

# ***ATSDR's Public Health Assessment/Consultation Process***

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Presented by *Debra Gable*  
Division of Health Assessment and Consultation Agency for Toxic  
Substances and Disease Registry

# Public Health Assessment

A public health assessment is formally defined as:

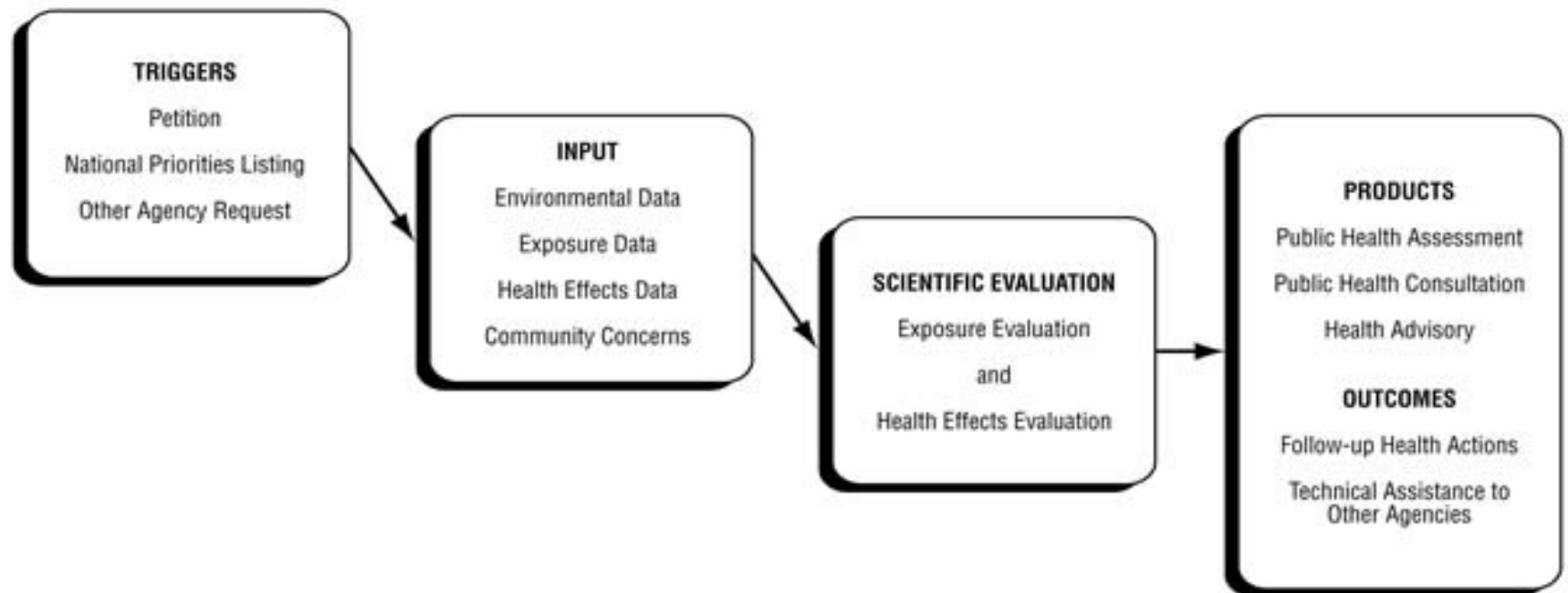
*The evaluation of data and information on the release of hazardous substances into the environment in order to assess any [past], current, or future impact on public health, develop health advisories or other recommendations, and identify studies or actions needed to evaluate and mitigate or prevent human health effects (42 Code of Federal Regulations, Part 90, published in 55 Federal Register 5136, February 13, 1990).*

# ***The Public Health Assessment Process***

A method to evaluate the public health implications of the exposure of people and communities to environmental contamination

# Public Health Assessment Process

Figure 1-1. Basic Components of the Public Health Assessment Process



# ***When Is a Public Health Assessment Conducted?***

A site is proposed to be placed on the EPA National Priorities List (NPL)

ATSDR receives a "petition" to evaluate a site or release

ATSDR receives a request from another agency

# ***Steps of Health Consultation***

Evaluate site conditions and determine the nature and extent of environmental contamination.

Define potential human exposure pathways related to site-specific environmental contaminants.

Identify who may be or may have been exposed to environmental contamination associated with a site.

## ***Steps, cont'd***

Examine the public health implications of exposures through the examination of environmental and health effects data.

Address implications by recommending relevant public health actions to prevent harmful exposures.

Identify and respond to community health concerns and communicate the findings of the assessment.

# *Who in ATSDR Develops Health Assessments/Consults*

Health assessors carry out these functions, often supported by a multi-disciplinary team of scientists, health communication specialists, health educators, and/or medical professionals

Health assessors also solicit and evaluate information from local, state, tribal, and other federal agencies; parties responsible for operating or cleaning up a particular site; and the community



# ***Factors to Be Considered in Public Health Consults***

Nature and extent of contamination

Demographics (population size and  
susceptibility)

Pathways of human exposure

Health effects and disease-related data

# Information Needed for Consults

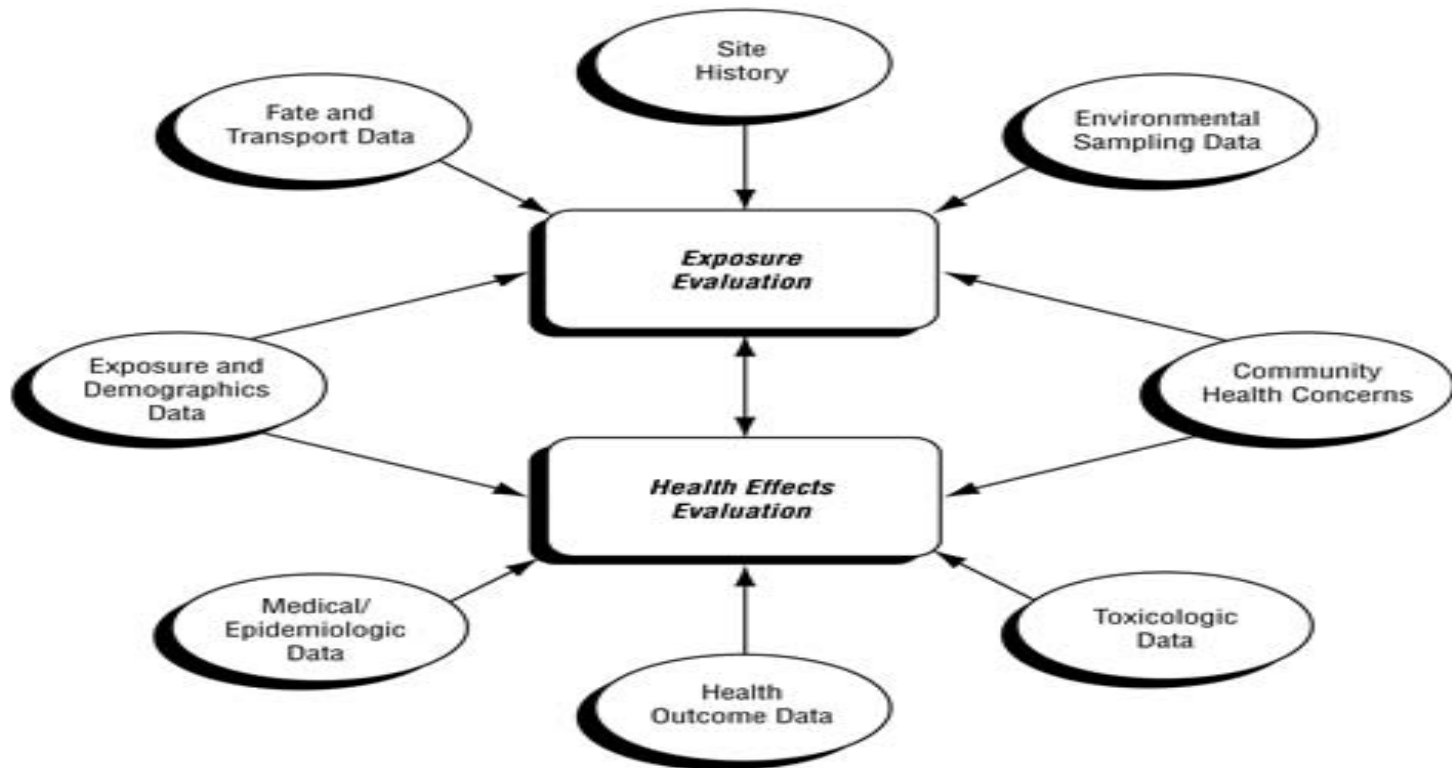


Figure 2-3. Information Needed To Evaluate Exposures and Health Effects

# ***Example: Air Exposure Evaluation***

Size and composition of particles in the atmosphere

Amount/level of pollutants in the atmosphere

Toxicity of particles in the air

## ***Example, cont'd***

If exposure to air pollution occurred

Duration of the exposure

Local weather conditions

Age and sensitivity of the exposed person to the  
air pollutants

# Pathways of Human Exposure

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# Evaluating Pathways

*How do people come into contact with contaminants?*

**Site-specific**

**Realistic**

**Comprehensive**



# Five Required Elements of an Exposure Pathway



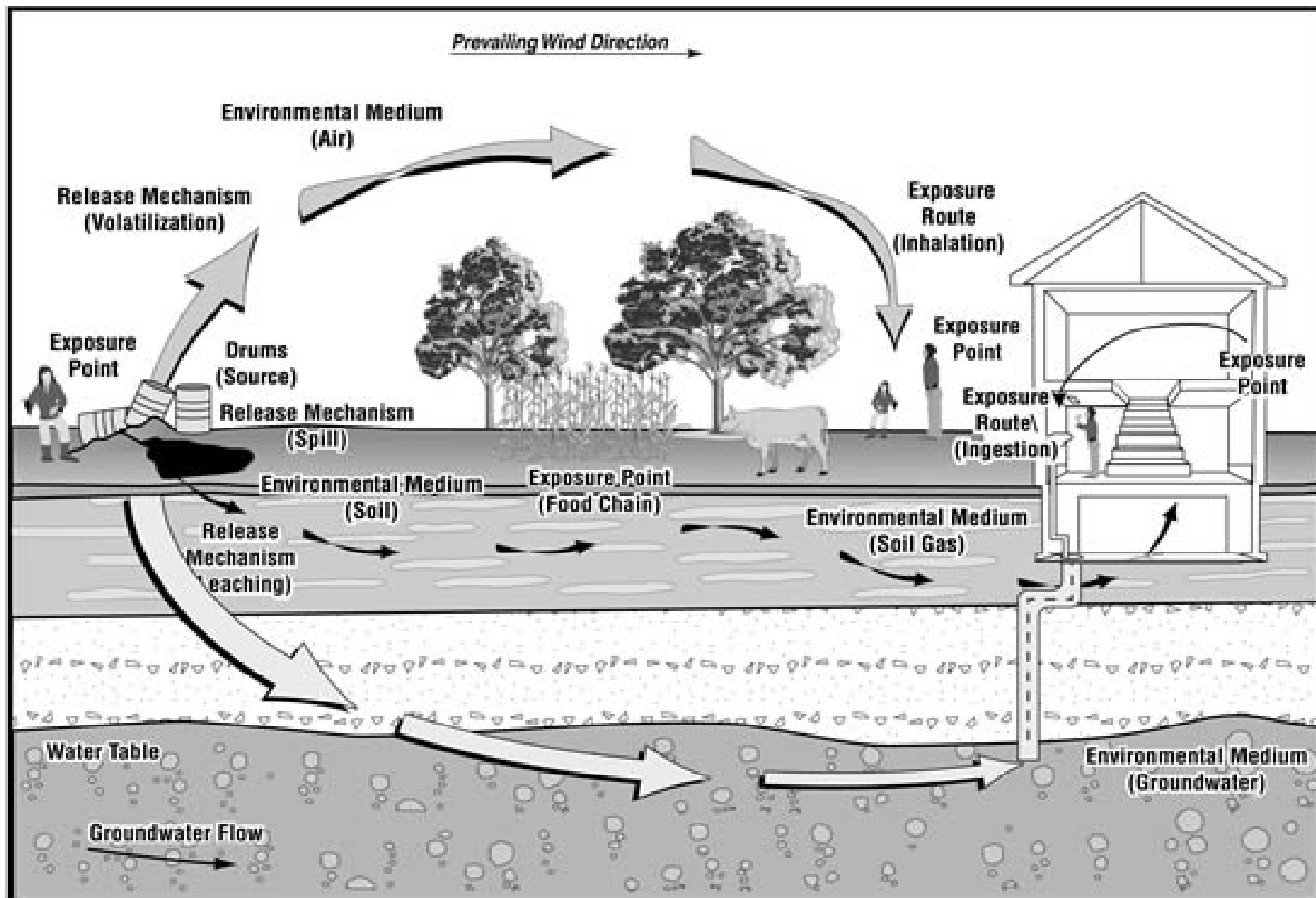


Figure 6-2. From the 2005 Public Health Assessment Guidance Manual



# Element #1: Identify the Contamination Source(s) and Affected Media

*Examples of sources:*

Burning areas

Industrial facilities

Pond/lagoon

Landfill

Drums

Buried waste

Emission stacks

Waste piles

Spills

Disposal pits

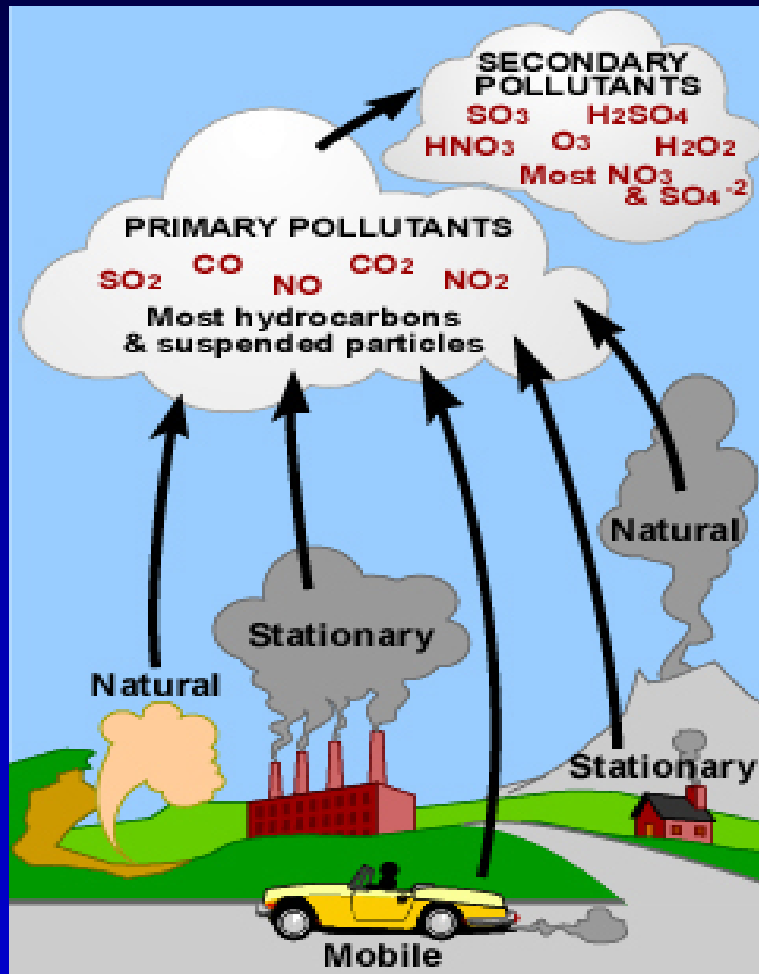
Pipes/culverts

**Note:** May include physical hazards also.

# Which Environmental Media Are Affected?

- Soil – surface or subsurface
- Air
- Soil gas
- Surface water
- Sediment
- Groundwater
- Biota (plants, animals)

# Example: Outdoor Air Pollution



Many sources of outdoor air pollution

Mixture of pollutants contributes to air quality and related health impacts

Weather plays a role in air quality

Hotter days tend to be associated with worse air quality

# Element #2: Evaluate the Fate and Transport

**Fate** = what happens to contaminant in environment

**Transport** = how contaminants move within and between media

# Element #3: Identify Point of Exposure

Determine location at which human contact is made with contamination. Exposure points are:

Media-specific

i.e., drinking contaminated well *water or*  
breathing polluted *air*

Generally determined by evaluating land-use patterns (and using common sense)



# Element #4: Identify Route of Exposure

Pathways through which contaminants enter the body.

*Ingestion* (eating)

*Inhalation* (breathing)

*Dermal* contact (touching)

Identify which routes are viable for *each* exposure point.

Example of an  
obvious point  
of exposure.  
**Route of  
exposure?**

-From the Western Mineral  
Products HC, Minnesota.  
Photo courtesy of the  
Minneapolis Star-Tribune  
and Jorgenson family.





# Element #5: Identify Potentially Exposed Population

Identify specific populations

Who? How many? What activities?

Examples: residents, workers, hunters, fishers, swimmers, trespassers...

Don't forget "high-risk" groups, or uniquely vulnerable groups – children, elderly, asthmatics...



# Categorize Exposure Pathway

Completed, Potential, or Eliminated???

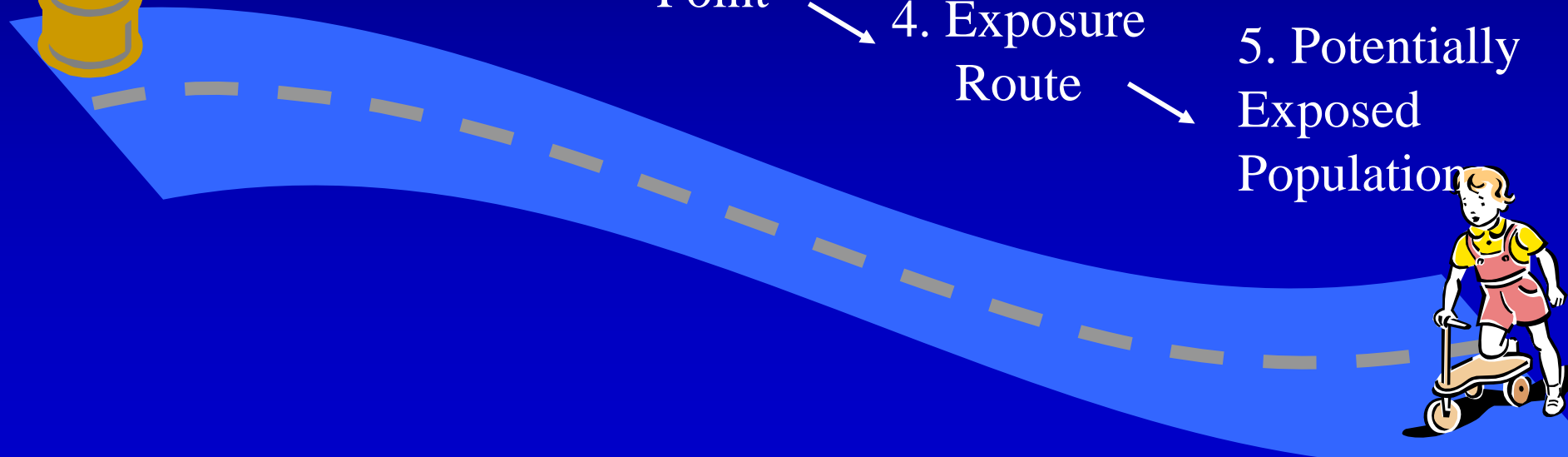
1. Source of Contamination

2. Fate & Transport

3. Exposure Point

4. Exposure Route

5. Potentially Exposed Population



# *Completed Exposure Pathway*

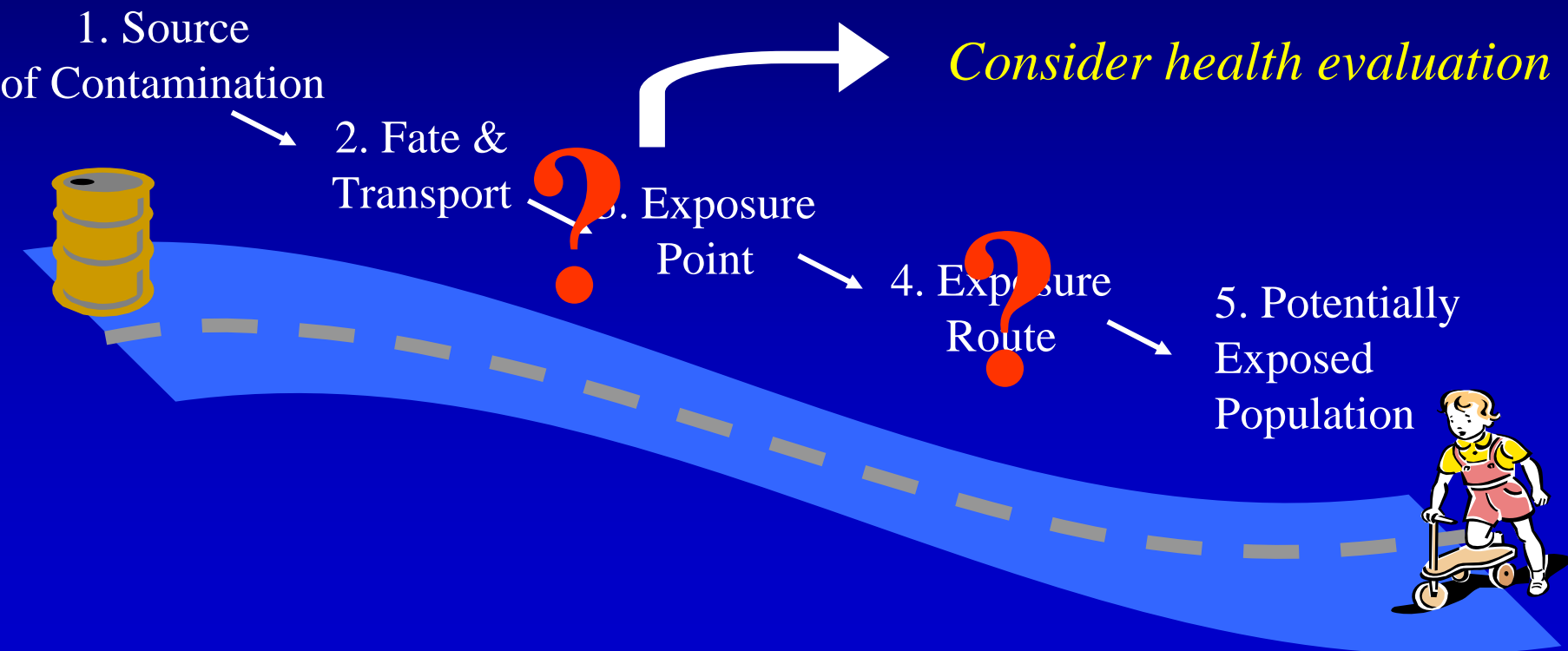
All elements are present; people are coming in contact with contaminants.



Continue with health evaluation for all complete pathways of exposure.

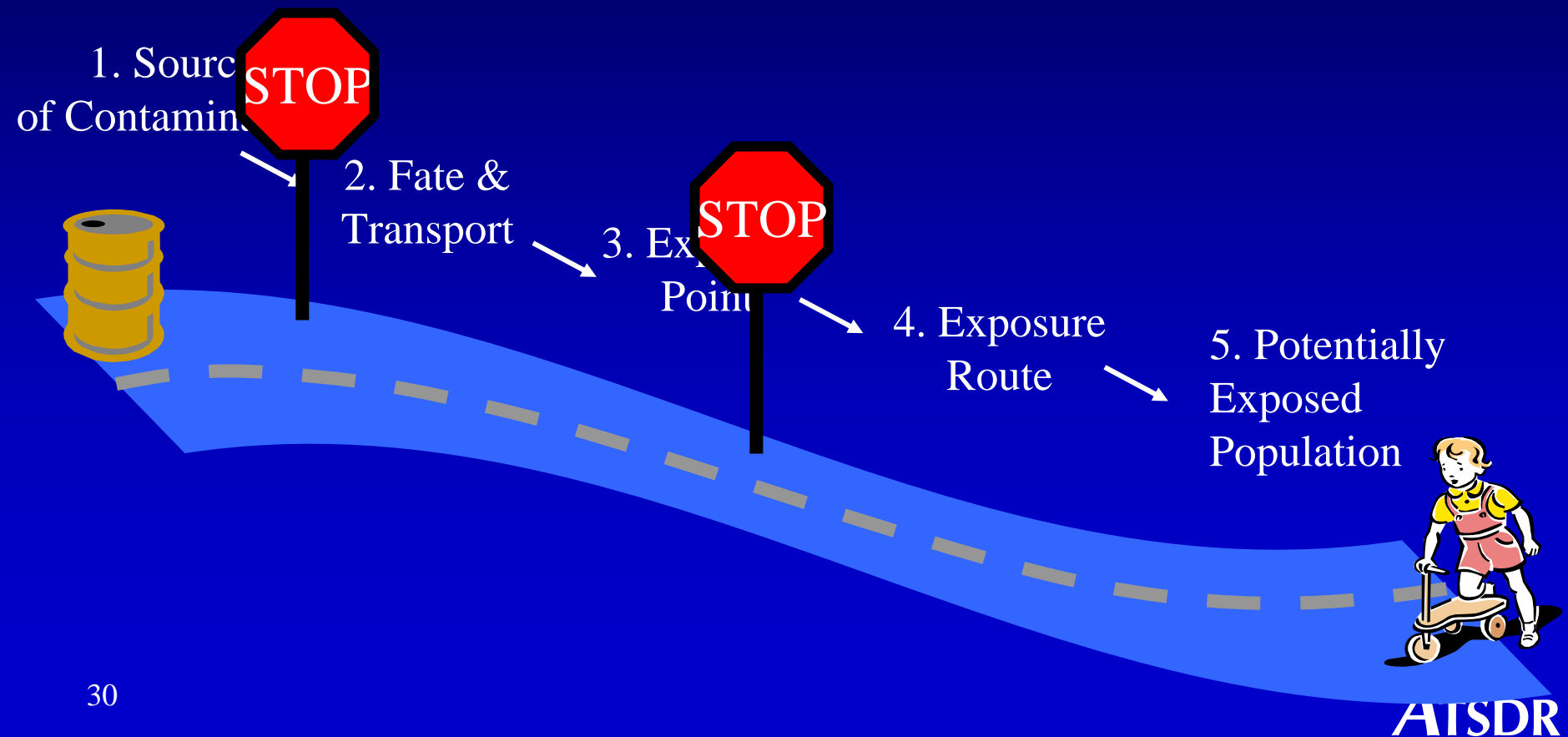
# Potential Exposure Pathway

- Element(s) are missing or uncertain; people *could* come into contact with contaminants.



# *Eliminated Exposure Pathway*

- Element(s) are missing or extremely unlikely. Consider future possibilities.



# What Should Health Consultations Include?

Information about the source/media that affects ability to characterize exposure

History of contamination – when, where, how long?

Sources well-characterized?

Remediation completed?

Source control?

Future?

*How will it affect me??*



# *Thank You*

## Questions?

