apenas hayan traído de la tintorería. Trate de comprar ropa que no tenga que lavarse en seco. Si tiene prendas que necesiten lavarse en seco, quiteles la envoltura de plástico en cuanto les saque de la tintorería. Llévelas a casa en la cajuela de su auto. Luego cuegáelas al aire un rato antes de ponérselas o de guardarlas en su armario. Hay alternativas al lavado en seco tradicional que se lleva a cabo con solventes. Hay procesos que utilizan agua y jabón, que son muy eficaces. Averigüe si hay una tintorería cerca de donde vive que lave la ropa con agua y detergente que sea más saludable para la piel. Los productos de leche (sobre todo el queso) y las carnes molidas y enlatadas. Trate de comer únicamente productos animales de menos grasas animales porque muchas sustancias dañinas se almacenan en la grasa de los animales.

Es importante comer alimentos con menos grasas animales porque muchas sustancias dañinas se almacenan en la grasa de los animales.

El plástico y algunas sustancias químicas que se le añaden al plástico para que sea más resistente o para que se estire pueden ir a dar a los alimentos almacenados en los envases. Algunas de las sustancias pueden ser tóxicas para un bebé que aun no ha nacido. Estas sustancias químicas pueden ser particularmente dañinas para los órganos reproductivos del bebé en desarrollo. No guarde alimentos en envolturas de plástico. No ponga los alimentos en envolturas o plástico cuando vaya a cocerlos o limpiarlos en un horno de microondas.

Utilice productos menos tóxicos en el hogar

- Muchos productos para limpiar y "refrescar" el hogar, entre ellos los jabones antibacterianos, el cloro, la amonia, los desodorantes ambientales y algunos cosméticos, contienen ingredientes tóxicos. Trate de no usarlos. Mejor, trate de llevar a cabo la limpieza simplemente con agua y jabón. Generalmente se obtienen los mismos resultados. Usted puede hacer sus propios productos de limpieza con bicarbonato de sodio, jabón, vinagre y otras cosas parecidas. Además, es posible que no necesite utilizar productos tóxicos para la limpieza si usa escobetas, cepillos o fibras para fregar.

Utilice materiales de construcción y muebles menos tóxicos

- Con frecuencia, al remodelar una casa o construir una nueva, hay polvo y vapores tóxicos en la zona del proyecto. Las mujeres
embarazadas y los niños pequeños deben alejarse de las áreas en construcción.

- Ciertos tipos de productos de madera (como los tableros de partículas y la madera laminada o tripli) y ciertas clases de alfombras y de muebles pueden soltar vapores dañinos. Muchas veces es posible oler los vapores. Si puede, quite las alfombras, sobre todo las de las recámaras de los niños y las de los lugares donde ellos juegan. Quitése los zapatos cuando entre a la casa para que no traiga adentro los contaminantes de afuera.

Si desea tener alfombras, es mejor que tenga las que sólo cubren una parte del piso y que se fabricen con fibras naturales sin utilizar sustancias tóxicas. Trate de comprar alfombras que no necesiten pegarse al suelo y que no huelan a sustancias químicas.

Hay que lavar las alfombras y los tapetes con frecuencia para quitarles los contaminantes. No utilice una aspiradora a menos que tenga un buen filtro para el polvo fino (revise que la etiqueta diga true HEPA filter).

El amamantamiento es la mejor forma de alimentar a su bebé

Tanto la "fórmula" para bebés como la leche de pecho contienen sustancias tóxicas que vienen de la contaminación ambiental. Sin embargo, el beneficio del amamantamiento es mucho mayor que el peligro de las sustancias tóxicas en la leche de pecho.

Tomando en cuenta toda la información que tenemos, el amamantamiento sigue siendo la mejor forma de alimentar a su bebé.

- Le recomendamos que amamante a su bebé por lo menos un año. Al parecer, los bebés que toman leche de pecho son más sanos que los bebes que toman "fórmula". Además, parece ser que esos niños también son más sanos cuando ya son más grandes.

- Las mamás que amamantan a sus bebés adelagan más rápidamente. El amamantamiento ayuda a las madres a tener huelos más fuertes. Eso disminuye la probabilidad de que se rompa la cadera cuando sean ya mayores.

- La leche de pecho puede ser más sana si la madre o la futura madre come menos grasas animales y evita comer pescado que contenga mercurio. Siga las recomendaciones de la sección sobre los alimentos sanos.

Para mayor información sobre el amamantamiento, vea la hoja informativa: “Por que el amamantamiento sigue siendo mejor para los bebés”.

Evite el tabaco

Los niños cuyas madres fumaron o aspiraron el humo de otros fumadores—durante el embarazo, corren peligro de tener problemas de aprendizaje e inteligencia. Las mujeres embarazadas no deben fumar ni estar cerca de otras personas que estén fumando.

Esta hoja informativa explica lo que pueden hacer las personas a nivel individual. No trata las acciones comunitarias y políticas que son necesarias para establecer normas públicas para informa-

Referencias

Great Boston Physicians for Social Responsibility
Otazo del 2002
pagina 6
This fact sheet provides women, their families, and their health care providers with a summary of current scientific evidence that shows that even in a polluted world, breast is best.

Each of us wants to help our babies be as healthy as possible. One way to do that is to breast-feed your baby. Doctors agree that breast milk is the best food for your child.

You may have heard that pollution can make its way into the breast milk of nursing mothers. Does that mean that it is better to feed formula to your baby than to breast-feed?

The answer is NO! Breast milk is still by far the best food for your baby.

Summary

- Breast-feeding is still the best way a mother can feed her baby.
- Breast-feeding is healthier than formula bottle-feeding for both babies and mothers.
- Both baby formula and breast milk may contain chemicals that may be harmful. However, the good things about breast-feeding outweigh any risks from pollution that may have made its way into breast milk.
- Mothers and mothers-to-be can make their breast milk safer by eating less animal fat. Animal fat is found in foods like cheese, meat and fish. It is even better if the woman starts eating less animal fat a long time before she gets pregnant.
- Not making or using harmful chemicals in our environment is the best way to protect mothers and babies from the bad effects of harmful chemicals.

Greater Boston Physicians for Social Responsibility

Update Fall 2002
Why Breast-Feeding is Still Best for Baby

With all the concern about chemicals in breast milk, should women breast-feed their babies?

Yes. While we do not like to have chemicals in breast milk, studies do not find any increase in health risks for your baby from typical levels of chemicals in breast milk. However, studies do show that babies fed bottle formula may get sick more often than babies who are breast-fed. Breast-feeding provides special benefits for both babies and mothers. The American Academy of Pediatrics says that breast milk is the best food of all for your baby.

What are some of the good things about breast-feeding?

Breast-feeding reduces the chance that your baby will get many different diseases. Breast-fed babies are less likely to get pneumonia, diarrhea, ear infections, and some other infections caused by germs. And, if your baby does get sick, the sickness will probably not be as bad if your baby is breast-fed.

Breast-feeding also helps the baby’s brain grow properly, and reduces the chance that she will develop asthma, cancer, diabetes, or become overweight. Breast-feeding for longer periods of time (pediatricians suggest at least one year) seems to be even better. Breast-feeding also helps mother and baby feel closer and more loving.

Breast-feeding is good for mothers, too.

Breast-feeding is also good for the health of mothers. These good things include less bleeding after the birth, a faster return to pre-pregnancy weight, better bone strength, fewer hip fractures in later life, and less chance of getting ovarian and breast cancers when she is young (still getting her period).

How do the chemicals in breast milk affect a baby’s health?

Chemical exposures to a baby still growing in the mother’s womb are known to be bad, but common exposures through breast-feeding have not been shown to cause harm to the baby. This may be because the baby is stronger after she is born vs. still in the womb, or because breast milk helps protect the baby in other ways.

While chemicals in breast milk do not seem to cause harm, breast milk with high amounts of chemicals can reduce some of the good things about breast-feeding. Large amounts of chemicals called PCBs, for example, seem to reduce the resistance to infection that comes with breast-feeding. As a result, babies who take breast milk with very high PCB levels may get sick as much as formula-fed babies.

Baby formula can contain chemicals, too.

In addition to increasing risks for some health problems, formulas also may contain harmful chemicals like pesticides (which are used to kill insects). Formula is also high in a metal called “manganese” (10-50 times more than breast milk). This may be bad because too much manganese may affect behavior and attention in children. Manganese levels are highest in supplemented and soy-based formulas.

Women can make their breast milk even safer.

A low-fat diet is best from childhood through adulthood. Because many chemicals collect in animal fat, it is a good idea for women to eat less animal fat beginning after two years of age. This decreases the build-up of harmful chemicals in the body. That in turn reduces the amount of chemicals in breast milk. Even more important, eating less animal fat decreases the unborn baby’s exposure to chemicals in mother’s body that may be harmful.

To reduce animal fat, eat fewer animal products in general, and choose nonfat or low-fat animal foods such as skimmed milk and lean poultry, beef, and fish. It is especially helpful to avoid processed foods made from ground meat and animal parts such as sausage, bologna, hot dogs, and canned, ground lunchmeats. Eating more fruits, vegetables, beans, grains, and low-fat or nonfat animal products gives you good nutrition and reduces the level of toxic chemicals in the body.

Reduce or End the Production of Harmful Chemicals

Many toxic chemicals that make their way into food last for years in the environment and build up in the body. Other harmful chemicals in products and the environment do not last as long, but are also dangerous because they can pass easily from a mother’s body to her unborn baby or nursing infant.

As long as our society produces and uses chemicals like these, we cause pollution in the environment, our food, and our bodies. The best way to keep breast-feeding safe, protect the health of babies in the womb, and offer children the healthy start they deserve is to reduce or stop the creation and use of harmful chemicals.
Esta hoja informativa les proporciona a las mujeres, a sus familias y a los profesionales de salud un resumen de los datos científicos actuales que demuestran que, incluso en un mundo contaminado, el amamantamiento es la mejor forma de alimentar a los bebés.

Todo queremos ayudar a nuestros bebés a ser lo más sanos que sea posible. Una manera de lograrlo es mediante el amamantamiento. Los médicos están de acuerdo en que la leche de pecho es el mejor alimento para los bebés. Quizás usted haya oído que los contaminantes que se encuentran en el ambiente pueden llegar a la leche de pecho. ¿Significa eso que es mejor darle fórmula (leche artificial enlatada) a su bebé en vez de amamantarlo? ¡La respuesta es que NO! La leche de pecho sigue siendo absolutamente el mejor alimento para su bebé.

**Resumen**

- El amamantamiento sigue siendo la mejor forma en que una madre puede alimentar a su bebé.
- El amamantamiento es más sano que la alimentación con fórmula y biberones, no sólo para los bebés sino también para las madres.
- Tanto la fórmula como la leche de pecho pueden contener sustancias químicas que podrían ser dañinas. No obstante, las ventajas del amamantamiento son mayores que los riesgos de los contaminantes que puedan encontrarse en la leche de pecho.
- La leche de pecho puede ser más sana si la madre o la futura madre come menos grasas animales. Las grasas animales se encuentran en alimentos como el queso, las carnes y el pescado. Es aún mejor que la mujer empiece a comer menos grasas animales mucho antes de que se embarace.
- Para proteger a las madres y a los bebés contra los efectos dañinos de las sustancias químicas tóxicas, la mejor solución es no fabricar o utilizar esas sustancias.

**Fuera de peligro:**

**Cómo proteger a los niños contra los peligros de las sustancias tóxicas**

**Por qué el amamantamiento sigue siendo mejor para los bebés**

Greater Boston Physicians for Social Responsibility

Actualización: Otoño del 2002
Fuera de peligro: Cómo proteger a los niños contra los peligros de las sustancias tóxicas

Por qué el amamantamiento sigue siendo mejor para los bebés

¿Es bueno que las madres amamanten a sus bebés a pesar de todas las inquietudes que hay sobre las sustancias químicas que se encuentran en la leche de pecho?

Sí. No nos agrada que haya sustancias químicas en la leche de pecho. Sin embargo, según las investigaciones que se han llevado a cabo, el nivel típico de contaminación de la leche de pecho no aumenta los riesgos para la salud de los bebes. Por otro lado, las investigaciones sí han demostrado que los bebés alimentados con fórmula pueden enfermarse más seguido que los bebés que toman leche de pecho. El amamantamiento no sólo les proporciona beneficios especiales a los bebés sino también a las madres. La Academia Americana de Pediatría ha declarado que, para su bebé, la leche de pecho es el mejor alimento de todos.

¿Cuáles son algunas de las ventajas del amamantamiento?

La Academia Americana de Pediatría ha declarado que, para su bebé, la leche de pecho es el mejor alimento de todos.

El amamantamiento disminuye la probabilidad de que a su bebé le den diferentes enfermedades. Los bebés que son amamantados corren un menor riesgo de padecer pulmonía, diarrea, infecciones del oído y otras infecciones causadas por microbios. Y aunque su bebé se enferme, si usted acostumbra amamantarlo, la enfermedad probablemente será más leve.

El amamantamiento también ayuda a que el cerebro del bebé se desarrolle bien. Además, disminuye la probabilidad de que, con el tiempo, al niño le dé asma, cáncer o diabetes y de que él se vuelva gordo. Al parecer, el amamantamiento es aún más provechoso si se lleva a cabo por más tiempo. (Los pediatras sugieren amamantar a los bebés por lo menos un año.) El amamantamiento también ayuda a que se forje un lazo más estrecho y cariñoso entre la madre y el bebé.

El amamantamiento también es provechoso para las madres.

El amamantamiento también es bueno para la salud de la madre. Éstas son algunas de las ventajas para ella: menos sangrado después del parto, un retorno más rápido al peso que tenía antes del embarazo, huesos más fuertes, menor probabilidad de que se fracture la cadera cuando ya sea mayor y menor riesgo de que padezca cáncer de ovario o de mama (seno) cuando aún sea joven (cuando aún esté teniendo la regla).

¿Qué efecto tienen las sustancias químicas de la leche de pecho sobre la salud del bebé?

Se sabe que es dañino que el bebé sea expuesto a sustancias químicas mientras aún está en el vientre de la madre. Sin embargo, no se ha demostrado que el tipo de exposición que ocurre normalmente mediante la leche de pecho sea dañina para el bebé. Tal vez eso se deba a que el bebé tiene más resistencia después de nacer o quizás se deba a que la leche de pecho ayuda a proteger al bebé de otras formas.

Mientras que las sustancias químicas en la leche de pecho no parecen hacer daño, la leche de pecho con grandes cantidades de sustancias químicas sí puede disminuir algunos de los beneficios del amamantamiento. Por ejemplo, las grandes cantidades de las sustancias llamadas bifenilos policlorados (conocidos por las siglas PCB, en inglés) parecen disminuir la resistencia a las infecciones proporcionada por el amamantamiento. Por lo tanto, es posible...
que los bebés que toman leche de pecho con niveles altos de bifenilos policlorados se enfermen tanto como los bebés alimentados con fórmula.

**La fórmula para bebés también puede contener sustancias químicas.**

Además de aumentar el peligro de los bebés de sufrir ciertos problemas de salud, las fórmulas también pueden contener sustancias químicas dañinas, como plaguicidas. Ésas son sustancias que se usan para matar insectos. Las fórmulas también son ricas en un metal llamado manganeso. Contienen de 10 a 50 veces más manganeso que la leche de pecho. Eso puede ser perjudicial porque el exceso de manganeso puede afectar el comportamiento y el poder de concentración de los niños. Los niveles de manganeso son más altos en las fórmulas hechas de soja (soja) y en las que se conocen como *supplemented formulas* en inglés.

**Las mujeres pueden hacer que la leche de pecho sea aún más sana.**

Una dieta baja en grasas es la mejor opción a partir de la niñez y a lo largo de la edad adulta. Muchas sustancias químicas se acumulan en las grasas animales. Por eso, es una buena idea que las mujeres empiecen a consumir menos grasas animales a partir de los dos años de edad. Eso disminuye la acumulación de sustancias químicas dañinas en el cuerpo. A su vez, eso disminuye la cantidad de sustancias químicas en la leche de pecho. Además, lo que es aún más importante es que se reduce la exposición del bebé que aún está en el vientre de la madre a las sustancias químicas que ella tiene en el cuerpo y que podrían ser dañinas.

Para reducir el consumo de grasas animales, coma menos productos animales en general y seleccione productos animales desgrasados o bajos en grasas. Algunos ejemplos son la leche...
Hay que disminuir o detener la producción de sustancias químicas dañinas.

Muchas de las sustancias tóxicas que llegan a los alimentos permanecen en el ambiente por años y se acumulan en el cuerpo. Otras sustancias tóxicas que se encuentran en diferentes productos y en el medio ambiente no duran tanto tiempo. Sin embargo, también son peligrosas puesto que pueden pasar fácilmente del cuerpo de la madre al bebé que aún no nace o al bebé que toma leche de pecho.

Siempre y cuando nuestra sociedad siga fabricando y utilizando ese tipo de sustancias químicas, seguiremos contaminando el medio ambiente, los alimentos y nuestros cuerpos. Para que el amamantamiento siga siendo sano y para que podamos proteger la salud de los bebés que aún no nacen y ofrecerles a los niños el comienzo sano que se merecen, debemos disminuir o detener por completo la fabricación y el uso de sustancias tóxicas.
Your patients are exposed regularly to a wide variety of household and environmental chemicals - in the food they eat, the water they drink and the air they breathe. Many of these chemicals, such as lead, mercury, PCBs (polychlorinated biphenyls), dioxin, pesticides, and solvents are known neurotoxicants. Exposures to these chemicals during critical periods of early brain development can have life-long adverse effects and contribute to learning, behavioral and developmental disabilities. Health care providers can help prevent unnecessary risks to child development by offering simple, common sense guidelines for reducing potentially harmful exposures to known and suspected developmental neurotoxicants. This fact sheet provides busy clinicians with essential information on key toxicants and their effects. It also provides suggestions for routine patient advice and a strategy to help patients identify and reduce potentially harmful exposures.

Greater Boston Physicians for Social Responsibility    April 2001
Taking an Environmental History

Frequently Asked Questions from Providers

Q: Do I need to be an expert in environmental health to take an environmental history?
A: No, many of the routine questions and advice regarding the environment and exposures to toxic chemicals are common sense. For example, an introductory question to a pregnant woman about workplace exposures might ask if there are any persistent, strong odors that might indicate chemical use nearby, from a copy machine or a manufacturing operation, for example. If the answer is yes, the provider can suggest ways to further identify the source of the odor, such as inquiring about previous air monitoring tests at the facility. Employees can also request Material Safety Data Sheets (MSDSs). These describe the toxic chemicals used in a workplace, and, by law, must be provided to employees upon request. Even if such information is not available, as is often the case, the provider can help the patient strategize about how to avoid the exposure. For example, a woman who works near a copy machine might move her desk to another room or near a window or vent. Inquiring about exposures and exploring ways to reduce them can and should be a patient-sensitive, supportive discussion.

Q: How much time does an environmental history take?
A: Most environmental questions can be easily incorporated into a standard history. You don’t really need to factor in a lot more time for this.

Q: What if I can’t answer the questions the patient asks?
A: Again, most routine advice is common sense, such as suggesting a person use personal protective devices (such as mask or gloves) to avoid chemical exposure during hobby work, limit intake of fatty foods (high in PCBs and dioxins), or ensure that children are not exposed to lead paint. In many cases, there is no one “right way” to reduce an exposure, but rather a variety of options from which the patient can choose. Basic provider responses may be drawn from “Creating a Healthy Environment for Your Child’s Development.” More detailed information is available from the references provided in the accompanying resource list. Occasionally, patients may be identified with unavoidable exposures of concern that warrant further work up and/or referral.

Suggested Routine Questions to Ask Patients

Clinicians without expertise in environmental and occupational health can screen for exposures of concern and provide common sense responses to most identified exposures. Environmental questions are readily incorporated into a standard history. “CH2OP” provides a framework for inquiring about potentially harmful exposures, (Community, Home/Hobbies, Occupational, Personal, for children, school should also be included). The questions below address each of these areas. Providers can select areas of inquiry that are relevant to a particular patient.

- What is your occupation? What are your hobbies? Do you know if you are exposed at work, home or school to any of these substances of concern: glues, strong cleaning/degreasing agents, paint strippers, paint, varnishes, sealants, art materials, gasoline (likely to contain solvents) fumes, vapors, dusts, strong odors (solvents, metals, particulates) pesticides lead, mercury (metals) (A patient may need to collect information from an employer about chemicals used at work and report back. Positive responses will require follow-up inquiry about use of personal protective equipment and availability of workplace monitoring results.)
- What are the occupation and hobbies of your spouse or others in the home? (Toxics can be brought home on clothing.)
- Dietary questions—What are your sources of protein? How much/what kind of fish do you eat? Do you take vitamins, or herbal supplements? Do you tend to eat foods high in animal fat (fast food, ice cream, cheese, whole milk, fatty meats and/or fish)? Do you smoke, or use alcohol or drugs? (Usually covered in the general history.)
- Was your house built before 1978? If so, has it been tested for lead paint? If your home does have lead paint, is it flaking? Do you grow your own vegetables? (Lead uptake from soil is highest for root crops, then stem crops followed by leafy vegetables, which have the lowest uptake.)
- Do you know of any hazardous waste sites, facilities of concern (auto repair shops, dry cleaners) or major industrial emissions in your neighborhood? Are there any chemical odors at home or common in the community?
- What is the source of your drinking water? If it is municipal, do you have a recent water quality report? If it is a private well, has the water been tested?
- What type of personal care/cosmetic products do you or your children use? (some contain lead/mercury/solvents—see next page)
- Do you have a mercury fever thermometer in the house? (If yes, advise the patient to consider exchanging it for a digital one.)

Sample Advice

The Risks of Eating Tuna During Pregnancy

The Environmental Protection Agency, the Food and Drug Administration and the National Academy of Sciences agree that fetal exposures to mercury can cause lasting impairment of language, attention and memory. In order to protect the developing brain of the fetus, pregnant women should be counselled not to eat fish known to be high in mercury such as swordfish, shark, king mackerel, tilefish, fresh tuna, and many freshwater fish (over 40 states have posted freshwater fish advisories). They should also limit consumption of other fish containing lower but significant levels of mercury, such as canned tuna, which should be limited to less than 7oz./week (about 1 small can).

Some women rely on canned tuna as a low-cost, convenient source of high-quality protein. It is therefore important to suggest affordable alternatives, such as beans, lean chicken and turkey, and eggs (removing part/all of the yolk). More expensive high-quality protein sources include fresh fish such as cod, haddock and pollock.

Key Points

Developmental Health Outcomes

- Nearly 12 million children (17%) in the U.S. under age 18 suffer from one or more learning, behavioral or developmental disabilities.
- Neurologists are increasingly concerned that degenerative neurological diseases that develop in later adult life may be associated with much earlier exposure to neurotoxic chemicals. For example, most cases of Parkinson’s disease are not explained by genetic factors. Several studies show an association of Parkinson’s with pesticide exposure.
Routine Advice for Patients

Products to Avoid

Pesticides

Many pesticides commonly used in the home, garden, and on pets are neurotoxic. Pesticides are also contained in some head lice treatments. ADVICE: Explore non-chemical alternatives to pesticides for home, garden and pets. If pesticide use is absolutely necessary, use the least toxic alternative. Pregnant women and children should leave and not return until treatment is complete and the house well ventilated. Baits and crack and crevice treatment are preferable to liquids, sprays, powders and dusts. Keep all pesticides out of reach of children and pets. Ask your veterinarian for non-pesticide alternatives for treating fleas and ticks on pets. Head lice can be effectively treated with naltrexone and do not require the use of potentially neurotoxic pesticides. For information on how to treat head lice without chemicals, see, for example, http://www.pesticide.org/factsheets.html#alternatives.

Plastics

Some plastics contain chemicals that may be toxic to the developing fetus. The developing reproductive system is particularly vulnerable. Chemicals in plastic containers and wraps can leach into food products. Plastics that end up in the waste stream can contribute to air pollution and ground contamination. ADVICE: Food should not be stored or microwaved in plastic containers or wraps. Ceramic, glass or paper products should be substituted whenever possible.

Dietary Advice

Eating more beans, grains, fruits, vegetables, and low-fat animal products provides high-quality nutrition and reduces body burdens of toxic chemicals. Since many neurotoxic chemicals concentrate in animal fat, and build up in the body over years or even decades, it is best to reduce animal fat intake beginning in early life (after 2 years of age). To reduce animal fat, eat fewer animal products in general, and/or choose nonfat or low-fat varieties of animal foods such as skimmed milk and cheese, and lean poultry, beef and fish. It is especially helpful to avoid processed foods made from ground meat and animal parts such as sausage, bologna, hot dogs, and canned, ground lunch-meats which are very high in animal fats.

1. Mercury / Fish

Fish is the major dietary source of mercury, which is stored in fish muscle. ADVICE: Pregnant women, women of reproductive age, and young children should avoid high-mercury fish including swordfish, shark, king mackerel, tilefish, fresh tuna, and fresh water fish in contaminated regions commonly found throughout the US. (See state advisories www.epa.gov/ost/fish). Canned tuna has moderate mercury levels and should be limited to less than 7 oz./week, (about 1 small can). To meet

Windows of Vulnerability

- Normal brain development depends on an integrated, carefully timed sequence of events. Even temporary disruption of any stage of this process can cause lifelong disabilities.
- Brain development is particularly susceptible to disruption by even low-level exposures to neurotoxins during windows of vulnerability, which occur throughout fetal life, infancy, childhood and adolescence.

Childhood Exposures

- Pound for pound, children often have higher exposures to toxic chemicals than adults because they eat, drink and breathe more per unit of body weight, due to their faster metabolism. This increases exposure to contaminants in air, food and water. They live closer to floor level, where indoor toxins can concentrate.
- During puberty/adolescence, the brain is still developing. In addition, chemicals that bioaccumulate during this time can later be passed to the fetus during pregnancy, and to the infant during breast-feeding. Therefore, reducing toxic exposures can benefit both current and future generations.
- A metabolite of one of the most commonly used organophosphate pesticides is present in the urine of over 80% of adults and 90% of children from population samples.
- Over a million children in the U.S. exceed the currently accepted threshold for blood lead level exposure that affects I.Q.

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Routine Advice continued

EFCC's mercury exposure guidelines, maximum tuna consumption can be calculated by the formula: maximum tuna (in ounces/week)=person's weight/20. For example, a child weighing 40 pounds can consume 2 oz. (about 2 level tablespoons) per week. Low mercury fish, such as cod, haddock and pollock provide healthy alternatives. Some fatty ocean fish also have low mercury levels, but may contain relatively high levels of PCBs. Pending further testing, frequent consumption of high fat fish (salmon, herring, sardines) may not be advisable.

2. Dioxin, PCBs
Fatty meats (beef, pork, poultry, fish) and dairy products are responsible for over 95% of human exposure to dioxin and polychlorinated biphenyls (PCBs). ADVICE: Eat lower on the food chain (more vegetables, fruits, grains, beans); choose low or non-fat animal products (lean beef, fish, poultry; minimizes high fat cheese; drink low-fat or skimmed milk.) See dietary advice above.

3. Lead
Bioaccumulated lead stored in bones can re-mobilize during pregnancy. ADVICE: During gestation and lactation, pregnant women and nursing mothers should maintain sufficient calcium intake to reduce mobilization of bone lead.

4. Manganese
Infant formulas contain 10-50 times as much manganese as breast milk, with the largest amounts present in soy formulas. Although some dietary manganese is essential, excessive amounts can be harmful. ADVICE: Breast-feeding is best.

5. Pesticides
Many foods contain pesticide residues. ADVICE: Peeling and/or washing can remove some surface residues. Buy organic fruits and vegetables if possible. Eat a diverse array of fruits and vegetables to provide a variety of nutrients and to avoid high exposure to pesticides on any one type of fruit or vegetable.

6. Alcohol
ADVICE: Avoid alcohol beverages while trying to conceive, throughout pregnancy and while breast-feeding.

Habits

Smoking

ADVICE: Pregnant women should not smoke or be near others who are smoking.

Drugs

ADVICE: During pregnancy avoid drug use. Use pharmaceuticals only if advised to do so by a health care professional.

Resources


Pregnancy/Environmental Hotlines: Organization of Teratology and Information Services - http://www.otispregnancy.org/ for state hot line numbers.

Association of Occupational and Environmental Clinics : 202-347-4976 http://www.aoc.org – Provides list of clinics and specialists around the country and has an extensive lending library including case studies.

References for Key Points can be found in the report In Harm's Way: Toxic Threats to Child Development, GBPSR, May 2000. The report can be downloaded for free or ordered at http://www.icr.org/psc.

References for Routine Advice to Patients can be found in Generations at Risk: Reproductive Health and the Environment, MIT Press, 1999.

Authors Ted Schettler MD MPH, Gina Solomon MD MPH, Maria Valenti and Annette Huddle MES, and "Creating a Healthy Environment for Your Child's Development," GBPSR, 2001 (a companion fact sheet in the In Harm’s Way series).

This fact sheet has been written as a companion to the report In Harm's Way: Toxic Threats to Child Development, issued by Greater Boston Physicians for Social Responsibility (GBPSR) in May, 2000. The 140-page report can be viewed, downloaded, or ordered at http://www.icr.org/psc. It is part of a series of fact sheets developed by GBPSR in collaboration with the JSI Center for Environmental Health Studies, for the project In Harm's Way Training Materials for Health Professionals. For more information on this and other fact sheets in the series, contact: Greater Boston Physicians for Social Responsibility, 11 Garden St., Cambridge, MA 02138. 617-497-7440, pomabo@icf.org.

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# Community Support & Collaboration

## Time

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## Objectives

By the end of this session, participants will:

- Identify challenges they face in helping farmworker families
- Identify their own agency's resources and those of other agencies
- Understand how and why to create formal agreements of collaboration

## Method of Instruction

- Whole group discussion
- Hands-on activity

## Supplies

- White board with markers
- Poster paper (either with a stand or with a sticky back)
- Markers – enough for each person in the room

## Set Up

**Before Training:**

- Prepare 6-8 pieces of poster paper for the Resources section. Each piece should be turned so the orientation is landscape (shorter height, longer width). On each, with markers create 3 columns divided into: *My Agency, Resources We Have/Know About, and Resources We Need.*

**Room Prep:**

- Ensure the room allows participants to get up and move around to the poster papers hanging around the room.

## Participant Materials

- POLICY PAGES (page 5.149)
- ENVIRONMENTAL HEALTH RESOURCES (page 5.151)
- Copy of COLLABORATION PLANNER (includes sample MOU, page 5.163)
Discussion (10 MIN.)
This section provides an opportunity for participants to share challenges they have faced or are facing to help farmworker families prevent and reduce exposure. This discussion lends itself to finding solutions which are then explored in the sections Resources and Collaboration which follow.

STEPS
1. Remind participants to continue filling out their FACILITATION CHECKLIST (page 2.19) and to observe this session both as a student and a trainer-to-be.
2. State that in the last session, Prevent & Reduce Exposures, many methods were shared regarding ways to help families keep their children safe. Recognize that even with such methods, there are still often challenges to this.
3. Ask participants what challenges they have experienced in helping farmworker families prevent and reduce exposure for their children. Write their comments on the poster paper.
4. Ask participants how they overcome such challenges. Write their comments on the poster paper or white board. If needed, guide participants to understand that two common ways to overcome challenges are with resources and collaboration.

Resources (15 MIN.)
Resources are one of the best ways for outreach workers to overcome challenges such as those just mentioned. Here participants will explore what resources exist, ways they can be shared, and what types are lacking.

STEPS
1. Ask participants to share what they consider to be resources. As needed, help them understand that resources can be many things, such as services, money, resource directories, space, equipment and supplies, staff knowledge, staff support, educational materials, child care services, etc.
2. Refer participants to the 6 (or more) pieces of pre-prepared poster paper hanging around the room.
3. Ask participants to get up and go to any of the papers (described in Set Up: Before Training) hanging around the room and fill them out according to their agency’s resources and resource needs as related to pediatric environmental health. Request that participants be brief and list only 1-3 resources.
4. Once participants have finished, ask the group to help you match resources with resource needs across agencies based on what is written on the poster paper. For example, if one agency’s need is a list of advocacy groups that can assist farmworkers when exposed to environmental toxins, match this with another agency who has stated they have a comprehensive resource directory of such services.
5. When an agency’s resource need has no match with another agency, ask participants if they know of additional resources or ways to help with that need. For example, if the need is related to policy change, perhaps there is a grant that would enable the community to influence policy that will help protect children from harmful chemicals. Ask them to refer to POLICY PAGES (page 5.149) located in their binders and explain that they can refer to this for policy related questions and to better understand how policy is impacting this issue. Additionally, refer participants to ENVIRONMENTAL HEALTH RESOURCES (page 5.151) and state that this is another resource that participants can utilize for resource solutions.

6. When completed, suggest that agencies that matched resources with other agencies connect with each other after today’s training or at some point in the future to share their matches.

Collaboration (20 MIN.)

Please note: this activity can be adapted to accommodate participants from one organization. Consider asking participants to brainstorm their individual organization’s needs and community resources to help them address their needs.

This section provides participants with tools to determine inter-agency collaboration opportunities and the resources needed to do so.

STEPS

1. Transition by telling participants that with an understanding of organizational resources it becomes easier to see potential ways to collaborate. Recognize that collaboration is one of the most common and effectively utilized methods by outreach workers and it is therefore not a new idea for them. Outreach workers are skilled at bringing agencies together – whether to help one client or a whole community – in order to address barriers for farmworker families.

2. State that this section is to help the participants formalize what they are already doing with forging collaborative relationships with community stakeholders. Encourage participants to continue building informal collaborations as well but to also know how to formalize a working relationship. Recognize that some participants in the room may already be involved in formal collaborations, while others may not.

3. Ask participants:
   • What are formal collaborations?
   • What are the benefits of formal collaborations and agreements? Why would such relationships benefit both health centers and Head Start?
   • How do you establish collaborations? Who needs to be present to establish a collaboration?
4. Write their comments on the white board or on poster paper. Provide guidance (if needed), such as:

- Formal collaborations are official commitments between agencies to work together to achieve common goals.
- Formal collaborations avoid duplication of effort, allow agencies to share resources, and are mutually beneficial.
- Benefits include funding opportunities, reduced costs, shared materials, easier access for clients, shared knowledge, sense of community and team-building, higher productivity, etc.
- They are established by exploring common goals and community needs. The process of formalizing requires many steps which we will go over in a moment. Though outreach workers can begin the steps toward forming such relationships, generally the agency directors will handle the process and agreements.

5. Ask participants what a Memorandum of Understanding (MOU) is, and how they are used to formalize collaborations. Again recognize that some participants may already have used MOUs while others have not.

6. Refer participants to their copy of COLLABORATION PLANNER (page 5.163) in their binders. Tell participants that this is a tool they can use to determine areas in which to formalize collaborations and to know the resources needed to do so. Explain that using a planner such as this helps to organize what is being done and can be done between agencies, and leads to the development of an MOU (direct participants to the MOU page). State that this would commonly be filled out with the participation of an agency director or supervisor. Encourage participants to involve their agency director or supervisor in this process. This lends credibility to the collaborative process, makes it official, and establishes a foundation of accountability.

7. Allow participants time to go through COLLABORATION PLANNER (page 5.163) and to fill it out to the best of their knowledge considering possible collaborations between health centers and Head Start. Encourage them to consider resources based upon the last section. Be sure participants frame this in terms of pediatric environmental health. Allow participants to work with those sitting next to them, if preferred.

8. Time permitting, ask participants to share their examples of involvement in formal collaborations
Primary disease prevention and strategies for healthy living require that we reduce our exposure to pesticides, air pollution, heavy metals, and other chemical toxicants. But, as much as personal lifestyle interventions can help, they are not enough. Policy interventions at many levels are necessary and can have profound influences on individual and population health.

We know that when restrictions on hazardous chemical production, use, and disposal have been successful, public health has benefited. For example, a ban on the use of tetraethyl lead in gasoline resulted in marked declines in average blood lead levels in children in the U.S., sharply reducing impacts on developing brains. Unfortunately, restrictions on other hazardous chemicals are often resisted, delayed, or limited. As a result, ongoing exposures continue to pose health risks.

Some policy interventions are cross-cutting, addressing multiple problems simultaneously. For example, support for more local, diversified, and sustainable food production can reduce reliance on harmful pesticides, reduce fuel consumption in long distance transport, and boost local economies. This would also reduce air and water pollution.

Energy policy reforms, with transition to clean, renewable sources of energy, would reduce fossil fuel consumption and air pollution, including greenhouse gas emissions responsible for climate change. Elders are among the most vulnerable to climate change because of diminished adaptive capacity and concurrent illnesses that increase risks.

Reduced use of toxic substances in the home, workplace, and community through safer-substitute programs and green product design will decrease exposures that contribute to chronic diseases of aging, reduce ecosystem and wildlife contamination, and create new jobs. One of the most critical steps we as a nation can take is to reform the Toxic Substances Control Act.

The Toxic Substances Control Act (TSCA) of 1976, the major statute regulating non-pesticidal industrial chemicals in commerce, has failed to protect people, wildlife, and the general environment from exposures to hazardous chemicals. In fact, TSCA has helped to create and maintain data, safety, and technology gaps, rewarding ignorance and failing to provide incentives for development of safer materials.
In the absence of national chemical policy reform, states have stepped up to the plate. In 2011, legislatures in 30 states and the District of Columbia will consider various initiatives to limit the use of toxic chemicals in everyday products. While this is a step in the right direction, we need comprehensive national chemical policy reform to protect the health of all Americans and the planet.

Calls for chemical reform are coming from many sectors, including the public health and medical professions, health care institutions, businesses, environmental groups, health-affected advocates, and others. The American Medical Association sees the importance of “restructuring the Toxic Substances Control Act (TSCA) to serve as a vehicle to help federal and state agencies to assess efficiently the human and environmental health hazards of industrial chemicals and reduce the use of those of greatest concern.”

The support for chemical reform is strong and broad. We have an opportunity to create the foundation for a sound and comprehensive chemicals policy that protects public health and the environment, but it is up to all of us to advocate for and support the initiatives.

To stay informed of state and national chemical policy initiatives, log on to: The Safer Chemicals, Healthy Families coalition www.saferchemicals.org. The coalition was organized to support TSCA reform and represents more than 11 million individuals including, health professionals, advocates for people with learning and developmental disabilities, reproductive health advocates, environmentalists, and businesses from across the nation.
Environmental Health Resources

**Agency for Toxics Substances and Disease Registry** has as its mission to prevent exposure and adverse human health effects associated with exposure to hazardous substances from waste sites, unplanned releases, and other sources of pollution. ATSDR is mandated by the US Congress to assess waste sites, respond to emergency releases of hazardous substances, and to perform and support research and education. Their web site leads to summaries and reports of hazardous substances, guidebooks, and HazDat (a database of information about Superfund sites, hazardous substance releases, and health effects). The site is also useful for the links it provides through the ATSDR Information Center Bookmarks.

[www.atsdr.cdc.gov](http://www.atsdr.cdc.gov)

**American Lung Association** has a proven commitment to environmental health. Topics of air quality, chemical hazards in school and workplace settings, and tobacco control are covered in depth on their website with recent statistics available. Materials available (several also offered in Spanish) include: Indoor Air Quality Tools for Schools Action Kit, Protecting Yourself from Air Pollution, Working Safely With Chemicals, How to Read a Material Safety Data Sheet, as well as tobacco material targeted to youth and adults.

[www.lungusa.org](http://www.lungusa.org)

**American Lung Association (ALA) of Washington** has developed a Home Environmental Assessment List (HEAL) consisting of a 10 page checklist used by Master Home Environmentalist volunteers when doing a general environmental assessment in a community member’s home. It’s also available in a 5 page Do-It-Yourself version. For copies, contact Aileen Gagney, agagney@alaw.org, 1-800-732-9339, or 1-800-lungusa - American Lung Association - Master Home Environmentalist Program.

[www.alaw.org](http://www.alaw.org)

**Beyond Pesticides**, a service of the National Coalition against the Misuse of Pesticides (NCAMP), provides access to a national directory of least toxic service providers and has programs on pesticide use in schools and public buildings, pesticide legislation, exposure of children to polluted soils around public utility poles. The site includes a fact sheet on What to Do in a Pesticide Emergency.

[www.beyondpesticides.org](http://www.beyondpesticides.org)

**Bio-Integral Resource (BIRC)** is a nonprofit organization offering over 25 years of insight experience, and leadership in the development and communication of least-toxic, environmentally sound, integrated pest management (IPM) methods and policies of urban and agricultural applications.

[www.birc.org](http://www.birc.org)
Center for Health, Environment and Justice trains and assists local people to fight for justice, become empowered to protect their communities from environmental threats and build strong, locally controlled organizations. CHEJ connects these local groups with each other to build a movement from the bottom up. CHEJ has several national campaigns: Stop Dioxin Exposure; Health Care Without Harm; and Child Proofing our Communities.

www.chej.org

Center for Informed Decision-Making has as its objective to help citizens make informed decisions about important environmental, health, and safety issues. Their web site explains the basics of environmental and health assessments, provides case studies, offers expert forums, and links to additional resources.

http://members.aol.com/cygnusgrp/index.html

Chemtrac Emergency Spill Information
(800) 424-9300
Emergency number providing information regarding large chemical spills and leaks.

Children’s Environmental Health Network is a national project dedicated to pediatric environmental health. The Network’s mission is to promote a healthy environment and to protect the fetus and the child from environmental hazards. Three areas of concentration for the Network are education, research, and policy. Publications include numerous fact sheets in English and Spanish on toxic chemicals, as well as the CEHN Training Manual on Pediatric Environmental Health. In addition to explaining children’s vulnerability, routes of exposure, absorption, metabolism, etc., it also explains adult teaching methods and effective learning techniques.

www.cehn.org

Children’s Health Environmental Coalition (CHEC) is a charitable, nonprofit organization dedicated to educating the public, specifically parents and caregivers, about environmental toxins that affect children’s health.

• Health eHome is CHEC’s “interactive resource for information on how to reduce environmental health risks to children in and around the home”. Here there is a Virtual House that shows where dangerous everyday household products can be found and eliminated, a Quiz for personalized information about what you’re doing right, what you can change and how, a Resource Room with how-to’s, articles, and a chemical database, and six simple House Rules for keeping a healthy home.

• CHEC also offers First Steps, a monthly email program for pregnant women or the parents of a newborn, to provide information on protecting baby’s health. First Steps is designed to provide timely information to minimize the fetus’ or baby’s exposure to toxic chemicals. Monthly emails
identify common sources of toxic exposure at each stage of development followed by simple steps you can take to minimize the risk to your baby.

www.checnet.org

http://healthychild.org/live-healthy/health_ehome

**Clearinghouse for Occupational Safety and Health Information** (at Center for Disease Control)
Technical Information Service: *(800) 35-NIOSH* Access to NIOSH (National Institute of Occupational Safety and Health) information, resources, and activities.
Library: *(513) 533-8321*
Interlibrary loans, catalog available. Maintains an automated database and library open to the public.

**Duke University Occupational & Environmental Medicine** hosts a very large and diverse web site with multiple links to sources of environmental and occupational health information. One of the best on the web. Offers a listserve for clinicians and public health professionals to instantly communicate with one another.
http://dukeoccmed.mc.duke.edu/

**Envirofacts** contains data from five EPA systems that are used to assist the Agency in monitoring and overseeing compliance with federal regulations. The general public can use this source to obtain information about facilities in their community. The five systems represented are: 1) Aerometric Information Retrieval System Facility Subsystem (which contains air pollution data for about 150,000 regulated facilities), 2) Comprehensive Environmental Response, Compensation and Liability Information System (Superfund data on hazardous waste sites), 3) Permit Compliance System (water discharge permit information for over 75,000 facilities), 4) Resource Conservation and Recovery Information System (data used to track handler permit or closure status for over 450,000 facilities and transporters), and 5) Toxic Release Inventory System (data on releases of over 600 toxic chemicals by over 33,000 reporting facilities). Online queries and mapping tools are also available through this site.
www.epa.gov/enviro/index.html

**EnviroLink** is a nonprofit organization that attempts to link all grassroots organizations and volunteers through an online community. The site provides information and referral links through the Library on a variety of topics including activism and education. Current awareness on environmental topics worldwide is done through the News Service. The Sustainable Business Network is a marketplace for information about and resources from businesses that practice environmentally sound operations.
www.envirolink.org
Environmental Defense provides a wonderful site, Scorecard.org, for geographically specific information about toxic chemicals in the United States: where they come from in your community, what their human health effects are, and what actions you can take.

www.scorecard.org

Environmental Health Center was established in 1988 as a division of the National Safety Council to improve public understanding of significant health risks and challenges facing modern society. Their homepage is useful for public education and outreach efforts, emergency planning and management, and environmental journalism. They offer Environmental Journalism Resources, Hazardous Chemical Backgrounders (fact sheets on physical properties, health effects, economics, and regulations), information on air quality, children’s health, climate change, radioactive and solid waste, as well as water quality.

www.nsc.org/ehc.htm

Environmental Health Clearinghouse, a service of Information Ventures, Inc. and sponsored by the National Institute of Environmental Health Sciences, is staffed by junior and senior scientists trained in environmental health issues. Questions can be directed to them over the telephone (800-643-4794, Monday through Friday, 8:00 a.m. to 8:00 p.m., EST); by electronic mail (envirohealth@niehs.nih.gov); or through their Internet site. In response to questions, the clearinghouse staff will conduct customized research, perform literature searches, and mail results to requestors. The clearinghouse also offers fact sheets on pesticides, environmental impact statements, human and ecological risk assessments, and information packets on a variety of topics. Among the environmental topics included in the clearinghouse collection are health effects, worker exposure, waste site and chemical spills and releases information, materials for schools and students, environmental justice issues, and women’s health issues.

http://infoventures.com

Environmental Information on the WWW lists non-commercial sites on specific environmental topics. Links are provided for waste management and recycling, air and water pollution, chemicals and toxic substances, sustainable development, and other topics.

www.ovam.be/jahia/Jahia/pid/25

Environmental Protection Agency (EPA) provides a wealth of information about EPA activities, products, recommendations, and requirements on its extensive website. The site leads to information about community participation, resources for environmental education, grant information, chemical fact sheets, pesticides, software and database resources, hotlines, EPA libraries, regional and state contacts, and more. EPA Office of Children’s Health Protection serves as a clearinghouse for EPA’s initiatives and information on children’s health. Contains links to fact sheets on a range of exposures, provides information on current research, where you can get additional information.

EPA Homepage: www.epa.gov
Office of Children’s Health Protection:
http://yosemite.epa.gov/ochp/ochpweb.nsf/content/homepage.htm

Community data and mapping are available through Envirofacts, a database that integrates data obtained to support EPA’s oversight activities and the public’s right-to-know. Other branches lead to a section for Concerned Citizens and a Community-Based Environmental Homepage.

Envirofacts: www.epa.gov/enviro/index_java.html

National Pesticide Information Service
NPIC is a cooperative effort of Oregon State University and the U.S. EPA
1-800-858-7378
Questions on pesticides to: npic@ace.orst.edu
http://npic.orst.edu

Environmental Research Foundation provides information to grass-roots community activists, environmentalists, journalists, librarians, and others to further environmental justice at the local level. It specializes in information on hazardous substances and technologies, including landfills, incinerators, pesticides, organochlorine compounds, risk assessments, and their effects on human and environmental health. A newsletter, Rachel’s Environment & Health News is available by e-mail.
www.rachel.org/home_eng.htm

EPA’s Office of Pollution Prevention and Toxics provides Chemical Fact Sheets and technical summary documents. Some of these fact sheets are available through the Internet.
www.epa.gov/opptintr/chemfact

EXTOXNET is a cooperative effort of the University of California, Davis, Oregon State University, Michigan State University, and Cornell University. Together, they maintain Pesticide Information Profiles, a databank of profiles on over 160 pesticides. Each profile covers acute and chronic toxicity, environmental effects, manufacturing information, and references. These profiles are not based on an exhaustive literature search; nevertheless, they are highly informative and supplement the information found on pesticide product labeling and other sources.
http://ace.orst.edu/info/extoxnet

Hazardous Substances Data Bank (HSDB) is a comprehensive, scientifically reviewed, factual database containing records for over 4500 toxic or potentially toxic chemicals. It contains extensive information in such areas as toxicity, environmental fate, human exposure, chemical safety, waste disposal, emergency handling, and regulatory requirements.
**Healthfinder®** is a free gateway to reliable consumer health and human service information developed by the U.S. Department of Health and Human Services. Healthfinder can lead you to select online publications, clearinghouses, databases, web sites, and support and self-help groups, as well as the government agencies and not-for-profit organizations that produce reliable information for the public.

[www.healthfinder.gov](http://www.healthfinder.gov)

**Healthy Schools Network (HSN)** is a nationally recognized, state-based advocate for the protection of children's environmental health in schools. HSN strives to build awareness of children's environmental health needs and assure every child and school employee an environmentally healthy school, through research, information and referral, advocacy, and coalition building.

[www.healthyschools.org](http://www.healthyschools.org)

**Indiana Department of Environmental Management** offers Simple Steps for Families (to make the environment a better place) available to download from their website. Included is a series of posters and brochures that are very well illustrated to demonstrate household hazards.

[www.in.gov/idem/envirohealth/simplesteps.html](http://www.in.gov/idem/envirohealth/simplesteps.html)

**Institute for Agriculture and Trade Policy (IATP)** is a Minnesota-based non-profit organization dedicated to promoting resilient family farms, rural communities and ecosystems around the world through research and education, science and technology and advocacy. IATP raises awareness about pollutants in food and from food production, their sources, and their demonstrated or possible impacts on human health. IATP advocates for health protective public policies and pollution prevention and provides information for the public and providers on the following issues: use of antibiotics in animal agriculture, public health impacts of factory farming, pesticides, toxins in sludge and fertilizers, children's environmental health and persistent toxic pollutants, such as mercury, brominated flame retardants and dioxins. IATP provides key leadership in the following initiatives: Health Care Without Harm (HCWH), Keep Antibiotics Working, the Collaborative on Health and the Environment and Mercury Free Minnesota.

[www.iatp.org](http://www.iatp.org)

**Institute for Children's Environmental Health (ICEH)** is a non-profit educational organization working to ensure a healthy, just, and sustainable future for children. The primary mission of ICEH is to foster collaborative initiatives to mitigate environmental exposures that can undermine the health of current and future generations. Their site includes a primer on Environmental Health Basics that lists multi-media resources and hotlinks. ICEH hosts a Partnership for Children's Health and the Environment that organizations can join.

[www.iceh.org](http://www.iceh.org)

**Partnership for Children’s Health & the Environment:**

[www.partnersforchildren.org](http://www.partnersforchildren.org)
Institute for Global Communications provides a gateway to five online communities of activists and organizations working for peace, conflict resolution and negotiation, labor force representation, women in development, and environmental health and ecology (through EcoNet). Each network provides worldwide coverage for current awareness. IGC also maintains a member’s directory.

www.igc.org

Integrated Risk Information System (IRIS) contains EPA carcinogenic and non-carcinogenic health risk assessment and regulatory information on over 500 chemicals. The risk assessment data have been scientifically reviewed by groups of EPA scientists and represent EPA consensus. IRIS also contains EPA Drinking Water Health Advisories and literature references.


International Joint Commission (IJC) is a collaboration between the U.S. and Canada to address water quality along boundary waters between the two nations. The IJC Health Professionals Task Force offers Environmental Health in Family Medicine modules on lead, outdoor air, indoor air, pesticides, water quality, and persistent organic pollutants that can be downloaded at no charge. Also available free on their site is The Health Effects Review, a quarterly review and summary of the scientific literature on human health effects and environmental pollutants.

www.ijc.org/en/home/main_accueil.htm

March of Dimes
1-888-MODIMES (663-4637)
National Women’s Health Network
(202) 628-7814
Women’s health advocacy group with general women’s health information and a resource center.

www.marchofdimes.com

Material Safety Data Sheets are designed for workers and emergency personnel to provide guidance on proper procedures for handling and working with toxic substances. The sheets include physical data, toxicity, health effects, first aid, storage and disposal procedures, and more. Many sites on the Internet include MSDS.

www.ilpi.com/msds/index.html

Minnesota Department of Health has created a web site to improve access to information about children’s environmental health. The site describes MDH programs and activities related to a variety of children’s environmental health issues, including cancer surveillance, school indoor air quality, chemical exposures, health professional education and asthma. The site also provides information about practical steps to prevent and reduce children’s exposures to common chemicals.

www.health.state.mn.us/divs/eh/children/national.html
National Center for Environmental Health is part of the U.S. Centers for Disease Control and Prevention (CDC), provides leadership to promote health and quality of life by preventing or controlling those diseases, birth defects, or disabilities resulting from interaction between people and the environment. Their site has information and education resources on a broad range of topics, including asthma, birth defects, radiation, sanitation, and lead in blood.

www.cdc.gov/nceh

National Institute of Environmental Health Sciences (NIEHS) has a good site for information of public interest concerning human productive health. Included is access to scientific assessments of reproductive health risks associated with human exposures to naturally occurring and man-made chemicals.

www.niehs.nih.gov
http://cerhr.niehs.nih.gov

National Library of Medicine (NLM) hosts the Toxicology and Environmental Health Information Program (TEHIP) which provides a wealth of health, toxicological, chemical, and chemical release information. TEHIP databases are available on the Toxicology Data Network (TOXNET), a free web-based search system. It is also a gateway to MEDLINE. Among the many databases available from Toxnet are:

- CCRIS (Chemical Carcinogenesis Research Information System) contains evaluated data and information, derived from bioassays on nearly 8,000 chemicals. Studies relate to carcinogens, mutagens, tumor promoters, cocarcinogens, metabolites and inhibitors of carcinogens.
- DART/ETIC (Developmental and Reproductive Toxicology/Environmental Teratology Information Center) is a bibliographic database covering teratology and developmental toxicology literature published since 1950.
- EMIC (Environmental Mutagen Information Center) are bibliographic databases covering agents tested for genotoxic activity in literature from 1965 to the present.
- GENE-TOX a data bank created by the Environmental Protection Agency (EPA) with genetic toxicology test results on over 3,000 chemicals.
- TOXLINE a bibliographic database covering the biochemical, pharmacological, physiological, and toxicological effects of drugs and other chemicals. It contains over 2.5 million citations, almost all with abstracts and/or index terms and CAS Registry Numbers. www.nlm.nih.gov
- Medline is a bibliographic database of abstracted medical literature. The National Library of Medicine offers it free.


National Pesticide Information Center

(800) 858-7378
National Safety Council's National Lead Information Center
(800) 424-LEAD
Information, publications, referrals, and technical assistance in English or Spanish on lead-related issues.

New Jersey Department of Health and Senior Services Right to Know Program provides online access to hundreds of chemical fact sheets. Information on each fact sheet includes: identification, hazard summary, how to determine exposure, workplace exposure limits, ways of reducing exposure, acute and chronic health hazard information, workplace controls and practices, personal protective equipment, safe handling and storage, definitions of terms, information on flammability and reactivity, and recommended first aid practices.

http://web.doh.state.nj.us/rtkhsfs/indexfs.aspx?lan=english

Occupational Safety and Health Administration (OSHA) is entrusted with overseeing worker protection and enforcement of workplace standards. Web site offers information and links on programs and services, compliance assistance, standards, and technical information.

www.osha.gov

Occupational Safety and Health Administration (OSHA) Referral Service
(800) 321-OSHA
Referral service concerning occupational safety and health complaints and emergencies. Call with life threatening emergencies.

Office of Environmental Justice Small Grants Program
(202) 564-2515, (800) 962-6215
Grants to fund Environmental Justice projects by community-based organizations.

Pesticide Action Network of North America (PANNA) advocates the adoption of ecologically sound practices as an alternative to pesticide use. With other groups, it promotes sustainable agriculture, food security, and social justice. In addition to action alerts, connections to other organizations, fact sheets, and reports, the PESTIS database is available to search online for information on specific pesticides and alternatives. Another feature maintained is the PANNA Pesticides and Children Web Page that offers links to information and resources regarding children’s unique vulnerability to pesticides.

www.panna.org

Physicians for Social Responsibility (PSR) is a national organization of physicians, health professionals and supporters dedicated to addressing the public health impacts of nuclear and other weapons of mass destruction, environmental degradation and community violence. PSR has mobilized an Environment and Health Network that links activists and issue experts around the
world to address serious environmental threats to human survival. The national PSR website has information for the public and providers on topics of medical waste, persistent toxic pollutants, health effects of global climate change, incineration and dioxin, pesticides, safe food and drinking water, clean air and water, and children's environmental health.

www.psr.org

**Sustainable Communities Network** promotes communications and collaborations among grassroots and community-based programs. Groups involved in environmental protection efforts such as recycling, conservation, watershed and wildlife protection share case studies and resources.

www.sustainable.org

**Technology Transfer Center at the Massachusetts Toxics Use Reduction Institute, University of Massachusetts Lowell**

(978) 934-3275, (978) 934-3050

Clearinghouse and research library, and literature search service for reports, case studies, and fact sheets on pollution prevention and toxics use reduction.

www.turi.org

**Technology Transfer Publications and Support Division**

800-490-9198 or (513) 489-8190

Formerly Center for Environmental Research Information (CERI), the focal point for the exchange of EPA's scientific and technical information.

www.epa.gov/ttbnrmrl

**ToxFAQs** is a series of over 50 summaries of hazardous substances being developed by the Agency for Toxic Substances and Disease Registry Division. Each fact sheet provides answers to frequently asked questions about exposure to substances found around hazardous waste sites and corresponding human health effects.

www.atsdr.cdc.gov/toxfaq.html

**U.S. Consumer Product Safety Commission Hotline**

(800) 638-2772

Information and educational materials on consumer product safety, including children's toys and electrical products. Spanish speaking staff available.

www.cpsc.gov/cpscpub/pubs/178.html

**U.S. EPA Air RISC Hotline**

Risk Information Support Center: Health, risk and exposure information

(919) 541-0888

www.epa.gov
U.S. EPA Directory Assistance  
(202) 272-0167
Directory assistance to EPA offices that have information on the environment and EPA: brochures, fact sheets, consumer guides, and educational materials.

http://cfpub.epa.gov/locator/index.cfm

U.S. EPA Electromagnetic Field (EMF) Infoline  
(202) 343-9370
Current information and answers to questions on electric and magnetic fields.

www.epa.gov

U.S. EPA Emergency Planning and Community Right-to-Know (EPCRA) Information Hotline  
(800) 424-9346
Information on community right-to-know and emergency planning regulations.

www.epa.gov/ceppo/web/content/epcra

U.S. EPA National Indoor Air Quality Information Hotline  
(800) 438-4318
Health information, on passive smoke, formaldehyde, and other indoor air quality issues.

www.epa.gov/iaq/iaqxline.html

U.S. EPA National Service Center for Environmental Publications  
(513) 489-8190
Clearinghouse, publication information, and ordering service for EPA publications, including ACCESS EPA, an extensive yearly directory of EPA and other public sector information resources including hotlines, libraries, and databases.

www.epa.gov/nscep

U.S. EPA Pollution Prevention Information Clearinghouse  
(202) 566-0799
Technical, policy, and grant information for companies and communities seeking to reduce use and production of hazardous materials.

www.epa.gov/ppic

U.S. EPA Safe Drinking Water Hotline  
(800) 426-4791
Information about EPA's drinking water regulations and other related drinking water and ground water topics.

www.epa.gov/ogwdw/hotline
U.S. EPA TRI User Support Service
(202) 566-0250
Support obtaining and using the Toxics Release Inventory.
www.epa.gov/triexplorer/sfsdescription.htm

U.S. EPA Water Resource Center
202-260-7786
Distributes EPA Office of Water publications.

U.S. Government Printing Office
Washington, DC 20402
(888) 293-6498, (202) 512-1530
Supplies documents from government agencies.
http://water.epa.gov/aboutow/ownews/wrc/index.cfm

University of California at Berkeley maintains a resource guide to Toxicology and Occupational Health Resources. The site links to agencies, publications and databases.
www.lib.berkeley.edu/PUBL/tox.html

University of Minnesota Extension Service offers Lead - Your Safe Home, a Hmong/English information guide (6-page) that contains information on where lead is found, what happens when lead gets in our bodies, should a child be tested for lead, and how to protect children. Call the University of Minnesota Distribution Center at (612) 625-8173

University of Wisconsin Extension offers Help Your Self to a Healthy Home, a 24-page booklet, including five short home environment checklists -“Questions to Ask” on air, lead, drinking water, hazardous household products, and pesticides. Designed as a self-assessment screening tool for parents and other caregivers.
   Home Assist: www.uwex.edu/homeasyst
   Booklet: www.uwex.edu/homeasyst/hasorder.html

Washington Toxics Coalition is dedicated to protecting public health and the environment by identifying and promoting alternatives to toxic chemicals. They advance research, grassroots organizing, publications and presentations, conferences, and provide a Toxics Hotline to provide reliable information about preventing pollution in homes, schools, workplaces, agriculture, and industry. You can also access online their guide, Protecting Children from Toxic Exposures, that includes facts on topics such as air, lead, drinking water, hazardous household products, and pesticides.
http://watoxics.org
Head Start and Health Center¹
COLLABORATION PLANNER

Listed below are examples of ideas for how Head Start and health centers may collaborate. As you review the list (ideally together with your Head Start or health center counterpart), rate each opportunity as to whether you feel it would be “Easy, Moderate, or Difficult” to achieve and decide on whether the activity is a high, medium, or low priority for your organizations. Please use the following rating and priority scale provided below. Additionally, brainstorm what resources might be needed to implement the activities (see samples below). Propose a tentative start date for implementing the activity in the Projected State Date column.

<table>
<thead>
<tr>
<th>Rating (E=Easy M=Moderate D=Difficult)</th>
<th>Priority</th>
<th>Collaboration Opportunities</th>
<th>Resources Needed for Implementation</th>
<th>Projected Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>☐ High</td>
<td>Hold trainings on</td>
<td>Joint training needs</td>
<td>September</td>
</tr>
<tr>
<td></td>
<td>☐ Medium</td>
<td>environmental toxins for</td>
<td>assessment of farmworker</td>
<td>2010</td>
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<tr>
<td></td>
<td>☐ Low</td>
<td>farmworker parents.</td>
<td>farmworker parents at Head Start</td>
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<td></td>
<td></td>
<td></td>
<td>and health center. Head Start</td>
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<td></td>
<td></td>
<td></td>
<td>will then advertise trainings</td>
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<td></td>
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<td></td>
<td>and provide child care during</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>sessions. The health center</td>
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<td></td>
<td></td>
<td></td>
<td>will provide food. Outreach</td>
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<td></td>
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<td></td>
<td>workers from both places will</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>facilitate trainings.</td>
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</tbody>
</table>

If you feel comfortable progressing, put those opportunities into a Memorandum of Understanding (see attached sample) with a commitment to review and update the MOU after 12 months. If you are already engaged in some of these or other collaboration opportunities -- Great job! Make sure that you document your intentions with a written MOU.

¹ This document was developed by the Academy for Educational Development (AED). Permission has been granted and it has been adapted for use. For more information contact Brian Richmond (AED) brichmon@aed.org.
<table>
<thead>
<tr>
<th>Rating (E=Easy, M=Moderate, D=Difficult)</th>
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<th>Collaboration Opportunities</th>
<th>Resources Needed for Implementation</th>
<th>Projected Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>o High</td>
<td></td>
<td>Hold monthly/quarterly/semi-annual staff meetings.</td>
<td></td>
<td></td>
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<tr>
<td>o Medium</td>
<td></td>
<td>Conduct a community assessment on environmental toxins.</td>
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<tr>
<td>o Low</td>
<td></td>
<td>Conduct planning based on results of the community assessment.</td>
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<td></td>
</tr>
<tr>
<td>o High</td>
<td></td>
<td>Facilitate shared program planning to address farmworker barriers with environmental toxins.</td>
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<td></td>
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<tr>
<td>o Medium</td>
<td></td>
<td>Publish eligibility criteria for the programs.</td>
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</tr>
<tr>
<td>o Low</td>
<td></td>
<td>Conduct enrollment campaign.</td>
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<td></td>
</tr>
<tr>
<td>o High</td>
<td></td>
<td>Conduct health screenings for children.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating (E=Easy, M=Moderate, D=Difficult)</td>
<td>Priority</td>
<td>Collaboration Opportunities</td>
<td>Resources Needed for Implementation</td>
<td>Projected Start Date</td>
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<td>------------------------------------------</td>
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<tr>
<td>0 High</td>
<td>Medium</td>
<td>Hold health fair (screenings, resources, education, etc.)</td>
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<tr>
<td>0 High</td>
<td>Medium</td>
<td>Establish annual parent training calendar and topics.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 High</td>
<td>Medium</td>
<td>Hold trainings on environmental toxins for farmworker parents.</td>
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<td></td>
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<tr>
<td>0 High</td>
<td>Medium</td>
<td>Work on creating/updating a parent education manual on environmental toxins.</td>
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<tr>
<td>0 High</td>
<td>Medium</td>
<td>Create and distribute Early Childhood Education newsletter with specific emphasis on environmental toxins.</td>
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</tr>
<tr>
<td>0 High</td>
<td>Medium</td>
<td>Support family literacy programs with an emphasis on environmental health.</td>
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<td></td>
</tr>
<tr>
<td>Rating (E=Easy M=Moderate D=Difficult)</td>
<td>Priority</td>
<td>Collaboration Opportunities</td>
<td>Resources Needed for Implementation</td>
<td>Projected Start Date</td>
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<tr>
<td>0 High</td>
<td></td>
<td>Establish an annual training calendar with shared trainings on environmental toxins.</td>
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<tr>
<td>0 High</td>
<td></td>
<td>Hold trainings on environmental toxins for staff.</td>
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<tr>
<td>0 High</td>
<td></td>
<td>Cross-train and share staff (e.g., allow qualified staff to substitute for one another) to meet the needs of farmworker families as related to environmental toxins.</td>
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<tr>
<td>0 High</td>
<td></td>
<td>Inform and invite each other to technical assistance, in-service, and other training opportunities related to pediatric environmental health.</td>
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<tr>
<td>0 High</td>
<td></td>
<td>Share the cost of bringing in a trainer on environmental toxins.</td>
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<td></td>
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<tr>
<td>0 High</td>
<td></td>
<td>Conduct team building and other fun ways to establish working relationships between all staff.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration Opportunities</td>
<td>Priority</td>
<td>Resources Needed for Implementation</td>
<td>Projected Start Date</td>
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<td>Establish protocol for two-way communication for effective staff communication.</td>
<td>High</td>
<td>○ High ○ Medium ○ Low</td>
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<td>Support and promote responsible community programs (e.g., pesticide prevention, lead-based paint testing).</td>
<td>Medium</td>
<td>○ High ○ Medium ○ Low</td>
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<tr>
<td>Share curriculum and educational activities.</td>
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<tr>
<td>Work on creating/updating a community-based resource directory (e.g., treatment of exposures, legal, health services, exposure prevention, etc.).</td>
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<tr>
<td>Recruit health center representatives to serve on Head Start’s Health Services Advisory Committees, Policy Councils, and/or other committees for joint policy development.</td>
<td>Low</td>
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<tr>
<td>Rating (E=Easy, M= Moderate, D=Difficult)</td>
<td>Priority</td>
<td>Collaboration Opportunities</td>
<td>Resources Needed for Implementation</td>
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<td><strong>Provide environmental health advocacy.</strong></td>
<td><strong>Head Start standards for governance and by-laws that describe membership.</strong></td>
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<td></td>
<td>Low</td>
<td>Reporting of program data.</td>
<td><strong>Administrative calendar that indicates when reports are due to funding agencies.</strong></td>
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SAMPLE  Head Start and Health Center Collaboration MOU

[Please change the names, dates, and collaboration opportunities to fit your own programs. Recognizing that some opportunities are easier than others to engage in, begin with those that are most easily achieved and, as appropriate, work towards those that are more challenging.]

Recognizing the benefits and challenges of a collaborative partnership between ABC Health Center and XYZ Head Start, we, the undersigned, do hereby agree to engage in the following activities for a period of one year, from ___ to ____, pending adequate organizational resources. We also agree to meet bimonthly/quarterly/semi-annually to review our partnership progress, and will revise and/or renew this agreement, as appropriate, shortly before its end date. Through this partnership, we pledge our commitment to work together to reduce farmworker families’ exposure to environmental hazards.

1. Conduct a community assessment on environmental toxins. (Include Resources Needed, Projected Start Date).

2. Shared program planning to address farmworker exposures to environmental toxins. (Include Resources Needed, Projected Start Date).

3. Work jointly on creating/updating a parent education manual on environmental toxins. (Include Resources, Projected Start Date).

4. Hold joint trainings on environmental toxins for staff. (Include Resources Needed, Projected Start Date).

5. Work jointly on creating/updating a community-based resource directory (e.g., treatment of exposures, legal, health services, exposure prevention, etc.). (Include Resources Needed, Projected Start Date).

_______________________________ __________________________________
Health Center Director  Head Start Director

Date  Date

Approved by:

_______________________________ __________________________________
Health Center CEO  Head Start Official

Date  Date
## Conclusion & Evaluation

<table>
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<th>TIME</th>
<th>15 minutes</th>
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| OBJECTIVES | By the end of this session, participants will:  
  • Share closing remarks  
  • Complete a training feedback form |
| METHOD OF INSTRUCTION | Facilitator commentary |
| SUPPLIES |  
  • Poster paper with expectations written on them  
    (from Introductions & Expectations section)  
  • Training feedback form  
  • Certificates of Completion |
| SET UP |  
  **Before Training:**  
  • Consider what you have learned from the participants throughout the day’s training.  
  • Examine poster papers with participant expectations written on them (completed in the Introductions and Expectations section) and determine what expectations have been met and consider why other expectations may have not been met.  
  • Sign the certificates of completion and have them ready to hand out.  
  **Room Prep:**  
  • Write contact information for each facilitator on the white board |
Conclusion (5 MIN.)
Provide closure to the training by summarizing key points and allowing participants to share any reactions or suggestions related to the training. Remember, participants are probably tired after a full day so keep this section brief.

**STEPS**
1. Thank participants for their participation and input throughout the day. Express what you learned from them. Remark on their years of service to farmworker families and the impact they are making.
2. Comment how the participants are already experts in many ways on the topic of pediatric environmental health. State that this combined with any new information learned today on vulnerabilities and preventing/reducing exposures will help to make them all great trainers. Thank those that will be trainers of this curriculum, whether to outreach workers or to farmworkers.
3. Encourage participants to complete the FACILITATION CHECKLIST (page 2.19).
4. Refer back to the poster paper with participant expectations for the training (completed in the Introductions and Expectations section). Show participants how far they have come over the course of the day by pointing out which expectations were met. If expectations were not met, explain why.
5. Ask participants if they have any closing comments or questions.
6. Refer participants to your contact information which is written on the white board. Encourage them to contact you if they have questions after the training.

Evaluation (10 MIN.)
Give participants sufficient time to complete an evaluation and to talk to you after class, if desired.

**STEPS**
1. Clarify any needed information about the training evaluation forms before handing them out. Note: Do not collect the FACILITATION CHECKLIST (page 2.19) – this is for the participants’ use only.
2. Hand out copies of the training evaluation forms (page 6.172).
3. Thank participants for attending today’s training.
4. Collect forms as participants complete them and in exchange give them each a CERTIFICATE OF COMPLETION (page 6.175).
Safe and Healthy Children Initiative

SECONDARY TRAINING

FEEDBACK FORM

Thank you for participating in the Safe and Healthy Children Initiative Curriculum Taining. Please complete the following questions to the best of your ability. Your responses will help the Safe and Healthy Children Initiative evaluate its curriculum and trainings. Thank you for your time.

1. How would you rate the overall training content? (please circle one answer)
   Excellent    Good    Average    Fair    Poor

Please rate questions #2 - #6 on a scale of 1 to 10, with 1 being the lowest possible score and 10 being the highest possible score.

2. This training increased my knowledge about: (please check one rating per each of the topics listed below)

   The unique vulnerabilities of children.

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<th>Strongly Disagree</th>
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   How to prevent and reduce farmworker children’s exposure to environmental hazards.

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   Developing community support and collaboration to advocate for healthy environments in farmworker communities.

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3. As a result of this training, I feel more confident about my ability to be a trainer of the Safe and Healthy Children Curriculum.

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4. As a result of this training, I feel more confident about my ability to educate farmworker families on how to protect farmworker children from early exposure to environmental hazards that cause illness and disability across the lifespan.

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5. As a result of this training, I feel more confident about using community resources to help advocate for safe and healthy environments for farmworker families.

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6. Overall, how satisfied are you with this training?

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<tr>
<th>Very dissatisfied</th>
<th>Very satisfied</th>
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7. Was the information presented in a clear manner? (please circle)  
- Yes
- Somewhat
- No

8. Did the training meet your goals and objectives?  
- Yes
- Somewhat
- No

9. Was participation encouraged by trainers?  
- Yes
- Somewhat
- No

10. Was there sufficient question and answer time?  
- Yes
- Somewhat
- No

11. Was the training space comfortable and conducive to learning?  
- Yes
- Somewhat
- No

12. Would you recommend this training to someone you know?  
- Yes
- Somewhat
- No

Additional Questions

13. Which training activities did you find most useful?

14. How do you intend to apply what you have learned to teach your peers and/or farmworker families about pediatric environmental health?
15. Please tell us at least one way that the training can be improved:

16. Additional comments (optional):

Thank you for sharing your experiences with us.
Certificate of Completion

Awarded to

For successfully completing

Safe and Healthy Children Initiative

Training-of-Trainers

______________________________  ______________________________
Date                                 Signature
Appendix
This is an excellent guide developed by the Alameda County Public Health Department (www.acphd.org). We encourage you to read through it before conducting your own training. It provides useful tips and advice on how to improve your training skills and conduct a successful training.

**Train the Trainer:**

**Basic Training Guidelines**

“There is nothing training cannot do. Nothing is above its reach. It can turn bad morals to good; it can destroy bad principles and recreate good ones; it can lift (wo)men to angelship.”

- Mark Twain

An excellent training is nothing without an excellent trainer. This section of the binder covers basic guidelines and tips to help improve your training skills. The following areas are covered:

- Preparing for the Training
- Establishing Confidence
- Setting the Tone
- Facilitating Discussion: Leading vs. Directing
- Facilitating Discussion: Stimulating Dialogue
- Facilitating Discussion: Active Listening
- Facilitating Discussion: Difficult Situations
- Ending
- Appendix A

Each chapter’s font color as shown above corresponds with the color tab on the outside of the pages for that chapter. Icons are used throughout this handbook to alert you to important information.

<table>
<thead>
<tr>
<th>Icon Key</th>
<th>Topics Covered in the Section</th>
<th>Important Hints to Remember</th>
<th>Important Areas of Caution to Remember</th>
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We encourage the reproduction of this material, but ask that you credit Alameda County Public Health Department (www.acphd.org)
Preparing for the Training

Effective trainings take practice and planning. This section offers tips on the following preparation activities:

- Personal Preparation
- Joint Preparation with your Co-Trainer

**Personal Preparation**

The best trainings are no accident – they are the result of the trainer spending hours familiarizing herself with the material. Here are some guidelines to help you assess if you know the material well enough to deliver a powerful training:

- **Take the time.** The standard preparation time is three hours for every hour of training. It seems like a lot, but it’s worth it in the end.
- **Learn the material.** Know the material inside and out and make your own notes about the information so you can use the Module power point presentation as a resource, not a crutch, and can answer questions correctly. Unless absolutely necessary, do not read while presenting!

**HINT:** Going over the recommended readings for your module will improve your content knowledge and the chances you will be prepared to answer unexpected questions.

- **Use your own words.** The training will be more interesting for participants, and you will be more confident if you know the salient points well enough to be able to express them with your own unique style.
- **Use your experiences to illustrate the point.** Personalizing information with your own, your own anecdotes or other tactics will enhance the impact of the slides and handouts.

**Joint Preparation with your Co-trainer**

Just like working on any team, getting comfortable with your co-trainer takes time and energy. Neglecting to build your training team and clearly define roles can lead to power struggles and land you in sticky situations during the training. Avoid embarrassing yourselves and alienating participants by meeting with your co-trainer at least one week prior to your training to establish who will do what and divide-up the Module’s sections.
HINT: Make sure to discuss each others’ preferences for how to support one another in the classroom. For instance, some trainers don’t mind their co-trainer interjecting an example or story here and there, or responding to participants’ questions even when it isn’t their turn to teach, while others feel offended by such behavior. There are no right or wrong preferences; the key is to discuss them in the preparation phase, not in front of the class!

The following are some questions you should discuss with your co-trainer:

✓ How do you want to divide-up the Module?
✓ Do you mind if I interject with my own anecdotes, ideas or responses to questions while you are teaching?
✓ Do you mind if I prepare the materials for the next section of the Module while you are teaching?
✓ Do you want me to keep notes while you lead discussions?
✓ If we need to speed through a section of the Module because we are running short on time, which section should we abbreviate?
✓ How can I best support you?
✓ When the Module is over, when can we meet to debrief and give each other feedback?

Bite Your Tongue! As hard as it may be, withhold all constructive criticism or corrections you may have for your co-trainer until after the training is over and you have a chance to debrief in private. Never undermine your co-trainer’s credibility in front of the class, unless what they have said is offensive or wildly erroneous. Even in such situations, try to reframe what your co-trainer has said in a positive and clarifying manner.
As the graph below demonstrates, much of what is communicated during a training is through the demeanor of the trainer herself. A trainer confident in both her words and her body language will be more effective in persuading the participants to trust the material. This section covers two important ways to make sure you are a confident trainer:

- Demonstrating Your Credibility
- Minimizing Your Stage Fright

**Demonstrating Your Credibility**

There are seven common steps you can take to ensure the participants view you as a credible trainer. The steps are:

- Always be honest with the participants. If you don’t know the answer to a question, don’t make one up.
- Make your presentations balanced and as free from bias as possible.
- Make sure the audience knows you are the expert.
- Raise questions about the information yourself.
- Support the information with your own facts and experiences.
- Cite authorities that are accepted by your audience.
- Invite questions from the audience.

**HINT:** Remember, for all of these steps, it’s not just what you say, it’s how you say it: stand-up straight, speak with a big voice, and resist folding your arms across your chest.
Minimizing your Stage Fright

If you are afraid of public speaking, you are not alone. Public speaking is the first on the list of U.S. residents’ top ten worst fears. The following tips can help you overcome your stage fright.

- **Remember, you know the material.** Increase your confidence by reminding yourself that you and your co-trainer are well prepared.
- **Release Tension.** One of the best ways to do this is take deep breaths. Breathe from your diaphragm and remember to exhale all the way. It also helps to exercise regularly, as unused energy may come out as anxiety.
- **Rehearse.** After you have mastered the material, practice the presentation until you feel confident. Before giving the presentation, visualize yourself succeeding. If you imagine success you are more likely to be successful.
- **Know the room and your equipment.** Finish testing your audio visual equipment and be completely set up by the time participants arrive.
- **Know the participants.** Talk to them as they arrive – it is easier to speak in front of people you are familiar with than a group of strangers.
- **Reassure Yourself.** The participants are not there to see you perform; they are there to learn the material. People are not scrutinizing you or waiting for you to make a mistake. Most likely, they want you to succeed because that means an interesting training for them.

**HINT:** Don’t apologize for your nervousness or mistakes; just keep moving through the material. Apologizing can call the audience’s attention to something they didn’t even notice.

- **Re-frame.** Feeling nervous and feeling excited are very similar. Harness your nervous energy and turn it into enthusiasm.
- **Resist imitating another’s style.** Be natural and relaxed. Only use others’ techniques if you can do it without thinking. Concentrating on presenting like someone else takes your focus away from the material, which creates anxiety.
- **Know your first line and the transition to the main point.** Memorizing the introduction to the training can dissipate anxiety and help you begin with confidence.
- **Concentrate on the message, not yourself.** Try as hard as possible to turn your attention outward. Focus on what you are there to do: engage the participants in the material so they can learn.
- **Rest up and eat well.** Training requires a lot of energy, enthusiasm and focus. Being on your toes for several hours can be mentally and emotionally exhausting, so get plenty of rest and nutrition so that you are physically and psychologically alert.

Setting the Tone

Trainers have the opportunity to set the tone for the training. This section covers the following areas that will help you establish an open and honest learning environment:

- Greeting
- Ice Breakers
- Ground Rules

Greeting

A person’s first impressions of trainings can shape her or his whole experience. That is why it is important to finish setting up a few minutes early and be ready to greet participants as they enter the room.

- Introduce yourself.
- Invite participants to help themselves to refreshments.
- Ask participants to create name tags.
- Make sure they sign the participants’ class list and the lists for relevant Continuing Education Units (CEUs).

Breaking the Ice

Ice breakers are short activities that get participants energized and feeling comfortable with each other. They also help set an enthusiastic tone for the training and can help ensure that participants are actively engaged. The following are tips to keep in mind as you decide what type of ice breaker to use:

- **Know your audience.** Before deciding which activities to use, consider physical abilities.
- **Be very flexible.** Make sure you are using an ice breaker that can be adapted to the group if needed.
- **Participate enthusiastically.** Only choose ice breakers you are willing to be part of. Sharing something about yourself helps establish your credibility as well.

HINT: Examples of ice breakers you can use in your trainings are found in Appendix A. However, an internet search for ice breakers will give you many more rich options. The following link has good suggestions for ice breakers to use with adults: http://www.eslflow.com/ICEBREAKERSreal.html
Everyone must participate. If a participant is uncomfortable with the ice breaker, decide on another way she or he can share something with the group. One idea is to ask the participant to complete the sentence, “If you really knew me, you would know that I…” This is a simple and safe way to introduce oneself. The only exceptions to the participation rule are latecomers. However, as soon as possible after people arrive late, take a moment and them to say their names and any other information you feel they need to share for everyone to feel comfortable and equal.

Ground Rules

Before beginning the training, set some ground rules. Ground rules establish the way participants interact with one another during the training. You can also use them to defuse or redirect difficult situations by stating, “Please rephrase your statement taking into consideration our ground rules.” The ground rules do not need to be extensive. Some sample ground rules are:

- Cherish diversity.
- Keep an open mind.
- Everyone participates; give priority to those who have not spoken.
- Return from breaks on time.
- Silence means consent.
- Be open and honest.
- We are all experts and we are all learners.
- Listen and process what others are saying.
- No side conversations.
- It is okay to disagree – but do not be disagreeable.
- There are no right or wrong answers; all responses are valued.
- Respect one another.

You can either allow participants to come-up with their own ground rules or prepare a list of ground rules in advance, which usually takes less time. If you devise the ground rules in advance, make sure to ask participants if there is anything they would like to add. This allows participants to feel that their voices are heard. Either way, make sure that the ground rules are posted in the room throughout the training, in case you need to refer to them.

HINT: There may be additional information about ground rules you need to consider for your Module. Please remember to keep an eye out for information on specific ground rules as you review the supplemental training guide for your module.

* Many of the sample ground rules are taken from the CAPE “Focus Group Training Manual,” January, 2006
Facilitating Discussion

D. Facilitating Discussion

Trainings that are interactive, such as PH 101, are more effective than lectures because the participants’ involvement and experiences are actually a part of the learning process. Actively engaged participants are more likely to recall and use the information outside of the confines of the training. However, leading an active training is hard and requires solid facilitation skills. For this reason, the next four sections cover some key facilitation skills that you will need to effectively lead an active and productive training. This section reviews guidelines needed for:

- Leading vs. Directing

Leading vs. Directing

The key to facilitating effectively is to remember that your role is to lead the discussion, not direct it. As a leader, you should focus on drawing ideas out of the participants, rather than dominating with your ideas and experiences. The following are tips to help you remember to facilitate rather than direct:

- **Be respectful of the participants.** Demonstrate this respect by calling them by their names and listening actively.
- **Be enthusiastic about the topic and the training program.** Display your enthusiasm by leaning towards participants when they are speaking.
- **Ask and encourage questions and idea sharing.** Do not use destructive language, such as, “That’s wrong,” when responding.
- **Be clear and direct.** This means give examples and avoid the passive voice, such as, “Health inequities are revealed by the data,” instead of “The data reveals health inequities.”
- **Keep your own contributions during group discussions brief.** Let participants respond to questions and to one another first. If they answer a question completely, you, the trainer, need not add additional information.
- **Use silence to give participants time to think about an answer or response to a question before you give them “the answers.” Count to ten.** If you don’t get any responses from the participants, rephrase the question and count to ten again. Then, prompt the group with an answer and ask for others.
- **Encourage the participation of people who have been quiet.** One way to do this is to state the participant’s name first and ask the participant an opinion question with no correct answer. You can avoid putting the participant on the spot by asking a question you know she or he can easily respond to.

HINT: Breaking into smaller groups for discussion is a good way to give quieter participants a chance to share their ideas and ask questions they might be too nervous to ask in front of the entire group.
Facilitating Discussion

Discussions effectively promote active learning. However, interesting discussions that engage the group rarely develop by chance. This section offers tips in the following areas to help you stimulate interesting discussions:

- Asking Questions
- Responding to Incorrect Answers
- Answering Questions

Asking Questions

It is incumbent upon the trainers to pose stimulating and intriguing questions or topics for discussion. Below are some tips for asking questions that yield powerful responses:

- **Use open-ended questions that encourage answers beyond yes or no.**
  Closed question: Did you like the training?
  Open-ended question: What did you like about the training?

- **Ask honest and relevant questions.** Begin by engaging participants around what they know.

- **Use “think back” questions.** When trying to engage participants in a discussion about their experiences, ask them to remember their past instead of imagining a hypothetical situation.

- **Ask clear and concise questions.** Make sure your questions only cover one issue at a time.

- **Use unbiased questions.** Phrase questions in a way that does not betray your opinion and that does not guide the participants to answer one way or another.

  **HINT:** If no one is responding to your questions, remember to try and ask it a different way. If that does not work, try prompting the group with an answer.

- **Avoid asking “why.”** When asked why they think something or feel a certain way, people can become defensive for many reasons; they might not have an answer, they might not want to share their answer, or they might feel as though they do not need to justify what they believe. Instead of asking someone why they believe something, try asking them what experiences led them to that conclusion, to give examples, or other strategies that will help draw out more information.

*These question guidelines are taken from the CAPE “Focus Group Training Manual,” January, 2006*
Use the following four types of questions at the appropriate times:

<table>
<thead>
<tr>
<th>Types of Questions</th>
<th>Purpose/Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introductory</td>
<td>To begin talking about the training topic. It is usually a broad question that gets people thinking about the topic.</td>
<td>“How would you describe a responsive public health department?”</td>
</tr>
<tr>
<td>Transition</td>
<td>To move the discussion on to the key questions.</td>
<td>“Think back to Module I and the discussion of the history of the Alameda County Public Health Department. Does our history support a department with more community engagement?”</td>
</tr>
<tr>
<td>Key</td>
<td>To get detailed information on the central topic of the training.</td>
<td>“What needs to be done to make the Alameda County Public Health Department more focused on building community capacity?” “This discussion covered community capacity building and the Department’s role in encouraging it.”</td>
</tr>
<tr>
<td>Ending</td>
<td>To bring discussion to a close and to summarize.</td>
<td>“Is there anything else anyone would like to add before we move on?” “Next we will talk about what each of us can do to encourage community capacity building.”</td>
</tr>
</tbody>
</table>

Responding to Incorrect Answers

Do not shut down a person who gave an incorrect response. This may freeze the discussion, as others will not want to risk responding for fear of being shut down. To minimize the potential for embarrassment, acknowledge the effort and then redirect the question to the whole group. For instance, you might say, “Interesting. I can see how you might come up with that idea. Who else has an idea?”

Answering Questions

As a trainer, one of the most common questions you will ask is, “Does anyone have any questions?” If, in response, you are asked questions you think the group can answer, redirect them to the group to encourage active learning. If you are the only person who can answer the question, use the following tips:

- **You're asked a question that you can't answer.** Don’t be defensive or fake it, just say you don’t know or ask to get back to the person later.
- **You're asked an extensive question.** Break the question down into smaller parts and keep your answer as concise as possible without omitting key details.
- **You're asked a question you already answered.** Try again and if the questioner still doesn't understand, but the rest of the group looks bored, ask to talk about it in more detail after the training.

- **You're asked a question you think is stupid.** Remember, not everyone is as familiar with the material as you are. Be patient.

- **You're asked a controversial question.** This is good, it means people are thinking critically. Take your time in answering, don’t be pressured into saying anything you don’t mean.

- **You're asked a hostile question.** Stay calm. Rise above it by sticking to the issues.

**HINT:** Sometimes you may need a few seconds to collect your thoughts before answering a question. Several strategies for taking this time while staying engaged with the participants include repeating the question back to the participant, asking for clarification, or asking the participant to repeat the question because you are not sure if you heard it completely.

- **You're asked a question you don’t want to answer.** Say so, and, when appropriate, offer to meet with the person later to discuss your response. If everyone at the training wants you to respond, you should consider the reasons why and how it may be either useful or detrimental to the training.

- **You're asked a dichotomous question.** A dichotomous question is one for which you can answer with a simple “yes” or “no.” Instead of giving a one word answer, try to add some detail to let the questioner know that you don’t think the question is inconsequential.
Facilitating Discussion

Active listening skills are essential for effective discussion facilitation. Active listening builds understanding and consensus in a group, as active listening skills include not only listening to content and feelings, but also responding in a way that enhances mutual understanding. This section covers the following active listening skills:

- Encouraging
- Paraphrasing
- Mirroring
- Clarifying
- Reflecting
- Summarizing & Tracking
- Validating
- Stacking

Encouraging

Encouraging is how you create an open space for people to participate without putting any one individual on the spot. Encouraging is especially helpful during the early stages of the discussion, while participants are still warming up. As people become more engaged, they do not need as much encouragement to participate. However, at times, some participants will not feel engaged by the discussion. It is your responsibility as the facilitator to convey interest and help them discover what aspect of the discussion holds meaning for them. You can do this through encouragement. Once you have a participant speaking, you can also use encouragement to get them to keep talking. The following are some encouragement techniques:

<table>
<thead>
<tr>
<th>How to encourage</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don’t agree or disagree.</td>
<td>“Who else has an idea?”</td>
</tr>
<tr>
<td>Use neutral words.</td>
<td>“Is there a perspective on this issue from someone in a different unit?”</td>
</tr>
<tr>
<td>Use varying voice intonations.</td>
<td>“Does anyone have a “personal story” you are willing to share relating to this issue?”</td>
</tr>
<tr>
<td></td>
<td>“Is this discussion raising questions for anyone?”</td>
</tr>
<tr>
<td></td>
<td>“What was said at the end of the room?”</td>
</tr>
<tr>
<td></td>
<td>“Can you tell me more?”</td>
</tr>
</tbody>
</table>

*The information from this section is taken from the following sources: Active Listening Techniques (The Community Board Program, Inc., 1987) & Effective Facilitative Listening Skills: Techniques for Honoring All Points of View (Community At Work, 1996)
Paraphrasing

Paraphrasing is a fundamental listening skill. Paraphrasing has a calming effect, as it relieves speakers of their anxiety that they are neither being listened to nor understood, and it reminds the speaker their ideas are worth listening to. Additionally, it provides an opportunity for the speaker to hear how their ideas are being heard so she can ensure that they are being interpreted the way she intended. The following are techniques to keep in mind:

<table>
<thead>
<tr>
<th>How to paraphrase</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use your own words to say what you think the speaker said.</td>
<td>Preface your paraphrase with a comment like:</td>
</tr>
<tr>
<td>If the speaker’s statement is one or two sentences, use roughly the same number when you phrase.</td>
<td>“It sounds to me you are saying…”</td>
</tr>
<tr>
<td>If the speaker’s statement is very long, summarize it.</td>
<td>“This is what I am hearing you say…”</td>
</tr>
<tr>
<td>When you have completed the paraphrase, prompt for the speaker’s reaction with a statement like:</td>
<td>“Let me see if I understand…”</td>
</tr>
<tr>
<td>If the speaker does not feel she was understood correctly, ask for clarification.</td>
<td>“Did I get that right?”</td>
</tr>
</tbody>
</table>

Mirroring

When using mirroring, the facilitator repeats what the speaker said verbatim, capturing their exact words. As most people do not need such precision in order to feel that they are truly being heard, paraphrasing is generally preferred. However, there are instances in which mirroring is useful. For instance, a facilitator uses mirroring at the beginning of a training, as the group often benefits from its trust-building effects. Additionally, a facilitator uses mirroring when she feels she needs to establish her neutrality. Finally, mirroring speeds up the tempo of a slow moving discussion.

Mirroring is not the same as mimicking. When you are repeating back the speaker’s words, maintain a warm and accepting voice and use your own gestures regardless of the speaker’s tone of voice and gestures.

Clarifying

Clarifying is a way of giving people the support they need to refine their ideas. It can be used to better understand what was said, to get more information, and to help the speaker see other points of view. It sends the speaker the message, “I am with you; I understand you so far. Now tell me a little more.” Additionally, it lets the speaker know that their ideas are worth exploring and that the group will give the time needed to allow her to get her ideas all the way out. Clarifying is particularly useful in two circumstances: 1) when someone is having difficulty
expressing an idea; 2) when someone thinks she is being clear, but the thought is actually vague or confusing to listeners. In order to decide whether or not an idea needs to be clarified, ask yourself, “Do I think I understand the core of what s/he is trying to say?” If the answer is “no,” attempt to clarify. The following are techniques useful for clarifying ideas.

<table>
<thead>
<tr>
<th>How to clarify</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paraphrase the speaker’s statement and then ask a clarifying question.</td>
<td>The speaker says, “I think it is fair to say that most people would be uncomfortable with the change.” The listener says, “So, you are saying most people would not like the change. Can you give me an example of what you mean?”</td>
</tr>
<tr>
<td>Restate a wrong interpretation to force the speaker to explain further.</td>
<td>Other clarifying questions include:</td>
</tr>
<tr>
<td>Use varying voice intonations.</td>
<td>“Can you say more about that?” “What do you mean by…?”</td>
</tr>
<tr>
<td></td>
<td>Instead of asking a question, you can paraphrase the speaker, adding something like “Because…”, “And…” or “So…” at the end of the sentence.</td>
</tr>
<tr>
<td></td>
<td>“You are saying to wait, because…”</td>
</tr>
</tbody>
</table>

**Reflecting**

Reflecting is the act of telling a participant your interpretation of the basic feelings she expressed while speaking. A facilitator is using reflecting when she says to a participant, “You seem upset,” or “You sound very excited about all the possibilities.” Reflecting allows you to show the participants that you understand how they feel. It also allows participants to evaluate their own feelings after hearing them expressed by someone else. Just as in mirroring, it is important to maintain a warm and accepting tone of voice rather than imitating the speaker.

**Summarizing & Tracking**

Summarizing is the work that facilitators do to review the progress of the discussion, pull together the important facts and ideas, and establish the basis for further discussion. Summarizing is not something to save until the end of the discussion. It should be used periodically throughout the discussion to ensure participants understand what is being discussed and the direction the discussion is moving. In order to summarize, facilitators restate the major ideas expressed, including feelings.

When several lines of thought exist simultaneous within the same discussion, facilitators use a summarizing technique known as tracking. The name tracking is very literal, as it means keeping track of the various lines of thought that are going on simultaneously. Tracking lets the group see that several elements of the topic are being discussed at once, and that all are treated as equally valid. Tracking relieves the anxiety felt by someone who wonders why the
Protecting Children from Environmental Hazards

group is not responding to her ideas, as well as helps participants maintain clarity regarding what exactly is being discussed. The following are the steps for tracking.

<table>
<thead>
<tr>
<th>How to track</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracking is a three-step process, the first and second of which is also useful for summarizing. First, the facilitator indicates that she is going to step back from the conversation and summarize it. Second, she names the different conversations that have been in play. Third, she checks with the group for accuracy.</td>
<td></td>
</tr>
<tr>
<td>“It sounds like there are three conversations going on right now. I want to make sure I am tracking them correctly. It sounds like one conversation is about roles and responsibilities. Another is about finances. And a third is about what you’ve learned by working with the last person who held this job. Am I getting it right?”</td>
<td></td>
</tr>
</tbody>
</table>

Validating

Validating is very simple and has a great impact. A facilitator is validating when she acknowledges the worthiness of another person by saying something like, “I really appreciate your participation.” This statement demonstrates that you value the participant’s ideas, opinions, and feelings; as a result the participant is likely to remain engaged in the training.

Stacking

Stacking is a procedure for helping people take turns when several people want to speak at once. During a discussion, participants may become distracted as they compete for air time. Stacking lets participants know that they will have a turn to speak and frees-up the facilitator to listen instead of constantly trying to remember who has spoken and who is waiting to speak. Even though stacking is not considered an active listening technique, we have included it here because it helps both the facilitator and the participants maintain active listening.

<table>
<thead>
<tr>
<th>How to stack</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>First, the facilitator asks those who want to speak to raise their hands. Second, she creates a speaking order by assigning a numbers. Third, she calls on people when it is their turn. Fourth, when the last person has spoken, the facilitator checks for additional speakers.</td>
<td></td>
</tr>
<tr>
<td>(1) “Would all those who want to speak please raise your hands.” (2) “Susan, you are first. Deb you’re second and Bill, you’re third.” (3) When Susan has finished, “Who was second? Was it you Deb? Go ahead.” (4) After the last person has spoken, “Does anyone else have something to add?”</td>
<td></td>
</tr>
</tbody>
</table>
Facilitating Discussion

Regardless of your skill as a facilitator and the amount of preparation you put into the training, you will inevitably face some difficult situations. This section covers how to handle the following types of situations:

- Discussion Dominators
- No Response
- Off-topic Discussions
- Side Conversations
- Skipping Ahead
- Interpersonal Conflicts
- Rambling Discussions
- Sensitive Topics

Discussion Dominators

If someone is doing a lot of the talking it may prevent others from contributing their thoughts, which limits their active learning. Although it may seem intimidating, it can be very easy to reduce the amount of sharing coming from one participant.

- Wait for a pause in her speaking, such as when she takes a breath, respectfully acknowledge her contribution, and thank her. You can say something like, “I really appreciate your comments.”
- Then make direct eye contact with other participants and ask something like, “I’m very interested in hearing how other people are feeling about this issue” or “It’s very interesting to get a variety of perspectives, and I would like to hear from other people as well.”

No Response

Every facilitator has stood before a group that stares at her blankly after she asked what she thought was a very simple question. Even questions that stimulated the most interesting discussions with one group can fall completely flat with another. In this kind of situation, it is helpful to try to understand why participants are not responding.

- Did you ask a question that was difficult for the participants to understand? If so, rephrase or reword the question in a way that ensures that salient issues are explored.
- Do you think you might have asked a sensitive question (i.e., something that people are afraid to answer honestly because it might make other people angry)? Please see the last part of this section for ideas on how to handle sensitive topics.

* Most of these guidelines are taken from the CAPE “Focus Group Training Manual,” January, 2006
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- **Are people tired of talking about the topic and/or do they have no more to say about a topic?** In this case, it may be important to simply state, “Is there anything else that you would like to share? [pause] If not, we can move on.” If you, as the facilitator, think you haven’t gotten all of the information you want on that topic, rather than trying to force the issue, just be aware that there may be an opportunity to elicit salient information through probing that occurs with respect to other questions.

- **Are participants bored of discussions and need more stimulating activities to get them thinking?** Even though the Public Health 101 training is filled with engaging activities, it might not be enough. For instance, there may be times when you are conducting a training after a particularly exhausting week for many of the participants and so they are dragging. Instead of trying to force the training as you planned it, transform the discussions into activities.

  **HINT:** The following website has a lot of good suggestions on how to turn discussions into activities:


- **Are people feeling uncomfortable about talking?** This typically occurs at the beginning of a training and is less likely to occur when the facilitator is able to set a comfortable tone and put people at ease in the beginning. If you sense that the group is not warmed-up enough, you can try another ice breaker or jump straight to an activity. If, however, this continues to be an issue during the training, talk about easier topics, things that you think participants may be more familiar with or comfortable talking about, or, perhaps, things that you know are particularly interesting to them. If no one responds to a question, and you aren’t sure exactly what the problem is, it’s okay sometimes to just wait it out. Be quiet for a moment and allow people time to think. Often, someone will speak up, either to answer the question or to ask a question that allows you to better understand the silence.

**Off-topic Discussions**

When the group begins to talk about issues not relevant to the training, you might take advantage of a pause and say, “Thank you for that interesting idea. Perhaps we can discuss it in a separate session. For the purposes of exploring further the specific topics that are the focus of this discussion, with your consent, I would like to move on.”

**Side Conversations**

One of the best ways to handle a situation in which some people are having a private discussion is to address it before the training begins, when you set ground rules. Stress that it is very important not to have side conversations because it interferes with individual’s full participation in the group discussion.
Do not stop the discussion abruptly. Unless a side conversation is so distracting it absolutely cannot be ignored, do not interrupt a speaker in order to ask others to quiet down; this may make the speaker lose her train of thought and can disrupt the flow of the discussion. Instead, wait until the speaker has finished and respond to the person first. Then, you might respectfully remind people of the ground rules and ask that people finish their conversations and rejoin the larger group discussion.

HINT: This kind of disruption may also signal that it is time to take a break, and you may want to suggest no more than a five minute break. It will be important to make sure people know at what time the training will continue and be proactive about bringing people back together so that the training can continue.

Skipping Ahead

When a participant skips ahead, providing information relevant to topics you have not yet covered, you can use probes to gently return the person to the topic at hand. You do not want to interrupt the participant; rather, let her finish her thought and remain an active listener. Acknowledge what she said and that it was an interesting point and that you would love to hear more from her once the group gets to the topic. Once you get to that topic, acknowledge that relevant information has already been shared, paraphrasing what the participant said. Ask the participant if there is anything else she would like to add on the topic and then ask the group for feedback on her point. Make sure that all group members have an opportunity to explore the issue more fully, if need be.

Interpersonal Conflict

If two or more people in the group begin arguing with each other in an unproductive manner, you must confront the situation before it spirals out of control. You can try to defuse the situation with humor, or give the participants an easy way out of the argument by reframing what they are saying and moving on. If this does not work, direct the whole group to the ground rules. If one group member continues to target attacks at one person, ask that person specifically to respect the ground rules. If the conflict continues, address the problem directly, asking for any underlying reasons that might be fueling the conflict. Finally, if that does not work, speak to the person or persons involved separate from the group.

HINT: Again, this kind of disruption may also signal that it is time to take a break. During the break, go and talk to the participants involved in the conflict and see if there is something you can do to calm them down and resolve the conflict before the break ends.

Rambling Discussion

In order to get through the whole training, some discussions need to be curtailed, even when they are productive and interesting. When a discussion has gone on for too long, you can jump in when someone takes a breath and comment on the quality of the discussion, but add...
that it is time to move on. Summarize the key points and offer to resume the discussion later if there is time. (Congratulate yourself on successfully engaging the participants!)

**Sensitive Topics**

Introducing sensitive topics is one of the trickiest aspects of facilitation. The following tips can help you prepare the participants and maximize their sense of safety discussing the issue.

- **Pilot test questions.** If you know a particular question may bring up sensitive issues, check with others to see how they perceive it and if there is a better way to ask it.
- **Address the issue from the beginning.** Do not surprise participants with a sensitive topic and acknowledge that it may be harder to talk about the topic than ignore it. Letting people know that the training will delve into sensitive areas can help participants prepare. A good time to do this is while the group is setting ground rules - it is helpful to encourage participants to devise rules that will help them feel comfortable talking about sensitive issues.
- **Pick an ice breaker that really encourages trust.** Low physical activity ice breakers, like sharing the origin of one’s name, can help keep the energy at a calm and thoughtful level once the sensitive topic is broached. Additionally, it is helpful to pair positive and light ice breakers, such as, “What is one fun thing you did over the weekend?” with heavy discussions. Doing this ensures that the whole session is not emotionally difficult for the participants.
- **Gradually build up to sensitive discussions.** Do not attempt to engage the participants in a sensitive discussion with the first question. Groups need time to get to know each other and form trust.
- **Be prepared to change plans.** If participants are very upset or are simply not responding, you may have to change your plans. When participants are not responding try rephrasing the question or asking a slightly different question. You can also try moving to a different question or a less sensitive topic, and returning to the difficult issue later. Either approach may make it possible to pose a less controversial question to the group. You can use these techniques, as well as trying another ice breaker, when participants are upset.
- **Use breaks to check in with people.** It is helpful to break after addressing a sensitive topic, especially if some participants seemed upset during the discussion. It is very important to check in with all participants, but especially those who seem upset. Make sure to check in with these participants face to face, rather than ignoring them and their feelings.
- **Be willing to share your own opinions and experiences when appropriate.** If you struggle with something the group is struggling with, your comments might make them feel more comfortable sharing their thoughts. However, remember that the discussion should focus on participants’ ideas, not yours.
Ending

It is important to provide closure in order to ensure participants leave feeling positive. This section covers two aspects of ending:

- Debriefing
- Closing

Debriefing

Debriefing after the training is essential to getting feedback from participants on the training. It is not only beneficial for the instructor, who can use the feedback to improve subsequent trainings, it is a good chance for participants to express their thoughts so that the feel their voice is truly heard. Some guidelines for a successful debriefing include:

- **Make the objective clear.** Make sure that they understand that debriefing is used for you to gain an understanding of participants’ reactions, suggestions and ideas for what went well and what did not, and how the training can be improved. They can comment on the clarity or flow of content at this point, but comments rehashing a participant’s ideas regarding the topic should be redirected.
- **Keep the discussion focused.** Ask for constructive feedback related to the current training only.
- **Encourage feedback.** Tell participants how much you value their observations and ideas, thanking each person for any debriefing comments they contribute.

Debriefing should not be optional for participants. Make sure that you debrief within the time scheduled for the training so that participants do not leave before they have given you their feedback.

Closing

After debriefing, thank the group for their participation and say good bye. Instead of immediately collecting your materials and breaking-down the room, or turning to debrief with your co-trainer, position yourself in a place where participants can access you. There may be participants who have questions or comments they did not want to share with the group, who want to thank you, or want to have personal contact with you for some reason. Validate their needs by being available, as this will send them off feeling personally connected to the training.
Appendix A

Ice Breakers

Silent Interviews
1. Divide the group into pairs - try to mix the group into pairs of folks who don't know each other well.
2. Ask the participants to introduce themselves to their partner.
3. Instruct the group that from this point forward, speaking is not allowed. This includes whispering, mouthing words, and making sounds, too!
4. Inform the group that they must tell their partner 3 things about themselves without speaking, similar to a charades game. These things cannot be physical characteristics.
5. Once all of the partners have finished miming to each other, call everyone back into a circle.
6. Ask for each pair to verbally introduce their partner to the group, as well as the three things that they learned (or think they learned).

Chatter Bugs

Required items: “Chatter Bugs” handouts with discussion topics predetermined by trainer. Each participant should receive one. The topics should be relevant to the training.

<table>
<thead>
<tr>
<th>Possible Discussion Topics for Public Health 101</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ What unit do you work in?</td>
</tr>
<tr>
<td>➢ How long have you worked here?</td>
</tr>
<tr>
<td>➢ Where are you from?</td>
</tr>
<tr>
<td>➢ How do you describe your culture?</td>
</tr>
<tr>
<td>➢ Do you work directly with community members?</td>
</tr>
<tr>
<td>➢ Do you think the health of the community has changed recently?</td>
</tr>
</tbody>
</table>

1. Ask participants to pair up with a buddy and introduce themselves.
2. Have participants select one of two categories – Ladybugs or Lightening Bugs.
3. Have all Ladybugs form a circle with their backs toward the center of the circle.
4. Have all Lightening Bugs face their partners in a larger circle outside the Ladybugs.
5. Once everyone is in place, issue “Chatter Bugs” handouts with suggestions to chat about.
6. Have all participants rotate 1 person to their right to face a new partner.
7. Call out a “Chatter Bugs” topic from the handout and instruct participants to begin chatting about it with their new partner. Each person gets 30 seconds to respond.
8. After 1 minute, signal that the time is up. Instruct participants to rotate 1 person to their right to face another new partner. Call out a different topic and have participants repeat the process until they have completely gone around the circle and met everyone.
9. Allow a few minutes of free time at the end of the activity for participants to mingle and discuss the things they didn't get to cover with people they'd like to get to know better.
Glossary of Toxics Terminology

A fact sheet from Toxic Free NC

**Acute toxicity** – Refers to effects that occur immediately after exposure to a toxic substance (hours/days). Usually the term *acute* refers to a short-term and high-dose exposure (see *subchronic* and *chronic* for comparison).

**Antimicrobial** – Any chemical used to kill or prevent microbes (including bacteria, fungi, parasites, and viruses).

**Carcinogen** (Carcinogenicity, carcinogenic) – Any substance that promotes abnormal cell growth that can lead to cancer.

**CAS number** – (Chemical Abstracts Service number) A specific number assigned to identify a chemical by the American Chemical Society. The numbers have no chemical meaning.

**Chronic toxicity** – Refers to health effects that occur or persist after a long-term repeated exposure to a toxic substance (months or years). Usually this refers to a low-dose exposure (see *acute* and *subchronic* toxicity for comparison).

**Cholinesterase inhibition** – A substance that injures living organisms by inhibiting the activity of nerve function (for example, organophosphate and carbamate pesticides are cholinesterase inhibitors).

**Combustible** – Refers to a material that will ignite (catch fire) easily.

**Corrosive** – A substance that causes visible damage to living tissue through a chemical process.

**Developmental** – Usually refers to changes occurring during certain growth process (for example, brain development in a child). Some developmental stages can be very sensitive to environmental exposures.

**Emphysema** – A chronic disease of the lungs that makes breathing difficult.

**Endocrine Disruptor** – Substances that cause the endocrine system (the hormone system) not to function properly. Endocrine disruptors can cause developmental defects, reproductive problems, and certain cancers (see *endocrine system*).

**Endocrine System** – Includes glands and hormones that signal the body in growth, reproduction, and development.

**EPA** – (Environmental Protection Agency) The US government organization charged with protecting the environment and human health through certain regulations. The EPA’s Office of Pesticide Programs is in charge of federal pesticide regulation.

**EPA registration number** – Identification number for all registered pesticides; consists of two numbers, the company number and a product number, separated by a dash (-). Sometimes, there is a third set of numbers, which indicates a different distributor.

**Fetus** (fetal) – An unborn human or animal.

**Flammable** – A substance that burns quickly and easily.

**Flash point** – The temperature at which a substance gives off a vapor that can form a flammable mixture with air.

**Fungicide** – Chemicals used to kill or prevent fungi.

**Genotoxic** (genotoxic, genotoxicity) – A substance that causes or induces damage to DNA.

**Herbicide** – Chemical used to kill/prevent plants or weeds.
IARC – (International Agency for Research on Cancer) An inter-governmental scientific group that classifies chemicals based on their cancer-causing potential.

Insecticide – Chemical used to kill/prevent insects.

Interaction – Refers to the way in which a combination of chemicals may increase or decrease the dangers of the chemicals involved.

LD₅₀ – In a toxicology study, this is the level at which a single dose causes death in half of the test animals participating in the study (acute toxicity is normally defined by LD₅₀ values).

LOEL, LOAEL (Lowest Observed Effect Level, Lowest Observed Adverse Effect Level) – Lowest dose in a toxicology study at which a toxic or adverse effect was seen.

Mg/m³ – (milligrams per meter cubed) A measure of concentration (weight by volume).

Miscible – A liquid or gas that will easily dissolve in another substance.

Mutagen (mutagenicity, mutagenic) – A substance that causes damage to DNA, and that can possibly lead to cancer.

NCDA – (North Carolina Department of Agriculture) A state agency that is responsible for agriculture and related issues. The NCDA Pesticide Section regulates pesticides in North Carolina.

Neurotoxin (neurotoxic) – A substance that affects nerve cells and can produce a variety of symptoms, including headaches, vomiting, shaking or twitching, sweating, emotional and/or behavioral changes, and even death.

NIOSH – (National Institute for Occupational Safety and Health) A federal agency that tests equipment, conducts studies of workplace hazards, and proposes safety standards for the workplace.

NOEL, NOAEL (No Observed Effect Level, No Observed Adverse Effect Level) – Highest dose in a toxicology study at which no toxic effects were observed (see LOEL).

Paresthesia – A condition causing ongoing burning or feeling of “pins and needles”. This condition is often caused by heavy metal poisoning (lead, arsenic, etc.).

Pesticide - A substance used to kill, prevent, or control living organisms.

ppm – (parts per million) Measure of the concentration of a substance by volume.

Poison – A toxic substance that can cause death or illness.

Reactive – The description of how a substance releases energy under certain conditions (usually in the form of heat).

Reproduction (reproductive) – Having to do with creating offspring or children, including organs (e.g. penis) and function (e.g. the ability to become pregnant).

Respiratory – The body system involved in breathing (including mouth, nose, lungs, diaphragm).

Subchronic toxicity - Refers to toxic effects that occur after repeated exposures (for weeks or months). Usually this term refers to a moderate exposure over a moderate length of time (see acute and chronic toxicity for comparison).

Teratogen (teratogenic, teratogenicity) – Substance that causes defects in the developing embryo or fetus.

Toxic – A substance that causes adverse and possibly harmful biological effects (see LD₅₀).

Xenobiotic – A chemical or chemical mixture that is foreign to the body.
INFORMACIÓN QUE TIENES DERECHO A SABER
Centro de Recursos Agrícolas y Proyecto de Educación sobre Pesticidas

Glosario de Terminología en Tóxicos

**Antimicrobicida** – Cualquier químico usado para matar o prevenir microrganismos (incluyendo bacterias, hongos, y virus.

**Carcinógeno** – (Carcinogeneidad, Carcinogénico) – Cualquier sustancia que promueve el crecimiento de células anormales que pueden causar cáncer.

**Combustible** – Se refiere a un material que se enciende (prende en fuego) fácilmente.

**Corrosivo** – Una sustancia que causa daño visible a tejidos vivientes por medio de un proceso químico.

**Desarrollo** – Usualmente se refiere a los cambios que ocurren durante cierto proceso de crecimiento (por ejemplo, desarrollo del cerebro en un niño). Algunas etapas de desarrollo pueden ser muy sensivas a exposiciones ambientales.

**Disruptor Endocrino** – Sustancia que causa que el sistema endocrino (la hormona del sistema) no funcione apropiadamente. Los disruptores endocrinos pueden causar defectos de desarrollo, problemas reproductivos, y ciertos tipos de cáncer (ver *sistema endocrino*).

**Enfisema** – Una enfermedad crónica de los pulmones que dificulta la respiración.

**EPA** – (Agencia de Protección Ambiental) La organización gubernamental de EEUU encargada de proteger el medioambiente y la salud humana mediante ciertas regulaciones. La Oficina de Programas de Pesticidas de EPA está encargada de la regulación federal de pesticidas.

**Feto** (fetal) – Un humano o animal que no ha nacido.

**Flamable** – Una sustancia que se quema rápidamente y fácilmente.

**Fungicida** – Químicos usados para matar o prevenir los hongos.

**Genotóxico** – (Genotóxico, Genotoxicidad) – Una sustancia que causa o provoca daño al ADN.

**Herbicida** – Químico usado para matar o prevenir las malas hierbas.

**IARC** – (Agencia Internacional para las Investigaciones en Cáncer) Un grupo científico inter-gubernamental que clasifica los químicos basándose en su potencial para causar cáncer.

**Inhibición “Cholinesterase”** – Una sustancia que lesiona organismos vivientes a través de la inhibición de la actividad del funcionamiento de los nervios (por ejemplo, organofosfato y pesticidas “carbamate” son inhibidores “cholinesterase”).

**Insecticida** – Químico usado para matar o prevenir insectos.

**Interacción** – Se refiere a la manera en que una combinación de químicos podría incrementar o disminuir lo dañino de los químicos envueltos.

**LD50** – En un estudio de toxicología, este es el nivel en el cual una simple dosis causa la muerte en la mitad de los animales utilizados en el estudio (*toxicidad aguda es normalmente definida por valores LD50*).

**LOEL, LOAEL** – (Menor Nivel de Efecto Observado, Menor Nivel de Efecto Adverso Observado) – El menor nivel en el cual un tóxico o efecto adverso fue visto en un estudio de toxicología.

**Mg/m³** – (miligramos por metro cúbico) Una medida de concentración (peso por volúmen).

**Miscible** – Un líquido o gas que se disolverá fácilmente en otra sustancia.

**Mutagénes** – (Mutagénico, Mutagénes) – Una sustancia que causa daño al ADN, y que podría ocasionar cáncer.

**NCDA** – (Departamento de Agricultura de Carolina del Norte) Una agencia del estado que es responsable por la agricultura y asuntos relacionados con la misma. La Sección de Pesticidas de la NCDA regula los pesticidas en Carolina del Norte.

Continua en la parte de atrás
Neurotoxin – (Neurotóxico) Una sustancia que afecta las células nerviosas y que puede producir una variedad de síntomas, incluyendo dolores de cabeza, vómito, temblor o jalones, sudor, cambios emocionales y/o de comportamiento, y hasta la muerte.

NIOSH – (Instituto Nacional para la Seguridad y Salud Ocupacional) Una agencia federal que examina equipos, conduce estudios de riesgo en el lugar de trabajo, y propone estándares de seguridad para el lugar de trabajo.

NOEL, NOAEL – (Nivel de Efecto No Observado, Nivel de Efecto Adverso No Observado) – La máxima dosis en un estudio toxicológico en el cual no fueron observados efectos tóxicos.

Número CAS – (Número de Servicio de Abstractos Químicos) Un número específico asignado para identificar un químico por la Sociedad Americana de Químicos. Los números no tienen un significado químico.

Número de registro de EPA – Número de identificación para todos los pesticidas registrados: consiste en dos números, el número de la compañía y el número del producto, separados por un guión (-). A veces, hay un tercer set de números, que indica un distribuidor diferente.

Parestesia – Una condición que causa constante quemazón o sensación de “pulgas y agujas”. Esta condición es frecuentemente causada por envenenamiento con metales fuertes (plomo, arsénico, etc.).

Pesticida – Una sustancia usada para matar, prevenir, o controlar organismos vivientes.

ppm – (partes por millón) Medidas de concentración de una sustancia por volumen.

Punto flash – La temperatura a la cual una sustancia emite vapor que puede formar una mezcla flammable con aire.

Reactivo – La descripción de como una sustancia suelta energía bajo ciertas condiciones (usualmente en la forma de calor).

Reproducción – (Reproductivo) Tiene que ver con la creación de descendencia o hijos, incluyendo órganos (pene) y funcionamiento (la habilidad de quedar embarazada).

Respiratorio – El sistema del cuerpo que envuelve la respiración (incluyendo boca, nariz, pulmones, diafragma).

Sistema Endocrino – Incluye las glándulas y hormonas que señalan el cuerpo en crecimiento, reproducción y desarrollo.

Teratógeno – (Teratogénico, Teratogenicidad) Sustancia que causa defectos en el desarrollo del embrión o feto.

Toxicidad Aguda – Se refiere a los efectos que ocurren inmediatamente después de la exposición a una sustancia tóxica (horas/días). Usualmente el término agudo se refiere a exposición a corto plazo y grandes doses (ver toxicidad subcrónica y crónica para comparación).

Toxicidad Crónica – Se refiere a los efectos de salud a largo plazo, que ocurren o persisten después de una exposición repetida a una sustancia tóxica (meses o años). Usualmente esto se refiere a una baja dosis de exposición (ver toxicidad aguda y subcrónica para comparación).

Toxicidad Subcrónica – Se refiere a efectos tóxicos que ocurren después de exposiciones repetidas (por semanas o meses). Usualmente este término se refiere a una exposición moderada en un periodo de tiempo moderado (ver toxicidad aguda y crónica para comparación).

Tóxico – Una sustancia que causa efectos biológicos adversos y posiblemente dañinos (ver LD₅₀).

Veneno – Una sustancia tóxica que puede causar muerte o enfermedad.

Xenobiótico – Un químico o mezcla química que es desconocida para el cuerpo.
Toxic-Free Pest Control from your Pantry
A fact sheet from Toxic Free NC

**Roach Balls**
1 cup borax
1/4 cup sugar
1/4 cup minced onion
1 Tbsp. Cornstarch
1 Tbsp. Water
Make a paste of the ingredients and roll into little balls.
**To use:** Place 2 or 3 balls in a sandwich bag anywhere you have a roach problem. The roaches will eat the balls and carry them home to their nests, where they will die.
**Boric acid or borax** is safe to handle, though inhaling it in large amounts can irritate the respiratory tract. Because it is not a nerve poison, roaches will not become resistant.

**Mold & Mildew Killer**
1/2 cup white vinegar
1/2 cup borax
2 cups warm water
Pour or spray onto moldy areas and let sit for a few minutes, then scrub off with a brush. If mildew is still visible, repeat application. Do not save the leftover mixture.

**Ant Bait**
3 cups water
1 cup sugar
4 tsp. Borax
**To use:** Mix together and place the mixture in 3 to 6 screw top jars. Loosely pack with cotton wool. Screw the lids on tightly and seal with tape. Poke holes in the lid and place near points of entry, or along ant trails, for best results.
**Boric acid or borax** is safe to handle, though inhaling large amounts can irritate the respiratory tract. Clearly label the jar as POISON and keep away from pets and curious children.

**Herbal Insect Repellent**
15 drops lavender oil
15 drops tea tree oil
10 drops citronella oil
10 drops eucalyptus oil
10 drops cedarwood oil
In a small bottle, mix these with about one ounce of your favorite unscented skin oil (olive oil works fine).
Not recommended for pregnant women. Keep out of your eyes. Try a small amount on your wrist first to check for skin allergies. Experiment with different ingredients to develop your own blend!

Find out more about toxic-free alternatives to pesticides at www.ToxicFreeNC.org
### Control No Tóxico para las Plagas desde su Despensa

#### Receta práctica para controlar las plagas

**Bolas para Cucarachas**
- 3 tazas de agua
- 4 cucharadas de azúcar
- 2 cucharadas de cebolla picada
- 1 cucharada de almidón de maíz
- 1 cucharada de agua

**Modo de uso:** Haga una pasta con los ingredientes y forme pequeñas bolas con la pasta. Luego, déjelas en lugares donde haya cucarachas. Las cucarachas se comerán las bolas y las llevarán consigo a sus nidos, donde morirán. Acido bórico (bórax) se puede manipular sin riesgo, aunque el inhalar grandes cantidades del mismo puede irritar el conducto respiratorio. Porque no es un veneno para los nervios, las cucarachas no se pondrán resistentes.

**Matador de Moho**
- 1/2 taza de vinagre blanco
- 1/2 taza de bórax
- 2 tazas de agua tibia

**Modo de empleo:** Viértalo o espárcelo en el área mohaza y déjelo reposar por algunos minutos, luego remuévalo con un cepillo. Si el moho todavía está presente, repita la aplicación. No guarde la mezcla que sobra.

**Carnada para Hormigas**
- 3 tazas de agua
- 1 taza de azúcar
- 4 cucharaditas de bórax
- 1 cucharada de aceite de oliva

**Modo de uso:** Mezcle todos los ingredientes y agregue una pequeña cantidad a los lugares de entrada de las hormigas. Las hormigas se comerán la carnada y las llevarán a sus nidos, donde morirán. Acido bórico (bórax) se puede manipular sin riesgo, aunque el inhalar grandes cantidades del mismo puede irritar el conducto respiratorio. Etiquete claramente el frasco como VENENO y manténgalo alejado de mascotas y niños curiosos.

**Repelente de Hierbas para Insectos**
- 15 gotas de aceite de lavanda
- 15 gotas de aceite del “árbol de té”
- 10 gotas de aceite de citronela
- 10 gotas de aceite de eucalipto
- 10 gotas de aceite de madera de cedro

**Modo de empleo:** En una botella de plástico de presión, mezcle estos ingredientes con su aceite sin aroma para la piel preferido (el aceite de oliva funciona bien.) No se recomienda a mujeres embarazadas. Mantenga fuera del contacto con los ojos. Pruebe una cantidad pequeña en su muñeca primero, para chequear si hay sensibilidad en su piel. Experimente con otros ingredientes y cree su mezcla personal!
Proteja a su Familia de Pesticidas Tóxicos
Hoja Informativa del Centro de Recursos Agrícolas y Proyecto de Educación sobre Pesticidas

Las familias latinas pueden correr más riesgo de tener problemas de salud causados por productos químicos tóxicos que se encuentran en el medioambiente, incluyendo pesticidas. En Estados Unidos, los niveles de pesticidas tóxicos encontrados en mujeres, niños y personas latinas son más altos que en otra gente.1

Los pesticidas son productos venenosos usados para matar insectos y malas hierbas. También son peligrosos para las personas, especialmente niños pequeños y mujeres embarazadas. Recientemente, médicos en Canadá recomendaron que, debido al riesgo que presentan para la salud, se debe evitar la exposición a todo tipo de pesticidas.2

Los residuos de pesticidas son muy comunes en hogares.3 Entran cuando …
…los pesticidas se usan para controlar insectos, malas hierbas u otras plagas, tanto fuera como dentro del hogar.
…los pesticidas son utilizados en campos de cultivo o en lugares cerca de su casa, y se extienden por medio del aire o contaminan el agua.
…una persona que ha utilizado pesticidas, o ha pasado tiempo donde son utilizados, traen los residuos de dichos pesticidas dentro de la casa en los zapatos, la ropa o el cuerpo.
…envases o equipo utilizados en la aplicación de pesticidas son guardados o utilizados en casa.
…frutas y vegetales están contaminados con residuos químicos utilizados donde son cultivados.

Una vez que contaminan la casa, los pesticidas duran bastante tiempo. Residuos invisibles de pesticidas pueden permanecer en el aire y en el polvo dentro del hogar por semanas, meses o aún más tiempo; quedando así protegidos del viento, de la lluvia y del sol.

Dentro de la casa, los niños pueden fácilmente tocar, respirar y tragar residuos de pesticidas. Las pesticidas se encuentran en la capa de aire mas cercana al suelo, donde los niños pequeños respiran.4 También se depositan en el suelo, donde los niños juegan. Los pesticidas pueden adherirse a los juguetes, especialmente a las fibras de juguetes rellenos, las almohadas y otras cosas de consistencia suave.3

Los niños son más sensibles que los adultos a productos químicos tóxicos en el ambiente. Al ser más pequeño, el cuerpo de un niño absorbe más productos químicos por libra. Al estar aun desarrollándose, los cuerpos de los niños no pueden asimilar dichos productos químicos como el cuerpo de un adulto. Cuando los bebés crecen rápidamente, por ejemplo durante el embarazo, la infancia o periodos activos de crecimiento, el riesgo a su salud debido a la exposición a productos tóxicos es aun más grande.

Algunos pesticidas pueden aumentar el riesgo de que un niño desarrolle enfermedades crónicas como asma,6 problemas mentales y emocionales, esterilidad y otros problemas del aparato reproductivo, defectos de nacimiento y algunas formas de cáncer.7

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7 Sanborn, M et al.
AED is a nonprofit organization working globally to create enduring solutions to critical problems in health, education, social and economic development. Collaborating with partners throughout the world, AED develops and implements ideas that change lives through more than 300 programs in all 50 U.S. states and more than 150 countries.

www.aed.org
Protecting Children from Environmental Hazards

APPENDIX

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Protecting Children from Environmental Hazards

APPENDIX