

Healthcare Utilization and Costs in Narcolepsy: Findings from the Burden of Narcolepsy Disease (BOND) Study of 9,312 Patients in the United States

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BACKGROUND

- Narcolepsy is a highly disabling disease^{1,2}, yet surprisingly few studies of the economic and/or productivity burden of illness of narcolepsy have been conducted.
- Prior studies conducted in Denmark³, Canada and Germany⁴ reported substantial, burdensome, direct and indirect costs, as well as unemployment.
- We accessed a medical claims database of 7.1 million continuously insured persons (2006 to 2010) to evaluate healthcare utilization and costs in narcolepsy.

OBJECTIVE

- To characterize healthcare utilization, costs, and productivity in a large population of patients diagnosed with narcolepsy in the United States

METHODS

Subject selection

- Truven Health Analytics MarketScan[®] Research Databases
- Patients ≥18 years of age with at least one diagnosis code for narcolepsy ± cataplexy*
- Controls without narcolepsy matched 5:1 on age, sex, region, and payer
- Extensive subgroup analyses validated the population (see handout)

RESULTS

Study Population

- 55,871 subjects
 - 9,312 narcolepsy (20.3% with cataplexy; 59.2% women)
 - 46,559 matched controls
 - Mean (SD) age, 46.1 (13.3) years; range 18-93 years
- Productivity data available for 13.2% of subjects

Healthcare Utilization: Narcolepsy vs. Controls

- Significantly higher healthcare utilization (**Figure 1**)
- Significantly higher drug utilization (**Figure 2**)

Healthcare Costs: Narcolepsy vs. Controls

- Significantly higher annualized per patient costs (**Table 1**)

Short-term Disability: Narcolepsy vs. Controls

- Significantly higher short-term disability days per employee and associated costs (**Figure 3**)

CONCLUSIONS

- This study, using a highly validated database of more than 55,000 subjects, is the first comprehensive, nationwide evaluation of narcolepsy burden of illness in the United States.
- Narcolepsy is a highly disabling disease that incurs significant economic and productivity burden of illness.

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* ICD9 codes: 347.0, 347.00, 347.01, 347.1, 347.10 or 347.11; cataplexy identified by any occurrence of 347.01 or 347.11

Figure 1. Mean inpatient (IP), emergency (ED), and outpatient (OP) visits: per patient, per year. All comparisons p<0.0001, narcolepsy versus controls

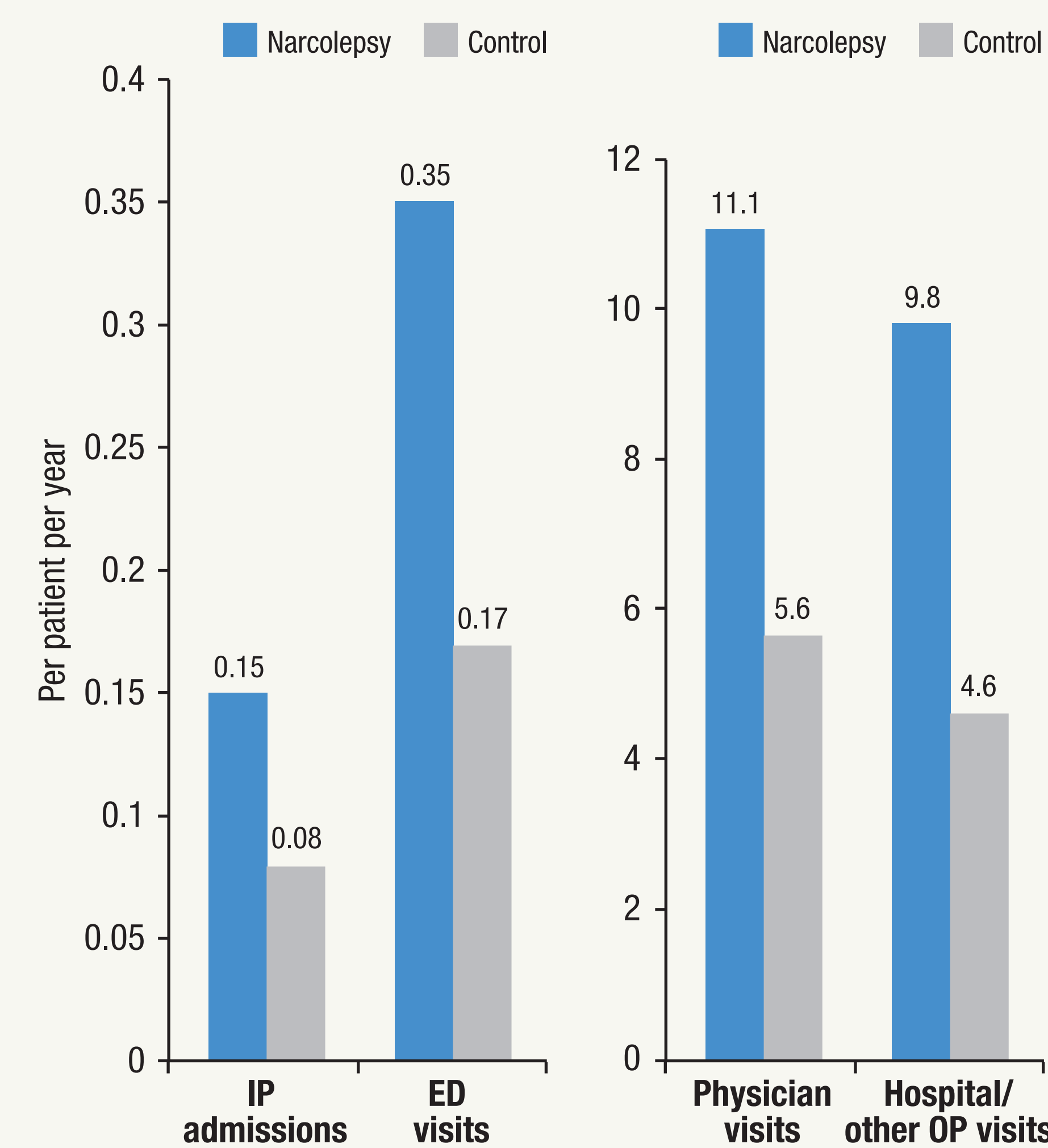
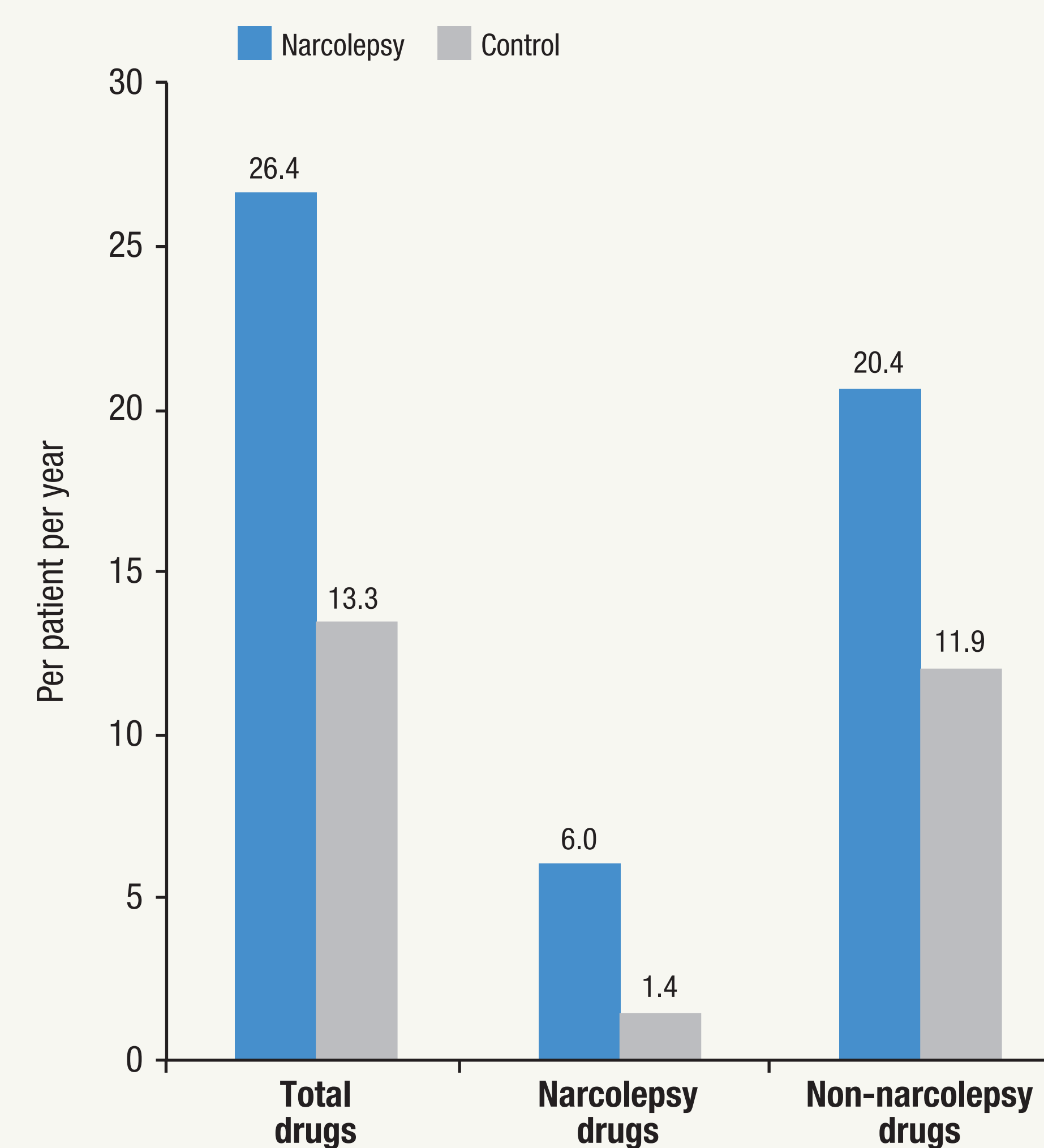


Figure 2. Prescription drug utilization: mean annual prescription drug transactions. All comparisons p<0.0001, narcolepsy versus controls



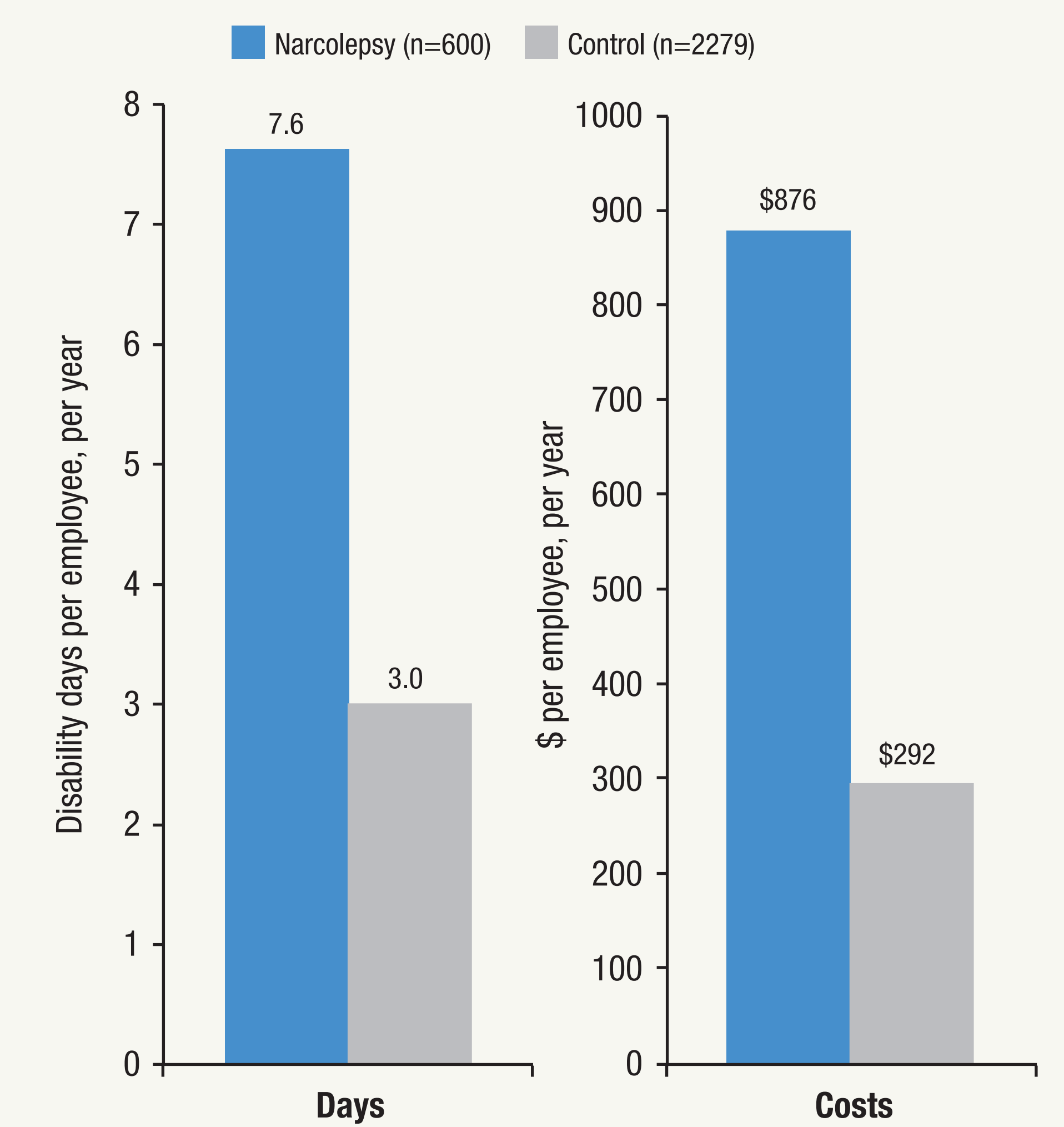
Narcolepsy drugs: stimulants, antidepressants, hypnotics, sodium oxybate, as cited in treatment guidelines^{5,6} for narcolepsy or associated conditions

Table 1. Healthcare service and drug costs^a: per patient, per year. All comparisons p<0.0001, narcolepsy versus controls

Mean health plan cost, per patient per year	Narcolepsy (n=9,312)	Controls (n=46,559)
Healthcare services	\$8,346	\$4,147
Inpatient admissions	\$2,274	\$1,242
ED visits w/o admission	\$504	\$232
Hospital OP visits	\$2,910	\$1,423
Other OP services	\$925	\$371
Physician visits	\$1,733	\$878
Prescription Drugs	\$3,356	\$1,114
Narcolepsy drugs	\$1,275	\$90
Non-narcolepsy drugs	\$2,081	\$1,024
Total	\$11,702	\$5,261

^aCosts were calculated from the health plan perspective as the total allowed cost per patient, averaged over the 5-year study period.

Figure 3. Short-term disability outcomes: mean days and costs per employee per year. All comparisons p<0.0001, narcolepsy versus controls



ABSTRACT

INTRODUCTION: Aside from recently published findings from the Danish National Patient Registry,³ comprehensive data on the burden of illness in narcolepsy are lacking.

METHODS: Truven Health Analytics MarketScan[®] Research Databases were accessed to identify individuals ≥18 years of age with ≥1 diagnosis code for narcolepsy ± cataplexy (ICD9 347.0, 347.00, 347.01, 347.1, 347.10 or 347.11) continuously insured between 2006 and 2010, and controls without narcolepsy matched 5:1 for age, gender, region, and payer.

RESULTS: The population included 9,312 narcolepsy subjects and 46,559 controls (each group, average age of 46.1 years and 59% female). Compared with controls, narcolepsy subjects had approximately 2-fold higher annual rates of inpatient admissions (0.15 vs 0.08), emergency department visits w/o admission (0.34 vs 0.17), hospital outpatient visits (2.8 vs 1.4), other outpatient services (7.0 vs 3.2), and physician visits (11.1 vs 5.6) (all p<0.0001). The rate of total annual drug transactions was doubled in the narcolepsy group vs controls (26.4 vs 13.3; p<0.0001), including a 337% and 72% higher usage rate of narcolepsy drugs and non-narcolepsy drugs, respectively (both p<0.0001). Mean annual costs were significantly higher in the narcolepsy group compared with controls for medical services (\$8,346 vs \$4,147; p<0.0001) and drugs (\$3,356 vs \$1,114; p<0.0001). Compared with employed control subjects (n=2279), employed subjects with narcolepsy (n=600) had a higher number of annualized short term disability days (7.6 vs 3.0), a greater number of short term disability incidents per employee (0.15 vs 0.07), and higher annual average short term disability costs (\$872 vs \$292) (all p<0.0001).

CONCLUSIONS: These findings confirm that narcolepsy is associated with substantial personal and economic burdens, as indicated by significantly higher rates of healthcare utilization and medical costs, and corroborate the data of Jennum et al (2012).³

