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STATEMENT FROM DR. JOYCE LASHOF:

Strategies for Establishing an Environmental Health Surveillance System in California: A Report of the SB 702 Expert Working Group.

In 1854 John Snow, after studying the pattern of occurrence of cholera in London, determined the source to be water from the Broad Street pump and removed it, ending that epidemic. Epidemiology, the study of the distribution of disease in populations, is the basis of public health and over the past century and a half public health advances have been responsible for the dramatic increase in life expectancy.

Today chronic diseases have replaced acute infectious diseases as the major killers and public health tools must be applied to the understanding of their causes just as John Snow did in the 19th century. Chronic diseases are multifactorial in origin, resulting from a mixture of environmental, lifestyle, socio-economic, and genetic factors. Over the past 18 months the working group convened under SB 702 has reviewed the scientific literature on the impact of environmental hazards on health. There is clear documentation that environmental hazards play an important causative role in some forms of respiratory diseases, several types of cancer, heart disease, kidney disease, neurodevelopmental learning impairment and lead poisoning. There is additional evidence that suggests the environment plays a role in neurological diseases and adverse reproductive outcomes. See [Table 3.1 on page 3](#) for a summary of this data. We also examined the resources currently available in California to identify environmental hazards, populations exposed and health outcomes.

The report we are releasing today summarizes our findings and addresses the need for and the methods by which we can examine the role the environment plays in the health of Californians to enable us to take action to protect the health of all Californians. There is little question that environmentally related chronic diseases are taking a fiscal and human toll. Such chronic diseases are on the rise; for example the prevalence of asthma has increased 76% nationwide in the past decade. The cost to our state are significant For only nine of these diseases for which reliable cost estimates were available, including childhood asthma, cancer, and lead poisoning, total costs for Californians are an estimated \$10 billion per year, or \$288 per person. If we were able to reduce by only 1% the cost of the environmentally related chronic diseases the State would save \$100 million annually.

Unfortunately, our existing tools for examining the role the environment plays in the health of Californians are limited. The PEW commission referred to this as the environmental health gap. The establishment of a cost-effective environmental health surveillance system is the essential first step for closing this gap.

An Environmental Health Surveillance System would:

- ◆ Track environmental hazards to guide exposure prevention efforts;
- ◆ Track disease trends to understand if they are changing over time, in residents statewide, in specific populations or in certain geographic areas;
- ◆ Link environmental hazard information, exposure data, and disease reports to support environmental health research;
- ◆ Inform the development and evaluate the effectiveness of disease prevention and environmental protection programs and policies; and
- ◆ Facilitate public access to information on environmental health issues.

Let me give one example. By identifying the sources of lead in the environment, monitoring blood lead levels, studying the health effect of elevated levels, and then implementing strategies to reduce exposure we have dramatically reduced the incidence of lead poisoning. We need to apply the same methodology to other environmentally related disease.

There are numerous state health and environmental agencies that collect data including the cancer registry, the birth defects registry, hospitalization data, toxic release inventory, pesticide use reporting, and air pollution monitoring. Unfortunately the resources to support these databases are eroding and must be restored. But most importantly accessibility to the data is limited and there is no central focus for integrating, analyzing and disseminating the information. The working group believes that it is essential that an interagency CDHS/Cal-EPA Office of Environmental Health Tracking be established which would have these responsibilities. This office should also assume responsibility for setting priorities for updating data sources and identifying opportunities for developing new databases. Most importantly there is an urgent need for this office to undertake the task of assuring that environmental hazard data are timely, accessible and useful for researchers, communities and the general public. The ability to link environmental hazard and exposure data and health outcomes is essential to the development of research hypotheses, public health interventions and policy development. Our report makes a number of specific recommendations regarding identification of hazardous exposures, exposure monitoring, and health tracking. The Office of Environmental health Tracking should oversee the implementation of these recommendations.

The report lays out a number of recommendations for the establishment of an effective Environmental Health Surveillance System to improve environmental quality and protect public health in California. This will require a strong commitment and partnership between the public and private sectors, academia, and communities. We believe that establishment of this ambitious and innovative system will place California in a position of national and international leadership in public environmental health.

The SB 702 report was partially funded by The California Wellness Foundation and the Centers for Disease Control and Prevention. The complete report may be found at www.catracking.com.

Table 3.1

Evidence of Association Between Candidate Diseases and Pollutant Categories and/or Environmental Media

Candidate Diseases	Major Classes of Environmental Hazard									References
	Chemicals					Environmental Media				
	Endocrine Disruptors ^a	Metals	Pesticides ^a	POPs	VOCs	Air Pollution ^b	Indoor ^{c,d}	Occupation ^f	Water Pollution ^b	
Respiratory Diseases										12, 47, 22
Asthma			√		√	√+	√+	√+		8, 24, 46
COPD						√		√+		44
Reproductive Outcomes	√	√	√	√	√	√	√	√	√	18, 24, 25, 37, 38
Cancer	√	√+	√	√+	√+	√+	√	√+	√	1, 3, 24, 27, 28, 38, 46
Dermatitis		√+	√+	√+				√+		4, 41
Neurodevelopmental										40, 43
Autism ^e										
Learning Impairments		√+	√	√			√			17, 19, 20, 26
Diabetes		√		√				√		7, 23, 45
Heart Disease and Stroke		√				√+	√+	√+		2, 14, 21, 42, 47
Autoimmune Disorders										6, 11, 32
Lupus								√		6, 13
Multiple Sclerosis								√		6, 35
Kidney Disease		√+						√+		10
Neurological Diseases										39
Alzheimer's		√	√					√		5, 31, 36
Parkinson's		√	√					√		5, 15, 16, 33, 34
Lead Poisoning		√+					√+	√+		24, 46
Potential Environmental Diseases										
Multiple Chemical Sensitivity ^f					√			√		9, 30
Chronic Fatigue Syndrome ^g			√					√		29

Notes:

Indented items indicate specific outcomes of concern within a candidate disease category. Unindented candidate diseases may include multiple outcomes (e.g., cancer includes all site-specific cancers).

√ Denotes suggestive evidence of a possible association between chemical category and health outcome.

√+ Denotes strong evidence of association between chemical category and health outcome.

a. Excludes DDT and DDT byproducts. Excludes PCBs and dioxins. These compounds are included under POPs.

b. Excludes hazards from previously identified pollution categories. For example, suggestive evidence of cancer risk in water is a result of chlorination by products. Bladder cancer risk from arsenic in water is indicated under metals.

c. May include hazards from previously identified categories.

d. Includes radon.

e. Autism is identified as a priority outcome for tracking because researchers hypothesize that environmental exposures during pregnancy could interact with genetic factors to cause or contribute to autism (see London, 2000).

f. MCS is not broadly recognized as a definitive health condition and hence is considered a potential environmental disease.

g. Linkage to environmental factors is limited or tentative.

References:

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