

Background

- Chronic spontaneous urticaria (CSU) is characterised by the recurring spontaneous occurrence of itchy hives (wheals) or angioedema, or both, for over 6 weeks.^{1,2}
- CSU has a substantial impact on the quality of life (QoL) of patients, leading to impaired work productivity.² The compromised QoL of patients can have a significant impact on total costs and healthcare resources.^{2,3}
- Studies evaluating CSU burden have shown considerable variation across different geographies. Consequently, there exists an unmet need to synthesise evidence for a better understanding of the economic and humanistic burden of CSU.²

Objective

- The objective was to assess the economic and humanistic burden of CSU through a series of systematic literature reviews (SLRs) that evaluated the impact of CSU on costs, healthcare resource utilisation (HCRU) and health-related quality of life (HRQoL).

Methods

- The SLRs were conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and complied with the requirements of the National Institute for Health and Care Excellence (NICE)^{4,5} (**Figure 1**).
- MEDLINE, Embase, Cochrane Library, PsycINFO, EconLit, key conferences and websites of health technology assessment bodies were searched for randomised controlled trials and observational studies.
- All searches were conducted on 23 September 2021. For HCRU and costs, searches were performed from 2011 to 23 September 2021 whereas owing to limited evidence, no start date was set for records related to HRQoL and utilities.
- Studies assessing HCRU, costs, utility estimates or HRQoL (including studies describing instruments that can be mapped to utility weights) in patients (aged ≥ 12 years) with CSU (stratified by disease severity [if reported]) were included.
- Data for patients with CSU in Europe, Canada and the United States (US) were highlighted in this poster. Cost data reported by the included studies were converted to 2021 US dollars (USD) based on data from the World Bank.

Results

- Overall, 27 publications (Europe: 15; US: 7; other countries: 4; multinational: 1) on costs and HCRU and 75 publications (Europe: 36; US: 4; Asia/Middle East: 23; multinational: 12) on HRQoL and utilities were included (**Figure 1**).
- The categories and geographical distribution of all included studies were presented in **Figure 2**.

Figure 1. Study selection process flow diagram

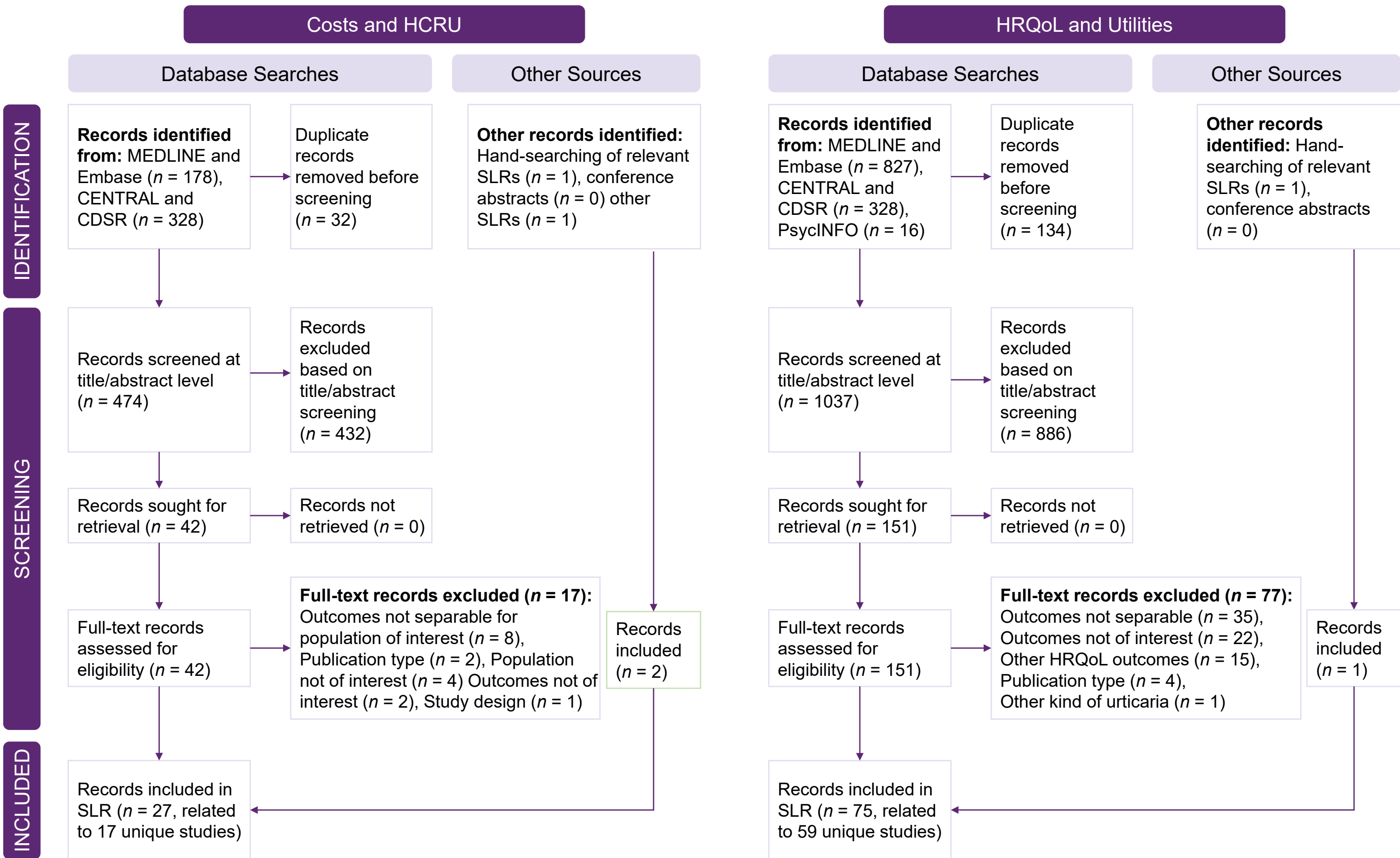
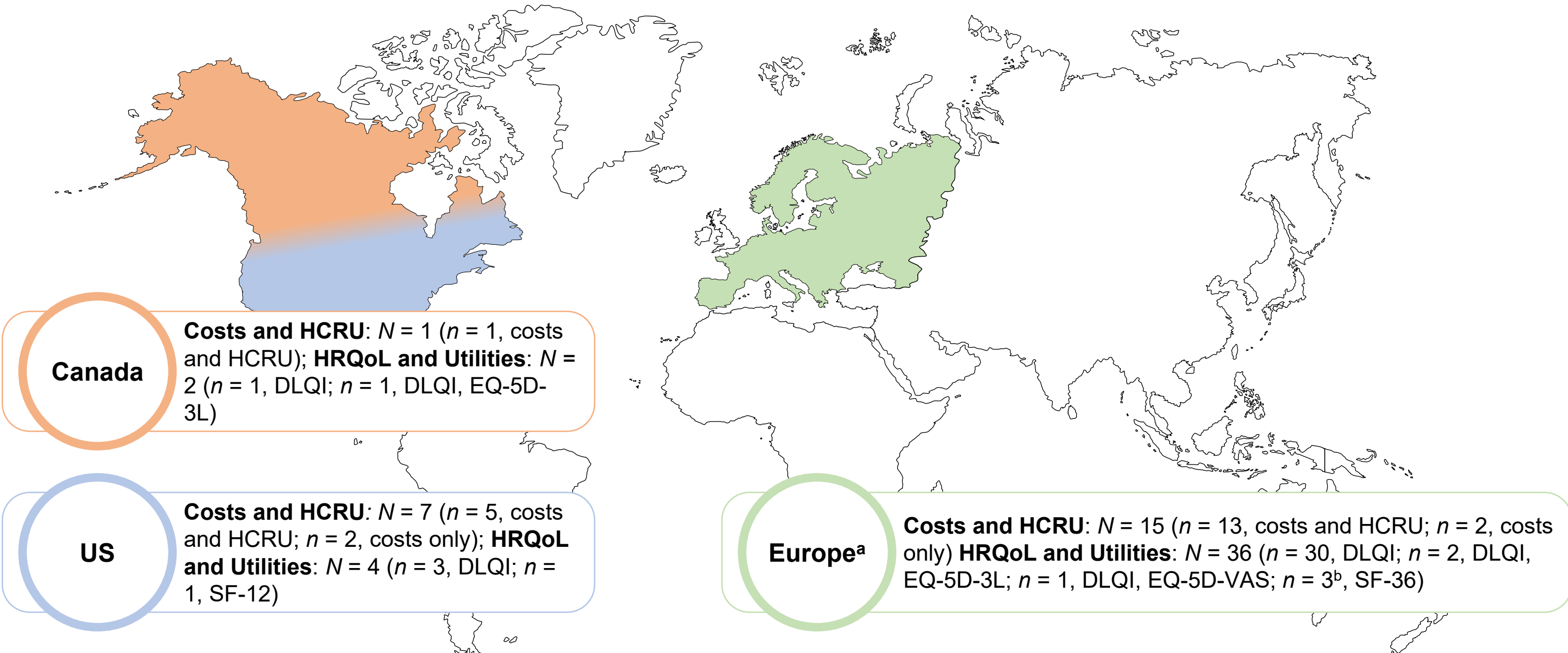


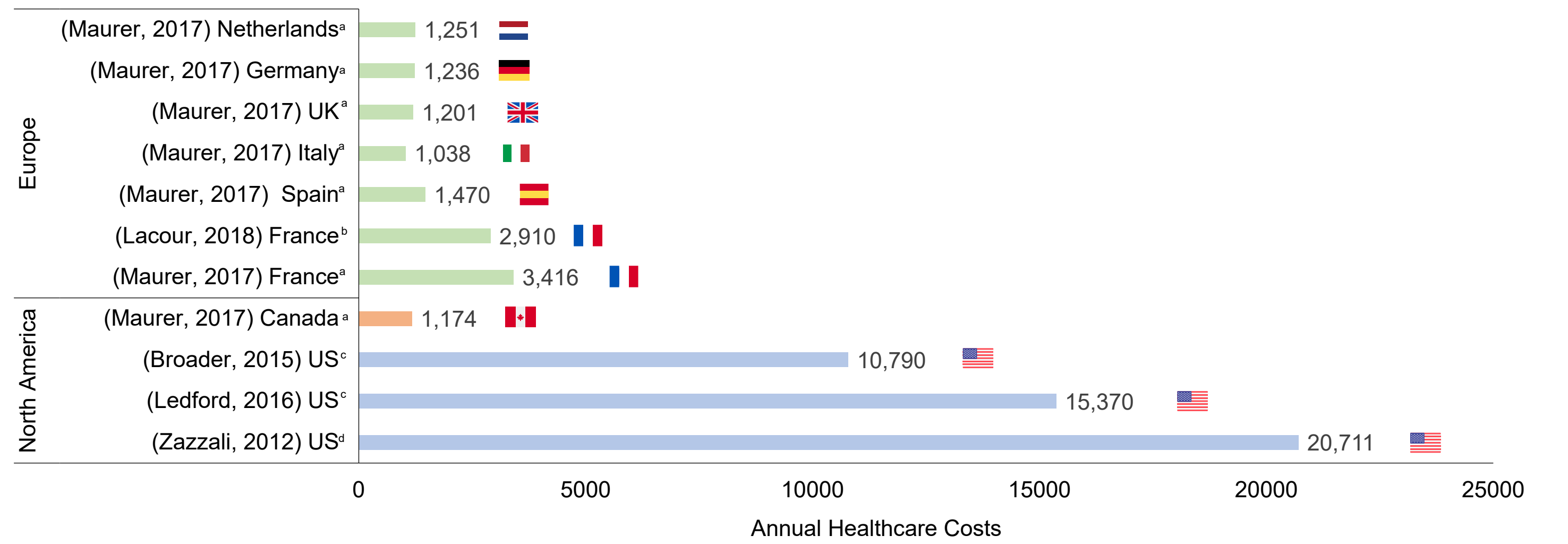
Figure 2. Categorical distribution of all included studies by geographical area



Economic Burden: Direct Costs and HCRU

The annual mean direct costs for CSU in Europe ranged from \$1,038 (Italy) to \$3,416 (France), whereas Canada reported a total mean annual direct cost of \$1,174. In the US, the total mean annual healthcare costs ranged from \$10,790 to \$20,711 (**Figure 3**).

Figure 3. Mean healthcare costs for CSU in Europe and North America (converted to 2021 US dollars) calculated annually



- Among patients with CSU, there were a wide range of at least one prior hospitalisation, one emergency department (ED) visit, one outpatient visit and one allergist/dermatologist visit (**Table 1**).

Table 1. Proportion of patients with CSU that experience at least one healthcare visit

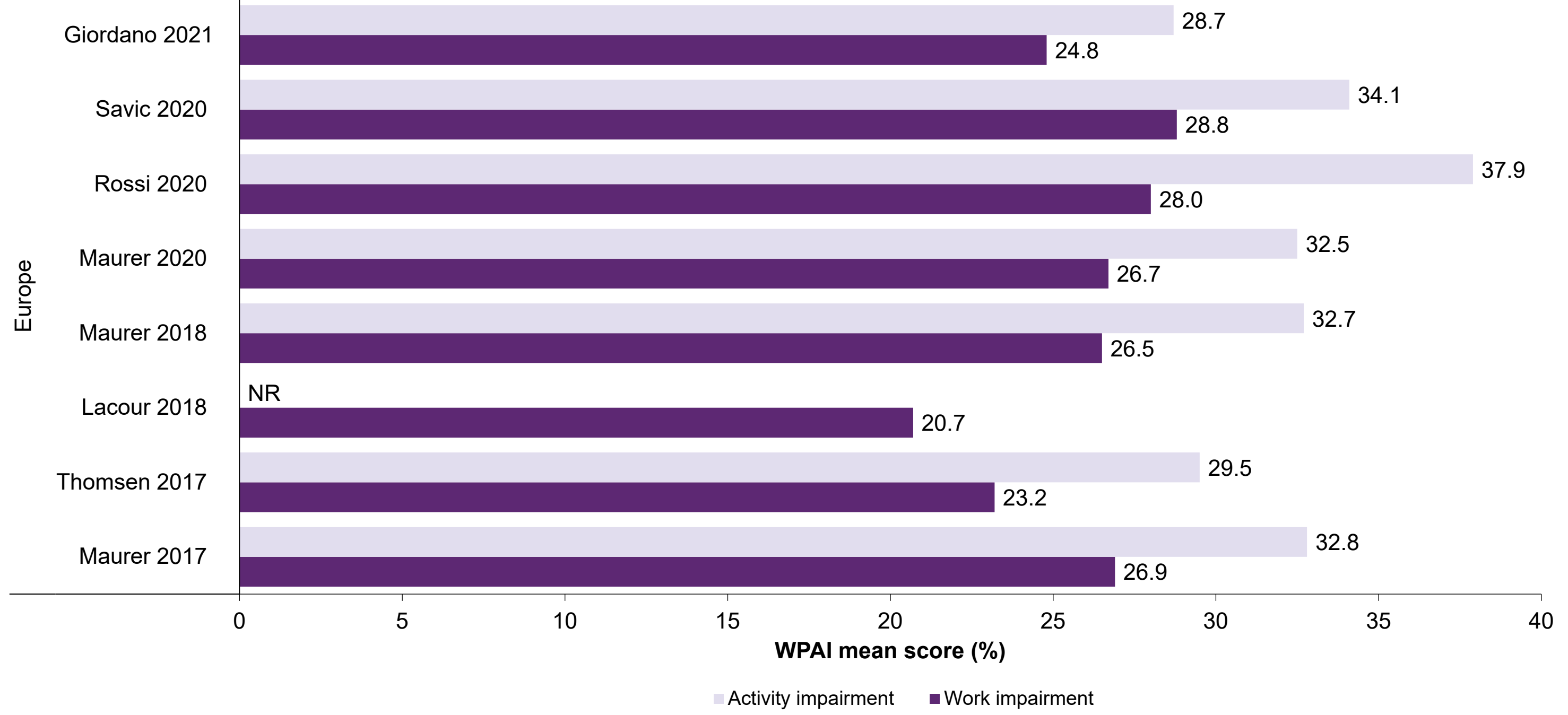
Study author (year)	Any prior hospitalisations (%)	Any prior ED visits (%)	Any prior outpatient visit (%)	Any prior specialist visit (%)
Europe				
Gimenez-Arnau 2016	NR	71.1 ^a	60.5 ^a	NR
Maurer 2017A	8.2	14.4	71.9	50.7
Thomsen 2017	12.4 ^b	27.5 ^b	26.7 ^b	68.6 ^{c,d}
Maurer 2017B	30.3	29.7	71.9 ^a	50.7 ^{c,d} 32.5 ^f
Lacour 2018	26.7	15.8	69.3 ^e 49.5 ^{e,g}	47.5 ^c 19.2 ^{d,g}
Maurer 2018	21.9 ^b	29.3 ^b	57.3 ^{b,e}	47.3 ^{b,c,d}
Guillet 2019	9.6	24.7	80.8 ^a	43.8 ^{c,d} 24.7 ^f
Costa 2019	5.3 ^a	51.3 ^a	50.0 ^{a,e}	39.5 ^{a,c,f}
Maurer 2020	24.2 ^h	33.5 ^h	65.0 ^{a,h}	53.1 ^{c,d,h}
Rossi 2020	22.8 ^a	44.6 ^a	48.7 ^{a,h}	43.5 ^h 61.1 ^{c,d,h}
Savic 2020	12.3 ^a	33.8 ^a	84.1 ^{a,e}	25.1 ^{a,f} 41.0 ^{a,c,d}
US				
Broder 2015	7.3	15.9	15.1 ^{a,e}	NR
Vietri 2015	16.7 ⁱ	26.3 ⁱ	95.6 ^{b,e,i} 65.6 ^{b,e,i}	23.0 ^{c,d}
Hoskin 2019 (Adelphi Real World Urticaria Disease Specific Programme)	0.54	NR	41.0 ^a	54.0 ^{c,d}
Canada				
Gatley 2016	NR	4.0 ^j	14.0 ^j	NR

Data were reported prior to 12 months of baseline unless otherwise specified.
^aRefers to healthcare visit at least once in a lifetime. ^bRefers to healthcare visit at least two months prior to baseline. ^cDermatologist visit. ^dAllergist visit. ^eHCP/PCP/GP visits. ^fSpecialised urticaria centres. ^gRefers to healthcare visits three months prior to baseline. ^hRefers to healthcare visits at baseline. ⁱRefers to healthcare visits six months prior to baseline. ^jRefers to healthcare visits one month prior to baseline. All studies from Europe represent only H1-AH-refractory CSU patients.
CSU, chronic spontaneous urticaria; ED, emergency department; GP, general practitioner; HCP, healthcare practitioner; H1-AH, H1 antihistamines; NR, not reported; PCP, primary care practitioner.

Indirect Costs

- A substantial loss in productivity, measured in terms of overall work and activity impairment, was reported that ranged from 20.7%–28.8% and 28.7%–37.9%, respectively (**Figure 4**). In Europe, the mean 4-week cost (2021 USD) of absenteeism ranged from \$45 (Italy) to \$314 (Germany) while mean 4-week cost (2021 USD) of presenteeism ranged from \$545 (France) to \$1,180 (Germany).²
- Proportion of sick leaves in Europe and Canada ranged from 1.2%–26.8% and 71.0% respectively. Mean sick leave duration in Europe ranged from 3.8 weeks–17.5 weeks; 21.9% missed ≥ one hour of work of which 37.5%–62.5% missed ≥ one day of work.
- Mean presenteeism and absenteeism reported using work productivity and activity impairment (WPAI) questionnaire ranged from 20.6%–25.2% and 3.7%–7.3%, respectively.

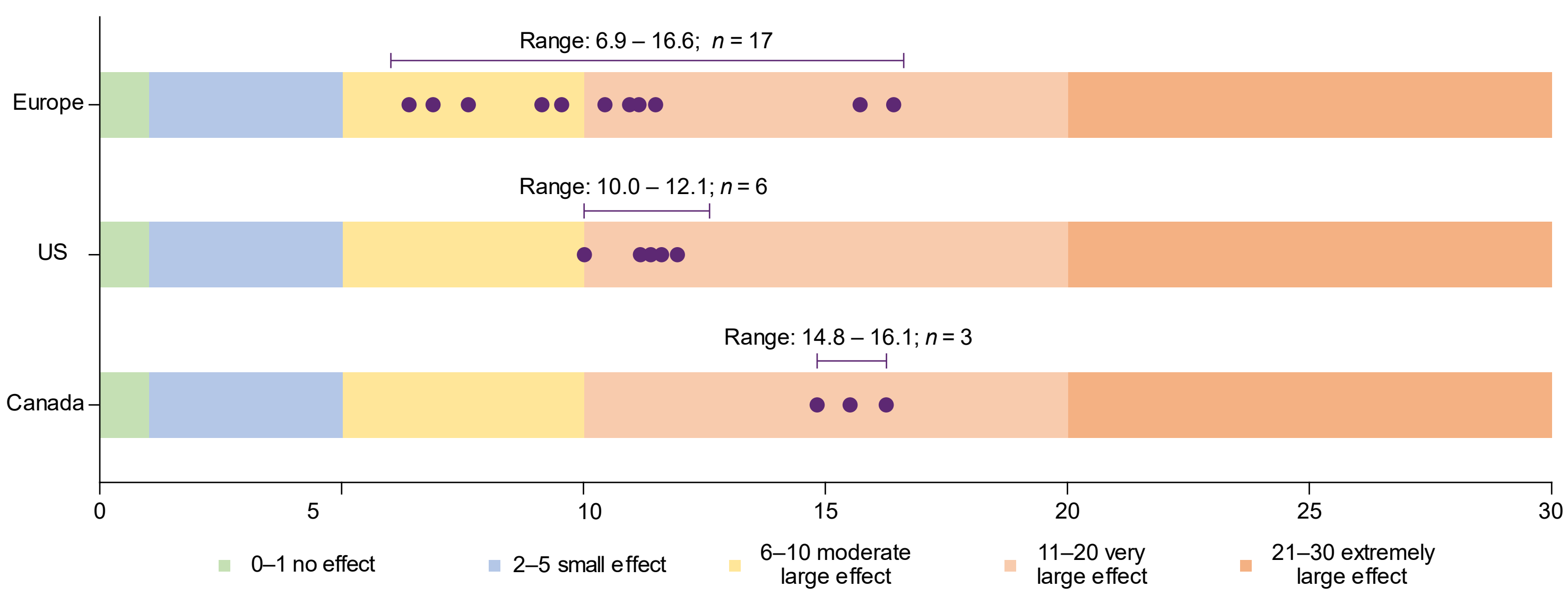
Figure 4. Productivity losses among patients with CSU in the form of work and activity impairment



Humanistic Burden: HRQoL and Utilities

- Baseline mean Dermatology Life Quality Index (DLQI) scores (range: 6.9–16.6 [scale: 0–30; high scores indicate greater impairment]) indicated the impairment of QoL in CSU patients. (**Figure 5**).
- In a UK study using the Urticaria Activity Score over 7 days to derive health states, the estimated EQ-5D–3L scores ranged from 0.710 (severe urticaria) to 0.894 (urticaria-free).⁸ Only one study highlighted the baseline EQ-5D score (0.66).⁷

Figure 5. Mean DLQI scores of patients with CSU




^aData for Canada were included from multiregional studies. n denotes total number of DLQI scores reported from studies belonging to Europe, US and Canada. Each circle corresponds to DLQI scores from studies belonging to Europe, US and Canada.
CSU, chronic spontaneous urticaria; DLQI, Dermatology Life Quality Index; US, United States.

Conclusions

- This SLR highlights the economic and humanistic burden of CSU that varies with patient population and geographies.
- Wide range in HCRU, especially hospitalisations and specialist visit, could be attributed to varying disease severity and regional variations in healthcare infrastructure and access.
- These data offer insights regarding the significant impact of disease on patients; an understanding of CSU burden is essential to advancing the standard of care and improving patient outcomes.
- Global studies with standardised methodology capturing data across different geographical regions are warranted to facilitate meaningful country-to-country comparisons.

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CONFLICTS OF INTEREST

CC, MP, and JT: Sanofi — employees, may hold stock and/or stock options in the company.
RB: Regeneron Pharmaceuticals — employee, may hold stock and/or stock options in the company.
LD: Aixial — employee, paid consultant for Sanofi.
HB and SY: Evidera — employees and received research funding from Sanofi to perform this study.
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