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Report Finds Risks of Developing Alzheimer's and Parkinson's Diseases Can Be Dramatically Reduced

October 23, 2008 – Boston, MA – Environmental factors are key drivers in Alzheimer's and Parkinson's diseases, according to the authors of a new report, *Environmental Threats to Healthy Aging*, released today.

Importantly, the report demonstrates that the risks for Alzheimer's and Parkinson's can be dramatically reduced.

It offers the most comprehensive review of the currently available research on the lifetime influences of environmental factors on Alzheimer's and Parkinson's diseases, two of the most common degenerative diseases of the brain. These influences include common dietary patterns, toxic chemical exposures, inadequate exercise, socio-economic stress and other factors. These influences can begin in the womb and continue throughout life, setting the stage for the later development of neurodegenerative as well as other chronic diseases.

In addition, the report describes the substantial emerging evidence that, collectively, these environmental factors alter biochemical pathways at the cellular and subcellular levels. These alterations fuel Alzheimer's and Parkinson's diseases, as well as other chronic illnesses referred to in the report as the "Western disease cluster"—diabetes, obesity, cardiovascular disease and metabolic syndrome. Each of these diseases in turn increases the risk of Alzheimer's disease. This collection of diseases is being driven by dramatic alterations over the past 50 to 100 years in the U.S. food supply, an increasingly sedentary lifestyle, and exposure to toxic chemicals.

The full report, *Environmental Threats to Healthy Aging*, is published jointly by Greater Boston Physicians for Social Responsibility and the Science and Environmental Health Network and is available online at: www.agehealthy.org.

"As we explored origins and patterns of chronic degenerative diseases, we discovered a web of conditions in the environment – including nutritional, chemical, physical and social factors – that have a direct influence on the risk of Alzheimer's, Parkinson's and related chronic diseases," said report co-author Jill Stein, MD, Greater Boston Physicians for Social Responsibility. "It is clear from these findings that our activities in the areas of food and agriculture, energy, chemical use, and social organization are key drivers in the abnormal loss of neurological function in older people throughout the modern world."

The scientific analysis in the report draws attention to several specific environmental risk factors in the development of dementia, Alzheimer's disease and Parkinson's disease. They include, among others:

- Lead – Recent evidence links environmental lead exposure in the community to increased risk of cognitive impairment. For example, a recent study of elderly men found that the highest lead-exposed group had on average an additional 15 years of cognitive aging, compared to the lowest lead-exposure group. Several animal studies suggest that exposures in infancy and childhood may sharply increase the risk of Alzheimer's disease decades later. Evidence also implicates lead in increasing risk for Parkinson's disease as well.
- Air pollution – Recent studies show that air pollution is harmful to the brain, in addition to the lungs, heart, nose and blood vessels. This evidence is drawn from studies of brains of people living in highly polluted cities compared with those living in clean air cities. These studies found evidence starting at young ages of inflammation and cellular damage associated with both early Alzheimer's and Parkinson's diseases.
- Pesticides – A large body of data links exposure to a variety of pesticides with increased risks for Parkinson's disease. Evidence also links chronic low dose exposure to a number of pesticides – primarily in the work setting – with subsequent cognitive decline, such as impaired memory and attention. A study in France found that a history of occupational exposure to pesticides more than doubled the risk of developing Alzheimer's disease. Exposure to some pesticides has also been linked to dramatically increased risks for diabetes, prediabetes, and metabolic syndrome.
- Dietary risk factors – Diet and nutrition are emerging as critical factors in brain health and health in general. A variety of nutrients increase the risks of disease. For example, several studies have shown that higher saturated fat intake increases the risk of dementia by two to three times. Animal studies also showed that young rats fed a high saturated fat diet had impaired learning and memory as adults compared to rats fed a diet high in polyunsaturated fat. Serious concerns are also raised by a number of studies that infant soy formula or formulas fortified with the highest levels of iron may potentially increase the risk of subsequent Parkinson's disease.
- Dietary protective factors – Diet and nutrition can also decrease risks of disease. For example, numerous studies in people show that high intake of omega-3 fatty acids is associated with markedly lower risk for Alzheimer's. In Alzheimer's-prone laboratory animals, a high omega-3 diet begun in late life reduced markers of Alzheimer's disease in the brain by more than 70 percent. The Mediterranean diet, which includes fresh fruit and vegetables, legumes, whole grains, fish, nuts, and olive oil, is linked to substantially reduced risks of both Alzheimer's disease and Parkinson's disease, as well as dramatically lower rates of diabetes, vascular disease, recurrent heart attacks, and metabolic syndrome.

- Physical Activity – Exercise is linked to substantial reductions in the risk of dementia and Alzheimer’s. One study found that subjects who were physically active at least twice a week in midlife had more than a 50 percent reduction in the risk of dementia and Alzheimer’s diseases in later life.

Other environmental agents examined in the report include bisphenol A, aluminum, industrial emissions, solvents, PCBs, and electromagnetic fields. The role of psychosocial stressors, education and socio-economic status are also featured.

The report authors provide recommendations so that individuals, families, communities, and societies can take action at all levels and move towards healthy living and healthy aging. This is especially important because the population over the age of 65, which is highly vulnerable to chronic disease, is expected to nearly double in the U.S. by 2030 – from about 38 million to over 71 million. With that increase will come a dramatic escalation of chronic diseases unless steps are taken now to reduce the risks. Among these recommendations are:

- Increase sustainable, diversified and local alternatives to industrial farming – to improve the nutritional value of food, cut down on harmful content, ensure access to healthy food, and lessen serious damage to the environment;
- Regulatory reform of chemical policy that helps prevent hazardous toxic exposures from air, water, food, and other consumer products; business policy changes that give preference to purchasing and using products made of safer chemicals;
- Health care policy changes that increase the focus on disease prevention and ensure equitable and accessible health care for all; and,
- An energy policy that reduces toxic emissions, promotes conservation and efficiency, curtails dependence on fossil fuels, and encourages more physical activity.

In addition to these societal recommendations, the report contains recommendations for actions for healthy living and healthy aging that individuals can take to reduce the risks for Alzheimer’s, Parkinson’s, and other diseases of the Western disease cluster. These include specific recommendations relating to:

- Eating healthy and nutritious food, and avoiding common hazards in the typical modern diet;
- Staying active physically and mentally;
- Avoiding harmful toxicants and pollutants; and,
- Being socially engaged with family, friends and community.

“As we illustrate in our report, the risk of neurodegenerative disease can be significantly impacted by individual lifestyle choices, such as by eating nutritious food, staying active

mentally and physically, and avoiding harmful pollutants,” said report co-author Ted Schettler, MD, MPH, and Science Director, Science and Environmental Health Network. “However these individual changes are not enough. Alzheimer’s and Parkinson’s disease risks are also heavily influenced by features of the family, community and society as a whole. Public health and policy approaches are essential for disease prevention.”

On Thursday, October 23, at 1:00 p.m. ET / 10:00 a.m. PT, the co-authors will conduct a media briefing call to discuss their findings and recommendations in the *Environmental Threats to*

Healthy Aging report. Members of the media can access the media briefing call by dialing (877) 358-8255 (U.S./Canada) and using pass code 1619147#.

About Greater Boston Physicians for Social Responsibility

Greater Boston Physicians for Social Responsibility (GBPSR) is an affiliate of Physicians for Social Responsibility (PSR[®]), a national organization of over 32,000 physicians, health care professionals, and supporters. PSR, known as “the active conscience of the medical community,” was formed in 1961 to address the health consequences of nuclear and other weapons of mass destruction. It has since broadened its mission to include the health consequences of environmental pollution and degradation, and also the reduction of violence and its causes. PSR’s international federation, the International Physicians for the Prevention of Nuclear War, was awarded the 1985 Nobel Peace Prize for its efforts to translate the abstract concept of nuclear war into medical and personal terms. More information can be found at: www.psr.org/Boston.

About Science and Environmental Health Network

The Science and Environmental Health Network (SEHN) is a think tank engaging organizations, communities, and governments in the effective application of science to protect and restore public and ecosystem health. SEHN uses the concepts of ecological medicine and ecological health to address the nexus of science, the environment, and human and ecosystem health. SEHN is also a leading developer of theory, law, and practice based on the precautionary principle. Founded in 1994, SEHN operates as a virtual organization, currently with six staff members working across the U.S. More information can be found at: <http://www.sehn.org>.

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