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Introduction



Hypertension (HTN) remains a major global public health concern, with up to ~80% of patients meeting the criteria for uncontrolled HTN (uHTN) despite multiple antihypertensive treatment options¹



uHTN is associated with increased comorbidity burden as well as prescription costs, as treatment with two or more antihypertensive drugs is required for the majority of patients^{2–4}



However, there is limited recent, real-world data on whether having uHTN is associated with higher healthcare resource utilisation (HCRU) compared to having controlled HTN (cHTN)

Objective



We aimed to evaluate HCRU by blood pressure control status across the USA, the UK, Spain and Israel

Methods



- EnligHTN is an observational, longitudinal, multi-country cohort study
- The study describes the characteristics, management, health outcomes, HCRU and costs of patients with HTN

Data sources

- Secondary de-identified claims data and electronic medical records (EMRs) of patients with HTN:

- USA:** IQVIA™ Ambulatory EMR-US linked with IQVIA PharMetrics® Plus Closed Health Plan claims
- UK:** Clinical Practice Research Datalink Aurum Database
- Spain:** Telotrón longitudinal EMR database
- Israel:** Meuhedet Health Services database

Patient eligibility criteria

- Aged ≥18 years
- A HTN diagnosis between 2018–2023 AND a first blood pressure (BP) measurement recorded while receiving ≥2 antihypertensive medications for ≥30 days (index date) and with ≥1 day of follow-up
- Patients were sorted based on control status
 - uHTN:** a first BP measurement **above BP target**^a
 - cHTN:** a first BP measurement **at or below BP target**
- Patients with a record of a secondary cause of HTN were excluded

^aSystolic and diastolic BP threshold of 130/80 mmHg for the USA and 140/90 mmHg for the UK, Spain, and Israel

Analysis

- For the USA, the UK, Spain, and Israel, annual per person admissions and emergency department, general practitioner (GP), nurse practitioner (NP), and specialist visits were assessed using negative binomial models or zero inflated gamma models adjusted for baseline patient characteristics and comorbidities through a risk score derived from random forest models. Minor adjustments to model specification were allowed to account for inherent distribution patterns in each dataset
- Adjusted annual mean healthcare expenditures were available and assessed for patients in the UK, Spain and Israel

Results

- A total of 247,472 patients received a diagnosis of HTN between 2018–2023 and were concurrently treated with ≥2 antihypertensive medications for at least 30 days; the majority of patients had uHTN (Figures 1–4)
- Full patient demographics and characteristics are available in **Supplemental Table 1**
- Across all 4 countries, uHTN was consistently associated with higher rates of hospitalisation and emergency department visits, as well as longer duration of hospital stay compared with cHTN (Figures 1–4)
- Adjusted annual event rates for inpatient and outpatient visits are available in **Supplemental Tables 2–5**
- GP visits were significantly higher in patients with uHTN versus cHTN in the USA, the UK and Spain; rate ratios (95% confidence interval [CI]) ranged from 1.04 (1.01, 1.08) to 1.58 (1.53, 1.63)
- Cardiologist visits among patients with uHTN were up to 4-fold higher than for those with cHTN; rate ratios ranged from 1.20 (1.12, 1.29) to 3.99 (3.72, 4.29)
- Annual adjusted expenditures varied by country, but were consistently higher in patients with uHTN compared to those with cHTN (Figures 2–4)

Figure 1. Demographics and characteristics and outpatient and inpatient event rates for patients from the USA with uHTN vs cHTN (N=41,994)

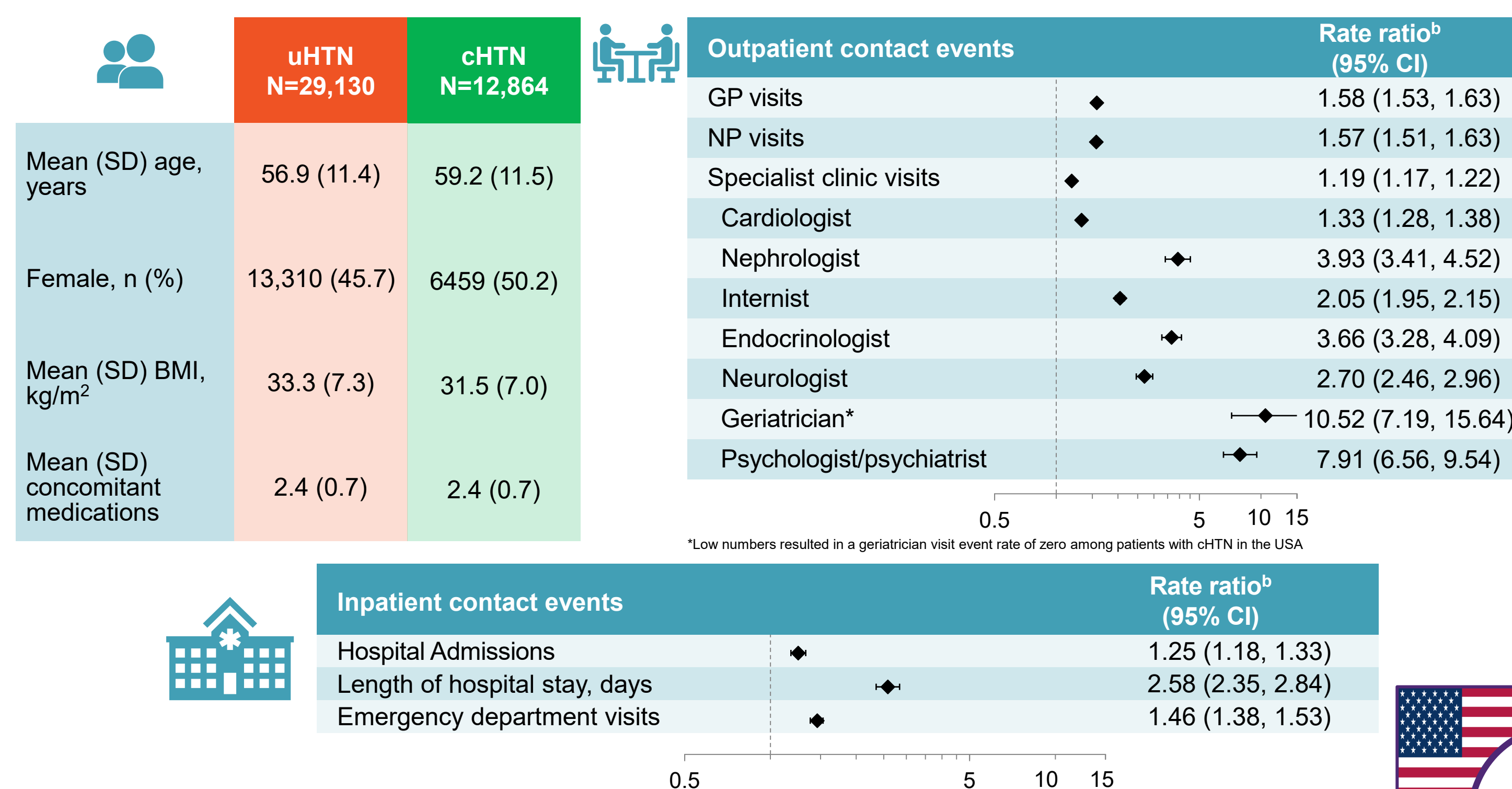


Figure 2. Demographics and characteristics, outpatient and inpatient event rates, and annual healthcare expenditures for patients from the UK with uHTN vs cHTN (N=184,187)

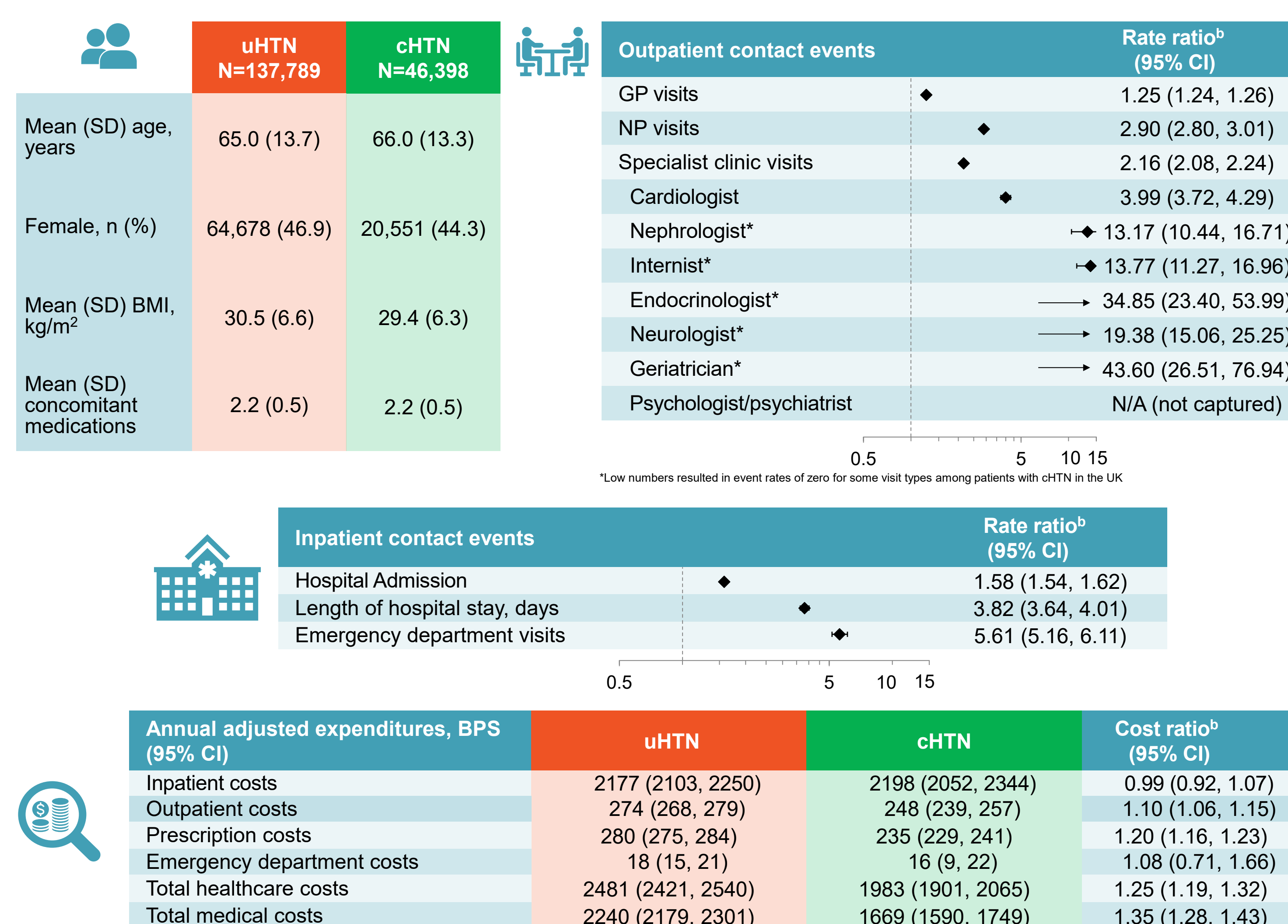


Figure 3. Demographics and characteristics, outpatient and inpatient event rates, and annual healthcare expenditures for patients from Spain with uHTN vs cHTN (N=13,030)

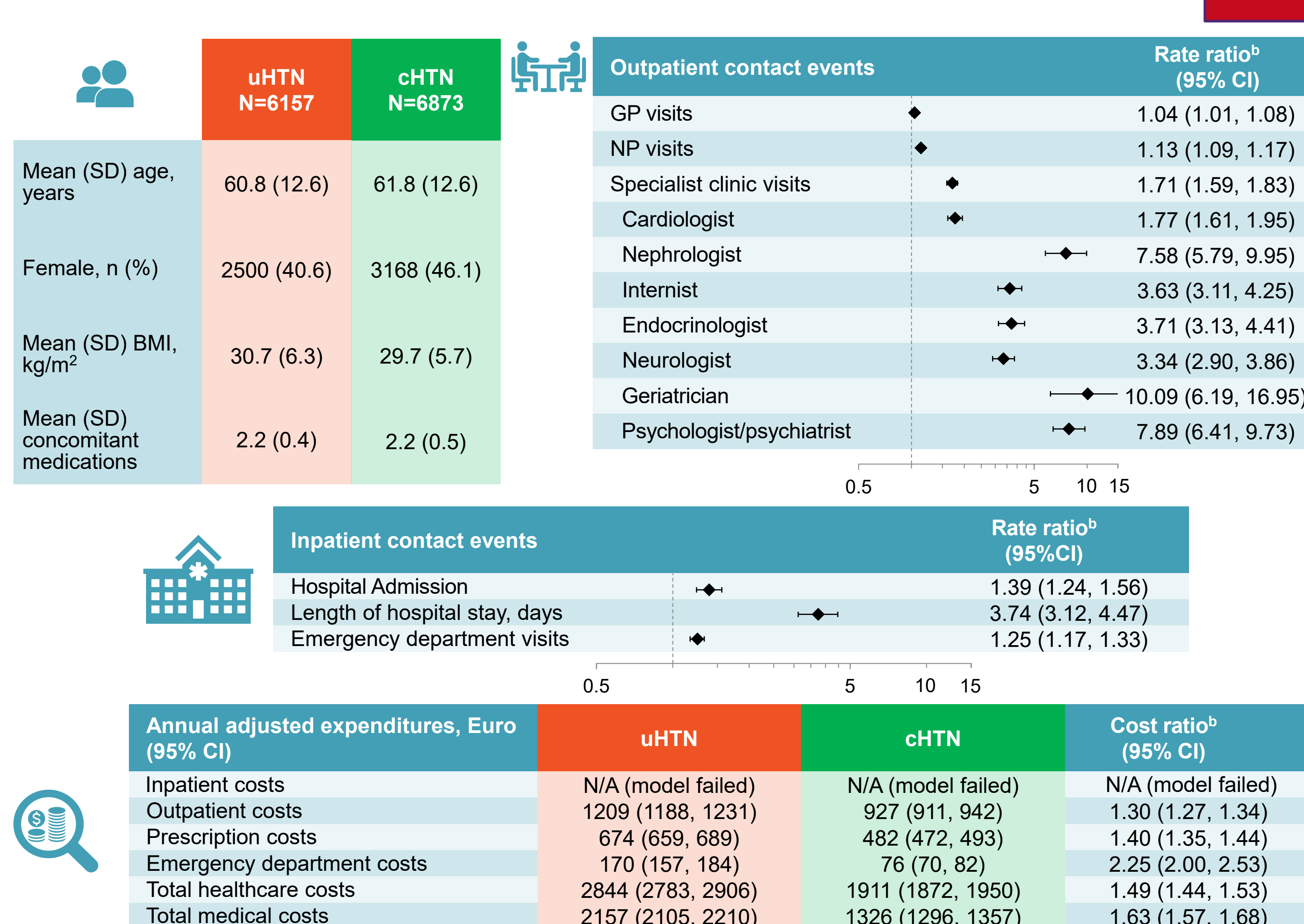
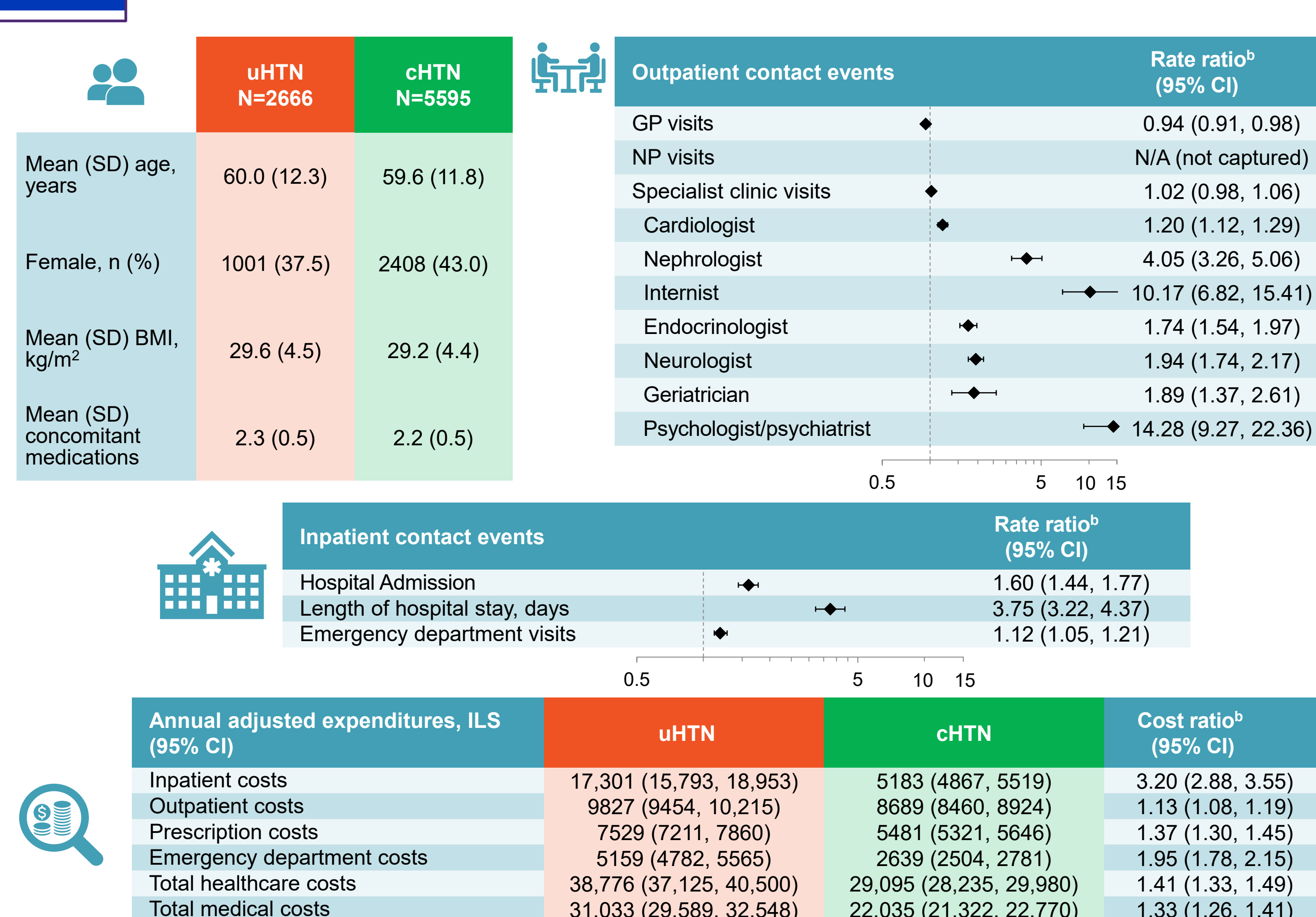


Figure 4. Demographics and characteristics, outpatient and inpatient event rates, and annual healthcare expenditures for patients from Israel with uHTN vs cHTN (N=8261)



Conclusions

- The majority of patients had uHTN, which was associated with a more substantial burden on healthcare resources compared to cHTN

- Patterns in HCRU varied across the countries examined — potentially attributable to by country differences in patient characteristics (e.g., age, comorbidity burden) and healthcare system factors (e.g., clinical practice, BP targets)

Abbreviations

BMI, body mass index; BP, blood pressure; BPS, British pound sterling; cHTN, controlled hypertension; CI, confidence interval; EMR, electronic medical record; GP, general practitioner (family doctor); HCRU, health care resource utilization; HTN, hypertension; ILS, Israeli shekel; N/A, not available; N/n, number of patients; NP, nurse practitioner; SD, standard deviation; uHTN, uncontrolled hypertension

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Poster

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Supplementary

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