

NEW!

# Using storytelling to translate science for health promotion, disease prevention

## The Power of Personal Stories:

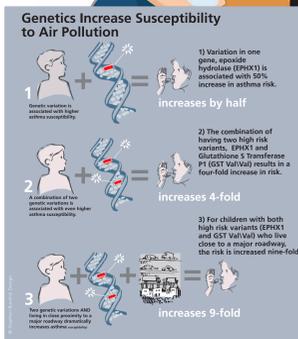
Cased-based learning has long been used in medical education. Our eBook grounds the science of health in stories of fictional people, their families, and communities to enable readers to explore the collection of risk factors for increasingly common illnesses that are a serious problem for the health of our nation.

### Examples: Asthma

“Brett is a nine year old boy who lives with his mother in an urban area. Like many children, Brett suffers from asthma...”



Gene-environment interactions, such as in this example from the asthma story, can have dramatic effects.



### Stress-environment interactions:

“...For example, prenatal and early life exposure to social stressors, such as violence, can increase the risk of asthma as well as increase the impacts on respiratory health from allergens, air pollution, and tobacco smoke.”

Stress affects our health. Watch this video by Dr. Rosalind Wright to see how social stressors, along with environmental factors, can be linked to asthma. (5 min.)



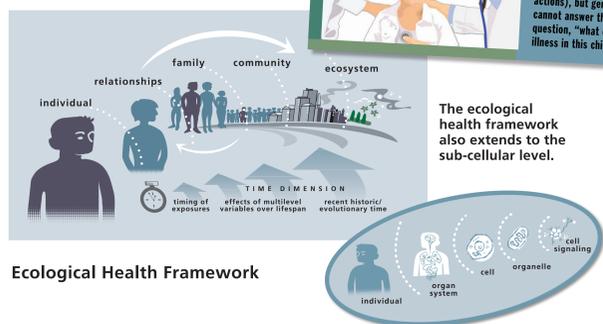
## Multiple factors influence health

Our individual stories highlight the many ways our health is influenced by the complex environments where we live, eat, work, exercise, gather and socialize.



Individuals and families are progressively nested within communities, societies, cultures, and ecosystems. Each of these levels has significant influences on the others.

We call this an ECOLOGICAL FRAMEWORK because it recognizes the contribution of each level to the health status of individuals, families, communities, ecosystems.



## A Story of Health Continuing Education (CE) Course via CDC Receives High Marks

CE Registrations at 10.31.16: **4,989**

Total Credit Hours: **8,919**

CE Registrant Feedback Overwhelmingly Positive

STRONGLY AGREE + AGREE = TOTAL IN %

RESPONSE: AVERAGE OF 3 STORIES

97%

90%

### COMMENTS FROM COURSE TAKERS

Anticipated changes after taking the course:

“Applying knowledge to nursing practice and in community with children/friends with asthma.”

“Better able to educate patients.”

“More guidance for patients in the preconception phase.”

Feedback from a Q2/2015 CE summary

Free Continuing Education credits offered through the Centers for Disease Control and Prevention/ATSDR available for physicians, nurses, health educators and others. Visit [www.atsdr.cdc.gov/emes/health\\_professionals/index.html](http://www.atsdr.cdc.gov/emes/health_professionals/index.html).

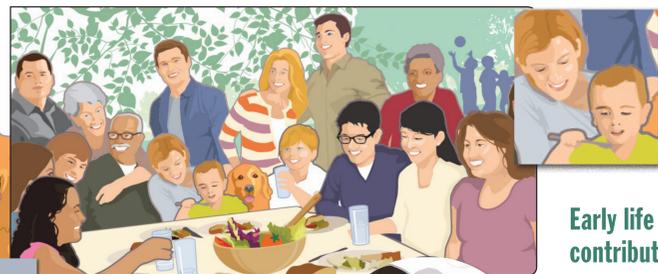
- Help Page | Reunion Home | Asthma | Cancer (Childhood Leukemia) | Learning/Developmental Disabilities | Diabetes | Infertility | Cognitive Decline | References

# A Story of Health

A Multi-media eBook

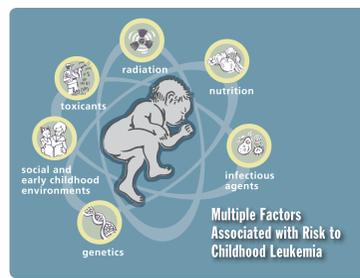
Mark Miller MD MPH, Ted Schettler MD MPH, Brian Tencza MEd, Maria Valenti, Victoria Leonard RN PhD, Marya Zlatnik MD

Using the setting of a family reunion as a backdrop, we explore how multiple environments influence our health across the lifespan.



**Cancer (Childhood Leukemia)**  
“Stephen is a 3-year-old boy in treatment for childhood leukemia...”

Early life exposures contribute to lifelong effects

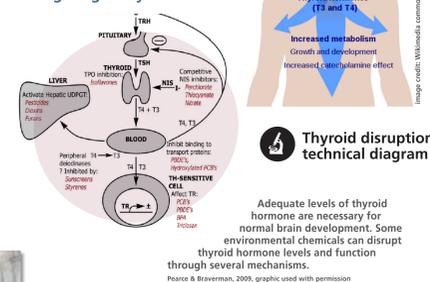


## Learning/Developmental Disabilities

“Amelia is a 13-year-old. Like one in six young people in America, Amelia has a developmental disability...”



### PRENATAL HEALTHY CARE A Rationale for Thyroid Screening Before or During Pregnancy



### Thyroid disruption technical diagram

Adequate levels of thyroid hormone are necessary for normal brain development. Some environmental chemicals can disrupt thyroid hormone levels and function through several mechanisms.

Source: Braverman, 2009, graphic used with permission



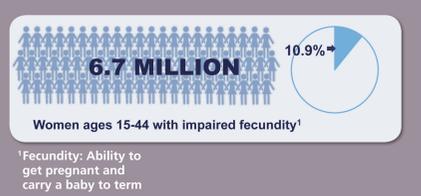
Population studies can illuminate underlying risk factors of disease (and therefore possible preventive actions), but generally cannot answer the specific question, “what caused this illness in this child?”

## Infertility

“Toshio and Reiko are a couple in their early 30’s who have been trying unsuccessfully to have a child...”



### Estimated U.S. fertility statistics – 2006-2010



\*Fecundity: Ability to get pregnant and carry a baby to term

### OB/GYN’s lack environmental health training

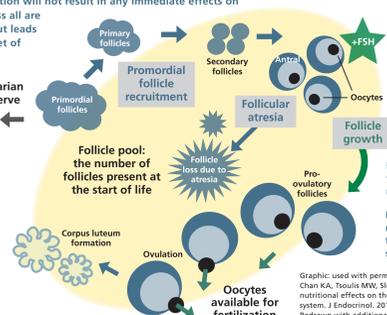
A survey of over 2,500 OB/GYN clinicians demonstrated the need for environmental health education (Stotland 2014):

- Q: Do you routinely discuss this issue as part of prenatal care?
- 78% agree they could reduce patient exposures to environmental hazards by counseling patients, but 50% say they rarely take an environmental health history.
- <20% routinely ask about common environmental exposures.
- Only 1 in 15 reported any training on the topic.

## Environmental exposures can affect ovarian function

### Life cycle of an ovarian follicle

Destruction of primary follicles by exposures such as polycyclic aromatic hydrocarbons (PAHs, from fossil fuel combustion) and ionizing radiation will not result in any immediate effects on fertility (unless all are destroyed), but leads to earlier onset of menopause.



Destruction of growing follicles causes temporary infertility that can become apparent within a menstrual cycle for the large antral follicles or may take longer to become apparent if primary or secondary follicles are targeted.

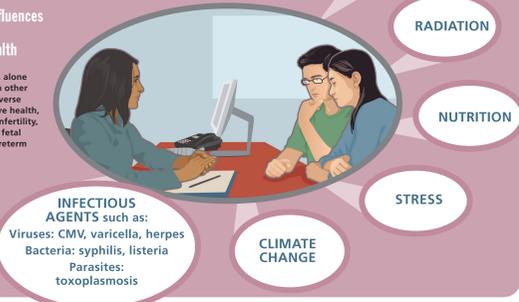
Fertility resumes as earlier stage follicles mature and eventually reach the pre-ovulatory stage. For example, the fungicide methoxychlor targets antral follicles without affecting smaller follicles.

Graphic: used with permission and based on: Chan KA, Touliou MW, Sloboda DM. Early-life nutritional effects on the female reproductive system. J Endocrinol. 2015 Feb;224(2):845-62. Redrawn with additional notes on “intervention points.”

## Multiple environmental contributors to reproductive health

### KEY CONCEPT: Environmental Influences on Fertility and Reproductive Health

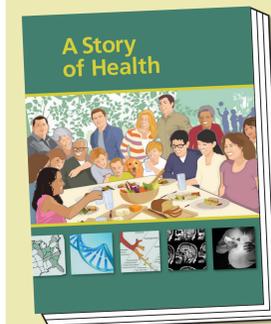
Environmental factors, alone or in combination with other variables, can have adverse impacts on reproductive health, increasing the risk of infertility, miscarriage, abnormal fetal growth, fetal death, preterm birth, birth defects or other developmental abnormalities.



Download A Story of Health at <http://wspshs.ucsf.edu/for-clinical-professionals/training/a-story-of-health-a-multi-media-ebook/>



**About the eBook:** An interactive document with multiple chapters features prompts for embedded information and links to online resources.



Finally, a resource that clearly explains the multiple factors that influence our health across the lifespan – the natural, built, chemical, food, economic, and social environments – and how they interact with genetics and each other.

A Story of Health is a new eBook on how to promote health and prevent disease.

A Story of Health is written by health experts with content relevant to a wide audience, from clinicians, to health advocates, to policy makers.

The stories are accessible to an educated lay audience with more technical sections for scientists and medical professionals who can access free continuing education credits through the eBook.



Our goal: Improve the health of individuals, families, communities and patients.

Watch: Dr. Mark Miller discusses the developmental origins of adult disease (1:40 min.)

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## WHAT COLLEAGUES ARE SAYING HEALTH PROFESSIONALS RECOMMEND A STORY OF HEALTH

“Brilliant! The focus on a family and on each of their health challenges weaving in the environmental factors is masterful and I believe very effective. It is a wonderful format – and very cleverly done with a compelling story and interactive elements.”

–Leslie Rubin, MD, Co director, Southeast Pediatric Environmental Health Specialty Unit, Emory University; Medical Director, Developmental Pediatrics Specialists; Research Associate Professor, Department of Pediatrics, Morehouse School of Medicine

“This is a really innovative addition to the existing textbooks on children’s environmental health and could truly generate in depth learning on this complex issue. The chapter on leukemia brings together in a really cohesive way the multiple risk factors that come into play in the etiology of childhood cancer. The case based approach is particularly engaging for diverse audiences. Kudos!”

–Maida P. Galvez, MD, Associate Professor Preventive Medicine, Associate Professor Pediatrics, Mount Sinai Hospital”

“It [SOH] should be required for all medical students in curriculum that ties into a life cycle approach to health... Many medical school deans and educators are looking for off the shelf materials that can be used for teaching. This is perfect.”

–Robert Harrison, MD, MPH, chief of the Occupational Health Surveillance and Evaluation Program (OHSEP) in the Occupational Health Branch of the California Department of Public Health

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