

## Abstracts zum Thema Kosten unbehandelter Schlafapnoe

### **TITLE: Risk of traffic accidents in patients with sleep-disordered breathing: reduction with nasal CPAP.**

AUTHORS: Cassel W; Ploch T; Becker C; Dugnus D; Peter JH; von Wichert P  
AUTHOR AFFILIATION: Klinikum der Philipps-Universität, Abteilung  
Poliklinik, Marburg, Germany.  
SOURCE: Eur Respir J 1996 Dec;9(12):2606-11  
CITATION IDS: PMID: 8980976 UI: 97135439

ABSTRACT: Sleepiness whilst driving constitutes a road safety risk.

Sleep-related breathing disorders are the most frequent medical cause of daytime sleepiness, and untreated patients with this condition have been shown to be at a higher risk of having accidents while driving. This study addressed the question of the extent to which treatment of sleep-disordered breathing by nasal continuous positive airway pressure (nCPAP) is related to changes in patient's accident risk. Seventy eight male patients requiring treatment of sleep-related breathing disorders with nCPAP were enrolled in the study. The protocol included a questionnaire dealing with alertness-related problems while driving, an 80 min vigilance test, and the Multiple Sleep Latency Test. These baseline evaluations were repeated after 1 year of treatment with nCPAP. Fifty nine patients completed the study. The accident rate was significantly decreased from 0.8 per 100,000 km (untreated) to 0.15 per 100,000 km with nCPAP treatment. Variables that were considered to be likely to increase accident risk (sleeping spells, fatigue, vigilance test reaction time, daytime sleep latency) also improved with treatment. We conclude that treatment of sleep-disordered breathing by nasal continuous positive airway pressure is related to reduction in patient motor vehicle accident rates, probably due to the reversal of excessive daytime sleepiness.

1996/12

1996/01 00:00

PUBLICATION TYPES: JOURNAL ARTICLE

LANGUAGES: Eng

### **TITLE: The medical cost of undiagnosed sleep apnea.**

AUTHORS: Kapur V; Blough DK; Sandblom RE; Hert R; de Maine JB; Sullivan SD; Psaty BM  
AUTHOR AFFILIATION: Department of Medicine, University of Washington, Seattle 98195, USA.  
SOURCE: Sleep 1999 Sep 15;22(6):749-55  
CITATION IDS: PMID: 10505820 UI: 99433639

ABSTRACT: Obstructive sleep apnea is an under-diagnosed, but common disorder with serious adverse consequences. Cost data from the year prior to the diagnosis of sleep-disordered breathing in a consecutive series of 238 cases were used to estimate the potential medical cost of undiagnosed sleep apnea and to determine the relationship between the severity of sleep-disordered breathing and the magnitude of medical costs. Among cases, mean annual medical cost prior to diagnosis was \$2720 versus \$1384 for age and gender matched controls ( $p < 0.01$ ). Regression analysis showed that the reciprocal of the apnea hypopnea index among cases was significantly related to log-transformed annual medical costs after adjusting for age, gender, and body mass index ( $p < 0.05$ ). We conclude that patients with undiagnosed sleep apnea had considerably higher medical costs than age and sex matched individuals and that the severity of sleep-disordered breathing was associated with the magnitude of medical costs. Using available data on the prevalence of undiagnosed moderate to

severe sleep apnea in middle-aged adults, we estimate that untreated sleep apnea may cause \$3.4 billion in additional medical costs in the U.S. Whether medical cost savings occur with treatment of sleep apnea remains to be determined.

1999/10

1999/03 09:00

PUBLICATION TYPES: JOURNAL ARTICLE

LANGUAGES: Eng

GRANT/CONTRACT ID: F32-HS00109/HS/AHCPR

**TITLE: Clinical economics and sleep disorders.**

AUTHORS: Crawford B

AUTHOR AFFILIATION:

Lewin Group, Cambridge, MA 02142, USA.

PUBLICATION TYPES:

JOURNAL ARTICLE

LANGUAGES:

Eng

**ABSTRACT:**

Sleep disorders have been shown to have substantial psychosocial sequelae with large economic impact. Numerous studies have examined the psychosocial aspects of sleep disorders; however, there has been little published on the associated economic implications. With increasing pressure to contain health care expenditures and provide value for the dollar, clinical economics is playing an important role in the decision-making process about alternative strategies within health care organizations. There are several strategies one may pursue to examine the economics of medical interventions. The predominant strategies include: cost identification, cost effectiveness, cost utility, and cost benefit. This review provides a basis for performing clinical economic evaluations in sleep disorders.

1998/01

1998/07 04:42

NLM PUBMED CIT. ID:

9415941

SOURCE: Sleep 1997 Oct;20(10):829-34

**TITLE: Ambulatory monitoring of blood pressure in patients with sleep-disordered breathing.**

AUTHORS: Chervin RD; Guilleminault C

AUTHOR AFFILIATION:

Stanford Sleep Disorders Clinic and Research Center, Palo Alto, CA 94304, USA.

PUBLICATION TYPES:

JOURNAL ARTICLE

REVIEW

REVIEW, TUTORIAL

LANGUAGES:

Eng

**ABSTRACT:**

Patients with obstructive sleep apnea and other sleep-related breathing disorders that cause sleep disruption frequently present with abnormal circadian blood pressure patterns or frank hypertension. Ambulatory blood pressure monitoring has been useful in research documenting nocturnal hypertension and the normalization of blood pressure when sleep apnea is treated. In practice, similar

measurements can provide a clue to the presence of an undiagnosed sleep disorder and can be valuable in following the blood pressure response to the treatment of sleep-disordered breathing.

1994/08

1994/01 00:00

NLM PUBMED CIT. ID:

7606623

SOURCE: J Cardiovasc Risk 1994 Aug;1(2):127-31

**TITLE: Economic effects of insomnia.**

AUTHORS: Stoller MK

AUTHOR AFFILIATION:

Department of Anthropology, University of Chicago, Illinois.

PUBLICATION TYPES:

JOURNAL ARTICLE

REVIEW

REVIEW, TUTORIAL

LANGUAGES:

Eng

ABSTRACT:

Insomnia affects up to 40% of the general population yearly and is a significant cause of morbidity and mortality. The direct and indirect costs of insomnia place a tremendous economic burden on society and employers. In addition to the cost of medical treatment and drugs, measurable costs of insomnia include reduced productivity, increased absenteeism, accidents, and hospitalization, as well as medical costs due to increased morbidity and mortality, depression due to insomnia, and increased alcohol consumption. This article reviews the literature on the economic costs and effects associated with insomnia. Based on the data reviewed, a conservative estimate of the total annual cost of insomnia was calculated at \$92.5 to \$107.5 billion. Early recognition and treatment of insomnia can reduce the costs associated with the condition, as well as possibly prevent other illnesses.

1994/09

1994/01 00:00

NLM PUBMED CIT. ID:

7859246

SOURCE: Clin Ther 1994 Sep-Oct;16(5):873-97; discussion 854

**TITLE: The socioeconomic impact of insomnia. An overview.**

AUTHORS: Chilcott LA; Shapiro CM

AUTHOR AFFILIATION:

University of Toronto, Canada.

PUBLICATION TYPES:

JOURNAL ARTICLE

REVIEW

REVIEW, TUTORIAL

LANGUAGES:

Eng

SECONDARY SOURCE ID:

HTA/96424256

ABSTRACT:

Insomnia is an extremely common symptom both de novo and in the context of other medical and psychiatric disorders. The impact of

insomnia is often ignored both by the individual and by society in terms of its clinical and socioeconomic ramifications. Insomnia is therefore under-appreciated and almost certainly under-treated, thus making it a serious health concern. It is estimated that more than 60 million Americans suffer from insomnia annually, and this figure is expected to grow to 100 million by the middle of the 21st century. Whether it be difficulty initiating or maintaining sleep, the disruption of nocturnal sleep will invariably impact on daytime activities and often results in daytime fatigue, performance deficits (including memory and other cognitive deficits), an increase in the number of sick days taken by an individual and accidents (some catastrophic). This review examines the costs directly related to insomnia in various sectors of healthcare, the indirect costs associated with accidents, sick days and decreased work productivity, and related costs resulting from insomnia but which meet neither the criteria of direct nor indirect cost categories. The total direct, indirect and related costs of insomnia are conservatively estimated at \$US30 to 35 billion annually in the US (1994 dollars). Economic gains can be made by treating patients on an outpatient basis in sleep centres.

1995/12

1995/09 00:00

NLM PUBMED CIT. ID:

10163422

SOURCE: Pharmacoeconomics 1996;10 Suppl 1:1-14

**TITLE: The direct economic costs of insomnia in the United States for 1995.**

AUTHORS: Walsh JK; Engelhardt CL

AUTHOR AFFILIATION:

Unity Sleep Medicine and Research Center, St. Luke's Hospital, MO  
63017, USA.

PUBLICATION TYPES:

JOURNAL ARTICLE

LANGUAGES:

Eng

ABSTRACT:

**STUDY OBJECTIVES:** To assess the direct economic costs of insomnia in the United States in 1995. **METHODS:** The costs of prescription medications were based on 1995 data compiled by IMS America, Ltd. (Plymouth Meeting, PA). Non-prescription medication expenditures were provided by Information Resources, Inc. (Chicago, IL). The costs of physician visits related to insomnia were estimated from unpublished data of the 1994 National Ambulatory Medical Care Survey conducted by the National Center for Health Statistics and from the American Medical Association Center for Health Policy Research. Several other sources were used for other cost estimates. **RESULTS:** Total cost for substances used to treat insomnia was \$1.97 billion, less than half of which was for prescription medication. Health care services for insomnia totaled \$11.96 billion, 91% of which is attributable to nursing home care. The total direct costs in the United States for insomnia in 1995 were estimated to be \$13.9 billion. **CONCLUSIONS:** Increased efforts are needed in several domains to offset the cost of insomnia including clinical research on the consequences of untreated and treated insomnia, development and implementation of curricula to provide knowledge about sleep and sleep disorders for medical students, physicians, and other health professionals, education to increase public awareness of insomnia and sleep disorders, and more

support for basic research on neural mechanisms involved in healthy and disordered sleep.

1999/07

1999/08 10:00

NLM PUBMED CIT. ID:

10394612

SOURCE: Sleep 1999 May 1;22 Suppl 2:S386-93

**TITLE: Reduced hospitalization with cardiovascular and pulmonary disease in obstructive sleep apnea patients on nasal CPAP treatment.**

AUTHORS: Peker Y; Hedner J; Johansson A; Bende M

AUTHOR AFFILIATION:

Department of Pulmonary Medicine, Sahlgrenska University Hospital,

Goteborg, Sweden.

PUBLICATION TYPES:

JOURNAL ARTICLE

LANGUAGES:

Eng

ABSTRACT:

Cardiovascular and pulmonary disease (CVPD) is common in patients with obstructive sleep apnea syndrome (OSAS). This retrospective study addressed the accumulated in-hospital time during 2 years prior to treatment with nasal continuous positive airway pressure (nCPAP) as compared to 2 years after initiating of nCPAP in patients with OSAS and CVPD. A cohort representing all patients (n = 88) receiving nCPAP during the period 1988-1994 at the Skovde Central Hospital, Skovde, Sweden, was studied. Data collection was based on interviews with patients as well as reviews of clinic charts. All hospitalizations and diagnostic codes by any type were thereby successfully gathered for the whole group. Six patients with confounding serious diseases were excluded from the analysis. A CVPD diagnosis (ICD-9, codes 401-435 and 490-496) was found in 54 out of 82 patients (66%), of whom 36 of 58 were nCPAP users (62%) and 18 of 24 were nonusers (75%). In 54 sleep apneics with CVPD, 31 were hospitalized acutely under one or more of these diagnostic codes during the study period of 4 years. The total number of in-hospital days due to CVPD in the nCPAP users (n = 19) before nCPAP prescription was 413 days (median 10, range 3-66) compared to 54 days (median 0, range 0-25) after nCPAP ( $p < 0.0001$ ). The corresponding values for the nonuser group (n = 12) was 137 days (median 8.5, range 0-42) before and 188 days (median 9.5, range 0-47) after the nCPAP prescription (ns). We conclude that nCPAP treatment reduces the need for acute hospital admission due to CVPD in patients with OSAS. This reduction of concomitant health care consumption should be taken into consideration when assessing the cost-benefit evaluation of nCPAP therapy.

1997/11

1997/14 00:08

NLM PUBMED CIT. ID:

9351133

SOURCE: Sleep 1997 Aug;20(8):645-53

**TITLE: [Economic aspects of sleep medicine]**

**VERNACULAR TITLE:**

Ökonomische Aspekte der Schlafmedizin.

**AUTHORS:** Peter JH**AUTHOR AFFILIATION:**

Schlafmedizinischen Labor, Philipps-Universität, Marburg, Deutschland.

**PUBLICATION TYPES:**

JOURNAL ARTICLE

**LANGUAGES:**

Ger

**ABSTRACT:**

According to its rules it is the task of the German Sleep Research Society (DGSM) to promote scientific research in the area of Sleep Medicine in Germany and to transform scientific results into clinical practice for the benefit of patient care. The international classification of sleep disorders (ICSD) distinguishes more than 80 different disorders which can be treated due to scientific progress

which has been made over the last 50 years. The conversion of established scientific knowledge in the field of sleep medicine into an improved clinical management of patients should not be prevented by the lack of sufficiently equipped sleep units. The federal government has stated that, due to financial constraints, it would not consent to any measures which might lead to a budget increase, such as case oriented special payments for certain diseases. Thus, an adequate number of sleep units can only be provided by integrating these units into the budget of the respective hospitals and departments, paid by the local insurance companies, thus providing the necessary financial resources to the sleep units. Many services in the area of sleep medicine can be covered by the existing reimbursement system. In some cases, however, a definite diagnosis can only be made by the use of complete polysomnography (PSG). For a complete PSG the additional costs have been calculated by the DGSM to be 1195,-DM per 24 h. Sleep units dealing with both diagnostically and therapeutically complex cases such as patients requiring complex forms of nasal ventilation, depend on an increase in the reimbursement by the insurance companies to cover the expenses involved. For each sleep unit, a "case-mix" can be calculated which will include both complex and less complex cases. The costs using this case mix will be considerably lower than the cost for a complete PSG. Sleep units provide the basis for education and quality assessment which are necessary for competent patient management in the future. Adequate diagnostic and therapeutic facilities in sleep medicine provide the basis for patient care, contribute to improved health standards and, thus, reduce social costs of these frequent diseases.

1996/01

1996/01 00:00

**NLM PUBMED CIT. ID:**

9012198

**SOURCE:** Wien Med Wochenschr 1996;146(13-14):395-401**TITLE: The cost of sleep-related accidents: a reanalysis****AUTHORS:** Webb WB**AUTHOR AFFILIATION:**

Department of Psychology, University of Florida, Gainesville 32611, USA.

COMMENTS:

Comment on: Sleep 1994 Feb;17(1):84-93

Comment in: Sleep 1995 May;18(4):281-4

PUBLICATION TYPES:

COMMENT

JOURNAL ARTICLE

LANGUAGES:

Eng

ABSTRACT:

This journal published a special report titled "The Cost of Sleep-Related Accidents: A Report for the National Commission on Sleep Disorders Research". The report estimated that sleep-related accidents were annually associated with 23,318 fatalities, between 1,907,072 and 2,474,430 disabling injuries and costs between \$43.15 billion and \$56.02 billion. This paper reanalyzes the data base and assumptions underlying these estimates and concludes that they greatly overestimated the probable relationship between sleepiness and accidents. A more moderate estimate of this important relationship is proposed.

1995/05

1995/01 00:00

NLM PUBMED CIT. ID:

7677896

SOURCE: Sleep 1995 May;18(4):276-80

**TITLE: The cost of sleep-related accidents: a report for the National Commission on Sleep Disorders Research [see comments]**

AUTHORS: Leger D

AUTHOR AFFILIATION:

Unite de Sommeil de l'Hotel-Dieu, Paris, France.

COMMENTS:

Comment in: Sleep 1995 May;18(4):276-80

PUBLICATION TYPES:

JOURNAL ARTICLE

REVIEW

REVIEW, TUTORIAL

LANGUAGES:

Eng

ABSTRACT:

This report, prepared for the National Commission on Sleep Disorders Research, explores the economic implications of sleepiness in relation to accidents. In Part One, I describe the frequency of accidents in the United States and explain a method for estimating the economic cost of these accidents. Accidents are the fourth leading cause of mortality in the United States, and motor-vehicle accidents represent 51% of total deaths caused by accidents. The method used for calculating the cost of accidents is called "the human capital approach". It is based on the principle that "one person produces a sum of output during his/her life-time, which can be approximated by his/her earnings". It is necessary to understand that this estimate of human value is not intended to reduce human beings to a sum of earnings during his/her lifetime. It does, however, serve as a useful indicator in making decisions regarding public health policy for the country. The results of the total cost of accidents and the relative costs for work-related, home-based and public accidents in 1988 are discussed. In Part Two, I

explore the role sleepiness plays in contributing to the total number of accidents. The difficulty of researching this subject is compounded by the fact that reports of rates of accidents related to sleepiness differ significantly from author to author. This is true both for drivers with sleep disorders and those without. We have calculated two different rates for estimating the number of motor-vehicle accidents caused by sleepiness.(ABSTRACT TRUNCATED AT 250 WORDS)

1994/02

1994/01 00:00

NLM PUBMED CIT. ID:

7677805

SOURCE: Sleep 1994 Feb;17(1):84-93

**TITLE: Falling asleep at the wheel: the chief cause of severe traffic accidents**

VERNACULAR TITLE:

Einschlafen am Steuer: Hauptursache schwerer Verkehrsunfälle.

AUTHORS: Zulley J; Cronlein T; Hell W; Langwieder K

AUTHOR AFFILIATION:

Bezirkskrankenhaus Regensburg, Munchen, Deutschland.

PUBLICATION TYPES:

JOURNAL ARTICLE

LANGUAGES:

Ger

ABSTRACT:

All fatal traffic accidents on highways in Bavaria in 1991 have been analyzed. The most frequent single cause for the 204 accidents was falling asleep (24%). A time of day analysis revealed that the highest accidents frequencies could be observed at 6:00 a.m. and 2:00 p.m. In addition an age effect could be observed. The majority of the day accidents were caused by older drivers, while most of the night accidents were caused by younger ones.

1995/01

1995/01 00:00

NLM PUBMED CIT. ID:

8588372

SOURCE: Wien Med Wochenschr 1995;145(17-18):473

**TITLE: Economic effects of insomnia.**

AUTHORS: Stoller MK

AUTHOR AFFILIATION:

Department of Anthropology, University of Chicago, Illinois.

PUBLICATION TYPES:

JOURNAL ARTICLE

REVIEW

REVIEW, TUTORIAL

LANGUAGES:

Eng

ABSTRACT:

Insomnia affects up to 40% of the general population yearly and is a significant cause of morbidity and mortality. The direct and indirect costs of insomnia place a tremendous economic burden on society and employers. In addition to the cost of medical treatment and drugs, measurable costs of insomnia include reduced productivity, increased

absenteeism, accidents, and hospitalization, as well as medical costs due to increased morbidity and mortality, depression due to insomnia, and increased alcohol consumption. This article reviews the literature on the economic costs and effects associated with insomnia. Based on the data reviewed, a conservative estimate of the total annual cost of insomnia was calculated at \$92.5 to \$107.5 billion. Early recognition and treatment of insomnia can reduce the costs associated with the condition, as well as possibly prevent other illnesses.

1994/09

1994/01 00:00

NLM PUBMED CIT. ID:

7859246

SOURCE: Clin Ther 1994 Sep-Oct;16(5):873-97; discussion 854