CME – Start to Finish
Example for Training

Dr. Minako Watabe
Environmental Exposures in Pregnancy
February 12, 2014
June 21, 2013

Hi Everyone,

On May 6th, I attended the ACOG Annual Clinical Meeting in New Orleans where Dr. Judice from UCSF gave a great presentation on toxic exposures in pregnancy. I would love to go over some of these issues for a CME conference in the coming year. It would be particularly important to our patient population as they are exposed to many toxic exposures including pesticides.

Thanks,

Minako Watabe
Interesting article email.txt

From: Minako Watabe
To: Allison Blaze; Frederick Kelley; Ira Silverman; Juan Vega; Katherine Edwards; Lily Mallare; Robert Lefkowitz; rblefko@charter.net

Date: 12/10/2013 1:29 PM
Subject: interesting article

This article talks about some preliminary findings in studies re: BPA. I am always skeptical of preliminary findings such as these but we can probably expect more (concrete) evidence to be available soon. I wonder if this is something to talk to patients about rather than telling them not to eat sushi though -or you can tell them both ;)

m

http://www.washingtonpost.com/national/health-science/bpa-is-still-everywhere-and-mounting-evidence-suggests-harmful-effects/2013/12/06/2ff4a462-5b5d-11e3-a49b-90a0e156254b_story.html
I think I would like to discuss Environmental Exposures in Pregnancy
1) Discuss evidence regarding most common harmful environmental exposures in pregnancy
2) Discuss exposures specific to the underserved population in Ventura (farm workers, etc)
3) Distribute information on resources for patients and providers regarding environmental toxins
Ira, can you let me know what forms I need to fill out and I'll get working on it
Thank you!
Minako
IMQ Tips to Writing Learning Objectives for CME Activities

A learning objective is a statement that describes the knowledge, skills, and/or attitudes that participants will gain from the educational activity. When developing objectives, ask these questions: What should the result of the educational activity be for participants? What should the participant be able to do? What should the participant know?

Why develop learning objectives?
CME activities use learning objectives to:
- Assist prospective participants determine whether this educational activity meets their needs or interests.
- Guide the sequence of and the best methodology for achieving the desired learning (objectives).
- Help identify the intended results in terms of knowledge (facts and information) that help to build competence (knowing how to do something), and improve performance (what one actually does in practice) and ultimately lead to improved patient outcomes.
- Serve as the lynch pin: When a learner is able to successfully achieve the stated objectives, it should satisfy the defined need and close or help to close the identified gap.

How to write a learning objective
For the purpose of CME activities, write learning objectives that:
- Are congruent with identified gaps and needs, and reflect your CME mission
- At a minimum, learning objectives should lead to improved competence
- Write each objective from the perspective of the learner (what they will learn), not from a faculty/presenter perspective (what you will teach)
- List each objective in measurable terms
- Focus on only one desired action or outcome per objective
- Sequence objectives to build the foundation of knowledge that is essential to develop competency or enhance performance.
- Each objective should begin with this statement: “Upon completion of this learning activity, the learner should be able to...”
- Consider the following verbs when formulating learning objectives. They are arranged progressively by Bloom’s Taxonomy and by knowledge, competence and performance.

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# IMQ Tips to Writing Learning Objectives for CME Activities

**Building competency and enhancing performance**

<table>
<thead>
<tr>
<th>INFORMATION (knowledge)</th>
<th>COMPREHENSION (knowledge)</th>
<th>APPLICATION (competence)</th>
<th>ANALYSIS (competence)</th>
<th>SYNTHESIS (performance)</th>
<th>EVALUATION (performance)</th>
<th>SKILLS (performance)</th>
<th>ATTITUDE</th>
<th>AVOID THESE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cite</td>
<td>Associate</td>
<td>Adapt</td>
<td>Analyze</td>
<td>Arrange</td>
<td>Appraise</td>
<td>Diagnose</td>
<td>Acquire</td>
<td>Understand</td>
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<td>Count</td>
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<td>Apply</td>
<td>Appraise</td>
<td>Assemble</td>
<td>Approve</td>
<td>Empathize</td>
<td>Exemplify</td>
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<td>Compare</td>
<td>Calculate</td>
<td>Break down</td>
<td>Collect</td>
<td>Assess</td>
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<td>Describe</td>
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<td>Chart</td>
<td>Categorize</td>
<td>Compose</td>
<td>Choose</td>
<td>Integrate</td>
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<td>Appreciate</td>
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<td>Draw</td>
<td>Contrast</td>
<td>Complete</td>
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<td>Construct</td>
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<td>Indicate</td>
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<td>Demonstrate</td>
<td>Correlate</td>
<td>Design</td>
<td>Critique</td>
<td>Measure</td>
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February 5, 2014

Dear Dr. Watabe

We would like to invite you to present at the Ventura County Medical Center (VCMC) Medicine CME Activity on February 12, 2014. The content of the program is targeted for attending physicians, including internal medicine physicians along with specialists who participate in the care of patients at VCMC. **February's CME Theme is: Cardiovascular Health.**

**Ob/Gyn Lecture: Environmental Exposures in Pregnancy**

*CME Objectives determined by CME Planning Committee*

1. Identify most common harmful environmental exposures in pregnancy.
2. Classify/categorize toxic chemical exposure specific to the underserved population in Ventura County, especially farmworkers.
3. Utilize information and resources for patients and providers regarding environmental toxins and their impact on reproductive health.

The Cultural and Linguistic areas we would like for you to address are:

1. Work and environmental exposures for women farmworkers
2. Socioeconomic factors

The Ventura County Medical Center Continuing Medical Education is accredited by the Institute for Medical Quality/California Medical Association (IMQ/CMA) to provide continuing medical education for physicians.

Ventura County Medical Center designates this live activity for a maximum of 1 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

This credit may also be applied to the CMA Certification in Continuing Medical Education.

We are pleased to extend this invitation to you as a CME speaker and welcome your participation.

- Please review the CME Disclosure Policy (see attached)
- Complete Speaker Disclosure Form (attached) **please disregard, already on file**
- Return Speaker Disclosure Form to Office of Medical Education, **already on file**
- Provide CV and all presentation materials for Review to Medical Education

All materials are due by: Monday, February 10, 2014

If you have questions, please contact us at VCMC Office of Medical Education at 805-652-6228.

We look forward to seeing you!

Sincerely,

Vickie Yuschenkoff

Program Administrator, VCMC CME for Drs. Lambing and Silverman
Section 1 of 5: Activity Description

<table>
<thead>
<tr>
<th>Activity Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
</tr>
<tr>
<td><strong>Speaker</strong></td>
</tr>
<tr>
<td><strong>Confirmed Date</strong></td>
</tr>
<tr>
<td><strong>This activity is presented by the</strong></td>
</tr>
<tr>
<td><strong>Date</strong></td>
</tr>
<tr>
<td><strong>Time</strong></td>
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<tr>
<td><strong>Location</strong></td>
</tr>
<tr>
<td><strong>AMA PRA Category 1 Credit(s) Requested</strong></td>
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<tr>
<td><strong>Other Continuing (CE/CEU) credits offered for this Activity</strong></td>
</tr>
</tbody>
</table>

**Type of Activity (select all that apply):**
- [X] Regularly Scheduled Series (grand rounds, tumor boards, etc)
  - Frequency: [ ] 2/week [ ] 1/week [ ] 2/month [X] 1/month [ ] Quarterly [ ] Other: ________
- Other type of activity, please specify: ________

**Sponsorship (Note: a pharmaceutical company or medical device manufacturer is a commercial supporter and cannot serve as a sponsor):**
- [X] Directly sponsored (VCMC department works with VCMC Medical Education)
- [ ] Jointly sponsored (VCMC works with non-ACCME accredited provider) - List Company Name(s): ________

**Credit Type Requested (select all that apply – *additional fees apply):**
- [X] American Medical Association AMA PRA Category 1 Credit(s)™
  - American Academy of Family Physicians (AAFP) – AAFP member must be involved with the activity*

Section 2 of 5: Leadership and Administrative Staff Support

**Activity Medical Director (AMD)** The physician who has overall responsibility for planning, developing, implementing, and evaluating the content and logistics of a certified activity, and must be a member of the VCMC Medical Staff

<table>
<thead>
<tr>
<th>Name</th>
<th>Ira Silverman</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
<td>Co-Director, Dept. of Obstetrics and Gynecology</td>
</tr>
<tr>
<td><strong>Affiliation</strong></td>
<td>VCMC</td>
</tr>
<tr>
<td><strong>Department</strong></td>
<td>Ob/Gyn</td>
</tr>
<tr>
<td><strong>Phone</strong></td>
<td>805-652-6229</td>
</tr>
<tr>
<td><strong>Email</strong></td>
<td><a href="mailto:Ira.silverman@ventura.org">Ira.silverman@ventura.org</a></td>
</tr>
</tbody>
</table>

**Activity Co-Director (optional)** The individual who shares responsibility for planning the certified activity. Designating an Activity Co-Director is optional, but strongly encouraged, for a jointly sponsored or co-sponsored activity.

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree(s)</th>
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<tbody>
<tr>
<td><strong>Title</strong></td>
<td></td>
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<tr>
<td><strong>Affiliation</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Department</strong></td>
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<td><strong>Phone</strong></td>
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<tr>
<td><strong>Email</strong></td>
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</tbody>
</table>

*Regularly Scheduled Series are daily, weekly, monthly or quarterly CME activities that are primarily planned by and presented to the organization's professional staff.

1The AMD, co-director, administrative coordinator (if applicable) and all planning committee members will be required to complete the VCMC Medical Education disclosure form before this application will be reviewed.

For VCMC Medical Education Use only:

<table>
<thead>
<tr>
<th>Action:</th>
<th># of Credits:</th>
<th>[ ] Entered into Log:</th>
</tr>
</thead>
</table>

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6
Section 3 of 5: Planning

Planning Committee

In addition to the activity medical director, and/or co-director, list the names, degrees, titles, affiliations and emails of persons chiefly responsible for the design and implementation of this activity. Use additional sheets if necessary. Note, all individuals listed will be required to complete a CME disclosure before the application will be reviewed and approved.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Affiliation</th>
<th>Degree(s)</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheryl Lambing</td>
<td>CME Director</td>
<td>VCMC</td>
<td>MD</td>
<td><a href="mailto:Cheryl.lambing@ventura.org">Cheryl.lambing@ventura.org</a></td>
</tr>
<tr>
<td>Victoria Yuschenkoff</td>
<td>CME Program Administrator</td>
<td>VCMC</td>
<td>PhD</td>
<td><a href="mailto:Victoria.yuschenkoff@ventura.org">Victoria.yuschenkoff@ventura.org</a></td>
</tr>
</tbody>
</table>

☐ Additional planning committee members attached

Planning Process

1. Who identified the speakers and topics: X Activity Medical Director, ☐ Activity Co-Director, ☐ Other (provide names): ______

2. What criteria were used in the selection of speakers (select all that apply)? X Subject matter expert ☐ Excellent teaching skills/effective communicator ☐ Experienced in CME ☐ Other: ______

3. Were any employees of a pharmaceutical company and/or medical device manufacturer involved with the identification of speakers and/or topics? X No ☐ Yes, please explain: ______

Target Audience:

<table>
<thead>
<tr>
<th>X Primary care physicians</th>
<th>X Specialty physicians</th>
<th>X All specialties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialty physicians</td>
<td>Anesthesiology</td>
<td>Oncology</td>
</tr>
<tr>
<td>Resident Housestaff</td>
<td>Cardiology</td>
<td>Orthopedics</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>Dermatology</td>
<td>Pediatrics</td>
</tr>
<tr>
<td>Psychologists</td>
<td>Emergency Med</td>
<td>Psychiatry</td>
</tr>
<tr>
<td>Physician Assistants</td>
<td>Family Medicine</td>
<td>Radiology</td>
</tr>
<tr>
<td>Nurses</td>
<td>General Medicine</td>
<td>Radiation Oncology</td>
</tr>
<tr>
<td>Nurse Practitioners</td>
<td>Neurology</td>
<td>Surgery</td>
</tr>
<tr>
<td>Other (specify):</td>
<td>X OB/GYN</td>
<td>Other (specify):</td>
</tr>
</tbody>
</table>

Specialty:

Educational Design/Methodology

Please indicate the educational method(s) that will be used to achieve the stated goals and objectives. Select all that apply by placing an "X" in the appropriate box.

<table>
<thead>
<tr>
<th>X Didactic lecture</th>
<th>Panel discussions</th>
<th>Simulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundtable discussions</td>
<td>Q&amp;A sessions</td>
<td>Hands on Skills Training</td>
</tr>
<tr>
<td>Other, specify:</td>
<td></td>
<td>Other, specify:</td>
</tr>
</tbody>
</table>
Section 4 of 5: Needs Assessment and Educational Design

Note: Identification of gaps, needs, etc should be completed by the Planning Committee. Please use the table below to complete this section, starting from the left column. All learning objectives should map to the educational need that is identified.

See IMQ Tips to Writing Learning Objectives for CME Activities (attached)

<table>
<thead>
<tr>
<th>EXAMPLE</th>
<th>EXAMPLE</th>
<th>EXAMPLE</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Practice</td>
<td>Ideal Practice</td>
<td>Practice gap/ Educational Need</td>
<td>This is a gap/need of</td>
</tr>
<tr>
<td>HIV providers and patients are faced with a constantly evolving standard of care. This poses a challenge for assuring that HIV treatment is consistent with the most current guidelines.</td>
<td>Healthcare professionals are able to address the constantly evolving standards and ensure consistent application of current/new HIV treatment guidelines in practice.</td>
<td>HIV providers need educational initiatives related to current HIV treatment guidelines.</td>
<td>Knowledge ☐ Competence ☐ Performance ☑ Identify current guidelines in order to provide optimal care to women with HIV.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current Practice</th>
<th>Desired Result: Ideal Practice</th>
<th>Practice Gap/Educational Need</th>
<th>This is a gap/need of: (check all that apply)</th>
<th>Learning Objective*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently there are no standards or guidelines for counseling patients regarding toxic exposures in pregnancy.</td>
<td>Physicians are able to evaluate risk of exposure for their patients and provide counseling and resources.</td>
<td>Our physicians need to be aware of the potential exposure of many of their patients to toxic chemicals and the impact on their patient's reproductive health.</td>
<td>Knowledge ☐ Competence ☐ Performance ☑ Identify most common harmful environmental exposures in pregnancy.</td>
<td></td>
</tr>
</tbody>
</table>

- Additional needs/gaps, objectives, desired results attached

Desirable Physician Attributes / Core Competencies (select 1 at minimum)*

CME activities should be developed in the context of desirable physician attributes. Place an "X" next to all American Board of Medical Specialties (ABMS)/Accreditation Council for Graduate Medical Education (ACGME) or Institute of Medicine (IOM) core competencies that will be addressed in this activity.

<table>
<thead>
<tr>
<th>X</th>
<th>Patient care or patient-centered care</th>
<th>System-based practice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medical knowledge</td>
<td>Interdisciplinary teams</td>
</tr>
<tr>
<td></td>
<td>Practice-based learning and improvement</td>
<td>Quality improvement</td>
</tr>
<tr>
<td></td>
<td>Interpersonal and communication skills</td>
<td>Utilize informatics</td>
</tr>
<tr>
<td></td>
<td>Professionalism</td>
<td>Employ evidence-based practice</td>
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</tbody>
</table>

*Learning objectives are the take-home messages; what should the learner be able to accomplish after the activity? Objectives should bridge the gap between the identified need/gap and the desired result.

*Competence is defined as the ability to apply knowledge, skills, and judgment in practice (knowing how to do something).

*Performance is defined as what one actual does, in practice.
### CLINICAL CONTENT VALIDATION

<table>
<thead>
<tr>
<th>(CRITERION 1)</th>
<th>Identify the physician reviewer validating content</th>
<th>Describe any changes made to resolve identified problems</th>
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</thead>
<tbody>
<tr>
<td>Powerpoint</td>
<td>Cheryl Lambing, MD</td>
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</tr>
</tbody>
</table>

### Evaluation and Outcomes Measurement

**How will you measure if changes in competence, performance or patient outcomes have occurred?** Place an "X" next to all that apply; note, you may be asked to provide summary data for the evaluation methods selected.

<table>
<thead>
<tr>
<th>Competence</th>
<th>Performance</th>
<th>Patient Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation form for participants (required)</td>
<td>Physician and/or patient surveys</td>
<td>Obtain patient feedback and surveys</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>Other, specify:</td>
<td>Other, specify:</td>
</tr>
<tr>
<td>X Customized pre and post-test</td>
<td>Chart audits</td>
<td>Measure mortality and morbidity rates</td>
</tr>
</tbody>
</table>

This activity measures:  

- [X] Competence  
- [ ] Performance  
- [ ] Patient Outcomes

### Needs Assessment Data and Sources (select 2 at minimum)

**Please indicate how the need for this activity was brought to your attention. Select all that apply and provide supportive documentation for all boxes checked. If you cannot provide documentation, do NOT check that source.**

- [ ] Continuing review of changes in quality of care as revealed by medical audit or other patient care reviews. 
  Potential sources of documentation: audit reports, chart reviews
- [ ] Ongoing census of diagnoses made by physicians on staff. 
  Potential sources of documentation: summary of notes, minutes of meetings
- [X] Advice from authorities of the field or relevant medical societies.  
  Potential sources of documentation: list of expert names/medical societies AND summary of recommendation(s)
- [ ] Formal or informal requests or surveys of the target audience, faculty or staff. 
  Potential sources of documentation: summary of requests or surveys. Note, must show information related to areas of education need/topics of interest (not logistical summaries – i.e., food, venue, etc)
- [ ] Discussion in departmental meetings. 
  Potential sources of documentation: summary of meeting minutes showing information discussed was related to areas of education need/topics of interest (not logistical summaries – i.e., food, venue, etc)
- [ ] Data from peer-reviewed journals, government sources, consensus reports. 
  Potential sources of documentation: abstracts/full journal articles, government produced documents describing educational need and physician practice gaps
- [ ] Review of board examinations and/or re-certification requirements. 
  Potential sources of documentation: board review/update requirements
- [ ] New technology, methods of diagnosis/treatment. 
  Potential sources of documentation: description of new procedure, technology, treatment, etc
- [ ] Legislative, regulatory or organizational changes affecting patient care. 
  Potential sources of documentation: copy of the measure/change
- [ ] Joint Commission Patient Safety Goal/Competency. 
  Potential sources of documentation: copy of the safety goal and/or competency
- [X] Other, please specify: ACOG Committee Opinion, No. 575, October 2013, Exposure to Toxic Environmental Agents
Section 5 of 5: Additional Information

Commercial Support and Exhibits
Will this activity receive commercial support (financial or in-kind grants or donations) from a company such as a pharmaceutical or medical device manufacturer? □ No □ Yes and I have read and agree to abide by ACCME Standards for Commercial Support.

Will vendor/exhibit tables be allowed at this activity? □ No □ Yes

Budgetary Issues
Will the speaker/presenters be paid an honoraria for this CME Activity? □ No □ Yes
If “Yes”, who will be paying the honoraria? ________________________________________________________________________

Signatures

[Signature]
Activity Medical Director

January 8, 2014
Date

Approvals (Office of Medical Education Use Only)

□ Yes Date: ______ □ No Reason: ___________________________ Date: ______

□ DISCLOSURES REVIEWED

N/A CONFLICT OF INTEREST ADDRESSED AND RESOLVED

[Signature]
CME Committee Chair

1/22/2014
Date

Date of Approval by CME Committee

1/22/2014

Number of AMA PRA Category 1 Credit(s)™ Approved

Effective Date: 9/25/13

Required Attachments

The following attachments must be included with the submission of this CME Application:

1. Agenda with times, topics, and potential speakers
2. Needs assessment supportive documentation (i.e., Committee meeting minutes, survey results, identified practice gaps, etc.)
3. List of speakers’ contact information (please include full name, degree, affiliation, email address at minimum)
4. Speaker CV / Presentation Materials / Disclosure
From: Minako Watabe
To: Victoria Yuschenkoff
Date: 2/10/2014 10:37 AM
Subject: Re: Pre-test questions for your lecture 2/14/14
Attachments: environmental toxins and pregnancy.ppt

1) What are some environmental exposures that are particularly worrisome in pregnancy
2) Name 2 ways that farmers or consumers can reduce exposure to pesticides
2) What types of fish contain high levels of mercury? what types of fish contain low levels of mercury?
4) How can one avoid exposure to BPA and other endocrine disrupting agents

Attached is the ppt.
PLe make any changes you think are appropriate

Thank you!
Minako

>>> Victoria Yuschenkoff 02/06/14 12:55 PM >>>
Dear Dr. Watabe,

Sorry to bother you but I forgot to ask you this in my last email.

Would you please provide us with 3-4 pre-test questions that will be addressed/answered in your lecture?

Thank you very much!

Vickie
February 12, 2014

VENTURA COUNTY MEDICAL CENTER
Continuing Medical Education
Pre-Test

Ventura County Medical Center is accredited by the Institute for Medical Quality/California Medical Association (IMQ/CMA) to provide continuing medical education for physicians.

Ventura County Medical Center designates this live activity for a maximum of 1 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

This credit may also be applied to the CMA Certification in Continuing Medical Education.

**Theme: Cardiovascular Health**

**Environmental Exposures in Pregnancy**

1) What are some environmental exposures that are particularly worrisome in pregnancy?

2) Name 2 ways that farmers or consumers can reduce exposure to pesticides:

3) What types of fish contain high levels of mercury? What types of fish contain low levels of mercury?

4) How can one avoid exposure to BPA and other endocrine disrupting agents?
Environmental Exposures in Pregnancy

Minako Watabe, MD

February 12, 2014

Ventura County Medical Center is accredited by the Institute for Medical Quality/California Medical Association (IMQ/CMA) to provide continuing medical education for physicians.

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This credit may also be applied to the CMA Certification in Continuing Medical Education.
Ventura County Health Care Agency

Speaker:
Minako Watabe, MD
Ob/Gyn Activity Medical Director
Ira Silverman, MD
Cheryl Lambing, MD, FAAAA, CME Director
Vickie Yuschenkoff, PhD, CME Program Admin

The individuals involved in the planning and/or presentation of this Ventura County Medical Center CME activity lack any relevant financial relationships with a commercial interest to disclose.
Objectives
- Identify most common harmful environmental exposures in pregnancy
- Classify/categorize toxic chemical exposure specific to the undeserved population in Ventura County, especially farmworkers
- Utilize information and resources for patients and providers regarding environmental toxins and their impact on reproductive health

Recent call for action
- ACOG and ASRM-identify and reduce exposures to toxic environmental agents
- Preconception and prenatal exposures have profound lasting effect on reproductive health
- The most vulnerable populations are minority and underserved populations

Why do we care?
- Robust scientific evidence linked to various adverse health consequences
- Effect of a low-dose exposure may be quite different, depending on the degree of exposure to other environmental contaminants and underlying health status
- Communities with highest exposures also lack access to medical care, education, good nutrition, employment, and other factors that may help mitigate related impacts

Focus: Three topics
- Pesticides- farm workers and consumers
- Mercury-fish, how much should we eat, and what types to avoid
- Endocrine disrupting chemicals-plastics, canned food, personal care products
Pesticides
- Farm workers: exposures to numerous pesticides
  - Strawberries: sixty-five different herbicides, pesticides, fungicides
  - Fumigant pesticides, methyl bromide
  - What can pregnant farm workers do to protect themselves

Toxicity profile of pesticides
- Increased risk of miscarriage
- Increased risk of birth defects
- Neurotoxins affecting brain development
- Carcinogens: potentially increasing risk of childhood malignancy
- Decreased fertility/fecundity in males

Fumigant pesticides
- Among the most toxic chemicals in agriculture
- U.S. EPA category "highly acutely toxic"
- Acute poisoning: eye irritation, sore throat, headaches, nausea, vomiting, dyspnea, neurological effects
- Methyl bromide: "phase out" starting 2005 because of neurotoxicity and effect on ozone layer
- Methyl iodide: still used and found to be more toxic than methyl bromide

Fumigants (continued)
- Allow for year round strawberry farming in Ventura County
- Large tractors drag spikes into soil, injecting gases. Tarp placed for several days. Once removed, planting can begin.
- Pesticides used every few days as strawberries are very attractive to insects
- Toxic gas can evaporate and expose farm workers and neighborhood (laws regarding "buffer zones")
What regulations are in place to protect workers

- Agricultural Commissioner: Henry Gonzales
- California Department of Pesticide Regulation
- Set forth guidelines on what pesticides can be used at what concentrations, timing, distance from sensitive sites
- California regulations: more strict than most other states
- Pesticide safety training
- Buffer zones: 0.25 miles from all "sensitive sites"

How to minimize exposure

- Stop working in the farm (if economically feasible)
- Awareness of time intervals and distance from pesticide application
- Protective clothing: long sleeves, long pants, gloves, boots, hat
- Remove clothes and shower immediately after work
- Wash all clothes separately from family laundry

Non farm workers

- Buy organic foods
- Avoid commercially raised beef and dairy products - accumulation of chemicals in fatty tissue
- Avoid pesticide use in the household/yard
- Avoid other household toxins - household cleaners, detergents

What to buy organic

<table>
<thead>
<tr>
<th>Producers</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>Corn</td>
</tr>
<tr>
<td>Strawberries</td>
<td>Onions</td>
</tr>
<tr>
<td>Grapes</td>
<td>Pineapple</td>
</tr>
<tr>
<td>Cabbage</td>
<td>Avocado</td>
</tr>
<tr>
<td>Peaches/Nectarines</td>
<td>Cauliflower</td>
</tr>
<tr>
<td>Cucumber</td>
<td>Sweet peas</td>
</tr>
<tr>
<td>Spinach/leafy greens</td>
<td>Papaya/Mangoes</td>
</tr>
<tr>
<td>Bell peppers</td>
<td>Asparagus</td>
</tr>
<tr>
<td>Potatoes</td>
<td>Eggplant</td>
</tr>
<tr>
<td>Cherry tomatoes</td>
<td>Grapes</td>
</tr>
<tr>
<td>Summer squash</td>
<td>Mushrooms</td>
</tr>
</tbody>
</table>
Other food to consider avoiding

- Non-organic beef
- Farm-raised fish
- Fish high in mercury...

Conflicted about fish...

- Two components of fish oil (Omega 3)
  - Important in pregnancy
  - EPA supports heart, immune system, and inflammatory response
  - DHA supports the brain, eyes, and central nervous system
- Omega-3s - essential for both neurological and early visual development of the baby.
- Western diet is severely deficient
- Pregnant women become depleted in omega-3s

Conflicted about Fish (Cont)

- EPA and DHA shown to prevent pre-term labor and delivery, lower the risk of pre-eclampsia and may increase birth weight
- Omega-3 deficiency also increases the mother's risk for depression.
- The best sources of EPA and DHA are cold water fish: salmon, tuna, sardines, anchovies, and herring
- 2nd option: DHA 300mg capsule daily

Mercury

- Two-thirds of mercury in the ocean is thought to be a result of human activity
- Largest culprit: coal mining
- Mercury moves up food chain
- Predatory fish are generally the highest in mercury
Example: Minamata Bay, Japan

What fish to avoid

Recommended Consumption
- Avoid: shark, swordfish, king mackerel and tilefish
- Recommend: Salmon, Anchovies, Herring, Sardines, Trout, Atlantic and Pacific mackerel
- Limit Albacore (light) tuna to 6-8oz/week
- 2010 Dietary Guidelines for Americans recommend 8 to 12 ounces of seafood a week for pregnant women — or about two average meals.

Endocrine Disrupting Agents
Common EDC
- Phthalates - interfere with testosterone
- BPA - estrogen receptors - miscarriage, behavioral changes in offspring
- PBDEs - disrupt thyroid function
- Perchlorate - disrupt thyroid function
- Various pesticides - decrease fertility/fecundity

Endocrine Society 2007
"The evidence for adverse reproductive outcomes (infertility, cancers, malformations) from exposure to EDC’s is strong, and there is mounting evidence for effects on other endocrine systems, including thyroid, neuroendocrine, obesity and metabolism, and insulin and glucose homeostasis"

Mechanism of action
- Found in food, water, air, house dust, and or personal care products
- Interfere with the synthesis, secretion, transport, binding, action, or elimination of natural hormones in the body
- Pertinent to human reproduction

Bisphenol A
- Chemical intermediate for polycarbonate plastic and resins
- Found in consumer products and packaging
- Exposure through inhalation, ingestion, dermal absorption
Reproductive health impact
- Recurrent miscarriage
- Aggression and hyperactivity in female children
- Comparable to DES at the cell and developmental level

Where BPA is found
- Plastics (look for 3 and 7)- If it does not specify BPA free, it likely contains BPA
- Canned food- cans lined with BPA, Canned tomatoes- very high exposure
- Heating food in plastics releases BPA into food

How to avoid BPA
- Avoid heating food in plastics
- Use water bottles and food containers made of glass or stainless steel
- All baby bottles and sippy cups now are BPA free (specified on the label)

"For the practicing clinician, the new scientific evidence means that an important outcome of pregnancy is not only a healthy newborn infant but also a human being who is programmed optimally for health from infancy through old age."
Our role
- Elicit history
- Provide anticipatory guidance - written information, incorporate into pregnancy/childbirth education
- Provide patient with resources
- Become an advocate

The holistic approach
- Encourage women in preconception period, pregnancy, and lactation to
  - Eat fruit, vegetables, beans, legumes, and whole grains every day
  - Avoid fast food and other processed foods
  - Limit foods high in animal fat
  - Increase outdoor activities

continued
- Avoid canned foods
- Eat organic when possible
- Avoid plastic food containers, especially when heating food
- Avoid shark, swordfish, king mackerel, and tilefish
- Avoid using pesticides in the home

Resources:
- ACOG Committee Opinion: October 2013
- UCPhi Patient Education: "Toxic Matelites"
- http://www.ucphinewscenternetwork.com/3
Exposure to Toxic Environmental Agents

ABSTRACT: Reducing exposure to toxic environmental agents is a critical area of intervention for obstetricians, gynecologists, and other reproductive health care professionals. Patient exposure to toxic environmental chemicals and other stressors is ubiquitous, and preconception and prenatal exposure to toxic environmental agents can have a profound and lasting effect on reproductive health across the life course. Prenatal exposure to certain chemicals has been documented to increase the risk of cancer in childhood; adult male exposure to pesticides is linked to altered semen quality, sterility, and prostate cancer; and postnatal exposure to some pesticides can interfere with all developmental stages of reproductive function in adult females, including puberty, menstruation and ovulation, fertility and fecundity, and menopause. Many environmental factors harmful to reproductive health disproportionately affect vulnerable and underserved populations, which leaves some populations, including underserved women, more vulnerable to adverse reproductive health effects than other populations. The evidence that links exposure to toxic environmental agents and adverse reproductive and developmental health outcomes is sufficiently robust, and the American College of Obstetricians and Gynecologists and the American Society for Reproductive Medicine join leading scientists and other clinical practitioners in calling for timely action to identify and reduce exposure to toxic environmental agents while addressing the consequences of such exposure.

Reproductive Environmental Health

Robust scientific evidence has emerged over the past 15 years, demonstrating that preconception and prenatal exposure to toxic environmental agents can have a profound and lasting effect on reproductive health across the life course (1–3). Exposure to toxic environmental agents also is implicated in increases in adverse reproductive health outcomes that emerged since World War II; these changes have occurred at a rapid rate that cannot be explained by changes in genetics alone, which occur at a slower pace. For additional information, a detailed review is available at www.acog.org/goto/underserved.

Exposure to environmental chemicals and metals in air, water, soil, food, and consumer products is ubiquitous. An analysis of National Health and Nutrition Examination Survey data from 2003–2004 found that virtually every pregnant woman in the United States is exposed to at least 43 different chemicals (4). Chemicals in pregnant women can cross the placenta, and in some cases, such as with methyl mercury, can accumulate in the fetus, resulting in higher fetal exposure than maternal exposure (5–7). Prenatal exposure to environmental chemicals is linked to various adverse health consequences, and patient exposure at any point in time can lead to harmful reproductive health outcomes. For example, prenatal exposure to certain pesticides has been documented to increase the risk of cancer in childhood; adult male exposure to pesticides is linked to altered semen quality, sterility, and prostate cancer; and postnatal exposure to some pesticides can
interfere with all developmental stages of reproductive function in adult females, including puberty, menstruation and ovulation, fertility and fecundity, and menopause (8). A group of chemicals called endocrine disrupting chemicals has been shown to interfere with the role of certain hormones, homeostasis, and developmental processes (9). They represent a heterogeneous group of agents used in pesticides, plastics, industrial chemicals, and fuels. One study shows that the endocrine disrupting chemical bisphenol-A works in a fashion that is comparable to diethylstilbestrol at the cell and developmental level (10). Likewise, research has clearly shown that many industrial chemicals can affect thyroid function (9, 11). Because of deficiencies in the current regulatory structure, unlike pharmaceuticals, most environmental chemicals have entered the marketplace without comprehensive and standardized information regarding their reproductive or other long-term toxic effects (12).

Vulnerable Populations and Environmental Disparities

Although exposure to toxic environmental agents is ubiquitous among all patient populations, many environmental factors harmful to reproductive health disproportionately affect vulnerable and underserved populations and are subsumed in issues of environmental justice. In the United States, minority populations are more likely to live in the counties with the highest levels of outdoor air pollution (13) and to be exposed to a variety of indoor pollutants, including lead, allergens, and pesticides than white populations (14). In turn, the effects of exposure to environmental chemicals can be exacerbated by injustice, poverty, neighborhood quality, housing quality, psychosocial stress, and nutritional status (14, 15).

Women with occupational exposure to toxic chemicals also are highly vulnerable to adverse reproductive health outcomes (16). For example, levels of organophosphate pesticides and phthalates measured in occupationally exposed populations are far greater than levels measured in the general population (17, 18). Furthermore, low-wage immigrant populations disproportionately work in occupations associated with a hazardous workplace environment (19, 20).

As underscored by a groundbreaking 2009 report by the National Academy of Sciences, the effects of low-dose exposure to an environmental contaminant may be quite different based on vulnerabilities, such as the underlying health status of the population and the presence of additional or "background" environmental exposure (21). Recognition of environmental disparities is essential for developing and implementing successful and efficient strategies for prevention.

Prevention

The evidence that links exposure to toxic environmental agents and adverse reproductive and developmental health outcomes is sufficiently robust, and the American College of Obstetricians and Gynecologists (the College) and the American Society for Reproductive Medicine (ASRM) join numerous other health professional organizations in calling for timely action to identify and reduce exposure to toxic environmental agents while addressing the consequences of such exposure (1, 22, 23).

Reproductive care providers can be effective in preventing prenatal exposure to environmental threats to health because they are uniquely poised to intervene before and during pregnancy, which is a critical window of human development. An important outcome of pregnancy is no longer just a healthy newborn but a human biologically predisposed to be healthy from birth to old age (3, 24).

Providing Anticipatory Guidance

It is important for health care providers to become knowledgeable about toxic environmental agents that are endemic to their specific geographic areas. Intervention as early as possible during the preconception period is advised to alert patients regarding avoidance of toxic exposure and to ensure beneficial environmental exposure, eg, fresh fruit and vegetables, unprocessed food, outdoor activities, and a safe and nurturing physical and social environment. By the first prenatal care visit, exposure to toxic environmental agents and disruptions of organogenesis may have already occurred. Obtaining a patient history during a preconception visit and the first prenatal visit to identify specific types of exposure that may be harmful to a developing fetus is a key step and also should include queries of the maternal and paternal workplaces. A list of key chemical categories, sources of exposure, and clinical implications are provided in the online companion document to this Committee Opinion (www.acog.org/goto/underserved). Examples of an exposure history are available at http://prhc.ucsf.edu/prhc/clinical_resources.html. Once this exposure inventory has been completed, information should be given regarding the avoidance of exposure to toxic agents at home, in the community, and at work with possible referrals to occupational medicine programs or United States Pediatric Environmental Health Specialty Units if a serious exposure is found (25).

Reproductive care professionals do not need to be experts in environmental health science to provide useful information to patients and refer patients to appropriate specialists when a hazardous exposure is identified. Existing clinical experience and expertise in communicating risks of treatment are largely transferable to environmental health. Physician contact time with a patient does not need to be the primary point of intervention; information and resources about environmental hazards can be successfully incorporated into a childbirth class curriculum or provided in written materials to help parents make optimal choices for themselves and their children (26).

Reporting identified hazards is critical to prevention. For example, the reproductive toxicity of a common solvent used in many consumer products was first
described in a case report of a stillbirth (27). Physicians in the United States are required to report illnesses or injuries that may be work related, and reporting requirements vary by state. No authoritative national list of physician-reporting requirements by state exists. Resources for information about how to report occupational and environmental illnesses include local and state health agencies and the Association of Occupational and Environmental Clinics (http://www.aoec.org/about.htm). Illnesses include acute and chronic conditions, such as a skin disease (eg, contact dermatitis), respiratory disorder (eg, occupational asthma), or poisoning (eg, lead poisoning or pesticide intoxication) (28).

Patient-centered actions can reduce body burdens of toxic chemicals (ie, the total amount of chemicals present in the human body at any one time) (29–32). For example, research results document that when children's diets change from conventional to organic, the levels of pesticides in their bodies decrease (29, 30). Likewise, study results document that avoiding canned food and other dietary sources of bisphenol A can reduce measured levels of the chemical in children and adult family members (31), and that short-term changes in dietary behavior may significantly decrease exposure to phthalates (32).

Clinicians should encourage women in the preconception period and women who are pregnant or lactating to eat fruit, vegetables, beans, legumes, and whole grains every day, to avoid fast food and other processed foods whenever possible, and to limit foods high in animal fat, while providing information about how certain types of food affect health and how individuals can make changes. Also, patients should be advised that some large fish, such as shark, swordfish, king mackerel, and tilefish, are known to contain high levels of methylmercury, which is known to be teratogenic. As such, women in the preconception period and women who are pregnant or lactating should avoid these fish. To gain the benefits of consuming fish, while avoiding the risks of methylmercury consumption, pregnant women should be encouraged to enjoy a variety of other types of fish, including up to 12 ounces a week (two average meals) of a variety of fish and shellfish that are low in mercury. Five of the most commonly eaten seafood items that are low in mercury are shrimp, canned light tuna, salmon, pollock, and catfish. White (albacore) tuna has more mercury than canned light tuna and should be limited to no more than 6 ounces per week. Pregnant women and breastfeeding women should also check local advisories regarding the safety of fish caught in local lakes, rivers, and coastal areas. If no advice is available, they should consume no more than 6 ounces per week (one average meal) of fish caught in local waters and no other fish during that week (33).

**Primary Prevention: The Role of Reproductive Care Professionals Beyond the Clinical Setting**

Ultimately, evidence-based recommendations for preventing harmful environmental exposure must involve policy change (34). Action at the individual level can reduce exposure to some toxic chemicals (29, 31, 32) and informed consumer-purchasing patterns can send a signal to the marketplace to help drive societal change (35). However, individuals alone can do little about exposure to toxic environmental agents, such as from air and water pollution, and exposure perpetuated by poverty. The incorporation of the authoritative voice of health care professionals in policy arenas is critical to translating emerging scientific findings into prevention-oriented action on a large scale. Accordingly, many medical associations have taken steps in that direction (23).

For example, in 2009, the Endocrine Society called for improved public policy to identify and regulate endocrine disrupting chemicals and recommended that "until such time as conclusive scientific evidence exists to either prove or disprove harmful effects of substances, a precautionary approach should be taken in the formulation of EDC [endocrine disrupting chemical] policy" (36). Consistent with the clinical imperative to "do no harm," the precautionary principle states, "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically" (37).

The College and the ASRM join these associations and call on their members to advocate for policies to identify and reduce exposure to environmental toxic agents while addressing the consequences of such exposure. Advancing policies and practices in support of a healthy food system should be pursued as a primary prevention strategy to ensure the health of pregnancies, children, and future generations. The College and ASRM urge the U.S. Environmental Protection Agency and other federal and state agencies to take all necessary actions when reviewing substances to guarantee health and safety. In addition, the College and ASRM fully support rigorous scientific investigation into the causes and prevention of birth defects, including linkages between environmental hazards and adverse reproductive and developmental health outcomes. Timely and effective steps must be taken to ensure the safety of all mothers and infants from toxic environmental agents. Because data are lacking on the safety of most chemicals, careful consideration of the risks posed must be given while the potential immediate and long-term health and genetic risks are evaluated. A chemical should never be released if a concern exists regarding its effect on health.

**References**


12. Vogel SA, Roberts JA. Why the toxic substances control act needs an overhaul, and how to strengthen oversight of chemicals in the interim. Health Aff (Millwood) 2011;30:898–905. [PubMed] [Full Text] ⇧


To earn credit, please complete this CME Evaluation Form.

The CME Evaluation Form must be submitted after attending a VCMC CME Activity. One of our goals is to assess continually the educational needs of our target audience so we may enhance the educational effectiveness of our CME Activities at VCMC. To achieve this goal, we need your help. You must complete the CME Evaluation Form and future CME Committee educational assessment survey to receive credit.

**TITLE:** Environmental Exposures in Pregnancy

**Objectives:**
1. Identify most common harmful environmental exposures in pregnancy.
2. Classify/categorize toxic chemical exposure specific to the underserved population in Ventura County, especially farmworkers.
3. Utilize information and resources for patients and providers regarding environmental toxins and their impact on reproductive health.

1. What new knowledge or clinical pearl will you apply in your practice as a result of this educational activity?

2. Was today's presentation free of commercial bias? _____ Yes _____ No _____ Not applicable

3. The various types of cultural/linguistic diversities (ie; gender, age, race, religion, language, etc.) that relate to demographics, diagnosis and treatment of patients were discussed?
   _____ Yes _____ No _____ Not applicable

**Post-Test**

1) What are some environmental exposures that are particularly worrisome in pregnancy?

2) Name 2 ways that farmers or consumers can reduce exposure to pesticides:

3) What types of fish contain high levels of mercury? What types of fish contain low levels of mercury?

4) How can one avoid exposure to BPA and other endocrine disrupting agents?
Date: February 12, 2014
Topic: Environmental Exposures in Pregnancy
Pre-Test: February – Cardiovascular Health

1. What are some environmental exposures that are particularly worrisome in pregnancy?
   Mercury (5)
   Listeria
   Pesticides (5)
   Organophosphates
   Tobacco, mercury, alcohol, pesticides
   Fertilizers, drugs
   HIV
   Smoke (2)
   Radiation
   Lead

2. Name 2 ways that farmers or consumers can reduce exposure to pesticides:
   Wash clothes
   Wash produce (5)
   Organic produce
   Notify public
   PPF
   Masks (2)
   Hand washing (4)
   More careful use of pesticides
   Calls before application
   Food-hand hygiene
   Use organic products
   Work environments

3. What types of fish contain high levels of mercury? What types of fish contain low levels of mercury?
   Tuna (2)
   High- tuna, swordfish
   Low- small fish
   High- larger fish at top of food chain
   Large fatty
   Small pelagic
   High: shark, swordfish (2)
   High- salmon, tilapia
   Swordfish- high  Salmon- lower
   Trout- low
   Salmon- high
   Deep sea fish have low amount
   High: tilefish, mackerel
   Low: tilapia, farmed fish
DATE: February 12, 2014
Environmental Exposures in Pregnancy
Post-Test: February - Cardiovascular Health

1. What are some environmental exposures that are particularly worrisome in pregnancy?
   Pesticides, mercury (3)
   Methyl bromide/iodide (2)
   BPA, pesticide (7)
   Products containing BPA; fish high in mercury
   EPA- neuro
   Fumigant pesticides (4)
   Pesticides, radiation, chemicals that disrupt endocrine organs (BPA=DES)
   Pesticides (2)
   Bromide, mercury (2)

2. Name 2 ways that farmers or consumers can reduce exposure to pesticides:
   Protective clothes and wash clothes separately (2)
   Change work site, shower immediately
   Protective clothing, showering; buy organic produce, avoid residential pesticides
   Buy organic (4)
   Avoid BPA containing plastics
   Avoid pesticide usage, buy organic foods
   Toxic gas environment: pesticide training, buffer zones 20ft, 0.25 miles from sedative sites
   Protective equipment- clothing/long sleeves, pants, gloves, boots, etc. (2)
   Buy organic avoid commercially raised beef and dairy
   Avoid working in exposed occupations
   Wash produce with water/brush
   Wear protective clothing (2)
   remove all clothing+shower after work (2)
   Don’t work in farms, protective clothing, gloves, etc.
   Tarps during fumigation
   Buffer zones awareness
   Wash clothes separate from family laundry (4)
   Wash food, eat organic food
   Pesticide safety training. / buffer zones-1/4 mile from sensitive sites. California laws regulating

3. What types of fish contain high levels of mercury? What types of fish contain low levels of mercury?
   Predatory fish (4)
   Predatory (swordfish, sharks) (3) small (anchovies, herring, sardines) (2)
   High: swordfish, shark, tilefish, king mackerel (10) Low: salmon, Pollock, sardines, anchovies (3)
   Low: salmon, wild anchovies, herring, trout
   Wild salmon, oysters (6-8oz/week)
   Low/ cold water fish: tuna etc. only 2 avg. meals/wk.
   Low: sardines, wild salmon
CME Evaluation

Date: February 12, 2014
Speaker(s): Minako Watabe, M.D.
Topic: OB/GYN

TITLE: Environmental Exposures in Pregnancy

Objectives:
1) Identify most common harmful environmental exposures in pregnancy.
2) Classify/categorize toxic chemical exposure specific to the underserved population in Ventura County, especially farmworkers.
3) Utilize information and resources for patients and providers regarding environmental toxins and their impact on reproductive health.

1. What new knowledge or clinical pearl will you apply in your practice as a result of this educational activity?
Counseling pregnant families regarding safety practices
Including environmental exposure in acquiring health history
Avoid plastic water bottles/food containers and especially heating food in plastic to reduce BPA exposure.
Avoid fish high in mercury
Avoid BPA
Improved treatment: education for patients
Organic foods important to buyers
What fish to avoid, what to eat for low HS exposure
Avoid canned tomatoes- high BPA. Don’t heat food in plastics!
Recommend pregnant field workers to stop working if they can.
Spend more time in my vegetable garden
Patient education/counseling of OB
More pesticides than aware of
Screen all pregnant patients for exposure using ACOG recs
What to avoid
What fish not to eat when pregnant
Eat organic food during pregnancy and little canned food
Work as volunteer at salvation army in Oxnard
Many chemical exposures
Greater awareness about pesticides
Exposure to higher ph education. Identify sources of toxins and small ability to affect
February 12, 2014  10:13am

Notes on Dr. Watabe’s CME lecture: Environmental Exposure in Pregnancy

As a result of this lecture, a barrier to physician/patient interactions is being addressed, specifically the UCSF pamphlet/brochure regarding “Toxic Matters” will become available to our physicians via CERNER (electronic medical records).

http://prhe.ucsf.edu/prhe/tmlinks.html and see attached pdf copy
Toxic Matters
Protecting Our Families from Toxic Substances

To view this brochure online, go to:
www.prhe.ucsf.edu/prhe/toxicmatters.html

A Publication of the University of California, San Francisco
Program on Reproductive Health and the Environment
From Advancing Science to Ensuring Prevention (FASTEP)

FASTEP is an alliance of academic, governmental and non-governmental partners spanning
the fields of reproductive, environmental, occupational and pediatric health and toxicology.
Our goal is to secure each and everyone's right to optimal reproductive health by fostering
environments that prevent exposure to toxic substances and support healthy pregnancies,
children, adults and future generations.

Magee-Womens Hospital of UPMC

Researchers and written by Juliesta Pitani McCarthy, MA
Designed by Arin Fishkin, www.arinfishkin.com
Editing by Supriya M. Ray, Esq. www.rayediting.com

Printed on 100% recycled paper, using soy-based ink and wind power in a unionized printing shop.

July 2011
Contact Us

www.wwwhp.ucsf.edu/path/announcements

Find links to toxic substances and to many more tips for environmental and occupational health.

Avoiding exposure to toxic substances at work can help prevent health problems.

Exposure to toxic substances can harm the reproductive systems of women and men.

This brochure lists some of the many ways to prevent adverse health effects.

Toxic substances are chemicals and metals.

family's health.

This way you can protect your health and your family's health. Everyone is exposed to toxic substances every day. This brochure can help you prevent or reduce your exposure to these substances that can harm your health.
Make The Government Work For You

Individual actions help but can only go so far in preventing exposure to toxic substances in the environment. In order to really solve this problem, we need public policies that stop chemical pollution in the first place.

💡 You can influence public policy.
- Become informed about pollution.
- Get involved with groups working to prevent pollution.
- Let your representatives know what you think. You can find contact information for your state and federal representatives at: [www.prhe.ucsf.edu/prhe/tmLinks.html#government](http://www.prhe.ucsf.edu/prhe/tmLinks.html#government).

📚 Support policies that prevent pollution.
- We need policies that identify existing toxic substances, phase out their use and replace them with alternatives that are safer for human health and the environment.

Some toxic substances build up in our bodies. This build-up can affect our health and future pregnancies long after we have been exposed. This is why the recommendations here are designed for women, men and children. They apply to all of us, whether or not we have children, are pregnant or want to have children in the future.

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5 Things To Do

- Prevent exposure at home
- Prevent exposure at work
- Prevent exposure in your community
- Become a smart consumer
- Make the government work for you

To view this brochure online, go to: [www.prhe.ucsf.edu/prhe/toxicmatters](http://www.prhe.ucsf.edu/prhe/toxicmatters).
Become a smart consumer:

- Find safer products at reproductive health.
- Use non-toxic personal care products.
- Prevent exposure at home.
- Don't smoke.
- Don't let people smoke around you and stay away from public places where people are smoking.
- Talk to your doctor if you need help quitting.
Prevent Exposure In Your Community

You can also help reduce pollution in your community.

Help create a better environment for your family and everyone around you.

- Drive less. Carpool, take public transportation, ride your bike or walk.
- Never burn trash, especially furniture, tires and plastics.
- Don't use pesticides. Use organic or integrated pest management techniques in lawns and gardens. Learn more at: www.prhe.ucsf.edu/prhe/tmlinks.html#community.
- Never throw toxic substances down drains or toilets or in the garbage. Examples of toxic substances include car oil, gasoline, pesticides, paints, solvents and medicines. Contact your local health department to find out how to safely dispose of those substances. Check the government section of your phone book or call the U.S. Centers for Disease Control and Prevention (CDC) at 800-232-4636.

Don't spray bugs.

Pesticides are toxic chemicals for killing insects, rodents, weeds, bacteria and mold.

- Use baits and traps instead of sprays, dusts and bombs.
- Don't use chemical tick-and-flea collars, flea baths, or flea dips.
- Hire only licensed pest exterminators.
- Find pesticide-free alternatives at: www.prhe.ucsf.edu/prhe/tmlinks.html#pestcontrol.

Get out your mop.

Toxic substances like lead, pesticides and flame retardants are present in dust. Sweeping or dusting with a dry cloth can spread the dust into the air instead of removing it.

- Use a wet mop or wet cloth to clean floors and surfaces.

Take off your shoes.

Shoes can carry toxic chemicals into your home.

- Wipe shoes on a sturdy doormat if you want to keep them on.

Clean your home with non-toxic products.

- It is easy and cheap to make effective, non-toxic cleaners. You can use common items like vinegar and baking soda.
- Find out how to shop for non-toxic cleaning products and get recipes to make your own at: www.prhe.ucsf.edu/prhe/tmlinks.html#cleaningproducts.
Learn more about plastics at www.aphs.org/ptes/plastics.html.

Use glass instead of plastics in the microwave.

Don't use plastic containers for hot food or drinks. Use glass or stainless steel.

Don't buy products made with soft PVC.

Shower curtains and 'toys' are made with soft PVC. For example, some phthalates and bisphenoal A (BPA).

Some plastics release toxic chemicals like vinyl chloride.

Pick your plastics carefully.

Cleaner to wet clean them for your home.

Be washed with water. Hand wash these clothes or ask your dry cleaner to do cleaning. Most clothes labeled dry-clean only can be washed with water. Use a commercial cold detergent and temperature.

Don't dry-clean your clothes.

If you are pregnant or planning a pregnancy and are exposed.
Prevent Exposure At Work

Many substances used on the job, in office buildings, or in workplace renovation projects are toxic to reproductive health.

- By law, you have a right to a safe and healthy work environment.
- Get information and training about hazardous substances in your workplace. Your employer is required by law to provide information and training about workplace hazards, including access to handouts about toxic substances called Material Safety Data Sheets (MSDS).
- Follow guidelines to avoid exposure. Use protective gear. Ask your employer about substitutes for toxic substances and other ways to prevent harmful exposures.

Choose safer home improvements.
Many paints, glues and flooring materials can release toxic chemicals long after you complete a project.

- Ask for "VOC-free" and "water-based" materials.
- If you are pregnant, don't work on or near remodeling projects.
- Stay away from recently remodeled rooms.
- Learn more about safer materials at: www.prhe.ucsf.edu/prhe/tmlinks.html#remodeling.

Keep mercury out of your diet, home, and garbage.

- Choose fish that are less contaminated with mercury. Find information on healthy and environmentally sustainable fish at: www.prhe.ucsf.edu/prhe/tmlinks.html#mercury.
- Check local fish advisories. Fish advisories are warnings about fish. Don't eat the fish you or others catch before checking these warnings to make sure the fish is safe to eat. Learn more about fish advisories at: www.prhe.ucsf.edu/prhe/tmlinks.html#mercury.
- Replace your mercury thermometer with a digital one. Don't throw your mercury thermometer or any other item containing mercury (such as compact fluorescent light bulbs) in the trash. Your local health department can tell you where to bring these items for safe disposal. To contact your local health department, check the government section of your phone book or call the U.S. Centers for Disease Control and Prevention (CDC) at: 800-232-4636.
Avoid pesticides and other toxic substances in food and water.

- Eat organic food when possible to reduce your exposure to pesticides. If you can’t afford to buy organic produce, buy the fruits and vegetables with the lowest pesticide levels and avoid the most contaminated ones. Learn more about reducing your exposure to pesticides from food at: www.prhe.ucsf.edu/prhe/tmlinks.html#foodandwater.

- Limit foods with a lot of animal fat. Many toxic substances build up in animal fat.

- Avoid canned foods and beverages as much as you can. Eat fresh or frozen fruits and vegetables. This helps you avoid exposure to BPA. BPA is a toxic substance used in the lining of most cans.

- To learn how to reduce toxic substances in your drinking water, go to: www.prhe.ucsf.edu/prhe/tmlinks.html#foodandwater.

Avoid lead exposure.

There may be lead in house paint, dust, and garden soil. Any home built before 1978 may have lead paint.

- Call the National Lead Information Center for information about how to prevent exposure to lead at: 800-424-LEAD.

- If you have lead paint in your home, cover it with a fresh coat of paint, wallpaper or tiles.

- Never sand or remove lead paint yourself. Hire a contractor who is certified in lead abatement.

Test your home for radon.

Radon is a radioactive gas found in many basements and ground floors.

- Purchase a testing kit at your local hardware store. Kits are cheap and easy to use.

- Learn more about radon by calling 1-800-SOS-RADON or at: www.prhe.ucsf.edu/prhe/tmlinks.html#radon.