Development of Health Guidance Values

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Background: Acrolein in Lost Hills

The Study of Neighborhood Air near Petroleum Sources (SNAPS)

- SNAPS Lost Hills draft report showed acute (short-term) and chronic (long-term or lifetime) non-cancer risk from acrolein.
- SNAPS could not calculate cancer risk because a cancer potency factor is not available.
- Lost Hills residents asked OEHHA to develop a cancer potency factor and calculate cancer risk.
- OEHHA is currently developing a cancer potency factor for acrolein.

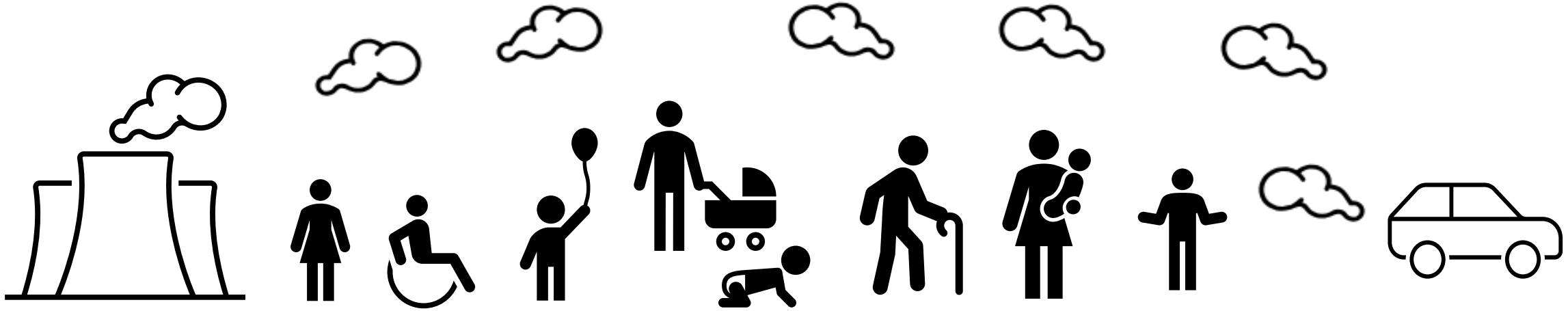
Presentation Agenda

Acrolein cancer risk assessment

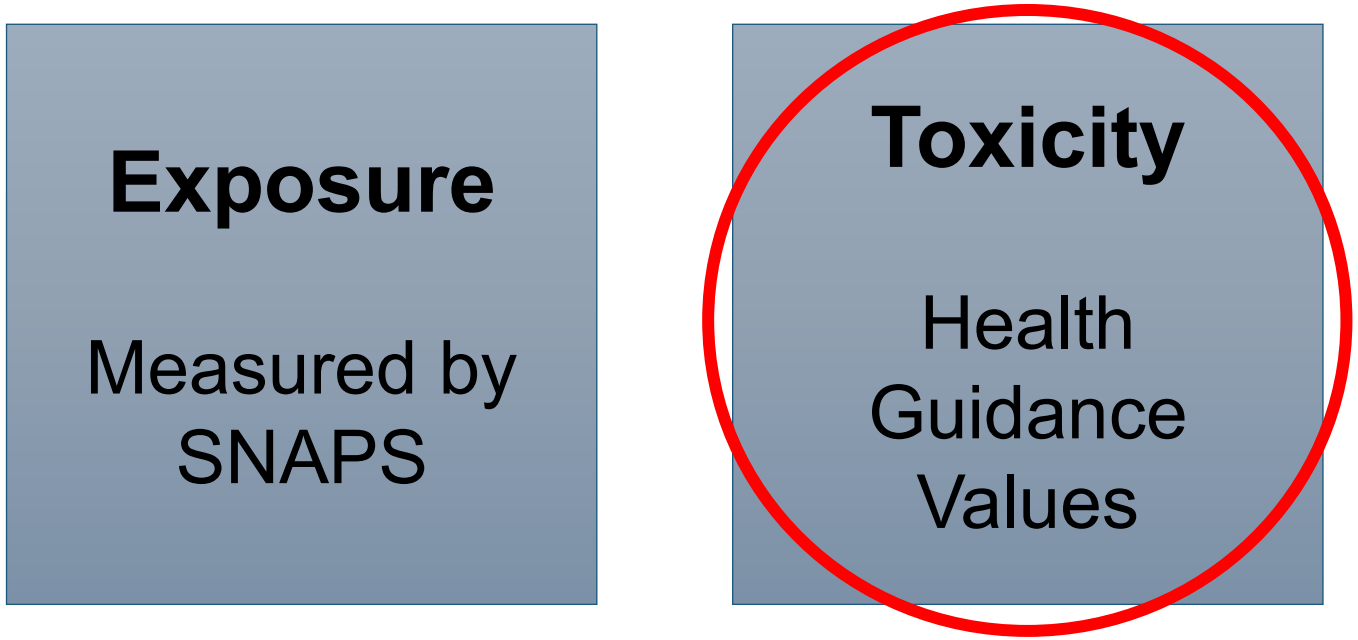
1. Background on risk assessment and Health Guidance Values
2. Process for finalizing Health Guidance Values
3. Next steps for acrolein

Risk Assessment Definition

Risk assessment is a scientific process of evaluating the **adverse effects** caused by a substance, activity, lifestyle, or natural phenomenon.



Components of Risk Assessment



Health Guidance Values commonly used in SNAPS

Risk from non-cancer adverse effects

- Reference Exposure Level (REL)
- Acute or chronic duration
  - Acute: one day
  - Chronic: several years to lifetime

Risk of developing cancer

- Cancer Potency Factor (CPF)
- Lifetime (70 year) exposure

Acrolein Health Guidance Values

- Acute REL: 2.5 µg/m^3 for lung and eye irritation in humans
- Chronic REL: 0.35 µg/m^3 for damage to the lungs in rodents
- Cancer potency factor: **under development**

Developing Health Guidance Values

This process typically takes numerous years.

1. Chemical is prioritized based on toxicity and potential for exposure.
2. OEHHA reviews the available data:
    A. What are the adverse effects?
    B. At what doses are effects observed?
    C. How does the chemical move through the body?
    D. How does the chemical behave in the air, water, and soil?

Toxicology Studies and Data

Number	Dose Group	Days On Study	Week 1	Week 2	Week 3	Week 4
1001	Vehicle Control	29	295.1	321.9	326.3	336.5
1002	Vehicle Control	29	286.4	313	314.7	331.4
1003	Vehicle Control	29	283	305.5	310.2	329.4
1004	Vehicle Control	29	283.7	310.1	311	323.7
1005	Vehicle Control	29	306.6	335.1	337	347.9
1006	Vehicle Control	29	281.8	301.4	316.5	322
1007	Vehicle Control	29	302.9	325.5	329.3	348
1008	Vehicle Control	29	259.7	274.2	283.4	296.3
1009	Vehicle Control	29	313.4	329.3	353.4	373
1010	Vehicle Control	29	304	322.5	336.4	351.1

Developing Health Guidance Values, cont.

3. Determine critical effects of the pollutant based on the available scientific data.
4. Apply safety factors (to take into account differences between humans, data gaps, etc.) and computational modeling to develop proposed health guidance value.
5. Review!
   A. Draft is published online for a public comment period (30-45 days).
   B. Revised document is presented at a Scientific Review Panel on Toxic Air Contaminants (SRP).
   C. Document is revised again, and final is posted online.

Next Steps for Acrolein Cancer Risk at Lost Hills

- OEHHA staff continue to develop cancer potency for acrolein
  - SNAPS and Lost Hills community can meet to discuss the draft once it is posted
- It undergoes review
- Revisions are made
- Values are finalized
- OEHHA can calculate cancer risk from acrolein in Lost Hills

Thank you for your kind attention!

Any questions?