

# Health Comments for Rule 12-16 and final EIR

Bart Ostro PhD

Robert Gould MD

Jonathan Heller PhD

Heather Kuiper DrPH MPH

[heatherkuiper@gmail.com](mailto:heatherkuiper@gmail.com)

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# Health

## in Rule 12-16 Decision-Making

### **The final EIR should:**

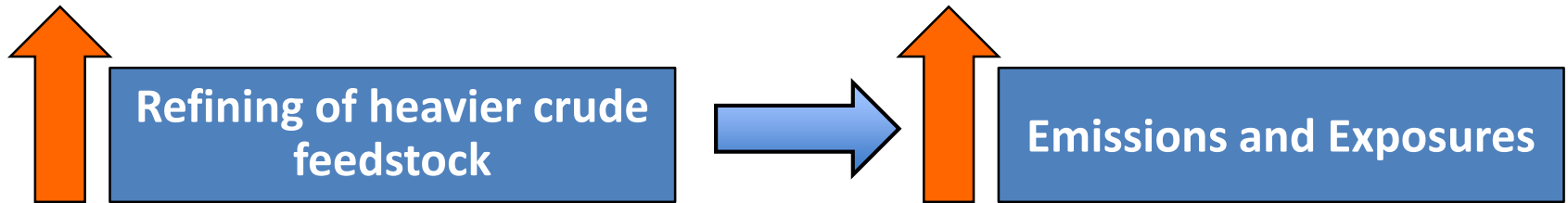
- Recognize that, without preventive action
  - refining of heavier crudes will increase
  - drive up population exposures to health hazards
  - especially particulate matter, a greenhouse gas co-pollutant
- Assess resulting health impacts of this No Project scenario
  - Experienced throughout the Bay Area
  - Disadvantaged, vulnerable populations and near refineries
- Include the health assessment submissions from December 2, 2016 and May 8, 2017

**Future rule-making should emphasize direct regulation of particulate matter**

# **Bart Ostro, PhD**

- Former Chief of Air Pollution Epidemiology, California EPA
- Consultant to the World Health Organization
- Research Faculty, Air Quality Research Center, UC Davis

# Health Hazards of Oil Refining



- Increased refining of heavier crudes (tar sands)

- Increased energy intensity
- Increased pet coke

- Heavy metals, SO<sub>2</sub>, NO<sub>x</sub>, VOCs, etc.
- Greenhouse Gas co-pollutant and local climate related hazards
- Increased Particulate Matter (PM<sub>2.5</sub> and ultra fines)

# Local & Regional Threat from Particulate Matter



Penetrate deeply into lungs, bloodstream, brain

Short & long-term exposures impact health

Well documented effect on mortality

No safe levels

# Premature Mortality and Disadvantaged, Vulnerable Populations

Health Effect	Impact
Cumulative chronic exposure deaths in the Bay Area prevented by Rule 12-16 (40 yrs)	<b>800 – 2900</b> deaths
Greater mortality burden for those living <2.5 miles from refinery	<b>8-12</b> times the mortality burden (effects per 100,000)

*Effects of particulate matter are not limited to mortality and can occur with acute exposure as well  
Sources draw from scientific literature, BAAQMD publications, and technical brief from Community for a Better Environment, see BAAQMD submission May 8, 2017 for full model*

# Health Assessment and Rule 12-16

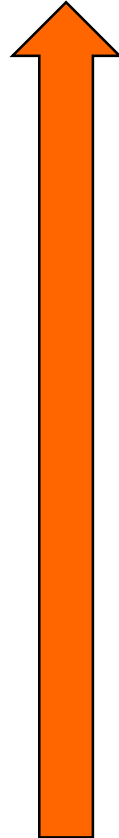
1. There should be no further deterioration to the existing air quality levels in the Bay Area
2. There are significant health consequences *without* Rule 12-16, especially for **communities near refineries**
3. It is reasonable for the final EIR to further evaluate health impacts and benefits of Rule 12-16
4. Future rule-making should directly regulate PM2.5 (not only as GHG co-pollutant)
5. Rule 12-16 will protect health

# Robert Gould, MD

- Associate Adjunct Professor, Program on Reproductive Health and the Environment, UCSF School of Medicine
- President, Physicians for Social Responsibility, San Francisco Bay Area Chapter



# From Heavier Crudes to Health Impacts: Acute and Chronic Particulate Exposure



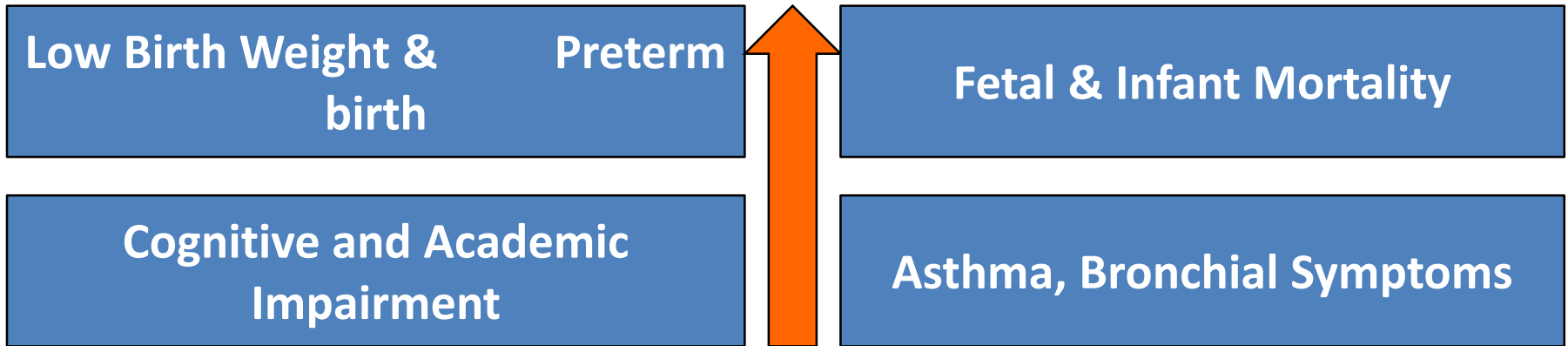
**Mortality (including children)**

**Cardiovascular and respiratory disease, heart attacks, strokes**

**Exacerbated asthma, COPD, diabetes, Parkinson's, neurological conditions**

**Hospital admissions, ER visits, lost Productivity**

# Particulates and Refinery Exposure for Infants and Children



# Local health impacts of increased GHG emissions

Heat-Induced Mortality

Respiratory disease and hospitalizations, vector and food-borne illness

Trauma, injury, lost housing and essential emergency services

Mental Health Problems



## California's hotter future

Climate change caused by carbon emissions is projected to increase the amount of air conditioning needed in California.



# Health Assessment and Rule 12-16

1. Both short and long-term exposure to particulate matter causes health and long term societal impacts for all in the Bay Area.
2. The effects are amplified when **disadvantaged** communities, especially **near refineries** are exposed; impacts on **infants and children** last for generations
3. Final EIR ideally should assess health impacts attributable to cumulative increases in PM2.5 and GHG
4. In this instance, the physicians creed to do no harm calls for preventive action – inaction is the hazard

# Jonathan Heller, PhD

- Co-Director and Co-Founder,  
Human Impact Partners
- Specialty in Health Impact Assessment

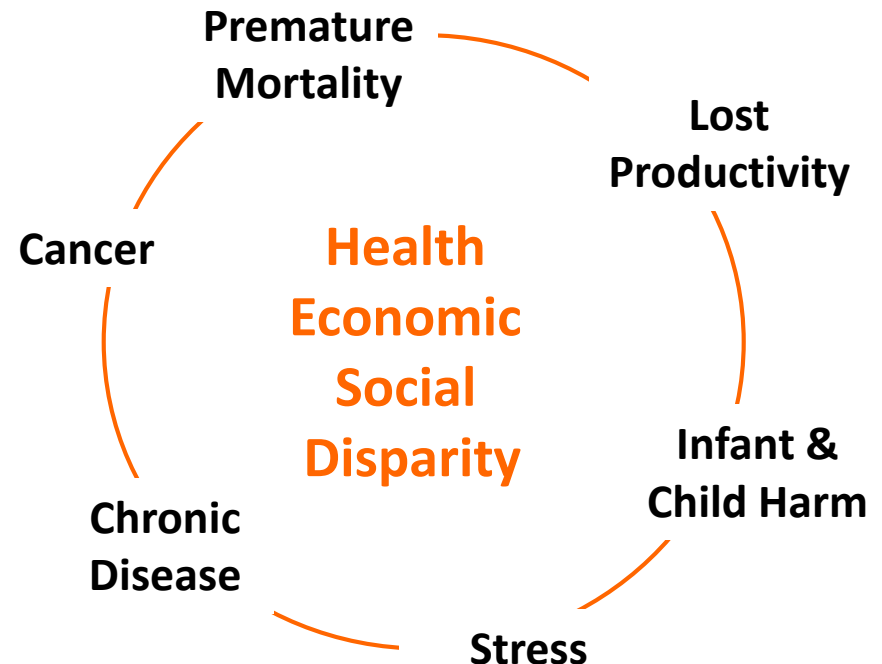
# Health Disparity

Populations facing  
inequities



Greater Exposure, Dose,  
Adverse Impacts

- More exposed and susceptible, less able to recover
- Those near or at refineries
- Low Income
- Racial / ethnic minority
- Infants, children, and elderly
- Pre-existing health conditions
- Already polluted environment



# Health Equity

Health in All Policies



Health Equity

- Integration of health considerations across sectors
- Health included in BAAQMD Mission
- Under the CA Health and Safety Code GHG emissions allowances shall:
  - **be equitable and not disproportionately impact low-income communities**
  - **Consider localized impacts in communities that are already adversely impacted by air pollution**
  - **Prevent increased toxic air contaminants or criteria air pollutants**
- Attainment of the highest level of health for all people

# Co-Benefits through Prevention



Prevention (Rule 12-16)

Inaction

Valuation of premature mortality associated with un-prevented exposure to particulate matter (not considering other adverse impacts) could reach

<b>Annually</b>	<b>\$123.2 million</b>
<b>Cumulatively</b>	<b>\$4.8 billion</b>

- Rule 12-16 confers this impact as a benefit, a societal savings
- Inaction confers this impact as a burden