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Elizabeth G. Nabel, M.D., Director
Susan B. Shurin, M.D., Deputy Director
National Heart, Lung, and Blood Institute
National Institutes of Health
Bethesda, MD 20892

January 25, 2007

Dear Drs. Nabel and Shurin:

On behalf of the more than 1,200 members of the Sleep Research Society I thank you for the opportunity to provide comment on the National Heart, Lung, and Blood Institute's (NHLBI) draft strategic plan. The impact of sleep loss and sleep disorders on public health and the role of NHLBI in addressing this public health need was formally recognized by Congress when, in 1993, the National Center on Sleep Disorders Research (NCSDR) was established within NHLBI. As the oldest professional sleep society, our mission to foster scientific investigation, professional education, and career development in sleep research and academic sleep medicine, and to promote public education and policy development based upon the outcomes of sleep research is closely aligned with that of the NCSDR and NHLBI.

As stated in your letter of November 28, 2006, the 23 working groups and outside experts identified crosscutting themes that would encompass basic discovery through research translation and application. These efforts are apparent in this well-written and thoughtful draft strategic plan. The draft strategic plan was stated to intentionally focus on conceptual approaches that could guide strategy rather than targeting individual disease states. The diseases the report broadly identifies as of interest to NHLBI are described as "heart, lung and blood" diseases. However, all recent RFAs/RFPs from NHLBI have noted interests to "heart, lung, blood and sleep" investigators. No other institute has as its specific mission the support of the NCSDR. Sleep research, and the role of the NCSDR, cannot be adequately represented or described by only the terms "heart, lung or blood". The broad disciplines that constitute the sleep research community are evidenced by the breadth of backgrounds of the individuals that currently serve on the NCSDR Advisory Board.

Recommendation: The SRS suggests the draft strategic plan be modified to include the addition of the word "sleep" to instances of "heart, lung and blood".

The SRS congratulates NHLBI on the emphasis in the draft strategic plan that is placed on environmental and behavioral factors that affect health. The stated goal of not targeting specific disease states and the focus on environmental and behavioral



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factors that impact health implies a certain focus on *disease prevention* as a complementary approach to *treatment of pathology*. Indeed, the *prevention* of heart, lung, and blood diseases is one aspect of NHLBI's stated mission. The almost complete omission of the word "sleep" from the NHLBI draft strategic plan may have been an oversight due, in part, to the stated strategy of not targeting individual disease states. Sleep, however, is not a disease state but is rather a fundamental biological process that is as essential to physical health as is breathing or eating.

As such, the SRS strongly believes the draft strategic plan does not go far enough in stating that adequate sleep, along with diet and exercise, is *the third pillar of health*. In fact, adequate sleep as an essential ingredient to health is not recognized at all, and the very word "sleep" appears only twice in the entire draft strategic plan. We are concerned about the omission from the draft strategic plan of acknowledgment of the role sleep plays in health because considerable evidence demonstrates that sleep loss is a risk factor for obesity and hypertension. Obesity and hypertension are two of the most devastating diseases historically targeted by NHLBI.

Recommendation: The SRS suggests the draft strategic plan be modified to recognize adequate sleep as the third pillar of health by inclusion of the phrase "and sleep" with instances of "diet and exercise". Such explicit statements would reiterate, in part, one aspect of NHLBI's mission, the determination of means by which heart, lung, and blood diseases may be *prevented*.

Goal 1 of the draft strategic plan is to improve understanding of the molecular and physiologic basis of health and disease, with a stated objective to delineate normal and pathological biological systems. Healthy humans function within daily cycles of sleeping and waking. The lack of acknowledgment in the draft strategic plan that humans sleep eliminates one third of the human lifespan from consideration of study for the determination of means by which our understanding of molecular and physiologic basis of health and disease may be improved. This omission is particularly critical as there is not a single biological process studied to date that does not differ between waking and sleep.

Recommendation: The SRS suggests Goal 1 of the draft strategic plan be modified to include the recognition that sleep is a systems and organismal level process that must be considered when attempting to understand the molecular and physiological basis of health and disease.

Goal 2 complements Goal 1 by striving to improve understanding of clinical mechanisms of disease. As with Goal 1, the SRS believes the lack of explicit mention of sleep will result in a critical void in understanding clinical mechanisms of disease that could lead to better prevention, diagnosis and treatment.



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Recommendation: The SRS recommends Challenge 2.2 and Challenge 2.3 be modified such that “cardiovascular, lung, and blood diseases and sleep disorders” are the specific focus.

The strategies proposed in the draft strategic plan outline approaches to be used to target individual scientific problems identified as challenges. Public health would benefit by the inclusion of sleep-related topics for several of these strategies. The study of healthy sleep and determination of the impact of sleep loss and sleep disorders on public health requires many different approaches, all of which are of necessity multi- and cross-disciplinary. The elucidation of such knowledge requires practitioners of numerous specialties. Because of the role of adequate sleep in health, and NHLBI’s stated mission for prevention and treatment of cardiovascular, lung and blood diseases, public health will benefit greatly from strategies by which sleep research is advanced. Therefore, the SRS suggests several of the proposed strategies be modified to include specific recommendations that would advance the field of sleep research.

Recommendation: The SRS recommends that the stated strategy of recognition of group accomplishments rather than accomplishments of individuals (**Strategy 6**) be articulated to acknowledge the barriers that impede implementation of such a strategy. Some potential multidisciplinary research and training opportunities may be impeded by traditional institutional or academic structures (silos). NHLBI could contribute to overcoming these barriers by the use of planning grants awarded to academic institutions to support the development of novel structures that promote multidisciplinary research.

Recommendation: The SRS recommends that, in addition to academic institutions, the NHLBI partner with professional societies to develop new approaches to foster mentoring for young faculty members (**Strategy 7**).

Although the SRS acknowledges the overt decision against targeting individual disease states in the NHLBI draft strategic plan, we strongly believe that omission of sleep from the NHLBI draft strategic plan is an oversight that will have a negative impact on public health. Furthermore, the omission of sleep from any aspect of the draft strategic plan is not in line with the stated mission of NHLBI to conduct “research ... related to the causes, prevention, diagnosis, and treatment of heart, blood vessel, lung, and blood diseases; and sleep disorders”. Adequate sleep as the third pillar of health cannot be ignored if NHLBI is to fulfill its mission to prevent disease. Similarly, lack of research on sleep loss and sleep disorders will result in incomplete knowledge of the molecular and physiological basis of health and of the mechanisms that will allow us to better prevent, diagnose and treat diseases of the heart, lung, and blood.



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Once again, on behalf of members of the SRS, who devote their careers to understanding the role of sleep in health and disease, I thank you for the opportunity to provide comment on the NHLBI draft strategic plan. If I, members of the Board of Directors, or any of the numerous members of the SRS who are leaders in the field of sleep research and sleep disorders medicine may be of assistance in the final stages of drafting the NHLBI strategic plan, please do not hesitate to contact me.

Sincerely,

Mark R. Opp, Ph.D.
President