

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

APPROVED MINUTES

Advisory Council Public Health Committee
1:30 p.m., Wednesday, October 10, 2007

- 1. Call to Order – Roll Call.** Chairperson Bramlett called the meeting to order at 1:38 p.m. **Present:** Chairperson Jeffery Bramlett, Janice Kim, Ph.D., Steven Kmucha, MD., Ms. Linda Weiner, Mr. Brian Zamora, and Ms. Licavoli-Farnkkoph, MPH. **Absent:** Ms. Cassandra Adams.
- 2. Public Comment Period:** There was none.
- 3. Approval of Minutes of June 13, 2007:** The minute was approved and carried unanimously.
- 4. Continued Discussion on Indoor Air Quality (IAQ) and Asthma:** Chairperson Bramlett initiated the discussion on Indoor Air Quality and Asthma stating that this is a first draft and an opportunity to make changes. Mr. Bramlett reminded those present that the recommendation read out at the full Advisory Council meeting and June 13, 2007 Committee meeting is shown in the draft. Mr. Bramlett stated that there might be a final draft by December, however it would be better to take whatever time needed to complete a product the committee is happy with than hurry through to meet the December deadline.

Mr. Zamora suggested that Members send their edits electronically to Mr. Bramlett. Mr. Bramlett also affirmed that any changes received would still come back to the committee for review.

Ms. Weiner stated that there is recent information from the American Lung Association on levels of criteria air pollutants; she will send information to Mr. Bramlett.

Mr. Bramlett clarified to the Committee that the purpose of the draft document is to precipitate clarity where need be. Mr. Bramlett reiterated that his understanding from the ongoing discussion is that the subject be changed to 'Strategy for Asthma as it Relates to Indoor Air Quality,' Mr. Zamora added that for the implication, the Committee will extract the relationship between outdoor and indoor air quality and the resulting concerns. The Committee unanimously agreed on the revision of the subject matter.

Ms. Weiner will search for list of Asthma Coalition within the Air District's jurisdiction to be added to the draft as well. Mr. Zamora will also identify with the County Public Health Organization best contacts to be available as the resource draft are compiled.

Mr. Bramlett notified the Committee that Dr. Tony Iton was scheduled to speak at the meeting today but had cancelled. Mr. Bramlett also notified the Committee that Dr. Moro from San Mateo County advised that Asthma Coalition will be the best to contact with the County Health Officers. Mr. Bramlett informed the Committee that there was a request to facilitate communication between the Air District and the County Health Officers. Mr. Jack Broadbent, Air Pollution Control Officer (APCO) spoke at the County Health Officers' annual retreat on Friday, October 5, 2007. Mr. Bramlett also threw the question open as to how contact the Asthma Coalition concerning the information the Committee needs or whether the direction so far is satisfactory. Committee members did not feel that further coordination was needed with the Coalition in order to complete this project.

Ms Weiner suggested that it would be worthwhile to list the information on the website and Mr. Bramlett agreed that it will be left for staff to list the information on the website. Mr. Bramlett reiterated that input from members is due to him by October 24, 2007 and he will put them together and send a revised draft back to members.

- 5. Presentation on Health Effects of Traffic Exposure:** Dr. Janice Kim of the Office of Environmental Health Hazard Assessment (OEHHA) presented on various health studies related to living near busy roads. Dr. Kim stated that there have not been adequate regulations in place to address the protection of the public against air pollutants especially those living near these source types. Dr Kim gave an overview of the presentation as:

- Traffic related pollution and some of the mechanisms to toxicity.
- East Bay Children's Respiratory Health Study – an example
- Other Studies on Health Effects of Living Near Busy Roads
- On-road exposures
- Information for policy makers

For background information, Dr. Kim stated that there are health impact related to the respiratory system, cardiovascular, cancer, birth outcomes; however most of these studies are based on large populations where their exposures are estimated by regional air monitors. Traffic-related emissions are major sources of urban air pollution, which contains many air pollutants. These pollutants are respiratory irritants, carcinogens and can enhance our immune response. Dr. Kim explained that the particulates in traffic exhaust are extremely small, about 0.1 microns in diameter on the order of viral particles (smaller than cells). There are a lot of studies that show that these pollutants can enhance allergic response, which can have multiple effects especially on the cilia and respiratory epithelia. There has been increased probability of epithelia lining and a cascade of a process where one gets enhancement of immune

response through multiple mechanisms; this is summarized by the article Brook et al., *Circulation*. 2004; 109(21):265571. Also NO₂, ozone, diesel exhaust particulate (DEP) have been shown to enhance immune response on sensitize individuals; DEP can also induce an IgE response to new antigen.

Dr. Kim also stated that ultrafine particles are very small and impact the lower respiratory tract and cause local pulmonary inflammation due to inflammatory products that are released locally, it gets into the blood circulation and can lead to stress responses in the nervous system causing an increase in heart rate, and blood pressure thereby affecting the cardiovascular system.

Dr. Kim also noted that traffic related pollution contains so many pollutants and have higher concentrations near downwind of busy roads as illustrated by Zhu et al. *Jawma*, 2002. These pollutants include particles, carbon monoxide, black carbon, NO₂; these pollutants are usually rapid drop of 100m to 300m downwind. It is noteworthy that most of our regional monitors are not situated near major sources thus not capturing hot spots.

Dr. Kim acknowledged the team of scientist and schools that joined in the study and stated that the methodology involved monitoring of over several seasons to get estimate of annual exposure, adjustment of individual level of risk factors like family history of asthma, demographics – race/ethnicity, home environmental factors like smoking in the home, and whether students from schools or neighborhood had higher level of traffic pollutants are in association with increased risk of asthma and bronchitis. After the experiment, it was found that those students who live in the neighborhood of higher traffic pollutants had a higher risk of asthma and bronchitis symptoms within the last twelve months, in addition, after measurement; it was found that the level of traffic pollutants were 1.5 to 2 times higher at locations near downward of the freeway compared to locations that were further away from the freeway or the Fremont monitoring station.

Dr. Kim also highlighted the recent work that OEHHA is doing and other epidemiological studies stating that they are looking at home exposures by using Geographic Information System (GIS) techniques to estimate the proximity of residential areas to traffic exposures as it relates to risks of asthma symptoms.

Dr. Kim summarized that after taking into account all the variables, there are increased risk of about 20% of the population exposed to traffic that have higher risk of asthma symptoms of one to five times.

Mr. Zamora inquired if the make-up of the community was taken into account. Dr. Kim responded that demographics of race/ethnicity, as well as socio-economic status were taken into consideration but they did not really make a difference.

Dr. Kim also discussed On-road exposure to traffic pollution citing Dr. Scott Fruin of UCLA's presentation. Dr. Fruin reviewed some of the existing studies that documented high exposures to vehicle exhaust on busy roads showing that particulate matter effects are about 5 to 15 times higher. Dr. Kim stated that an average

Californian spend 90 minutes per day in a vehicle and Air Resource Board estimated that 6% of daily driving can give up to half of our exposures.

Dr. Kim also cited Peters et al. study in Germany of about 700 subjects that had their first acute Myocardial Infarction (MI); the study stated that exposure to traffic within 1 to 2 hours prior to symptoms more than doubled the risk of MI. The study also considered whether taking public transportation and being in traffic lowers stress level.

Also, Dr. Kim commented on the study of exposure to ultrafine particles and DNA damage in Copenhagen; she stated that 15 healthy individuals were monitored for six days cycling in traffic and one 90 minutes indoor cycling. In the process, blood samples were taken to monitor ultrafine particle exposures, the result showed lower ultrafine particles on day of indoor cycling and higher ultrafine exposures correlated with higher evidence oxidative DNA base damage in blood cells.

Dr. Kim stated that in general, low income children and children of color are much more likely to live in high traffic density areas. Studying California schools and how close they are to busy roads, the result showed that schools located near busy roads have a disproportionate number of children economically disadvantaged and nonwhite, thus it is clearly an environmental justice issue. Dr. Kim also stated that there has been legislation passed to limit school locating near busy roads; she also cited Los Angeles school district it as struggles with finding school sites. ARB noted schools sites are based on local land use decisions and put together a guidance that recommends sensitive populations such as nursing homes, schools, residential areas to be cited not less than 150m away from busy roads.

Dr. Kim noted that there are still some unresolved issues with this body of literature, the first being that we are still grappling with issues that living near busy roads and higher exposure put one at a very high risk yet; it is still very difficult to quantify. It is not certain what constitutes busy roads but some major arterial roads have significant traffic (e.g. 50,000 vehicles a day on major busy boulevard in Sacramento) and have high pollutants from stop and go traffic that are contributing to health effects in terms of source control (e.g. particulates, nitrogen, dioxide, acrolein, etc.). Finally, do urban re-development, Smart Growth projects consider health impacts of building near busy roads?

Ms. Weiner asked what the Air District is doing in terms of land use policies and hot spots. Mr. Henry Hilken, Director of the Planning Division of the Air District responded that the Air District has been promoting smart growth for many years to reduce reliance on automobile and sometimes the policies would resolve the issue of residential areas being near sources of high levels of air contaminants. Mr. Hilken noted that the Air District is concerned with questions of how much traffic is high traffic, which air pollutants should cause worries, how much of a buffer zone should be considered and are there other mitigation strategies beyond a buffer zone that might be helpful. Mr. Hilken also confirmed that these issues are being addressed by the CARE program, which will eventually provide needed data to cities and counties.

6. **Committee Member Comments/Other Business:** Chairperson Bramlett announced that seven Regulation Rule 6; 3: Wood Burning Devices workshops are being held from November 7 to 26, 2007, interested members should contact him for the notice.
7. **Time and place of next meeting:** 1:30 p.m., Wednesday, December 12, 2007, 939 Ellis Street, San Francisco, CA 94109.
8. **Adjournment:** The meeting adjourned at 2:50 p.m.

/Chioma Dimude/
Chioma Dimude
Acting Executive Secretary