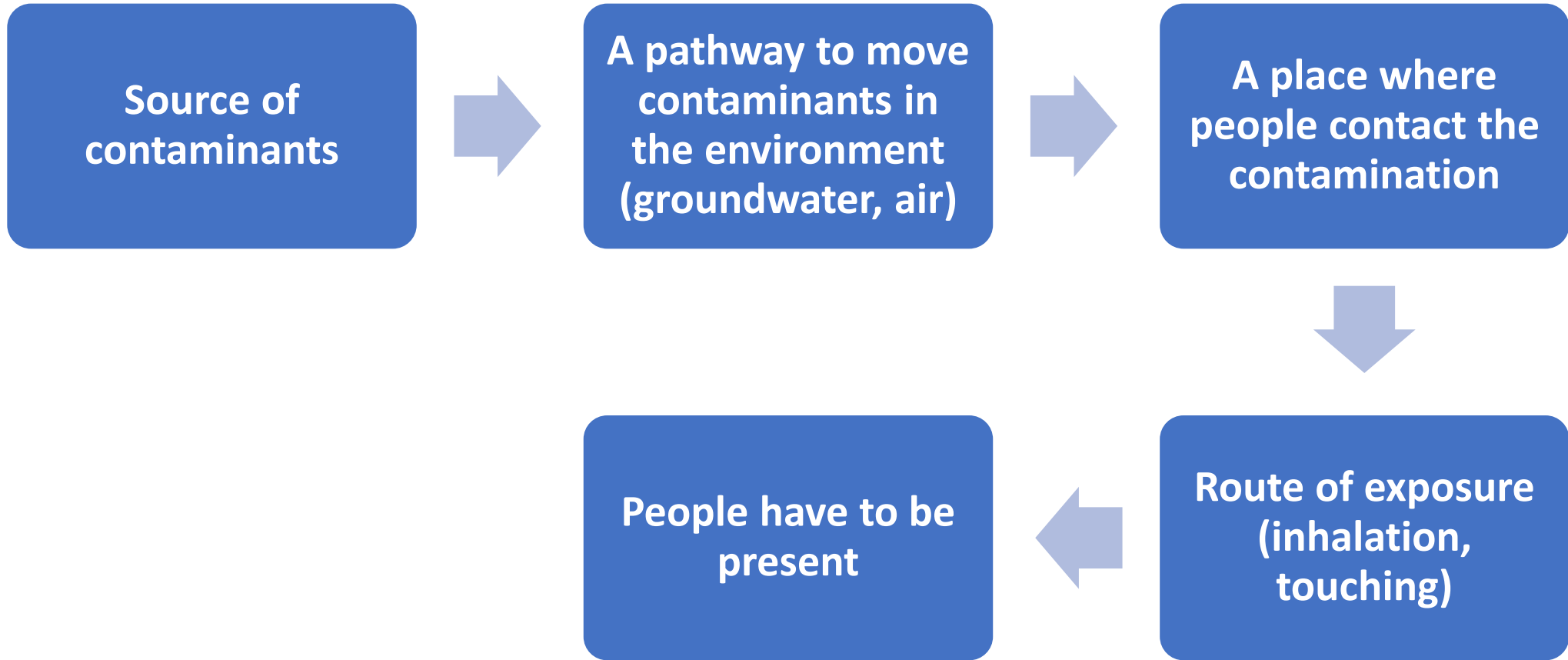


Health Consultations

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Michigan Department of Health and
Human Services



Completed Exposure Pathway

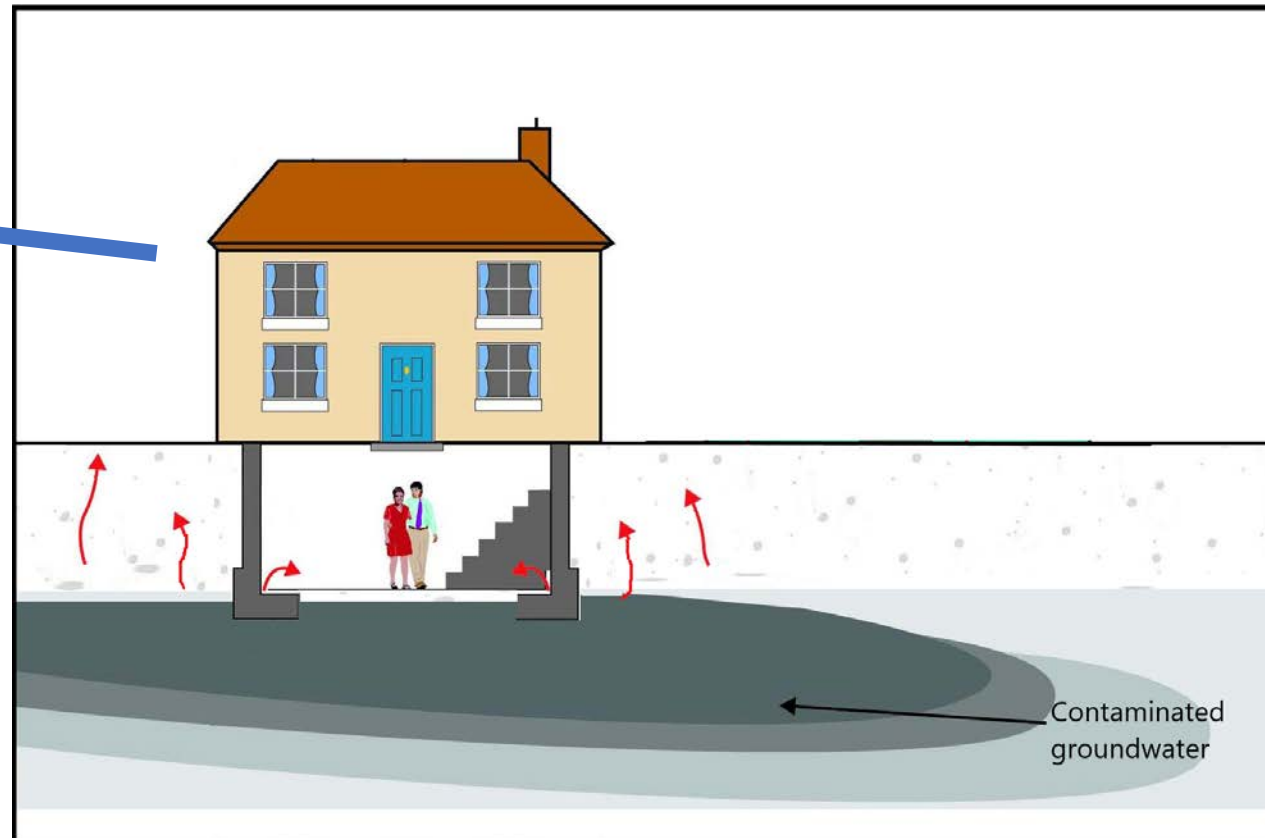
First Step: Identify Exposure Pathways



Inhalation



Drinking



Direct Contact

Next Step is
to gather data



Past – no data on historical
groundwater or indoor air
concentrations



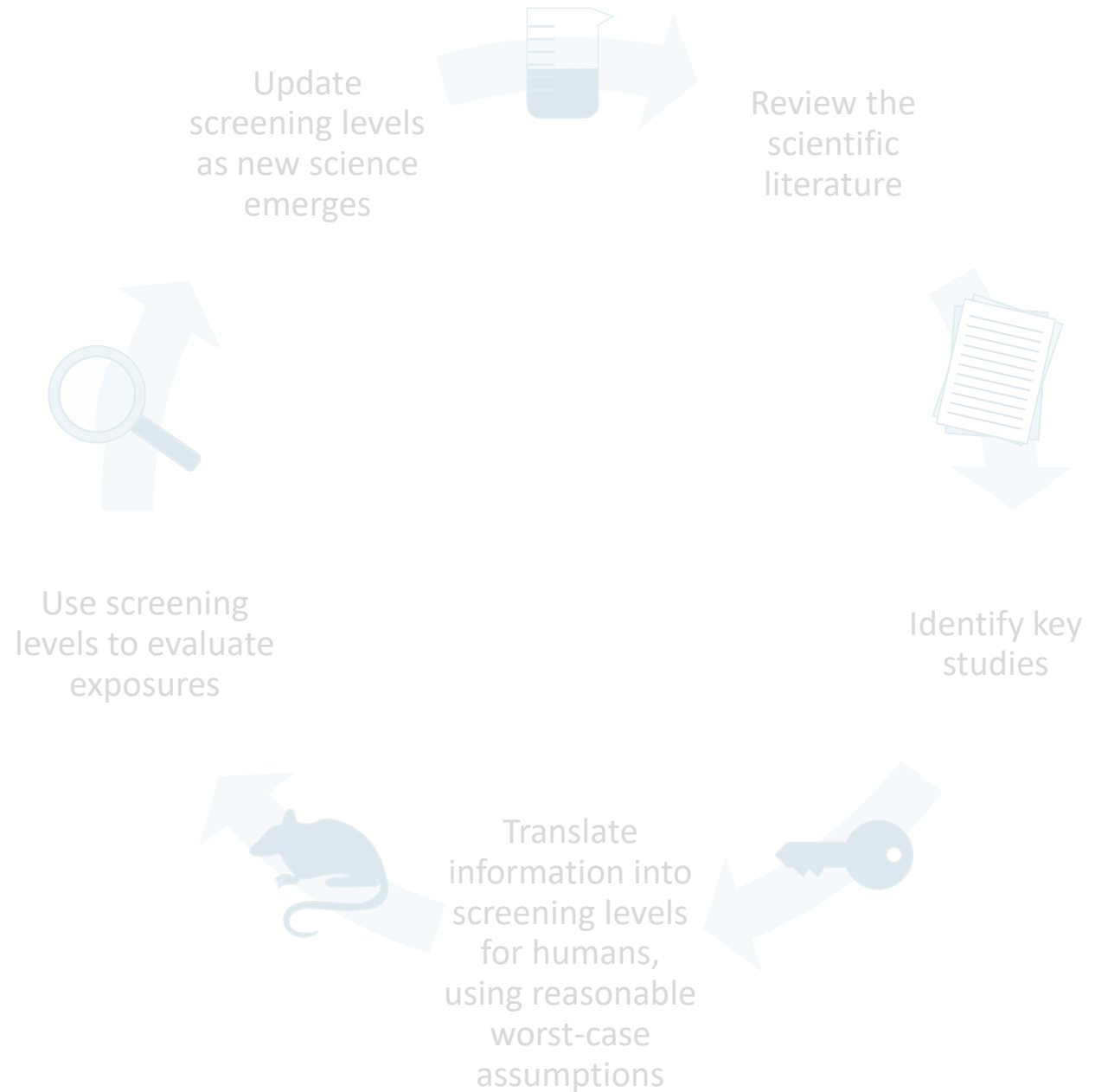
Current – data on groundwater
and indoor air

Exposure Pathway Analysis

Source	Environmental Medium	Exposure Point	Exposure Route	Exposed Population	Time Frame	Exposure
Solvents from Livonia Transmission Plant	Groundwater	Indoor air	Inhalation	Residents	Past	Unknown
					Present	Potential
					Future	
	Soil gas	Indoor air	Inhalation	Residents	Past	Unknown
					Present	Potential
					Future	
	Groundwater	Groundwater in yards	Incidental ingestion and dermal contact	Residents	Past	Unknown
					Present	Potential
					Future	
	Groundwater	Drinking water	Ingestion	Residents	Past	Incomplete
					Present	
					Future	

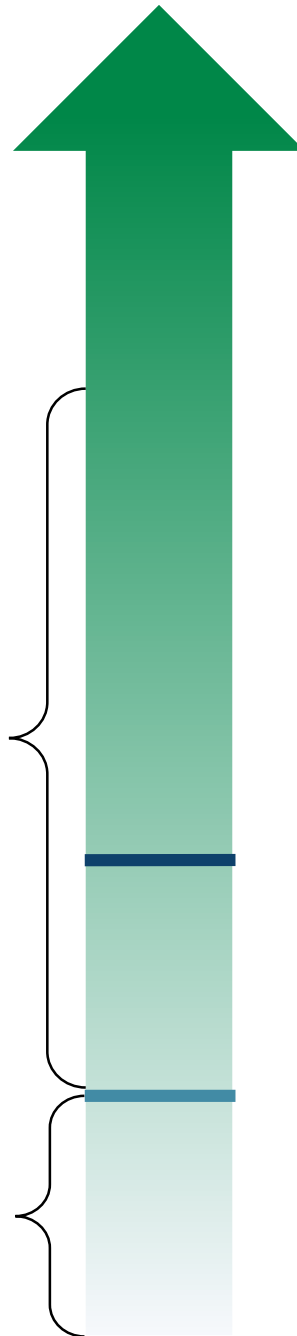
Next: Use Screening Levels to Evaluate Potential Exposures

How are screening
levels developed
and used?



Health interpretation of indoor air screening levels

- Exposure above the screening level
 - Indicates that contamination poses a health hazard
 - Does not indicate that health effects will necessarily occur
- Exposure at or below the screening level
 - No significant increased risk of health effects for sensitive individuals who have been exposed under reasonable worst-case conditions



- Development of health effects depends on personal factors
 - Level and duration of exposure
 - Individual sensitivity
 - Genetics
 - Existing health conditions
 - Lifestyle factors
 - Exposure from other sources

Health Consultation Timeline



Continue to collect data



Evaluate exposure data



Document conclusions in report

Chemicals and health effects



Health effects from low-level exposure

- We will focus on health effects that are relevant to typical vapor intrusion scenarios
 - Long-term exposure to lower levels
- Higher levels, such as those you might find in an industrial facility, can cause more serious, immediate effects



Tetrachloroethylene (PCE)

- May cause impaired color vision
 - Based on a study of dry cleaner workers
- Long term exposure may cause other neurological effects
 - Changes to mood, memory, and reaction time
- Some limited evidence for certain cancers in humans
 - Associations with bladder cancer, multiple myeloma, and non-Hodgkin's lymphoma



Trichloroethylene (TCE)

- Exposure during a critical period of fetal development may cause heart defects
 - Primary population of concern is pregnant women
- May cause changes in immune system function
- May cause kidney cancer
- Some evidence for an association with liver cancer and non-Hodgkin's lymphoma

A background image showing a close-up, top-down view of numerous white PVC pipes stacked in a grid pattern. The pipes are arranged in rows and columns, creating a repeating circular pattern of pipe ends. The lighting is even, highlighting the smooth texture of the plastic.

Vinyl chloride

- Long-term exposure may cause liver cancer
 - Angiosarcoma of the liver
 - Hepatocellular carcinoma

An electrocardiogram (ECG) tracing is shown in the background of the slide. The tracing is on a standard grid and shows a regular rhythm with two prominent, sharp peaks (QRS complexes) that are significantly higher than the surrounding baseline, indicating a possible arrhythmia or a specific lead recording.

Personal health evaluation

- MDHHS cannot provide medical advice
- Talk with your doctor if you have health concerns
- Your doctor will be able to provide a personalized evaluation of your health
- Your doctor can talk to a medical toxicologist at Poison Control to get more information and determine whether specific health tests would be appropriate
 - Poison Control – 1-800-222-1222

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