UNDERSTANDING PRENATAL ALCOHOL EXPOSURE

Curriculum with RealCare™ Fetal Alcohol Syndrome Baby

Realityworks®
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Understanding Prenatal Alcohol Exposure

Curriculum with RealCare™ Fetal Alcohol Syndrome Baby

Fetal Alcohol Syndrome (FAS)

Fetal Alcohol Spectrum Disorders (FASD)

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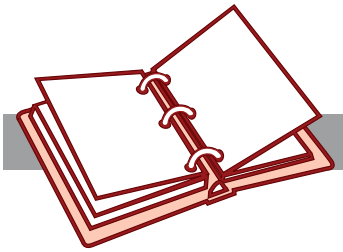

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Ms. Kennedy's distinguished career is built on a foundation of 30 years of public school teaching and features numerous local, regional, and national contributions to her field. Most recently, she earned the 2006 American Association of Family and Consumer Sciences (AAFCS) Leader Award and the 2005 Wisconsin Association of Family and Consumer Sciences (WAFCS) Leader Award. In 1996, she was named WAFCS Wisconsin Teacher of the Year, and was a Top Ten Finalist for AAFCS National Teacher of the Year.

Ms. Kennedy's national contributions include a number of presentations and publications. She is a coauthor of the *Goals for Living* high school textbook (Goodheart-Wilcox Co., Inc., publishers) and coordinated on-site film production for *The Road to School-to-Work*, a nationally used school-to-career videotape (Agency for Instructional Technology).

She is a past Foundation Board Member of Microlife Co., a producer of life skills educational materials. Ms. Kennedy has also been involved since 2000 in implementing a continuing Study of Aging course in her high school's Health Apprenticeship Program. Students focus on lifespan learning, meet with health and community speakers, and experience a simulation of age-related limitations including arthritis, glaucoma, and stroke.

Her other awards include the Herb Kohl Teacher Fellowship Award (1996) and the Image Award of the Gateway Tech Prep Consortium (1994). In 1988 she received the Outstanding Vocational Educator Award of the Wisconsin Association of Secondary Vocational Administrators (WASVA).

Always eager to apply her knowledge and insights into ground-breaking projects, Ms. Kennedy has been involved in several Department of Public Instruction pilot projects, including Consumer Homemaking: Integrative Learning and Portfolio Assessment (1994-95), Consumer Homemaking: Assessment and Evaluation (1992-94), and Resource Teacher: Family and Technology (1988-91).

Acknowledgments

Realityworks thanks the following contributors for their help in developing this curriculum.

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INTRODUCTION

Introduction

At any time during pregnancy, a woman's alcohol consumption can harm her growing fetus.[1] The broad range of birth defects that may result from prenatal alcohol exposure is termed Fetal Alcohol Spectrum Disorders (FASD). The most severe of these birth defects is Fetal Alcohol Syndrome (FAS).

The RealCare™ Fetal Alcohol Syndrome (FAS) Baby is an instructional aid created to help increase awareness of the results of prenatal alcohol exposure, and to help reduce the incidence of FAS and FASD.

The FAS Baby shows a composite of the physical symptoms of FAS, including below-average size for gestational age, small head circumference, flat midface and nose bridge, and ear and hand anomalies. In a real infant, these physical abnormalities are accompanied by non-visible problems caused by injury to the developing brain, including learning disabilities, emotional and behavioral disorders, and reduced cognitive ability.

This curriculum introduces the RealCare™ (FAS) Baby, presents documented information about FAS and FASD, and provides a complete curriculum with activities and discussions designed to educate students and communities about this tragic and preventable spectrum of disorders.

Prenatal Alcohol Exposure—Completely Preventable

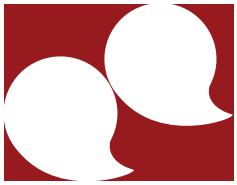
A woman's use of alcohol during pregnancy can affect her child physically and mentally throughout his or her life, and can lead to behavioral and/or learning problems that may become especially evident when the child attends school.[1] The effects of prenatal alcohol exposure may be disabling and have lifelong implications for individuals, families, and society.

Any form of FASD is 100 percent preventable.[1, 3] Research is clear that completely abstaining from alcohol use during pregnancy prevents all FASD conditions. If a woman does not drink alcohol at any time during her pregnancy, these birth defects will not occur.

Definitions

Fetal Alcohol Spectrum Disorders (FASD): Umbrella term for a spectrum of disorders caused by prenatal alcohol exposure that includes physical, mental, behavioral, and learning disabilities.[1]

Fetal Alcohol Syndrome (FAS): Abnormal facial features, growth deficiency, and central nervous system problems resulting from prenatal alcohol exposure.[1, 4] It is the most severe form of FASD.[1]



"Of all the substances of abuse (including cocaine, heroin and marijuana), alcohol produces by far the most serious neurobehavioral effects on the fetus."[2]

Institute of Medicine Report to Congress, 1996

FAS and FASD

The phrase "Fetal Alcohol Syndrome" (FAS) was first used in 1973 to describe a group of severely affected children prenatally exposed to alcohol with a similar set of birth defects.[5] FAS has three major diagnostic criteria:[1]

1. Distinctive, abnormal facial features
2. Growth deficiencies
3. Central nervous system problems (structural and/or functional)

FAS is the most severe of the Fetal Alcohol Spectrum Disorders (FASD).[1] Behavioral and cognitive problems associated with FAS may include reduced cognitive ability, learning disabilities, attention deficits, hyperactivity, poor impulse control, and social, language, and memory deficits.[6]

The effects of prenatal alcohol exposure are not genetic or hereditary.[7] An individual with a disorder on the fetal alcohol spectrum cannot pass the disorder on to a child.

The sole cause of FASD is alcohol consumption during pregnancy.

National Statistics

A significant amount of information has been documented about drinking by American women, including those who are pregnant:

- Two of every five women drink alcohol.[8]
- Four million women are heavy drinkers.[8]
- Two and one-half million women are alcohol-dependent.[8]
- Among pregnant women, 1 in 10 drinks alcohol.[8]
- Among pregnant women, 1 in 25 binge drinks.[8]
- Among pregnant women, 1 in 30 engages in high-risk drinking, which is drinking seven or more drinks per week or five or more drinks on any one occasion.[9]
- More than 1 in 5 pregnant women drink alcohol during the first trimester, 1 in 14 during the second trimester, and 1 in 20 during the third trimester.[9]

These rates of maternal drinking have led to the following grim statistics:

- About 1 in 100 babies, approximately 40,000 babies annually, is born with one or more effects of prenatal alcohol exposure.[4, 9]
- About 1 in 1,000 babies is born with full-blown FAS.[4]
- FASD is the leading cause of mental retardation.[9]
- Annually, FAS costs up to $6 billion in direct and indirect costs.[9]
- The lifetime expenses and costs for an individual with FAS is approximately $2 million. This amount is an average; individuals with severe problems may experience much greater costs.[9]

Alcohol and Pregnancy

Alcohol in a pregnant woman's bloodstream freely crosses the placenta and enters the bloodstream of the fetus through the umbilical cord.[4, 6] As a result, the fetus's blood alcohol level can equal or exceed that of the mother.[6] Prenatal alcohol exposure can harm the fetus at any time, with the most extreme effect being death.[8]

The effect of the father's alcohol consumption at the time of conception has been studied, but results are inconclusive at this time.[7] Nevertheless, alcohol consumption by either parent in a household reduces the environmental safety of the growing fetus.

Prenatal alcohol exposure through maternal drinking can trigger abnormal development in the following ways:[6]

- Cell death, causing abnormal development of different parts of the fetus.
- Disruption of nerve cell development, ultimately affecting brain development.
- Constriction of blood vessels, interfering with blood flow in the placenta and affecting delivery of nutrients and oxygen to the fetus.
- Concentration of toxic by-products of alcohol metabolism in the fetus's brain.

Prenatal Alcohol Exposure's Short- and Long-Term Impact

Babies born to women who drink alcohol during pregnancy can have physical, mental, behavioral, and other lifelong problems.[6] Since a fetus's brain develops throughout gestation, it can be harmed at any time. Magnetic resonance imaging (MRI) reveals structural abnormalities in the brains of individuals whose mothers drank alcohol during pregnancy. The range of birth defects may include, but is not limited to:

- Cleft palate[4]
- Dental abnormalities (e.g., small teeth)[4, 12]
- Vision problems: refractive errors and strabismus ("lazy eye" or "crossed eyes")[4, 12]
- Hearing problems[4, 12]
- Heart, lung, kidney, and liver defects[2, 4, 12]
- Genital changes[4]
- Sacral dimple (dimple at the base of the spine)[4]
- Unusual chest shape[4]
- Subtle hand abnormalities[4]
- Reduced muscle tone (weak muscles)[4]
- Brain damage[12]

Several signs may indicate that a newborn baby (birth to nine months) has experienced prenatal alcohol exposure:

- Irritability[4, 10]
- Feeding difficulties (e.g., poor sucking)[4, 10]
- Sensitivity to light, noises, and touch[4, 10]
- Difficulty adapting to new objects and situations[4]
- Poor bonding with caregivers[4]
- Abnormal sleeping patterns[4, 10]
- Reduced muscle tone (weak muscles)[4]
- Small head size[4]
- Low birth weight[10]
- Slow development[10]
- Increased ear infections[10]

These additional signs and symptoms may appear when the child is a toddler (nine months to four years):

- Head banging[4]
- Poor muscle development[4]
- Poor coordination and balance[4]
- Poor memory[4, 10]
- Hyperactivity[4, 10]
- Developmental delay[4]
- Reduced cognitive ability[4]
- Inappropriate lack of fear[10]
- No sense of boundaries[10]
- Need for excessive physical contact[10]
- Speech and language delays[4]

A number of signs may not be apparent until a child enters school (4 to12 years):

- Difficulty getting along with others[4]
- Attention deficits[4, 10]
- Impulsivity[4]
- Aggressiveness[4]
- Difficulties listening and talking[4]
- Difficulties hearing[4]
- Frequent temper tantrums and mood changes[4]
- Longer time to complete tasks[4]
- Poor coordination[10]
- Difficulties with motor skills[10]
- Learning disabilities[4]

As an adolescent and adult (12 years and older), signs and symptoms may limit an individual's ability to live independently:

- Poor judgment and reasoning[4]
- Poor memory[4]

- Difficulties with problem-solving[4]
- Poor time and money management[4]
- Low self-esteem[10]
- Poor impulse control[10]

Follow-Up and Long-Term Care

The damage caused by prenatal alcohol exposure is permanent.[1] Early diagnosis and intervention are key factors in successful follow-up and long-term care. An accurate diagnosis is important, because most affected individuals have no physical signs of a disorder and their disabilities may have been wrongly attributed to poor parenting or other disorders.[11]

It is important to note that many of these symptoms can be caused by disorders other than FASD. Only trained professionals can make a diagnosis of a disorder on the fetal alcohol spectrum.[11] Teachers, day care providers, and relatives may identify potential problems, but cannot diagnose FASD.

Accurate diagnosis may require a team consisting of some or all of the following professionals:[11]

- Geneticist
- Developmental pediatrician
- Neurologist
- Dysmorphologist (physician specializing in birth defects)
- Education consultant
- Psychologist and/or psychiatrist
- Social worker
- Occupational therapist
- Speech and language specialist

The team may use a number of diagnostic tests, including:[11]

- Complete physical exam (e.g., height, weight, vision, hearing, cardiogram)
- Evaluation of the face
- IQ test such as the Wechsler Intelligence Scale for Children (WISC) or the Wechsler Adult Intelligence Scale (WAIS)

Costs of Prenatal Alcohol Exposure

The costs of prenatal alcohol exposure are significant for the individual who lives with the disorder(s), for the family, and for the community.

Financial Costs

The lifetime expenses and costs for an individual with FAS is approximately $2 million. This amount is an average; individuals with severe problems may experience much greater costs.[9]

The United States alone experiences direct and indirect costs of up to $6 billion annually for its citizens affected by FAS.[9]

Individual, Family, and Social Costs

The following problems, alone or in combination, represent real but largely intangible costs experienced not only by the individual who suffers from prenatal alcohol exposure, but also by the family, school district, and wider community:

- Disruptive school experiences[7]
- Incomplete education[1]
- Unemployment[1, 7]
- Psychiatric problems[1, 7]
- Inappropriate sexual behavior[7]
- Criminal behavior[1, 7]

Children identified as having FASD may require time-intensive intervention and treatment at home and at school. Healthy children may be able to thrive even in the absence of some elements of a nurturing home and supportive school system, but children with FASD cannot. These elements include but are not limited to the following:

- A loving, nurturing, and stable home life[1, 12]
- Avoidance of disruptions, transient lifestyles, and harmful relationships[1]
- Consistent routines[10]
- Limited stimulation[10]
- Concrete language and examples[10]
- Multi-sensory learning (visual, auditory, and tactile)[10]
- Realistic expectations[10]
- Supportive environments[10]
- Supervision[10]

The RealCare™ Fetal Alcohol Syndrome Baby

The RealCare™ Fetal Alcohol Syndrome Baby is designed to show the typical physical features associated with a severe case of FAS. The FAS Baby is a highly effective visual aid for classroom discussion of the additional cognitive, emotional, behavioral, and social elements of Fetal Alcohol Spectrum Disorders (FASD).

The FAS Baby is about the size an infant would be when released from the hospital after treatment for the effects of prenatal alcohol exposure. The FAS Baby is small for gestational age, has underdeveloped limbs, and displays various cranial and facial abnormalities.

Physical Features

The FAS Baby shows all of the cranial and facial features of FAS:

- Small head circumference
- Flat midface
- Indistinct ridge between nose and lips (philtrum)
- Narrow upper lip
- Non-inherited skin folds covering inner corners of the eyes (normal for many Asian and Native American individuals)
- Flat nose bridge
- Upturned nose
- Unusually small chin
- Minor ear abnormalities

The FAS Baby shows these additional physical features of FAS:

- Small size for gestational age
- Unusually thin arms and legs
- Subtle hand abnormalities

Contents

The FAS Baby comes with the following accessories and items:

- Cloth diaper
- Curriculum

Cleaning the FAS Baby

Do not immerse the FAS Baby in water. Instead, clean the vinyl with a soft, damp cloth and gentle hand soap. When needed, machine-wash the FAS Baby's diaper on a gentle cycle in mild detergent (no bleach).

If the FAS Baby's joints become stiff, apply a small amount of joint lubricant.

Endnotes

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LESSON AND ACTIVITIES

Understanding Prenatal Alcohol Exposure

Purpose

This curriculum uses documented information about prenatal alcohol exposure and the Fetal Alcohol Syndrome (FAS) Baby teaching aid to educate participants about the risks of drinking alcohol during pregnancy.

The curriculum discusses FAS and Fetal Alcohol Spectrum Disorders (FASD); describes the impact of those disorders on individuals in their infancy, school years, and adulthood; lists the financial, family, and social costs of prenatal alcohol exposure; and stresses the importance of abstaining from drinking any type or amount of alcohol during pregnancy.

How to Use This Curriculum

Alcohol use, pregnancy, and birth defects are all sensitive topics, and some participants may have personal experiences and perspectives that they are not comfortable sharing. Other participants may voice negative opinions that reduce the effectiveness of discussion.

As you teach and discuss the topic of prenatal alcohol exposure, keep in mind . . .

- Alcohol use is widespread. Some participants may be using alcohol already, and some may have a friend or family member who has a drinking problem.
- Alcoholism is a disease that can result in denial and shame.
- Foster a supportive and constructive atmosphere in the classroom. Focus on *our individual responsibility* for our choices in order to avoid the possible perception of blame, shame, and the judging of others.
- Emphasize the need to respect each other's points of view and individual differences, and to treat each other with dignity, respect, and kindness.

Objectives

Participants will:

- Gain awareness of the facts and concepts surrounding prenatal alcohol exposure.
- Document their initial knowledge about prenatal alcohol exposure before the start of the lesson.
- Define FAS and FASD.
- Describe how nutrients, oxygen, and other substances (e.g., alcohol) reach a developing fetus.
- List the effects of prenatal alcohol exposure.
- Explain what happens developmentally when a pregnant woman and her fetus consume alcohol.
- Identify the long-term consequences of prenatal alcohol exposure for individuals, families, and society.
- Identify guidelines for FASD prevention.
- Identify resources for additional information about prenatal alcohol exposure and its consequences.
- Determine strategies to help a family or mother when prenatal alcohol exposure is a possibility, or when FAS has been diagnosed by a medical professional.
- Summarize important information from the lesson.

Audiences

This curriculum is designed to be used with the following audiences:

- Public and Private Schools:
  - Middle School Classes
  - High School Classes
- Community Education:
  - Parenting Classes
  - Fathers or Male Partners Groups

- Foster Care Providers
- Social Workers
- Public Health Organizations (public service, child abuse prevention, and other public health agencies)

- Clinical Education:
  - Prenatal Classes
  - Postnatal Classes

Educational Standards Supported

National Standards for Family and Consumer Sciences Education

Taken together, the information and activities in this curriculum support the comprehensive standards of the National Standards for Family and Consumer Sciences Education[1] listed below. The supported content standards and competencies are listed in the "Educational Standards" section of this curriculum.

- Comprehensive Standard 4.0:
- Comprehensive Standard 6.0
- Comprehensive Standard 7.0
- Comprehensive Standard 12.0
- Comprehensive Standard 13.0
- Comprehensive Standard 15.0

National Health Education Standards

Taken together, the information and activities in this curriculum support the National Health Education Standards[2] listed below. The supported performance indicators are listed in the "Educational Standards" section of this curriculum.

- Standard 1
- Standard 2
- Standard 3
- Standard 5
- Standard 6
- Standard 7
- Standard 8

Reprinted, with permission, from the American Cancer Society. *National Health Education Standards: Achieving Excellence, Second Edition.* Atlanta, GA: American Cancer Society; 2007, www.cancer.org/bookstore.

Time Required

The activities described in this curriculum require between 45 and 65 minutes to complete. With supplemental materials, this curriculum can be adapted to a longer block of time (e.g., 80 to 90 minutes). Additional information, including class discussion, may be added as class time allows.

Materials

The following instructional materials are provided with this curriculum. Individual PDF files for printing are available in the "Worksheets and Handouts" folder on your CD-ROM. If you have a printed curriculum binder, the materials can be found at the page numbers listed below.

- "Understanding Prenatal Alcohol Exposure" Pretest (p. LA-11)
- "Understanding Prenatal Alcohol Exposure" Pretest Answers (p. LA-13)
- "How Nutrients, Oxygen, and Other Substances Reach the Fetus" Fact Sheet (p. LA-17)
- Fetal Alcohol Syndrome (FAS) Baby
- Overhead Slide Presentation*
- "Understanding Prenatal Alcohol Exposure" Review Questions (p. LA-25)
- "Understanding Prenatal Alcohol Exposure" Posttest (p. LA-29)
- "Understanding Prenatal Alcohol Exposure" Posttest Answers (p. LA-31)

* The Overhead Slide Presentation can be delivered using the Microsoft® PowerPoint® file on your curriculum CD, or printed onto overhead transparencies from the Acrobat® PDF file. For the printed binder, see the "Overhead Slides" section to photocopy your own transparencies.

Additional materials are available to order from national FAS and FASD organizations and are listed in the "Resources" section of this curriculum.

Lesson Prep Overview

To help with lesson preparation, each activity's related materials and approximate times are shown below. This information is repeated in greater detail in the individual activity and discussion instructions.

NOTE: Participants should take the Pretest before the start of the lesson. Information from the Pretest can be compared with information from the Posttest, which participants take upon completion of the lesson, to measure changes in their knowledge and attitudes.

Activity or Discussion	Materials	Approx. Time
Activity 1: Pretest (p. LA-9)	❒ "Understanding Prenatal Alcohol Exposure" Pretest ❒ "Understanding Prenatal Alcohol Exposure" Pretest Answers	5 minutes
Discussion: A Pregnant Woman and Her Fetus (p. LA-15)	❒ "How Nutrients, Oxygen, and Other Substances Reach the Fetus" Fact Sheet ❒ Whiteboard ❒ Dry erase markers	8-10 minutes
Activity 2: RealCare™ Fetal Alcohol Syndrome (FAS) Baby Demonstration (p. LA-19)	❒ FAS Baby	10-15 minutes
Activity 3: Overhead Slide Presentation (p. LA-21)	❒ Overhead Slide Presentation	15-20 minutes
Activity 4: Q&A Review With RealCare™ Fetal Alcohol Syndrome (FAS) Baby (p. LA-23)	❒ FAS Baby ❒ "Understanding Prenatal Alcohol Exposure" Review Questions	5-10 minutes
Activity 5: Posttest (p. LA-27)	❒ "Understanding Prenatal Alcohol Exposure" Posttest ❒ "Understanding Prenatal Alcohol Exposure" Posttest Answers	5 minutes
Additional Questions for Discussion (p. LA-33)	❒ (Suggestions provided)	--
Supplementary Activities (p. LA-35)	❒ (Suggestions provided)	--

Approximate times do not include time for extra discussion and transitions between activities. Total classroom time required will vary according to instructor's preparation and familiarity with the lesson.

Activity 1

Pretest

This activity measures participants' knowledge about prenatal alcohol exposure before the start of the lesson. Information from this Pretest can be compared with information from the Posttest to measure the change in participants' knowledge about prenatal alcohol exposure as a direct result of the lesson.

Objectives

Participants will:

1. Gain awareness of the facts and concepts surrounding prenatal alcohol exposure.
2. Document their initial knowledge about prenatal alcohol exposure before the start of the lesson.

Materials

- "Understanding Prenatal Alcohol Exposure" Pretest
- "Understanding Prenatal Alcohol Exposure" Pretest Answers

Time

5 minutes

Facilitating the Activity

1. Give each participant a copy of the "Understanding Prenatal Alcohol Exposure" Pretest. Allow participants five minutes to complete.
2. Consider letting participants keep the Pretest so they can write down additional information as they learn it during the lesson.
3. If desired, use "Understanding Prenatal Alcohol Exposure" Pretest Answers to review participants' responses.

A B C D **Pretest**

Understanding Prenatal Alcohol Exposure

Name: _____ Date: _____

1. What do the following abbreviations stand for?

   FAS: _____

   _____

   _____

   FASD: _____

   _____

   _____

2. The only way a child can acquire FAS is by inheriting it from both the father and mother.

   a. True b. False

3. Beer, wine, and cocktails each affect a fetus differently.

   a. True b. False

4. FAS and FASD are completely preventable.

   a. True b. False

5. How much alcohol is safe to consume during pregnancy?

   _____

   _____

6. Who is qualified to make a diagnosis of FASD?

   _____

   _____

7. Prenatal exposure to which substance is the leading known cause of mental retardation in the United States?

   a. Cocaine b. Heroin c. Alcohol

8. Alcohol can be transferred to a baby through mother's milk during breastfeeding.

   a. True b. False

9. Societal costs are the same to raise a child whether or not the child has FAS or FASD.

   a. True b. False

10. A parent's continuing to drink alcohol after a baby is born poses no risk to the child's welfare.

    a. True b. False

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A B C D

Pretest ANSWERS

Understanding Prenatal Alcohol Exposure

1. What do the following abbreviations stand for?

   FAS: *Fetal Alcohol Syndrome*

   FASD: *Fetal Alcohol Spectrum Disorders*

2. The only way a child can acquire FAS is by inheriting it from both the father and mother.

   a. True b. False

3. Beer, wine, and cocktails each affect a fetus differently.

   a. True b. False

4. FAS and FASD are completely preventable.

   a. True b. False

5. How much alcohol is safe to consume during pregnancy?

   There is no known safe amount.

6. Who is qualified to make a diagnosis of FASD?

   Only trained professionals.

7. Prenatal exposure to which substance is the leading known cause of mental retardation in the United States?

   a. Cocaine b. Heroin c. Alcohol

8. Alcohol can be transferred to a baby through mother's milk during breastfeeding.

   a. True b. False

9. Societal costs are the same to raise a child whether or not the child has FAS or FASD.

   a. True b. False

10. A parent's continuing to drink alcohol after a baby is born poses no risk to the child's welfare.

    a. True b. False

Discussion

A Pregnant Woman and Her Fetus

In this discussion, participants define FAS and FASD and learn how alcohol reaches a fetus. Participants learn or are reminded that nutrients, oxygen, and other substances (e.g., alcohol) in a pregnant woman's blood pass through the placenta directly into the fetus's bloodstream, and that a fetus's small size means that fetal blood alcohol levels can be much higher than those of the mother.

Objectives

Participants will:

1. Define FAS and FASD.
2. Describe how nutrients, oxygen, and other substances (e.g., alcohol) reach a developing fetus.

Materials

- "How Nutrients, Oxygen, and Other Substances Reach the Fetus" Fact Sheet
- Whiteboard (or other means)
- Dry erase markers (or other means)

Time

8 to 10 minutes

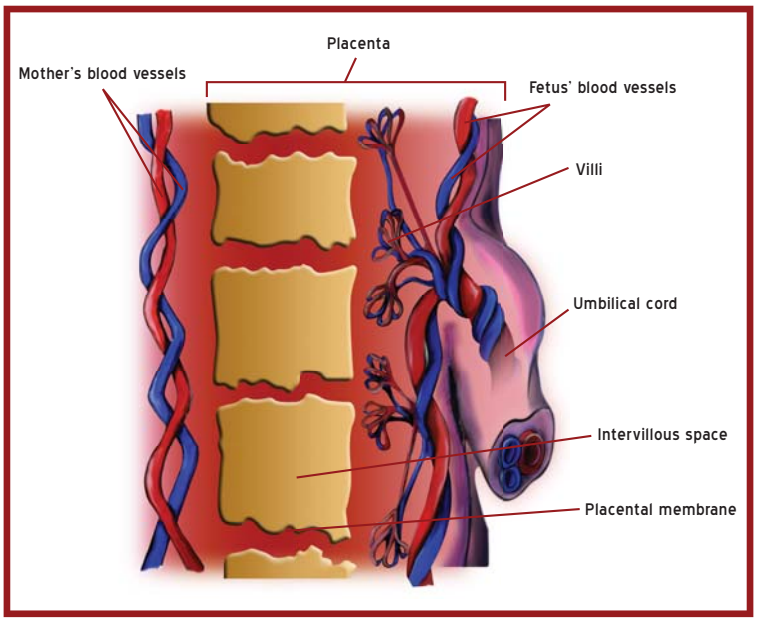
Facilitating the Discussion

1. Using "How Nutrients, Oxygen, and Other Substances Reach the Fetus" Fact Sheet, explain the process of maternal blood flow through the placenta and into the fetus, drawing participants' attention to the following elements:
   - Placenta
   - Mother's blood vessels
   - Fetus's blood vessels and villi
   - Umbilical cord
2. Explain that while the placenta filters some substances out of the mother's blood, many others cross the placenta into the fetus's bloodstream (e.g., alcohol).
3. Explain that a fetus's small size means that fetal blood alcohol levels can be much higher than those of the mother.
4. Explain that a fetus's inability to break down alcohol the way an adult can means fetal blood alcohol levels remain high for a longer period of time.
5. Write the letters "F A S" across the board.
6. Ask the class, "What do the letters 'F A S' stand for?" Allow participants one to two minutes to complete this task, providing clues and hints as needed. When the words "Fetal Alcohol Syndrome" are mentioned, ask the class for the meaning of the phrase. After participant suggestions, correctly define FAS.
7. Erase the letters "F A S" and write the letters "F A S D." Conduct a similar participant brainstorm and discussion.
8. Ask the class the following questions:
   - How might these disorders occur?
   - How does FAS relate to FASD?
   - Are these disorders preventable?

Fact Sheet

How Nutrients, Oxygen, and Other Substances Reach the Fetus

Nutrients, oxygen, and other substances (e.g., alcohol) in the mother's bloodstream cross the placental membrane into the fetus's blood vessels through villi, and then pass through the umbilical cord:[i]



- The fetus's blood alcohol level can equal or exceed that of the mother due to the fetus's small size.[ii]
- The fetus's blood alcohol level remains high for a longer period of time, because of his or her inability to break down alcohol the way an adult can.[ii]
- Prenatal alcohol exposure can harm the fetus at any time during gestation, with the most extreme effect being death.[ii]
- There is no known safe amount of alcohol use during pregnancy.[ii]

i. The Merck Manuals. (2007, May). *Drug use during pregnancy.* Retrieved from http://www.merck.com/mmhe/sec22/ch259/ch259a.html

ii. Substance Abuse and Mental Health Services Administration. (2007). *Effects of alcohol on a fetus.* Retrieved from http://www.fasdcenter.samhsa.gov/documents/WYNK_Effects_Fetus.pdf

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Activity 2

RealCare™ Fetal Alcohol Syndrome (FAS) Baby Demonstration

In this activity, the instructor uses the FAS Baby to demonstrate the physical signs of FAS, and explains the cognitive and behavioral effects of prenatal alcohol exposure. Participants learn about the physical abnormalities caused by a severe case of FAS and learn about the related lifelong disabilities experienced by an individual with FAS or FASD.

Objectives

Participants will:

1. List the effects of prenatal alcohol exposure.
2. Explain what happens developmentally when a pregnant woman and her fetus consume alcohol.
3. Identify the long-term consequences of prenatal alcohol exposure for individuals, families, and society.

Materials

- FAS Baby

Time

10 to 15 minutes

Facilitating the Activity

1. Hold the FAS Baby in your arms as you would a real infant, and "introduce" the FAS Baby to the class. Explain that this FAS Baby represents a newborn baby recently discharged from a hospital after receiving treatment for symptoms of FAS.
2. Ask participants what they notice about the FAS Baby's physical features that are different from the features of a typical baby. Add information as needed to supplement their observations:
   - Small head circumference
   - Flat midface
   - Indistinct ridge between nose and lips (philtrum)
   - Narrow upper lip
   - Non-inherited skin folds covering inner corner of the eyes (normal for many Asian and Native American individuals)
   - Flat nose bridge
   - Upturned nose
   - Unusually small chin
   - Minor ear abnormalities
   - Small size for gestational age
   - Unusually thin arms and legs
   - Subtle hand abnormalities
3. Explain that in addition to these visible signs, babies born with FAS can also have brain damage and lifelong disabilities.
4. Explain that unlike a child with FAS, most children exposed to alcohol during gestation will look normal but may have learning and/or behavior problems.
5. Hand the FAS Baby to a participant, and instruct participants to carefully pass the FAS Baby to each other and observe the physical features.

6. As participants are passing the FAS Baby to each other, lead a brief discussion of what life would be like for a child with these physical abnormalities, and for the parent or guardian of a child with FAS.

Activity 3

Overhead Slide Presentation

During this activity, participants learn facts and statistics about prenatal alcohol exposure, the disabilities it can cause, and the importance of not drinking while pregnant. They also learn where families of babies with FAS and FASD can seek information.

Objectives

Participants will:

1. Define FAS and FASD.
2. Describe how nutrients, oxygen, and other substances (e.g., alcohol) reach a developing fetus.
3. List the effects of prenatal alcohol exposure.
4. Explain what happens developmentally when a pregnant woman and her fetus consume alcohol.
5. Identify the long-term consequences of prenatal alcohol exposure for individuals, families, and society.
6. Identify guidelines for FASD prevention.
7. Identify resources for additional information about prenatal alcohol exposure and its consequences.
8. Determine strategies to help a family or mother when prenatal alcohol exposure is a possibility, or when FAS has been diagnosed by a medical professional.

Materials

- Overhead slide presentation (delivered using the Microsoft® PowerPoint® file on your curriculum CD, or printed onto overhead transparencies from the Acrobat® PDF file. For the printed binder, see the "Overhead Slides" section to photocopy your own transparencies.)

Time

15 to 20 minutes

Facilitating the Activity

1. Tell participants that they are about to learn the facts about prenatal alcohol exposure and the disabilities associated with FAS and FASD.
2. Explain that FAS and FASD are completely preventable through education and by abstaining from drinking alcohol while pregnant.
3. Present the overhead slides, pausing to discuss information of special interest to participants:

Slide No.	Title
1	Understanding Prenatal Alcohol Exposure
2	Prenatal Alcohol Exposure Causes Birth Defects
3	The U.S. Surgeon General's Warning
4	The U.S. Surgeon General's Warning (cont.)
5	Fetal Alcohol Spectrum Disorders
6	Fetal Alcohol Syndrome
7	Physical Signs of FAS
8	Non-Physical Signs of FAS
9	Only Professionals Can Diagnose Prenatal Alcohol Exposure

10 Facts About Prenatal Alcohol Exposure

11 Who Is at Risk?

12 Many Women Stop Drinking

13 All Types of Alcoholic Beverages Should Be Avoided

14 All Types of Alcoholic Beverages Should Be Avoided (cont.)

15 How Alcohol Reaches the Fetus

16 How Alcohol Reaches the Fetus (cont.)

17 Alcohol Can Damage All Organ Systems

18 Alcohol Can Damage All Organ Systems (cont.)

19 Alcohol Can Harm an Unborn Child Even Before a Woman Knows She Is Pregnant

20 Babies Are Also Vulnerable While Breastfeeding

21 Severe Injury to the Developing Brain

22 FASD = Lifelong Problems and Lower Quality of Life

23 What Can We Do?

24 How to Stop Social Drinking

25 How to Help Pregnant Partners and Friends Stop Social Drinking

26 How to Help Families of Babies Born With FASD

27 Remember . . .

28 Presentation Endnotes

Activity 4

Q & A Review with RealCare™ Fetal Alcohol Syndrome (FAS) Baby

This activity reinforces the information participants learned in Activity 2: RealCare™ Fetal Alcohol Syndrome (FAS) Baby Demonstration, and Activity 3: Overhead Slide Presentation, using the FAS Baby as an aid for review.

Objectives

Participants will:

1. Define FAS and FASD.
2. Describe how nutrients, oxygen, and other substances (e.g., alcohol) reach a developing fetus.
3. List the effects of prenatal alcohol exposure.
4. Explain what happens developmentally when a pregnant woman and her fetus consume alcohol.
5. Identify the long-term consequences of prenatal alcohol exposure for individuals, families, and society.
6. Identify guidelines for FASD prevention.
7. Identify resources for additional information about prenatal alcohol exposure and its consequences.
8. Determine strategies to help a family or mother when prenatal alcohol exposure is a possibility, or when FAS has been diagnosed by a medical professional.

Materials

- FAS Baby
- "Understanding Prenatal Alcohol Exposure" Review Questions

Time

5 to 10 minutes

Facilitating the Activity

1. Using "Understanding Prenatal Alcohol Exposure" Review Questions, review the information presented within this lesson, using the FAS Baby where relevant.
2. Follow up with information from activities and discussion as needed to complete participants' understanding of the topic.

Review Questions

Understanding Prenatal Alcohol Exposure

1. What are Fetal Alcohol Spectrum Disorders (FASD)?

   An umbrella term for a spectrum of disorders caused by prenatal alcohol exposure that includes physical, mental, behavioral, and learning disabilities.[3]

2. What is Fetal Alcohol Syndrome (FAS)?

   A medical diagnosis concluded from the following signs:[3]

   - *Distinctive, abnormal facial features*
   - *Growth deficiencies*
   - *Central nervous system problems*

3. What causes FAS and FASD?

   Exposure to alcohol as a fetus; a woman drinking alcohol when she is pregnant.[3, 4, 5]

4. What **type** of alcohol is safe to drink during pregnancy?

   None. Exposure to any type of alcohol is unsafe for a developing fetus.[4, 6]

5. What **amount** of alcohol is safe to drink during pregnancy?

   None. There is no known safe amount of alcohol that can be consumed during pregnancy.[4, 6]

6. How does alcohol reach a developing fetus?

   When a pregnant woman has a drink, the alcohol readily moves across the placenta into the fetus's bloodstream through the umbilical cord.[7]

7. Describe five things that can happen to a fetus when a pregnant woman drinks alcohol:

   The alcohol enters the fetus's bloodstream and the following damage can occur to the fetus (depending on the developmental stage):

   - *Heart, lung, and/or kidney defects*[5, 8]
   - *Vision and/or hearing problems*[5]
   - *Genital changes*[5]
   - *Dental and palate abnormalities (e.g., small teeth, cleft palate)*[5]
   - *Brian damage*[5]

8. What are the features of the FAS Baby that represent a baby whose mother consumed alcohol during her pregnancy?

   - *Small head circumference*
   - *Flat midface*
   - *Indistinct ridge between nose and lips (philtrum)*
   - *Narrow upper lip*
   - *Non-inherited skin folds covering inner corners of the eyes (normal for many Asian and Native American individuals)*
   - *Flat nose bridge*
   - *Upturned nose*

- *Unusually small chin*
- *Minor ear abnormalities*
- *Small size for gestational age*
- *Unusually thin arms and legs*
- *Subtle hand abnormalities*

9. True or false: FAS and FASD are 100 percent preventable.

   True[3, 4]

10. What are some of the problems an individual with FASD can have throughout his or her life?

    - *Reduced cognitive ability*[8]
    - *Learning disabilities*[3, 8]
    - *Attention and memory problems*[3, 8]
    - *Hyperactivity*[8]
    - *Poor coordination*[8]
    - *Judgement and reasoning difficulties*[8]
    - *Communication problems*[3]
    - *Difficulties with school*[3]

11. What can friends and family do to help a pregnant woman deliver a healthy baby?

    - *Explain that ANY amount and ANY type of alcohol can hurt a developing fetus.*
    - *Keep several social activities in mind other than drinking alcohol that you and your friends enjoy doing.*

12. What can you do to help the family of a baby with FASD?

    - *Encourage them to seek community services.*
    - *Encourage them to visit their local school district's early childhood and family education programs.*
    - *Go with them as they learn about and arrange for available services.*
    - *Offer to stay with the baby to relieve caregiver stress.*

Activity 5

Posttest

This activity measures participants' knowledge about prenatal alcohol exposure upon the completion of the lesson. Information from this Posttest can be compared with information from the Pretest to measure the change in participants' knowledge about prenatal alcohol exposure as a direct result of the lesson.

Objective

Participants will summarize important information from the lesson.

Materials

- "Understanding Prenatal Alcohol Exposure" Posttest
- "Understanding Prenatal Alcohol Exposure" Posttest Answers

Time

5 minutes

Facilitating the Activity

1. Give each participant a copy of "Understanding Prenatal Alcohol Exposure" Posttest. Allow participants five minutes to complete.
2. If desired, use "Understanding Prenatal Alcohol Exposure" Posttest Answers to review participants' responses.

A B C D **Posttest**

Understanding Prenatal Alcohol Exposure

Name: _____ Date: _____

1. What do the following abbreviations stand for?

   FAS: _____

   _____

   _____

   FASD: _____

   _____

   _____

2. The only way a child can acquire FAS is by inheriting it from both the father and mother.

   a. True b. False

3. Beer, wine, and cocktails each affect a fetus differently.

   a. True b. False

4. FAS and FASD are completely preventable.

   a. True b. False

5. How much alcohol is safe to consume during pregnancy?

   _____

   _____

6. Who is qualified to make a diagnosis of FASD?

   _____

   _____

7. Prenatal exposure to which substance is the leading known cause of mental retardation in the United States?

   a. Cocaine b. Heroin c. Alcohol

8. Alcohol can be transferred to a baby through mother's milk during breastfeeding.

   a. True b. False

9. Societal costs are the same to raise a child whether or not the child has FAS or FASD.

   a. True b. False

10. A parent's continuing to drink alcohol after a baby is born poses no risk to the child's welfare.

    a. True b. False

11. What can you do to be sure that your child has absolutely no chance of developing FAS or FASD?

    _____

    _____

    _____

    _____

    _____

    _____

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12. What can a father or partner do to help a woman have a healthy baby?

_____

_____

_____

_____

_____

_____

13. If a child is born with FASD, what can the family do or where can they go for help?

_____

_____

_____

_____

_____

_____

14. What advice or information would you share with a woman who is pregnant and drinking an alcoholic beverage?

_____

_____

_____

_____

_____

_____

15. Explain how society is affected when a child has birth or other defects from the mother's use of alcohol during pregnancy. Consider the physical, economic, social and medical aspects.

_____

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A B C D

Posttest ANSWERS

Understanding Prenatal Alcohol Exposure

1. What do the following abbreviations stand for?

   FAS: *Fetal Alcohol Syndrome*

   FASD: *Fetal Alcohol Spectrum Disorders*

2. The only way a child can acquire FAS is by inheriting it from both the father and mother.

   a. True **b. False**

3. Beer, wine, and cocktails each affect a fetus differently.

   a. True **b. False**

4. FAS and FASD are completely preventable.

   a. True b. False

5. How much alcohol is safe to consume during pregnancy?

   There is no known safe amount.

6. Who is qualified to make a diagnosis of FASD?

   Only trained professionals.

7. Prenatal exposure to which substance is the leading known cause of mental retardation in the United States?

   a. Cocaine b. Heroin **c. Alcohol**

8. Alcohol can be transferred to a baby through mother's milk during breastfeeding.

   a. True b. False

9. Societal costs are the same to raise a child whether or not the child has FAS or FASD.

   a. True **b. False**

10. A parent's continuing to drink alcohol after a baby is born poses no risk to the child's welfare.

    a. True **b. False**

11. What can you do to be sure that your child has absolutely no chance of developing FAS or FASD?

    Stop drinking alcohol if pregnant or if there is a chance of becoming pregnant; support your partner's or friend's decision not to drink alcohol if pregnant or considering becoming pregnant.

12. What can a father or partner do to help a woman have a healthy baby?

Encourage the mother to abstain from drinking alcohol. If she is having trouble controlling her drinking, help her find the support she needs.

13. If a child is born with FASD, what can the family do or where can they go for help?

Contact FAS and FASD organizations, their doctor or pediatrician, their county and community resources, and their school personnel. Attend clinic, county, and community FAS and FASD meetings if available.

14. What advice or information would you share with a woman who is pregnant and drinking an alcoholic beverage?

Answers will vary.

15. Explain how society is affected when a child has birth or other defects from the mother's use of alcohol during pregnancy. Consider the physical, economic, social and medical aspects.

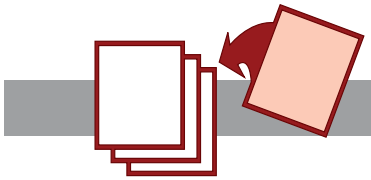
Answers will vary.

Discussion

Additional Questions for Discussion

The questions below are useful when time allows deeper discussion of the issues surrounding prenatal alcohol exposure. Answers will vary.

- Why is prenatal alcohol exposure an important topic for all people to know about?
- What influence does a father have in a child's life before he or she is born? After birth?
- What might you say to someone you know who is drinking alcohol and is or could be pregnant?
- What systems, support groups, and educational opportunities are in place in our community to inform future parents of the risks of drinking alcohol any time during pregnancy?
- What have you learned that will help you as a future parent or caregiver to prevent prenatal alcohol exposure?
- What can a woman do to avoid social drinking during pregnancy?
- How can you help a friend or your partner avoid social drinking during pregnancy?
- What are losses or costs to families and society when children are affected by their mothers' drinking? Their fathers' drinking?
- What are some indirect financial and societal costs associated with FASD?
- How can alcohol and drug abuse be connected?
- How might alcohol and tobacco use be connected?
- How might alcohol and tobacco, in combination, be hazardous to an unborn child?



Supplementary

Supplementary Activities

In addition to the activities and discussion presented in this curriculum, consider the following ideas to meet the needs of longer class periods or different groups of participants.

- View the DVD, "A Child for Life," a 22-minute video that explains FAS and FASD and includes interviews with experts, families, and children affected by FASD.

  "A Child for Life" may be purchased through the following organizations:

  National Organization on Fetal Alcohol Syndrome
  900 17th Street, NW, Suite 910
  Washington, DC 20006
  Phone: (202) 785-4585 +1 (800) 66NOFAS
  Fax: (202) 466-6456
  www.nofas.org

  NOFAS-UK
  157 Beaufort Park
  London
  NW11 6DA
  England
  Tel: 0208 458 5951
  Fax: 0208 209 3296
  Email: nofas-uk@midlantic.co.uk
  www.nofas-uk.org

  - Upon completion of the video, allow two to three minutes of silence for private reflection. This time is important for participants to process what they have seen in ways that are personally meaningful.

  - Facilitate a participant-led discussion by asking participants about their impression of the video. Discuss briefly.

  - Ask the following questions:

    1. Think about the children we saw in the video. How does having FAS affect their ability "to be whatever they want to be" right now? How will it affect their adulthood?

       The children's dreams included being a mother, a bus driver, an artist, and being on-stage. These goals would be difficult or almost impossible for a person with FAS to achieve.

    2. What are some things that all parents want for their children? How does a mother's consumption of alcohol during pregnancy affect these hopes and dreams?

       The parents we saw wanted their children to be free, confident, responsible, healthy, and happy. These basic qualities of life are difficult or impossible for children with FAS.

    3. What parts of a baby's body and internal organs are affected by prenatal alcohol consumption?

       Brain, central nervous system, heart, lungs, eyes, ears, and more. All organs are vulnerable depending on their stage of development when exposed to alcohol.

    4. Why can't a fetus process and remove the alcohol in his or her bloodstream?

       We process and remove alcohol from our blood with an enzyme produced by the liver. A fetus's liver is not developed enough to produce the enzyme required to detoxify his or her blood.

5. Think back to what we heard Jamie's mother, Carrie, say about her son's FAS. How does she feel?

   Carrie feels terrible about Jamie's FAS. She says that no woman would ever plan to hurt her child the way Jamie has been hurt by Carrie's drinking.

6. Why is binge drinking so dangerous to a fetus?

   During binge drinking, a person's blood alcohol level goes from zero to a very high level in a very short time, so the fetus is exposed to a large quantity of alcohol all at once. Depending on the stage of fetal development, this sudden, high level of alcohol in the blood can be extremely damaging to the fetus's brain and organs. We saw that in the United Kingdom, drinking three large glasses of wine in one evening is considered "binge drinking."

7. What price is Jordan paying for his mother Jennelle's drinking? How did you feel when you heard Jordan speak? How do you think his mother feels?

   - *Jordan was born with three heart chambers instead of four and had three open-heart surgeries by the age of 13. He was also born with two right lungs instead of a right and a left lung. Jordan is very self-aware, and says that his dog is "pretty much my only friend."*
   - *Jordan wants to teach others about his disability. We think about what this brave, expressive boy could have accomplished for himself and his community if he had not been born with FAS.*
   - *Jennelle feels terrible that her binge drinking affected Jordan in this way. She says she wishes he had a friend.*

8. What hurdles does a child with FAS face when trying to make friends?

   A child with FAS is about one-half the intellectual, emotional, and social age of same-age peers. Because interests are different, conversation is limited and difficult, and the child with FAS stands out as immature.

9. What is different about the brain of a baby born with FAS?

   It is smaller, less symmetrical, and has fewer features (e.g., folds) than a normal brain.

10. Think back to Peter, the older brother to three younger siblings who have FAS. How does he feel about alcohol?

    Peter says alcohol "destroyed" his mother and father, and his brothers and sister. Peter says he drinks occasionally, but said, "I hate alcohol."

11. How did you feel when you heard CJ describe what happened with her friend, Nicole? How did you feel when CJ said, "Sometimes I wish I didn't have FAS"?

    - *CJ could not "compete" with Nicole's friends who were of normal intelligence (CJ called them "really smart people").*
    - *When CJ said, "Sometimes I wish I didn't have FAS," she seemed helpless and resigned.*

12. What happens to most children who have FAS?

    Children with FAS are often unable to live independently, and may need continual support from their families or communities for their whole lives.

    - *They have reduced cognitive ability and attention deficits.*
    - *They cannot do simple things like making change or taking the bus.*
    - *They often get into trouble but do not understand why.*
    - *Without support, they may become homeless.*

13. How did you feel when Karli's mother, Kathy, talked about the "waves of guilt and remorse" that she experienced because her drinking caused Karli's FAS?

    Kathy feels terrible that she is responsible for her daugh-

ter's being at a six-year-old child's level for the rest of her life. Kathy tells us to "think about the consequences" of drinking.

- Research FAS, FASD, and other related terms using resources listed in the "Resources" section of this curriculum.
- Survey friends to find out what they know about FAS, FASD, maternal alcohol use, and pregnancy.
- Create a poster illustrating the dangers of drinking alcohol during pregnancy.
- Develop a public service announcement persuading pregnant women to avoid alcohol.
- Develop an informative brochure targeted to teens and young adults that presents information about FAS and FASD.
- Write a newspaper article for the school newspaper about safe socializing when pregnant.
- Invite an OB-GYN, pediatrician, drug/alcohol counselor, social worker, or special education teacher to address the needs of children they work with who have FAS or FASD.
- Prepare a written or oral report giving additional information and facts about FAS, FASD, and other related terms.
- Create a peer-education activity linked with Family, Career, and Community Leaders of America (FCCLA, at www.fcclainc.org) to teach other groups about the consequences for unborn children when their mothers drink alcohol during pregnancy.

Endnotes

1. National Association of State Administrators for Family and Consumer Sciences (with Vocational-Technical Education Consortium of States). (n.d.). *National standards for family and consumer sciences education.* Retrieved from http://www.doe.state.in.us/octe/facs/natlstandards.html

2. Joint Committee on National Health Education Standards. (2007). *National health education standards* (2nd ed.). Atlanta, GA: American Cancer Society.

3. Centers for Disease Control and Prevention. (2006, May 2). *Fetal alcohol information.* Retrieved from http://www.cdc.gov/ncbddd/fas/fasask.htm

4. Centers for Disease Control and Prevention. (2005, September 9). *Fetal alcohol spectrum disorders.* Retrieved from http://www.cdc.gov/ncbddd/factsheets/FAS.pdf

5. Wake Forest University Health Sciences. (2004). *Fetal alcohol syndrome: A parents guide to caring for a child diagnosed with FAS.* Retrieved from http://otispregnancy.org/pdf/FAS_booklet.pdf

6. Substance Abuse and Mental Health Services Administration. (2007). *Effects of alcohol on women.* Retrieved from http://www.fasdcenter.samhsa.gov/documents/WYNK_Effects_Women.pdf

7. Substance Abuse and Mental Health Services Administration. (2007). *Effects of alcohol on a fetus.* Retrieved from http://www.fasdcenter.samhsa.gov/documents/WYNK_Effects_Fetus.pdf

8. National Organization on Fetal Alcohol Syndrome. (2006, February 16). FASD: *What everyone should know.* Retrieved from http://www.nofas.org/MediaFiles/PDFs/factsheets/everyone.pdf

OVERHEAD SLIDES

Overhead Slides

This overhead slide presentation, used during Activity 3: Overhead Slide Presentation, can be delivered using the Microsoft® PowerPoint® file on your curriculum CD, or printed onto overhead transparencies from the Acrobat® PDF file. For the printed binder, use the following pages to photocopy your own transparencies.

Slide No.	Title
1	Understanding Prenatal Alcohol Exposure
2	Prenatal Alcohol Exposure Causes Birth Defects
3	The U.S. Surgeon General's Warning
4	The U.S. Surgeon General's Warning (cont.)
5	Fetal Alcohol Spectrum Disorders
6	Fetal Alcohol Syndrome
7	Physical Signs of FAS
8	Non-Physical Signs of FAS
9	Only Professionals Can Diagnose Prenatal Alcohol Exposure
10	Facts About Prenatal Alcohol Exposure
11	Who Is at Risk?
12	Many Women Stop Drinking
13	All Types of Alcoholic Beverages Should Be Avoided
14	All Types of Alcoholic Beverages Should Be Avoided (cont.)
15	How Alcohol Reaches the Fetus
16	How Alcohol Reaches the Fetus (cont.)
17	Alcohol Can Damage All Organ Systems
18	Alcohol Can Damage All Organ Systems (cont.)
19	Alcohol Can Harm an Unborn Child Even Before a Woman Knows She Is Pregnant
20	Babies Are Also Vulnerable While Breast-feeding
21	Severe Injury to the Developing Brain
22	FASD = Lifelong Problems and Lower Quality of Life
23	What Can We Do?
24	How to Stop Social Drinking
25	How to Help Pregnant Partners and Friends Stop Social Drinking
26	How to Help Families of Babies Born With FASD
27	Remember . . .
28	Presentation Endnotes

Understanding Prenatal Alcohol Exposure

Realityworks®
Live it. Learn it.™

Prenatal Alcohol Exposure Causes Birth Defects

Alcohol and pregnancy do not mix.

Realityworks
Live it. Learn it.

The U.S. Surgeon General's Warning

- The dangers of consuming alcohol during pregnancy are well-documented and have earned their own U.S. Surgeon General's Warning:[1]
  - "Alcohol consumed during pregnancy increases the risk of alcohol-related birth defects, including growth deficiencies, facial abnormalities, central nervous system impairment, behavioral disorders, and impaired intellectual development."
  - "No amount of alcohol consumption can be considered safe during pregnancy."

The U.S. Surgeon General's Warning (cont.)

- U.S. Surgeon General's Warning:
  - "Alcohol can damage a fetus at any stage of pregnancy. Damage can occur in the earliest weeks of pregnancy, even before a woman knows that she is pregnant."
  - "The cognitive deficits and behavioral problems resulting from prenatal alcohol exposure are lifelong."
  - "Alcohol-related birth defects are completely preventable."

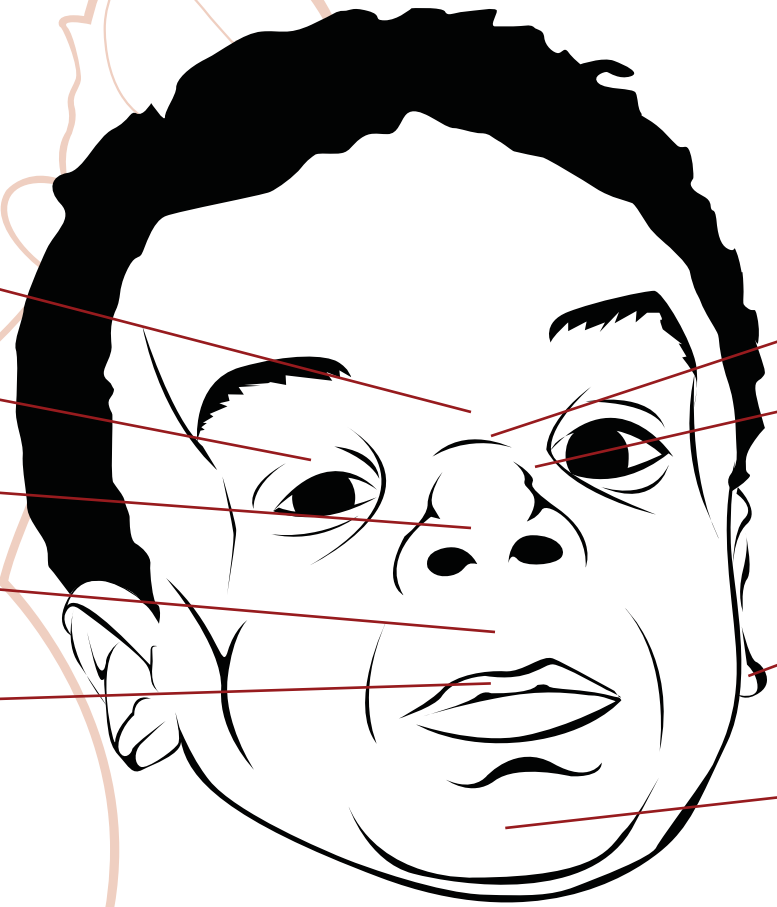
Fetal Alcohol Spectrum Disorders

- Abbreviated as "FASD"
- Umbrella term for a spectrum of disorders caused by prenatal alcohol exposure that includes:[2]
  - Physical disabilities
  - Mental disabilities
  - Behavioral disabilities
  - Learning disabilities
- Disabilities may range from mild to severe and may last a lifetime.[3]
- Any form of FASD is 100 percent preventable.[2, 5]

Fetal Alcohol Syndrome

- Abbreviated as "FAS"
- The most severe end of the FASD spectrum[2]
- Three major diagnostic criteria:[2]
  - Distinctive, abnormal facial features
  - Growth deficiencies
  - Central nervous system problems (structural and/or functional)

Physical Signs of FAS



Non-Physical Signs of FAS

- Reduced cognitive ability[3]
- Learning disabilities[3]
- Attention deficits[3]
- Hyperactivity[3]
- Poor impulse control[3]
- Poor social skills[3]
- Language difficulties[3]
- Memory deficits[3]

Only Professionals Can Diagnose Prenatal Alcohol Exposure

- FAS can only be diagnosed by a clinical exam.[3]
- Because damage may be subtle, FAS is often missed or misdiagnosed.[3, 6]
- Genetic and environmental factors can cause similar disabilities and abnormalities.[3]

Facts About Prenatal Alcohol Exposure

- 1 in 100 babies (40,000 babies annually) is born with some effects of prenatal alcohol exposure.[3]
- 1 in 1,000 babies is born with full-blown FAS.[3]
- Annually, FAS costs up to $6 billion in direct and indirect costs.[4]
- Lifetime expenses and costs for an individual with FAS are approximately $2 million.[4]

Who Is At Risk?

- Any woman of childbearing age is at risk of having a child with FASD if she drinks alcohol during pregnancy.[8]
- Women particularly at risk of drinking alcohol during pregnancy and having a child with FAS include:[8]
  - Women with substance abuse problems
  - Women with mental health problems
  - Recent drug users
  - Smokers
  - Women with multiple sex partners
  - Recent victims of abuse and violence

Many Women Stop Drinking

- Many women who drink early in pregnancy will stop when they find out they are pregnant.
- Others cannot stop without help.
- Discontinuing drinking, even late in pregnancy, is better than not stopping at all.

All Types of Alcoholic Beverages Should Be Avoided

- A standard drink = 0.60 ounces of pure alcohol:[9]
  - One 12-oz beer or wine cooler
  - One 5-oz glass of wine
  - One 1.5-oz serving of hard liquor
- Some alcoholic drinks contain more alcohol and/or come in larger containers (22 to 45 ounces).

All Types of Alcoholic Beverages Should Be Avoided

There is no safe type or known safe amount of alcohol to consume during pregnancy.

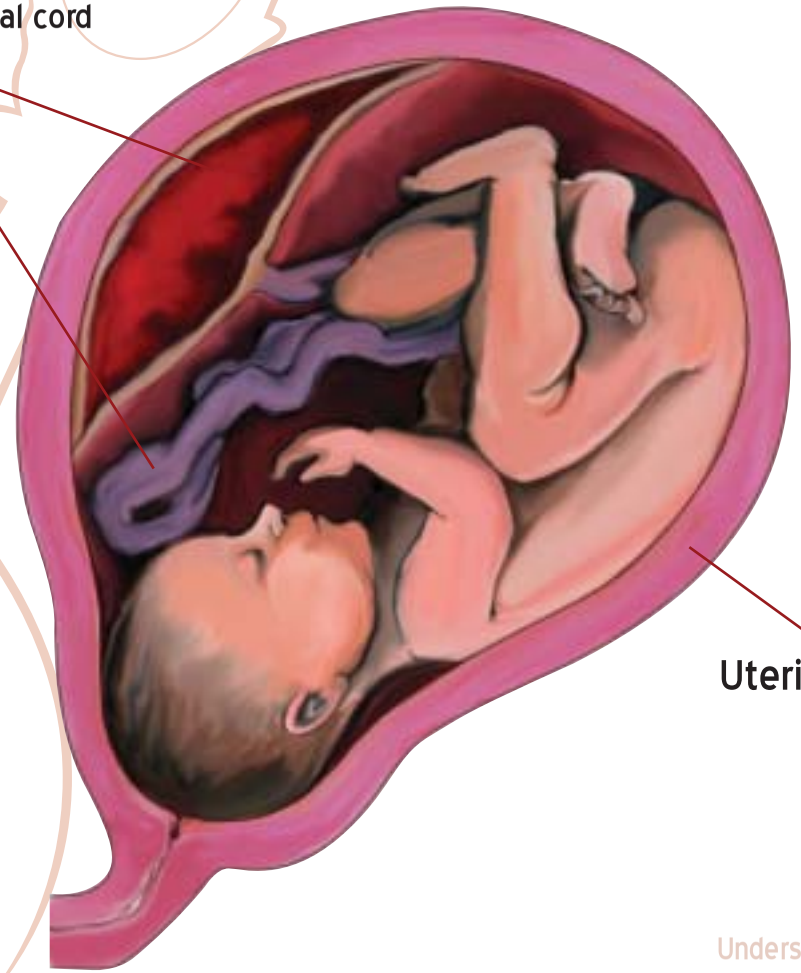
Play it safe!

Do not drink if you are pregnant, think you might be pregnant, or if there is a chance you could become pregnant!

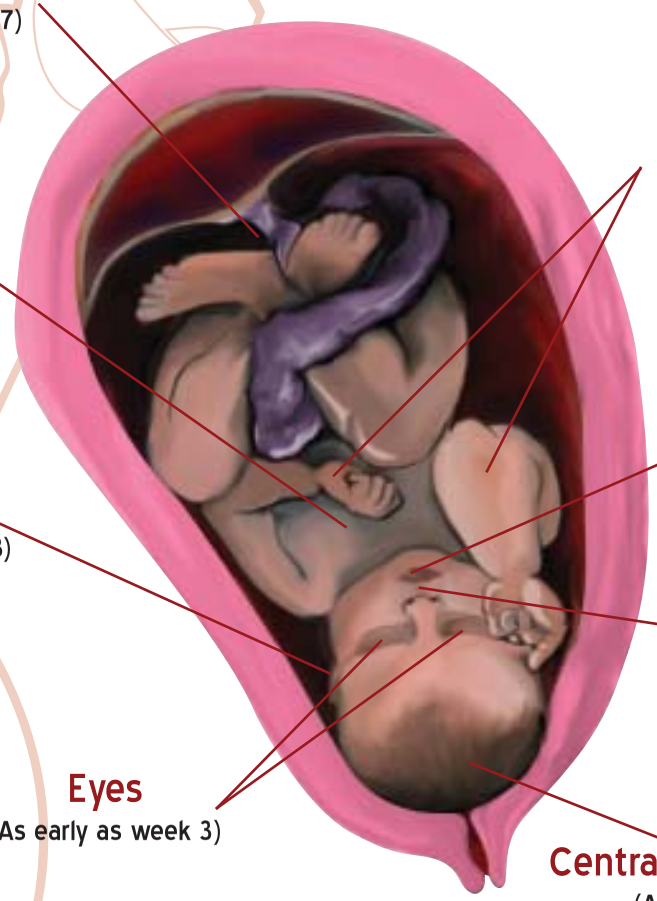
How Alcohol Reaches the Fetus

- When a pregnant woman drinks alcohol, it readily moves across the placenta into the fetus's bloodstream through the umbilical cord.[10]

How Alcohol Reaches the Fetus



Alcohol Can Damage All Organ Systems



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Alcohol Can Damage All Organ Systems

- A mother's drinking can affect all parts of a developing fetus.[10]
- The time during pregnancy at which she drinks alcohol determines the type of injury.[3, 10]
- The more alcohol she drinks, the greater the injury.[3]

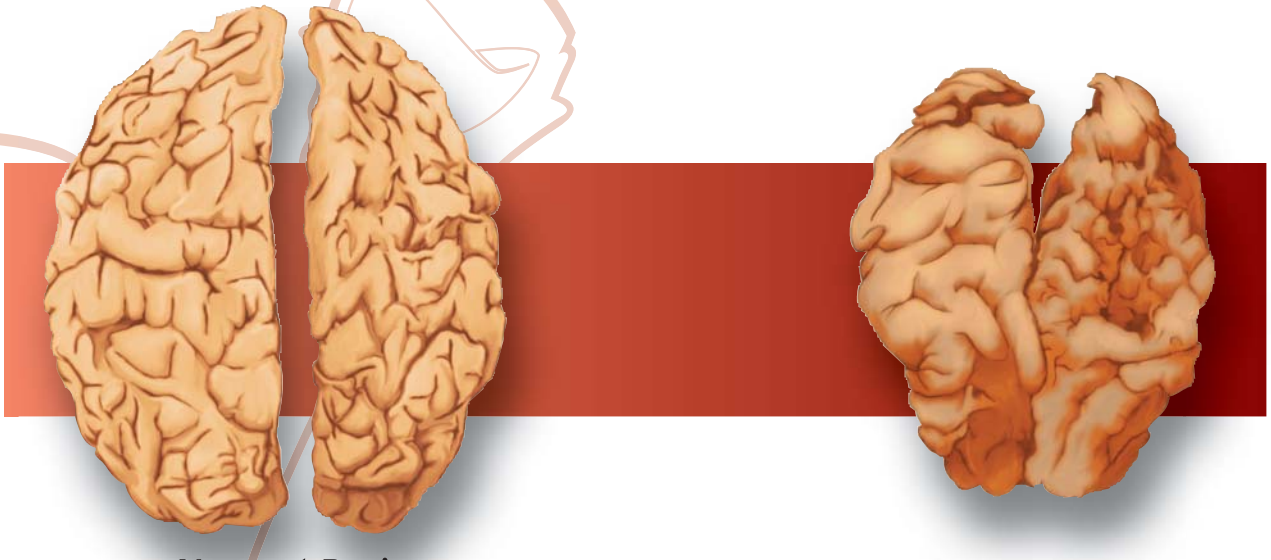
Alcohol Can Harm an Unborn Child Even Before a Woman Knows She Is Pregnant

- If you've consumed alcohol and are pregnant, be sure to let your doctor know.

Babies Are Also Vulnerable While Breastfeeding

- A breastfeeding baby takes in alcohol, too, in the breast milk of a mother who drinks.[9]
- Because a baby's brain continues to grow and mature after birth, alcohol could still affect a child's normal development.[9]
- If a breastfeeding mother has four alcoholic drinks in a day, the alcohol her baby takes in may impair motor development – the baby's ability to roll over, to sit, to crawl, and to walk.[9]

Severe Injury to the Developing Brain



Normal Brain

Severely Alcohol-Affected Brain

"Of all the substances of abuse (including cocaine, heroin, and marijuana), alcohol produces by far the most serious neurobehavioral effects on the fetus."[11]

- Institute of Medicine Report to Congress, 1996

FASD = Lifelong Problems and Lower Quality of Life

- People with FASD can have lifelong disabilities and a reduced quality of life:
  - Low self-esteem[12]
  - Poor impulse control[12]
  - Disruptive school experiences[7, 12]
  - Incomplete education[2]
  - Unemployment[2]
  - Psychiatric problems[2, 7]
  - Inappropriate sexual behavior[7]
  - Criminal behavior[2, 7]

What Can We Do?

- Stop all drinking, including social drinking, if we are pregnant or could become pregnant.
- Help our pregnant partners and friends to stop all drinking, including social drinking.
- Encourage our pregnant partners and friends to see a doctor.
- Help families of babies born with FASD find medical, county, and community resources.

How to Stop Social Drinking

- To avoid social drinking and continue getting along with your partner and friends:
  - Explain that there is no known safe amount of alcohol, and that any type of alcoholic beverage can hurt your unborn baby.[5]
  - Keep several alternate activities in mind that you, your partner, and your friends enjoy doing.
  - Be assertive!
  - If you cannot stop drinking:[2]
    - Talk with your physician
    - Seek community services and intervention
    - Ask your partner and friends for support

How to Help Pregnant Partners and Friends Stop Social Drinking

- Share information about FASD and the importance of not drinking during pregnancy.[8]
- Model safe behavior by abstaining from drinking alcohol yourself and attend social gatherings that do not involve drinking alcohol.[8]
- Encourage her to discuss the reasons leading her to drink alcohol (e.g. various problems in her life).[8]
- Help her find community services and/or interventions to help her stop drinking alcohol.[8]

How to Help Families of Babies Born With FASD

- Encourage families to contact medical, county, and community resources.
- Encourage families to visit their local school district's early childhood and family education programs.
- Attend meetings or sessions with families as they learn about available services and interventions.
- Offer to stay and help care for the baby to relieve caregiver stress.

Remember...

Prenatal injuries from alcohol exposure are completely preventable![2, 4]

Education and abstaining from drinking alcohol while pregnant can mean that **NO BABY NEEDS TO SUFFER** from prenatal alcohol exposure!

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EDUCATIONAL STANDARDS

National Standards for Family and Consumer Sciences Education

Taken together, the information and activities in this curriculum support the following comprehensive standards of the National Standards for Family and Consumer Sciences Education.[1]

Comprehensive Standard 4.0
Content Standard 4.1
Competency 4.1.1
Competency 4.1.3
Competency 4.1.4
Content Standard 4.2
Competency 4.2.2
Competency 4.2.3
Competency 4.2.4
Competency 4.2.5
Content Standard 4.5
Competency 4.5.1
Competency 4.5.2
Competency 4.5.3
Competency 4.5.4
Competency 4.5.5
Content Standard 4.6
Competency 4.6.1
Comprehensive Standard 6.0
Content Standard 6.1
Competency 6.1.5
Competency 6.1.6
Competency 6.1.7
Comprehensive Standard 7.0
Content Standard 7.1
Competency 7.1.1
Competency 7.1.3
Competency 7.1.4
Content Standard 7.2
Competency 7.2.1
Competency 7.2.2
Competency 7.2.5
Competency 7.2.7

Content Standard 7.3
Competency 7.3.2
Competency 7.3.4
Content Standard 7.4
Competency 7.4.1
Competency 7.4.2
Competency 7.4.3
Competency 7.4.4
Content Standard 7.5
Competency 7.5.1
Competency 7.5.2
Competency 7.5.3
Competency 7.5.4
Competency 7.5.6
Comprehensive Standard 12.0
Content Standard 12.1
Competency 12.1.1
Competency 12.1.2
Content Standard 12.2
Competency 12.2.1
Competency 12.2.2
Competency 12.2.3
Competency 12.2.4
Content Standard 12.3
Competency 12.3.1
Competency 12.3.2
Competency 12.3.3
Comprehensive Standard 13.0
Content Standard 13.1
Competency 13.1.4
Competency 13.1.6
Content Standard 13.2
Competency 13.2.4
Competency 13.2.5
Content Standard 13.3
Competency 13.3.6
Competency 13.3.7
Content Standard 13.4
Competency 13.4.1

Competency 13.4.2
Competency 13.4.3
Competency 13.4.4
Competency 13.4.6
Content Standard 13.5
Competency 13.5.1
Competency 13.5.2
Competency 13.5.3
Competency 13.5.4
Competency 13.5.5
Competency 13.5.7
Content Standard 13.6
Competency 13.6.1
Competency 13.6.2
Competency 13.6.3
Competency 13.6.4
Comprehensive Standard 15.0
Content Standard 15.1
Competency 15.1.1
Competency 15.1.2
Competency 15.1.3
Competency 15.1.4
Content Standard 15.2
Competency 15.2.1
Competency 15.2.4
Competency 15.2.5
Content Standard 15.3
Competency 15.3.1
Competency 15.3.2

National Health Education Standards

Taken together, the information and activities in this curriculum support the following National Health Education Standards.[2]

Standard 1	
Performance indicators for Grades 6 through 8	Performance indicators for Grades 9 through 12
1.8.1.	1.12.1.
1.8.2.	1.12.2.
1.8.3.	1.12.3.
1.8.4.	1.12.5.
1.8.5.	1.12.6.
1.8.6.	1.12.7.
1.8.7.	1.12.9.
1.8.8.	
1.8.9.	

Standard 2	
Performance indicators for Grades 6 through 8	Performance indicators for Grades 9 through 12
2.8.1.	2.12.1.
2.8.2.	2.12.2.
2.8.3.	2.12.3.
2.8.4.	2.12.4.
2.8.5.	2.12.5.
2.8.6.	2.12.6.

2.8.7. 2.8.8. 2.8.9. 2.8.10.	2.12.7. 2.12.8. 2.12.9. 2.12.10.

Standard 3

Performance indicators for Grades 6 through 8	Performance indicators for Grades 9 through 12
3.8.1. 3.8.2. 3.8.4. 3.8.5.	3.12.1. 3.12.2. 3.12.3. 3.12.4. 3.12.5.

Standard 5

Performance indicators for Grades 6 through 8	Performance indicators for Grades 9 through 12
5.8.1. 5.8.2. 5.8.4. 5.8.5. 5.8.7.	5.12.1. 5.12.2. 5.12.4. 5.12.5. 5.12.6. 5.12.7.

Standard 6	
Performance indicators for Grades 6 through 8	Performance indicators for Grades 9 through 12
6.8.1. 6.8.2. 6.8.4.	6.12.1. 6.12.2. 6.12.3.

Standard 7	
Performance indicators for Grades 6 through 8	Performance indicators for Grades 9 through 12
7.8.1. 7.8.2. 7.8.3.	7.12.1. 7.12.2. 7.12.3.

Standard 8	
Performance indicators for Grades 6 through 8	Performance indicators for Grades 9 through 12
8.8.1. 8.8.2. 8.8.3. 8.8.4.	8.12.1 8.12.2. 8.12.3. 8.12.4.

Reprinted, with permission, from the American Cancer Society. *National Health Education Standards: Achieving Excellence, Second Edition.* Atlanta, GA: American Cancer Society; 2007, www.cancer.org/bookstore.

Endnotes

1. National Association of State Administrators for Family and Consumer Sciences (with Vocational-Technical Education Consortium of States). (n.d.). *National standards for family and consumer sciences education.* Retrieved from http://www.doe.state.in.us/octe/facs/natlstandards.html

2. Joint Committee on National Health Education Standards. (2007). *National health education standards* (2nd ed.). Atlanta, GA: American Cancer Society.

RESOURCES

Additional Teaching Aids

The teaching aids listed below can be ordered from the Centers for Disease Control and Prevention (www.cdc.gov/ncbddd/fas/faspub.htm):

Brochures:

- Think before you drink. (Available in English or Spanish)
- I never thought I'd get pregnant...let alone have a baby with fetal alcohol syndrome.

Posters:

- Wanda never thought she'd get pregnant...let alone have a baby with fetal alcohol syndrome.
- Karen doesn't know she's pregnant...By the time she finds out, her baby will already have fetal alcohol syndrome.

The teaching aids listed below can be ordered from the National Organization on Fetal Alcohol Syndrome (www.nofas.org/estore):

Posters:

- A few drinks (Available in English and Spanish)
- Our Heritage is Sacred (Native American emphasis)
- Wings Poster (Native American emphasis)
- Snowtrails Poster (Native American emphasis)
- Can You Tell She Has Brain Damage?
- Give Her A Message
- Fetal Development Chart
- What is a Drink?

Videos:

- Making A Difference (12 minutes)
- NOFAS Teen Summit on FAS (12 minutes)
- Fetal Alcohol Spectrum Disorders: An Overview (10 minutes)
- A Child For Life (22 minutes)

FAS/FASD Organizations and Web Sites

The following organizations provide helpful information about Fetal Alcohol Syndrome (FAS), Fetal Alcohol Spectrum Disorders (FASD), and their prevention. (These web sites are not managed, monitored, or endorsed by Realityworks, Inc. Realityworks makes no representation for the information presented on these sites or their compliance with applicable laws or regulations.)

Because alcohol and tobacco usage often occur together, most of the following organizations also provide helpful information about tobacco use during pregnancy.

- Adolescent Substance Abuse Knowledge Base
  www.adolescent-substance-abuse.com
- American Academy of Child & Adolescent Psychiatry
  www.aacap.org
- Centers for Disease Control and Prevention
  www.cdc.gov
- Fetal Alcohol Spectrum Disorders Center for Excellence
  www.fascenter.samhsa.gov
- KidsHealth
  www.kidshealth.org
- March of Dimes
  www.marchofdimes.com
- National Institute on Alcohol Abuse and Alcoholism
  www.niaaa.nih.gov
- National Institute on Drug Abuse
  www.drugabuse.gov
- National Organization on Fetal Alcohol Syndrome
  www.nofas.org
- National Organization on Fetal Alcohol Syndrome–UK
  www.nofas-uk.org

Product Support

If you have questions about the use or operation of the Realityworks® Fetal Alcohol Syndrome Manikin, please contact Product Support at 800.830.1416 or +1.715.830.2040 or productsupport@realityworks.com.

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The following resources were used throughout this curriculum:

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