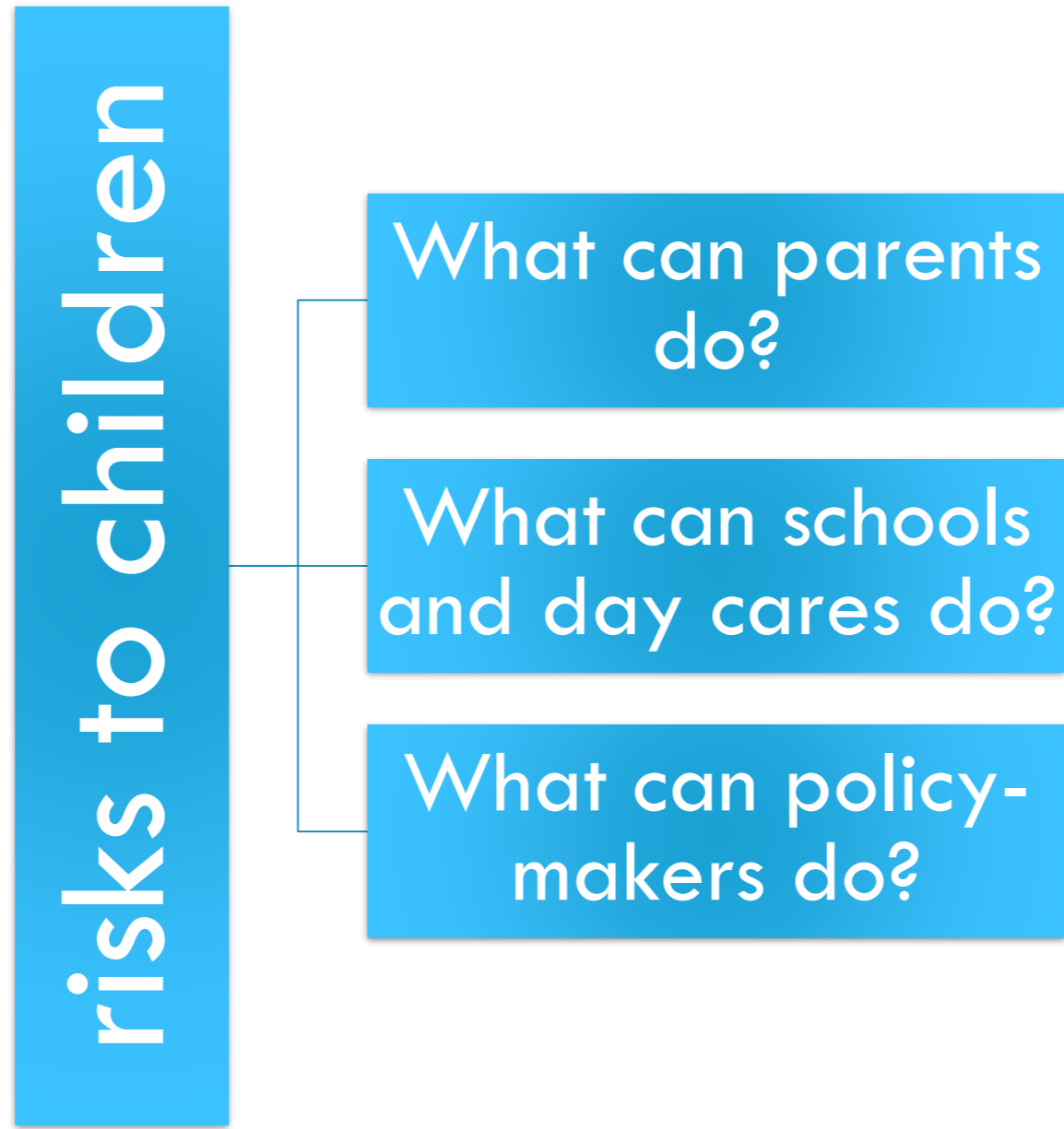


Shale Gas Development and Children: Understanding and Managing Risks

Health & Shale Gas Development:
State of the Science

Pittsburgh, PA • June 10, 2016

Beth Weinberger, MPH, PhD



How do we consider risk?

Categories of risk/safety

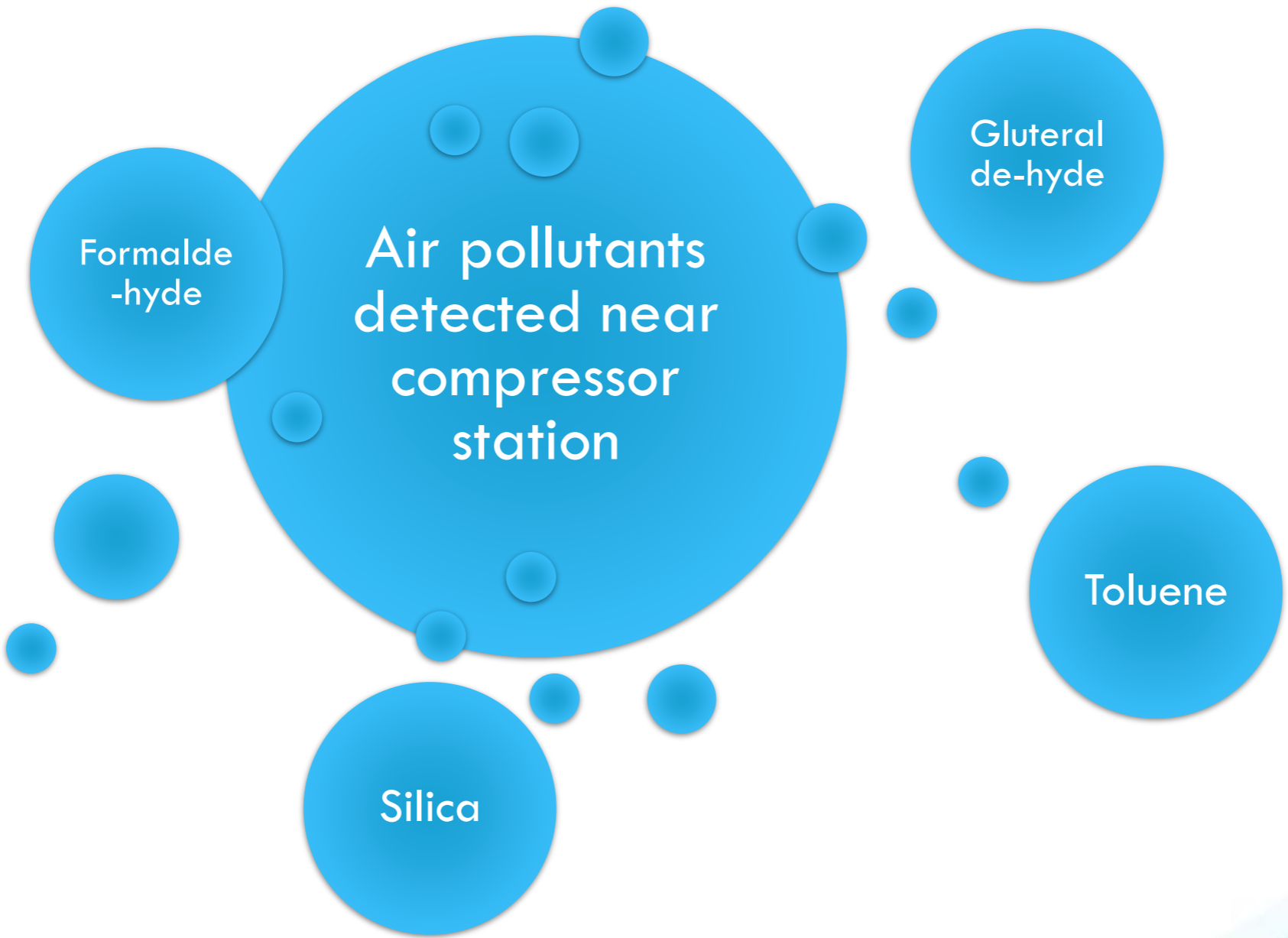
EPA reference
doses &
concentrations

ATSDR

OEHHA

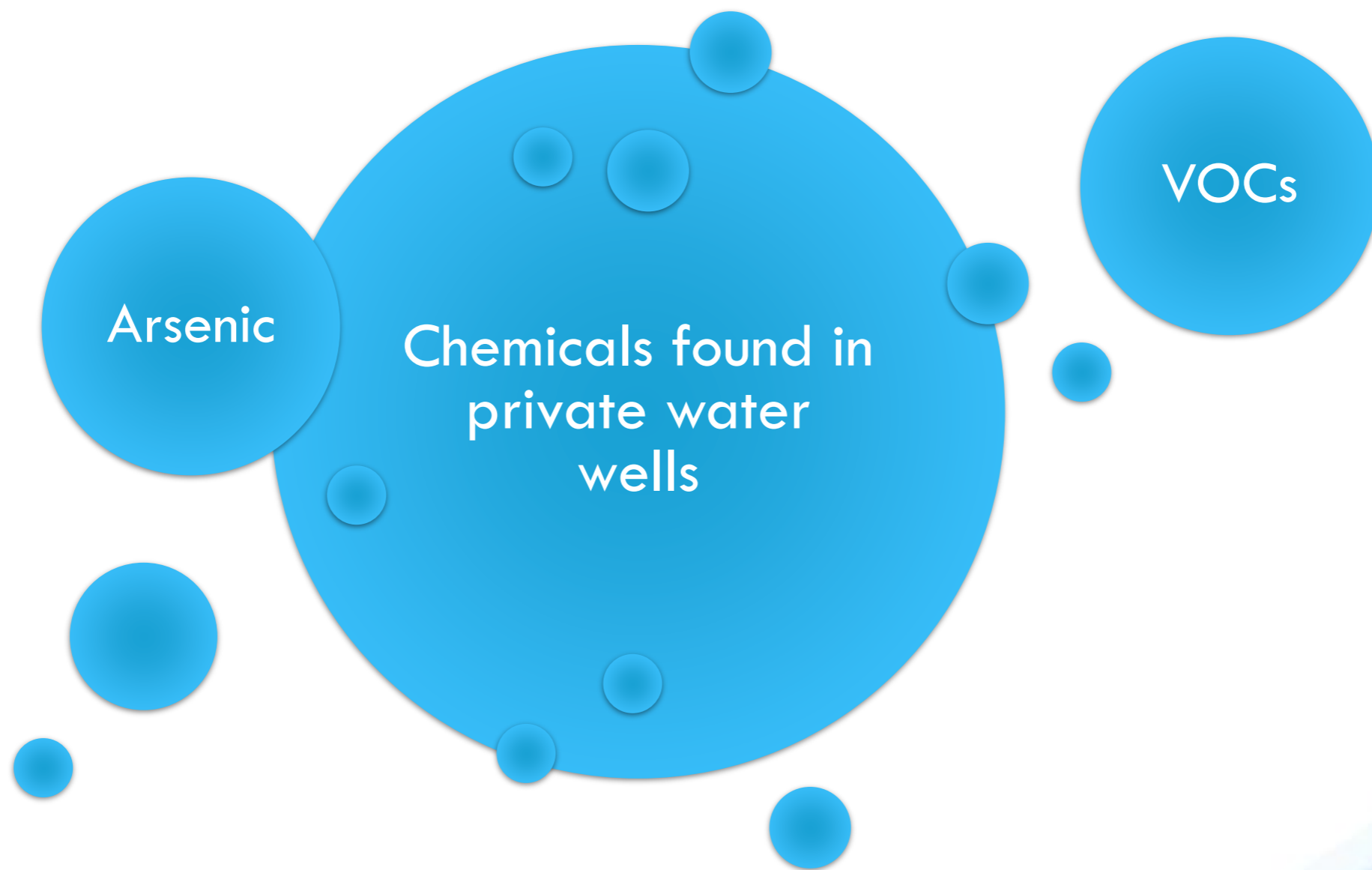
NAAQS

CASE : BRIGICH COMPRESSOR STATION



What levels of these
substances are safe
for children to
breathe?

Case: Dimock



What levels of these
substances are safe
for children to
ingest?

Webb et al study:

Exposure to Ozone, PM, silica dust, Benzene, and Formaldehyde is linked to adverse respiratory health effects in infants and children

Birth Outcomes Research

Casey
(2015)

Stacy
(2015)

McKenzie
(2014)

Hill
(2012)

Children are *not* little adults



Children ...

- have higher respiratory rates
- accumulate more toxics in their bodies
- have developing lungs and narrower airways
- spend more time engaged in vigorous outside activity
- have developing brains -- toxic agents interfere with developmental processes

That's why air may be considered ok for healthy adults, but potentially dangerous for children



What parents can do to
keep children safe(r)

What parents can do

MONITOR THE
WEATHER

CLEAN YOUR
AIR

TAKE
PRECAUTIONS

What parents can do

MONITOR YOUR
WATER

TEST EVERY
6 MONTHS,
IF YOU CAN

FILTER YOUR
WATER

VENT AREAS
WHERE YOU
USE WATER

What parents can do

Talk to your family doctor
or pediatrician

describe your child's
immediate environment

keep notes or a diary of
symptoms and exposures

bring in air or water
reports

bring in a list of articles on
emissions/exposures

What parents can do

Voice your concerns to your
school administrators and
school board members

There are nearly 7 hours in a school day and about 180 days of school -- that's a lot of exposure

Let administrators know how close the school is to drill pads, compressor stations, etc.

Ask if there is a plan for determining whether the air is too contaminated for children to go outside

Ask if the school would ever close because of poor air quality -- if not, why not?

Ask about the plan for an emergency evacuation. Are there enough school buses to carry all students in the area at once?

What schools can do to keep children safe(r)



As of May 2015, there were 166 schools and 165 child care providers within 1 mile of a permitted Pennsylvania drill site. Within 2 miles of a site, there are 476 schools and 467 child care providers. – PennEnvironment

Since May 2015, over 700 additional wells have been drilled. – DEP Reporting Services

School circumstances

Contaminated air gets inside of school

In 2014, 10.6% of children ages 5-11 and 9.7% of children 12-17 had asthma

By law children are required to be in school and parents generally do not control which school

Schools tend to be bound by limited budgets

What schools can do

- Inspect the ventilation system
- Ensure that the school nurse keeps records of students' asthma and other health complaints
- Monitor the air – indoors and out
- Consider establishing "bad air days" akin to "snow days"

What schools can do

Make demands/requests of the operator of the site

Can the highest emissions be scheduled just after the school day ends? And/or on clear breezy days?

Can the school be alerted about planned or unplanned releases?

Can the gas company take responsibility for the additional costs to the school for taking steps to keep students safe?

*From the Pennsylvania Department of Health's
Indoor Air Quality Guidelines for Pennsylvania
Schools*

“Good indoor air quality in schools is an important component of a healthy indoor environment. It contributes to a favorable learning environment for students, productivity for teachers and staff, and a sense of comfort, health, and well-being.”

WHAT STATE AGENCIES CAN DO TO KEEP CHILDREN SAFE(R)



What state agencies can do

PA Department of Health

Over the years, the Department's mission has been adapted to meet the needs and demands of the dynamic nature of public health, but one thing has not changed – the commitment, dedication and professionalism of Department of Health staff to provide top-quality programs and services that benefit the health, safety and well-being of all Pennsylvanians.

What state agencies can do

The PA DOH School Health Program is responsible for providing technical assistance, training, and coordination of programs and services to schools, parents, and the community at large regarding school health programs and services.

What state agencies can do

Division of School Health could compile data from schools on

Health conditions that keep children home from school

Use of inhalers or other medications at school

Health complaints at school that bring children to the nurse.

What state agencies can do

PA's Department of Environmental Protection

DEP's Office of Oil & Gas Management is responsible for the statewide oil and gas conservation and environmental programs to facilitate the safe exploration, development, recovery of Pennsylvania's oil and gas reservoirs in a manner that will protect the Commonwealth's natural resources.

What state agencies can do

Enforce

Monitor

Setbacks

Site responsibly

DEP

For More Information

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