

# Treatment Patterns, Healthcare Resource Utilization, and Direct Medical Costs of Chronic Urticaria in China: A Real-World Study

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## INTRODUCTION

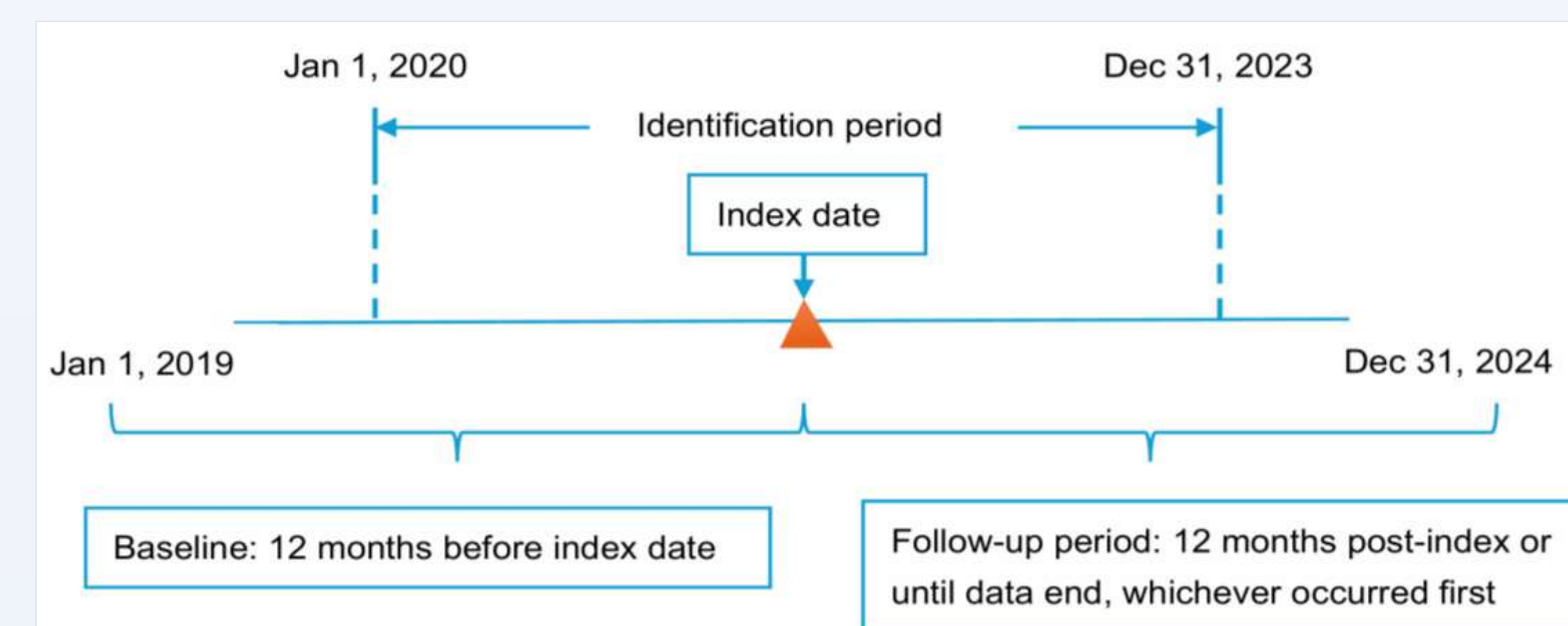
- Chronic urticaria (CU), defined as recurrent wheals and/or angioedema lasting >6 weeks, includes chronic spontaneous urticaria (CSU) and chronic inducible urticaria (CIndU) <sup>1,2</sup>.
- CU imposes a substantial clinical and humanistic burden. In China, the weighted prevalence of CU among adults was reported to be 2.6%<sup>3</sup>, and persistent symptoms can impair daily functioning and health-related quality of life<sup>4,5</sup>.
- International and Chinese guidelines recommend standard-dose second-generation H1-antihistamines (sgH1-AHs) as first-line therapy for CU, with up dosing up to fourfold in case of inadequate symptom control<sup>1,2</sup>.
- For uncontrolled CSU despite antihistamine up dosing, 2026 updated international guidelines recommend add-on therapies including omalizumab, dupilumab, and remibrutinib<sup>1</sup>.
- Real-world evidence on CU treatment patterns, healthcare resource utilization (HRU), and direct medical costs in mainland China remains limited, particularly following the approval and reimbursement of omalizumab for CSU in April 2022 and its reimbursement listing from 2023 onward.

## OBJECTIVES

- To characterize treatment patterns, HRU, and direct medical costs among patients with CU in mainland China using large regional healthcare databases.

## METHODS

Figure 1. Study design and timeline

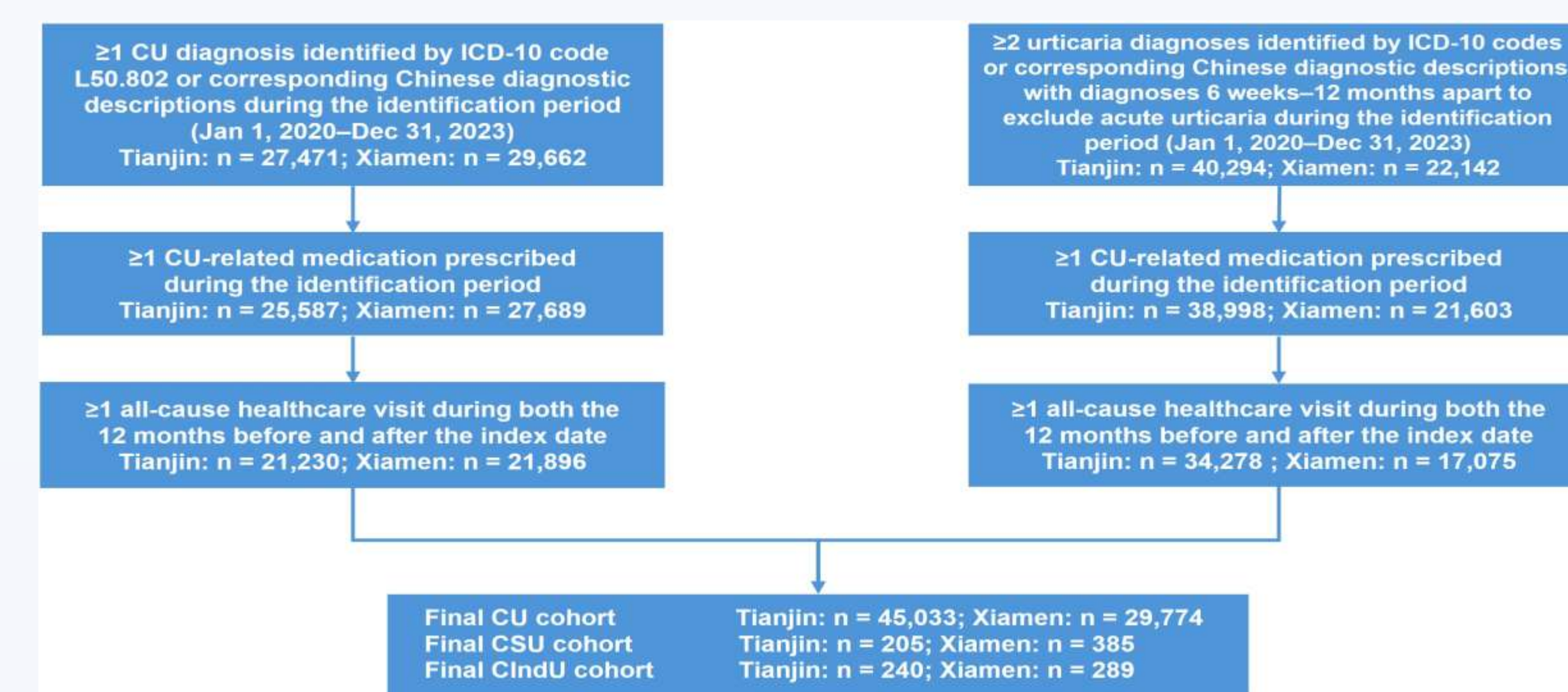


- This retrospective observational study used regional electronic healthcare databases from Tianjin and Xiamen (2019-2024).
- Patients were identified between January 2020 and December 2023 using ICD-10 code (L50.802) and corresponding Chinese diagnostic descriptions, or ≥2 urticaria diagnoses 6 weeks to 12 months apart to exclude acute urticaria.
- Patients were also required to meet the following criteria:
  - At least one CU-related pharmaceutical prescription during the identification period, where the study medication list was determined based on guideline recommendations and expert consultation and excluded traditional Chinese medicine (TCM);
  - At least one all-cause medical visit within both the 12-month baseline period and the 12-month follow-up period.
- Patients with missing age, sex, or unique patient identifiers, or with substantial gaps in baseline or follow-up records, were excluded.
- Demographics, treatments, healthcare resource utilization, and costs were analyzed descriptively in the overall CU population, and stratified by disease subtype.
- Unless otherwise specified, outcomes were assessed during the first 12 months following the index date. Exceptions included baseline characteristics and omalizumab dosing patterns, which were evaluated separately.

## RESULTS

### ↑ Patient Population

Figure 2. Flowchart of patient selection for the CU cohort



Note: CSU was identified by spontaneous/idiopathic urticaria descriptions or repeated L50.1 diagnoses 6 weeks–12 months apart; CIndU was identified by inducible urticaria descriptions or repeated inducible urticaria diagnoses 6 weeks–12 months apart.

- A total of 74,807 patients with CU were included, including 45,033 from Tianjin and 29,774 from Xiamen.

Table 1. Patient Characteristics

Characteristic	Tianjin Database	Xiamen Database
	CU, N = 45,033	CU, N = 29,774
Age at (years), Mean ± SD [Median]	40.85 ± 21.00 [40.00]	37.59 ± 20.09 [37.00]
Age group, n (%)		
0–17	6,954 (15.44%)	5,320 (17.87%)
18–29	5,463 (12.13%)	4,630 (15.55%)
30–49	16,418 (36.46%)	11,644 (39.11%)
50–64	9,518 (21.14%)	5,061 (17.00%)
65–74	4,866 (10.81%)	2,000 (6.72%)
≥ 75	1,814 (4.03%)	1,119 (3.76%)
Female, n (%)	24,598 (54.62%)	17,036 (57.22%)
Smoking, n (%)	2,503 (5.56%)	930 (3.12%)
Drinking, n (%)	2,475 (5.50%)	532 (1.79%)
CCI score, Mean ± SD	0.46 ± 1.08	0.36 ± 0.93
Comorbidities, n (%)		
Upper respiratory tract infection	8,724 (19.37%)	7,581 (25.46%)
Dyslipidemia	5,667 (12.58%)	2,356 (7.91%)
Sleep difficulties	4,652 (10.33%)	1,941 (6.52%)
Diabetes mellitus	3,949 (8.77%)	1,554 (5.22%)
Allergic rhinitis	3,903 (8.67%)	2,047 (6.88%)

- Mean age at diagnosis was 40.85 years in Tianjin and 37.59 years in Xiamen, with females accounting for 54.62% and 57.22%, respectively.
- Upper respiratory infections and sleep disturbance were the most common comorbidities (Tianjin: 19.37% and 10.33%; Xiamen: 25.46% and 6.52%).
- Treatment patterns
  - Second-generation H1-antihistamines were used in over 90% of patients and constituted the primary therapy.
  - The most commonly prescribed agents included ebastine, levocetirizine, and epinastine, with regional variation observed between Tianjin (ebastine 42.49%, levocetirizine 39.62%) and Xiamen (ebastine 56.44%, epinastine 24.27%).
  - Monotherapy predominated, particularly sgH1-AH monotherapy (Tianjin: 73.30%; Xiamen: 67.00%). Combination therapy was less frequent and mainly involved multiple sgH1-AHs. The most common combinations were levocetirizine plus ebastine in Tianjin (9.87%) and ebastine plus epinastine in Xiamen (9.35%).

### 🪄 Omalizumab use

Table 2. Single-administration dose of omalizumab per visit

Single-dose (mg)	Tianjin Database (since Jan 1, 2024)		Xiamen Database (since Jan 1, 2024)	
	CU, N = 674	CSU, N = 167	CU, N = 1,047	CSU, N = 688
150	128 (18.99%)	25 (14.97%)	46 (4.39%)	5 (0.73%)
300	499 (74.04%)	141 (84.43%)	956 (91.31%)	647 (94.04%)
≥450	47 (6.97%)	1 (0.60%)	45 (4.3%)	36 (5.23%)

- Omalizumab was prescribed for 573 (Tianjin) and 399 (Xiamen) patients, primarily at 300 mg.
- Following reimbursement listings of omalizumab powder for injection in 2023 and omalizumab injection in 2024, the 300 mg dose accounted for 74.04% (Tianjin) and 91.31% (Xiamen) of administrations overall at the visit level, with 84.43% and 94.04% in the CSU subgroup.

Table 3. Average annual number of omalizumab units per patient

Number of vials (150 mg/vial)	Tianjin Database (since Jan 1, 2024)	Xiamen Database (since Jan 1, 2024)
	CU, N = 199	CU, N = 266
Mean ± SD	9.10 ± 10.53	8.17 ± 6.32

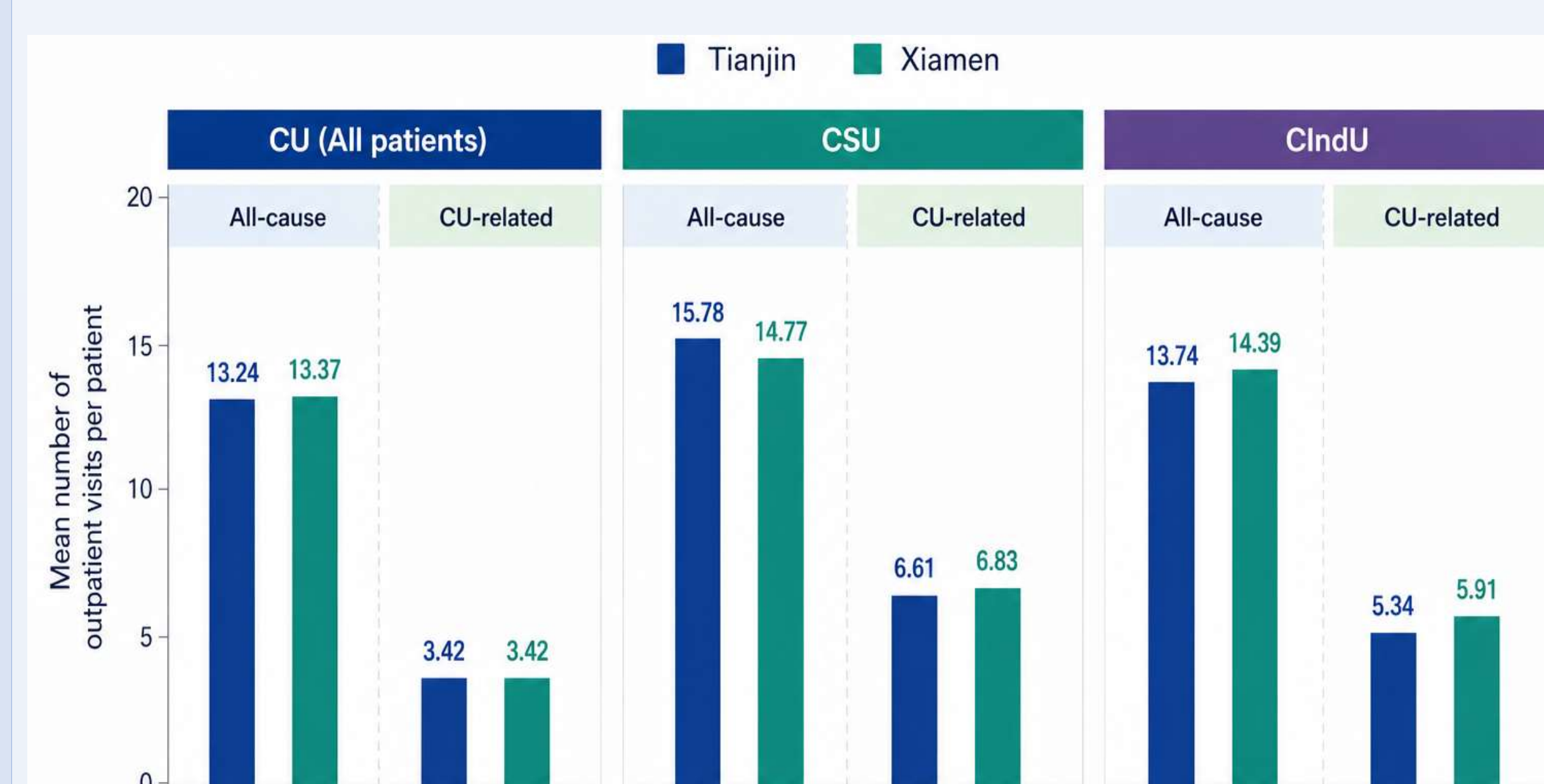
- The mean yearly number of vials utilized per patient was 9.10 in Tianjin and 8.17 in Xiamen, assuming 150 mg per vial.
- When analyses were restricted to visits with CU as the primary diagnosis, the corresponding mean yearly numbers of vials per patient were 6.78 in Tianjin and 7.98 in Xiamen.

### 🔄 Second-generation H1-antihistamines Use

- Mean daily dosages of most sgH1-AHs were comparable to average daily dosages were generally comparable to the World Health Organization defined daily doses (WHO DDDs).
- Higher observed dosages were noted for acrivastine, ebastine, and olopatadine, whereas lower dosages were observed for cetirizine in Tianjin and desloratadine in Xiamen.

### 🏠 HRU

Figure 3. All-cause and CU-related outpatient visits



- During the first year of follow-up, CU-related outpatient visit rates were high in both Tianjin (96.98%) and Xiamen (97.78%), whereas hospitalization rates were low (2.98% and 1.39%, respectively).
- The mean annual number of CU-related outpatient visits was 3.42 per patient in both regions, and the mean annual number of hospitalizations was below 0.1 per patient.
- The mean annual number of CU-related outpatient visits was 6.61 for CSU and 5.34 for CIndU in Tianjin, and 6.83 for CSU and 5.91 for CIndU in Xiamen.

### 💰 Costs

Table 4. All-cause and CU-related direct medical costs

Direct medical costs	Tianjin Database	Xiamen Database
	CU, N = 45,033	CU, N = 29,774
All-cause		
Mean annual total cost per patient (CNY), Mean ± SD[Median]	6,835.97 ± 18,149.58 [2,774.02]	4,879.92 ± 18,887.32 [1,689.00]
Mean annual outpatient cost per patient (CNY), Mean ± SD[Median]	4,274.85 ± 7,792.21 [2,539.09]	3,101.07 ± 7,253.56 [1,609.10]
Mean annual inpatient cost per patient (CNY), Mean ± SD[Median]	2,561.12 ± 14,869.09 [0.00]	1,778.85 ± 16,825.07 [0.00]
Composition of mean annual total costs (CNY), Mean (%)		
Drug costs	3,103.08 (45.4%)	1,284.70 (26.3%)
Examination costs	1,578.70 (23.1%)	770.60 (15.8%)
Treatment costs	939.10 (13.7%)	1,367.50 (28.0%)
Bed costs	134.50 (2.0%)	0.59 (0.0%)
Surgical costs	269.85 (3.9%)	115.50 (2.4%)
Other costs	810.74 (11.9%)	1,339.00 (27.4%)
Mean cost per visit (CNY), Mean ± SD[Median]	532.45 ± 3,001.01 [195.92]	366.51 ± 3,557.24 [139.74]
Mean cost per outpatient visit	347.56 ± 630.63 [200.91]	236.17 ± 410.50 [138.50]
Mean cost per inpatient admission	14,078.05 ± 20,552.22 [9,639.14]	12,798.96 ± 32,254.56 [6,413.66]
CU-related		
Mean annual total cost per patient (CNY), Mean ± SD	1,625.99 ± 7,476.62 [677.02]	905.77 ± 6,128.74 [354.90]
Mean annual outpatient cost per patient (CNY), Mean ± SD[Median]	1,028.95 ± 1,483.48 [642.52]	644.91 ± 1,178.11 [344.25]
Mean annual inpatient cost per patient (CNY), Mean ± SD[Median]	596.57 ± 7,325.94 [0.00]	260.80 ± 6,017.36 [0.00]
Composition of mean annual total costs (CNY), Mean (%)		
Drug costs	893.29 (54.9%)	322.90 (35.6%)
Examination costs	390.35 (24.0%)	125.10 (13.8%)
Treatment costs	172.64 (10.6%)	255.60 (28.2%)
Bed costs	45.35 (2.8%)	0.05 (0.0%)
Surgical costs	17.83 (1.1%)	7.97 (0.9%)
Other costs	106.18 (6.5%)	193.80 (21.4%)
Mean cost per visit (CNY), Mean ± SD[Median]	446.11 ± 2,919.67 [202.05]	260.55 ± 2,047.29 [123.80]
Mean cost per outpatient visit	286.51 ± 347.78 [200.13]	186.70 ± 262.19 [123.01]
Mean cost per inpatient admission	13,240.47 ± 22,676.82 [9,732.33]	12,605.91 ± 23,245.07 [6,688.61]

- For all-cause direct medical costs, the mean annual expenditure per patient was higher in Tianjin than in Xiamen (CNY 6,835.97 vs. CNY 4,879.92).
- The mean annual CU-related cost per patient was higher in Tianjin than in Xiamen (CNY 1,625.99 vs. CNY 905.77). Medication costs constituted the largest component of direct medical costs in both regions (Tianjin: 54.9%; Xiamen: 35.6%).
- Mean annual CU-related medical costs were CNY 5,662.97 for CSU and CNY 2,194.21 for CIndU in Tianjin, and CNY 4,194.97 for CSU and CNY 1,510.21 for CIndU in Xiamen.

## CONCLUSIONS

- CU management in China was largely guideline-concordant, with sgH1-AHs as the cornerstone therapy.
- Healthcare utilization was predominantly outpatient-based, and medication costs were the main cost driver. Patients with CSU exhibited higher healthcare utilization and economic burden than the overall CU population.
- Following omalizumab reimbursement, uptake of the recommended 300 mg regimen increased.
- These findings provide contemporary real-world evidence and highlight the need to optimize long-term management for patients with suboptimal disease control.

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## Acknowledgments

The authors thank the Tianjin and Xiamen healthcare database providers for access to the data used in this study.

## Disclosures

This study was funded by Novartis (China) Pharmaceuticals Co., Ltd. The study was independently conducted by China Pharmaceutical University.

Presented at ISPOR 2026, Philadelphia, PA, USA, May 17–20, 2026