Epinephrine is a frequently prescribed medication for severe allergic reactions, particularly for the treatment of anaphylaxis. However, despite its critical role in managing these life-threatening events, multiple studies have highlighted a common theme that epinephrine is underused in practice. This underuse can be attributed to a variety of factors, including safety concerns, medication costs, and anxiety related to autoinjector use. The prompt delivery of epinephrine is recognized as the only first-line treatment for patients with severe allergic reactions (Type I) including anaphylaxis.

The study used data from two sources: patient preferences related to use of EAIs and barriers related to EAI education. The study aimed to understand patient characteristics, physician and patient preferences related to use of EAs and barriers related to EAI use.

### METHODS

- The study used data from two sources: patient and physician preferences.
- A retrospective analysis using patient level real-world data from US claims databases conducted over a 6-year period (07/2014-06/2019).
- The study sample included patients with a documented SAR (diagnosis of serious allergy) and EAI prescription claims.
- A 2-year look back period was used to define prior SAR and product use.
- Patient demographics included age, sex, and race.
- Physicians included Allergists/Immunologists, ER Physicians, and Pediatricians.

### RESULTS

**Findings from claims data analysis-Patient Characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients</td>
<td>100%</td>
</tr>
<tr>
<td>With anaphylaxis</td>
<td>49%</td>
</tr>
<tr>
<td>Single episode</td>
<td>100%</td>
</tr>
<tr>
<td>Multiple episodes</td>
<td>57%</td>
</tr>
<tr>
<td>Median age</td>
<td>40 years</td>
</tr>
<tr>
<td>Median income</td>
<td>$100,000</td>
</tr>
</tbody>
</table>

- Nearly half the patients with anaphylaxis (49%) only had a single anaphylactic reaction visit in a period of 3 years, but on average, they had more reaction visits per patient compared to anaphylaxis patients (Figure 2).
- About 77% of patients with SAR were treated with 0.3 mg/0.3 mL epinephrine; however, in-office epinephrine treatment was relatively higher among patients who experienced anaphylactic shock, angioedema edema, and allergic urticaria.

**Findings from Self-Reported Physician/Patient Surveys**

- Overall, 100 physicians and 250 patients/patients participated in the study in 2019. Based on the self-reported data, the majority of initial epinephrine prescriptions for patients with Type I allergies was made by allergists (Figure 5); the majority of EAI prescriptions were written by allergists as well (Figure 6).

- Physicians indicated that 25-34% of risk patients do not get an EAI prescription due to out-of-pocket costs and fear of misunderstanding by the patient, which is cited as the most common reason not being able to prescribe an EAI (Figures 6a and 6b). Similar findings (attributes) were obtained from conjoint analysis.

### CONCLUSIONS

Despite the severity of the conditions, timely and appropriate epinephrine treatment with EAIs among patients with SAR is often delayed or avoided. When prescribed, EAIs are generally used for treating more severe symptoms of anaphylaxis. Allergists appear to play a key role in a patient’s treatment journey, typically first to prescribe the initial epinephrine treatment most often compared to primary care physicians. Physicians suggested barriers to epinephrine prompt to immediately address allergic reactions and avoid progression to a life-threatening event. Physician as well as patient preferences can impact utilization as well as adherence to epinephrine treatment for SAR, which can eventually impact clinical outcomes. Patient education is also warranted to encourage epinephrine initiation and to treat the epinephrine immediately to avert progression to more serious symptoms or shock.

**Selected demographic characteristics of patients and parents who participated in the study are described in Table 1.**

**REFERENCES**