

Birchwood C¹, Hass S², Robison D¹, Treanor K¹, Norrett K¹, Cameron A³, Etschmaier M³, Duhig A³, McCann W⁴

¹Aimmune Therapeutics, Brisbane, CA, USA; ²H.E. Outcomes, LLC, Boston, MA, USA; ³Xcenda, Palm Harbor, FL, USA; ⁴Allergy Partners, Asheville, NC, USA

BACKGROUND

- Peanut allergy (PA), a common type of food allergy, has become increasingly prevalent in recent years, particularly among children (Sicherer 2010)
 - Recent claims-based data suggest that approximately 1.25 million, or 2.2% of all children and adolescents in the United States (US) have PA (Lieberman 2018)
- Individuals with PA who are exposed to peanuts can develop various allergic symptoms that range in severity and onset; the most severe systemic allergic reaction is anaphylaxis, which may be life-threatening and requires immediate treatment with epinephrine (Boyce 2010)
- Currently, no curative treatments exist for PA, and recommended management strategies include avoiding peanuts and appropriately treating symptoms of a reaction (Boyce 2010; Sitton 2018)
- Given the potential severity of symptoms and need for close management, living with food allergies such as PA present day-to-day concerns and challenges for allergic individuals and their families (Cummings 2010), and contribute to increased healthcare resource utilization and economic burden (Gupta 2013)
- Although the burden of food allergy has been fairly well-documented, the literature on the burden of PA in the US is limited

OBJECTIVES

- The objective of this analysis was to describe PA-related experiences, health-related concerns, and healthcare resource utilization related specifically to PA among adolescents in the US.

METHODS

Study Design and Population

- Data were collected via a cross-sectional, online survey in the US
- Adolescents aged 13 to 17 years with self-reported, physician-diagnosed PA were recruited for the survey using commercial research panels
- Prospective participants first completed a brief screening questionnaire; those who met inclusion and exclusion criteria were eligible to complete the 20-minute survey
 - Inclusion criteria:
 - Aged 13 to 17 years
 - a) Had been diagnosed by a healthcare provider as having PA, and b) had experienced a reaction to peanut that required medication/medical care OR have ready access to emergency medication in case of an allergic reaction to peanut
 - Agree "completely" or "very much" with the following statement: "I avoid being around peanuts. I don't eat peanuts, things made with peanuts, or peanut oil or other things that might have touched peanuts or peanut oil"
 - Resident of the US
 - English-speaker
- Exclusion criteria:
 - Gender or age quotas had already been met

- The study protocol and survey were reviewed and approved by an independent institutional review board

Survey Measures

- Demographic characteristics
- Clinical characteristics and concerns associated with PA
- Perceived risk and expectations of allergy outcomes as assessed by the Food Allergy Independent Measure (FAIM), a 6-item measure of the perceived disease severity of food allergy, and includes Expectation of Outcomes, Product Avoidance, and Social Impact subscales (van der Velde 2010)
- Current perceived health status as assessed by the EuroQol 5 Dimensions, 5 Levels (EQ-5D-5L), which is a standardized measure of health status (EuroQol 2015)
 - Consists of the EQ-5D-5L descriptive system and the EQ Visual Analogue scale (EQ VAS)
 - The descriptive system assesses current problems with mobility, self-care, usual activities, pain/discomfort, and anxiety/depression.
 - The EQ VAS records the respondents' current self-rated health
- PA-related healthcare resource utilization in the previous 12 months

Analysis

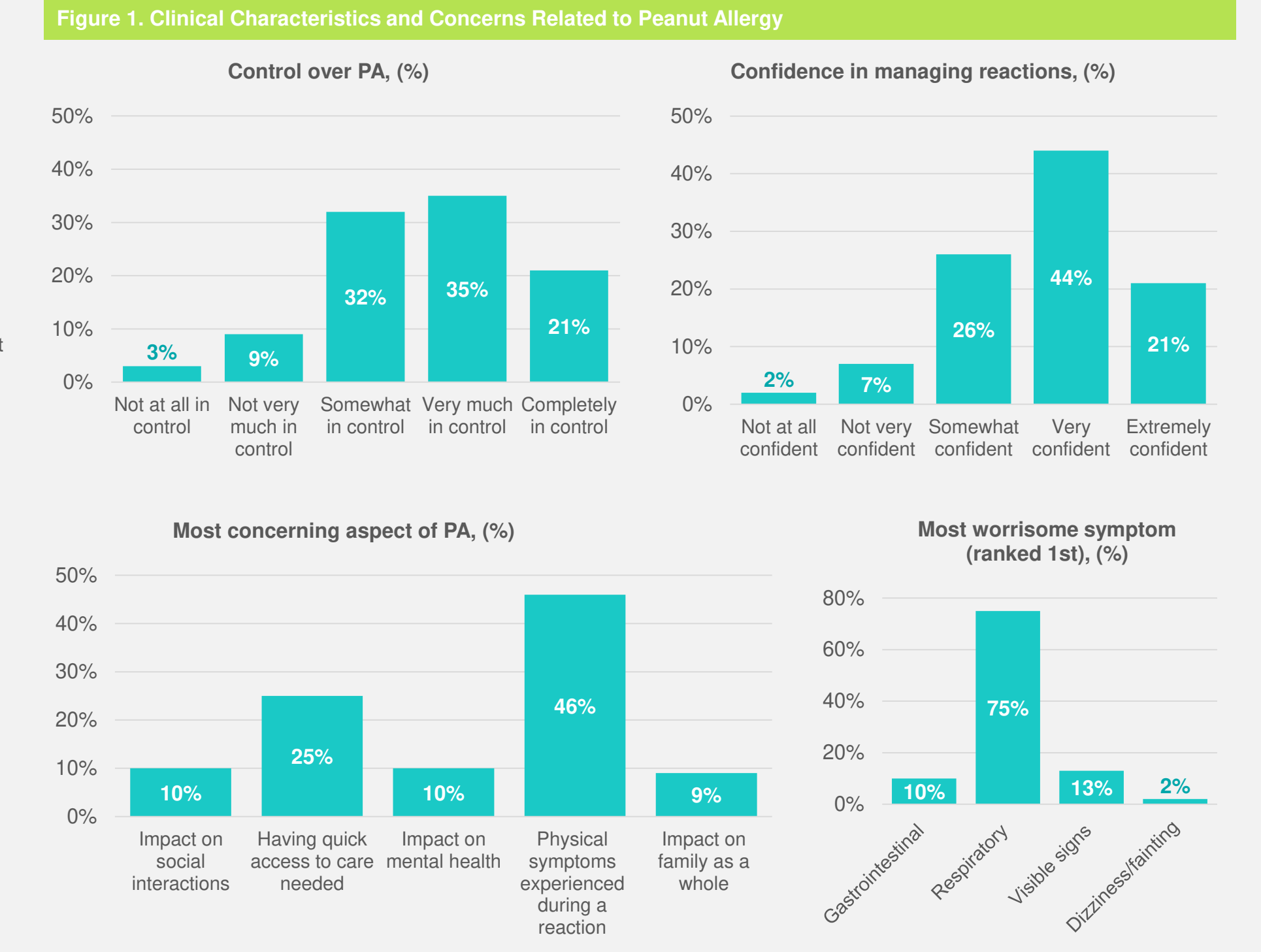
- Data were analyzed using descriptive statistics

RESULTS:

- A total of 102 adolescents with PA completed the survey
- Mean age was 14.7 years; 56% were male and 63% were white

Clinical Characteristics and Concerns Associated With Peanut Allergy

- Adolescents' clinical characteristics and PA-related concerns are shown in **Figure 1**
- Two-thirds (66%) had their first reaction between ages 0 to 6, with 61% also being diagnosed during that age range
- Most (93%) had been prescribed an epinephrine autoinjector, 88% carried it ≥75% of the time, and 100% agreed that they actively avoided peanut products
- Despite this, 35% still felt "not at all confident" to only "somewhat confident" managing PA reactions, and 44% felt "not at all in control" to only "somewhat in control" of PA
- The most concerning aspect of PA for adolescents was the physical symptoms experienced during a reaction (46%), with the most worrisome being respiratory-related symptoms (75%)



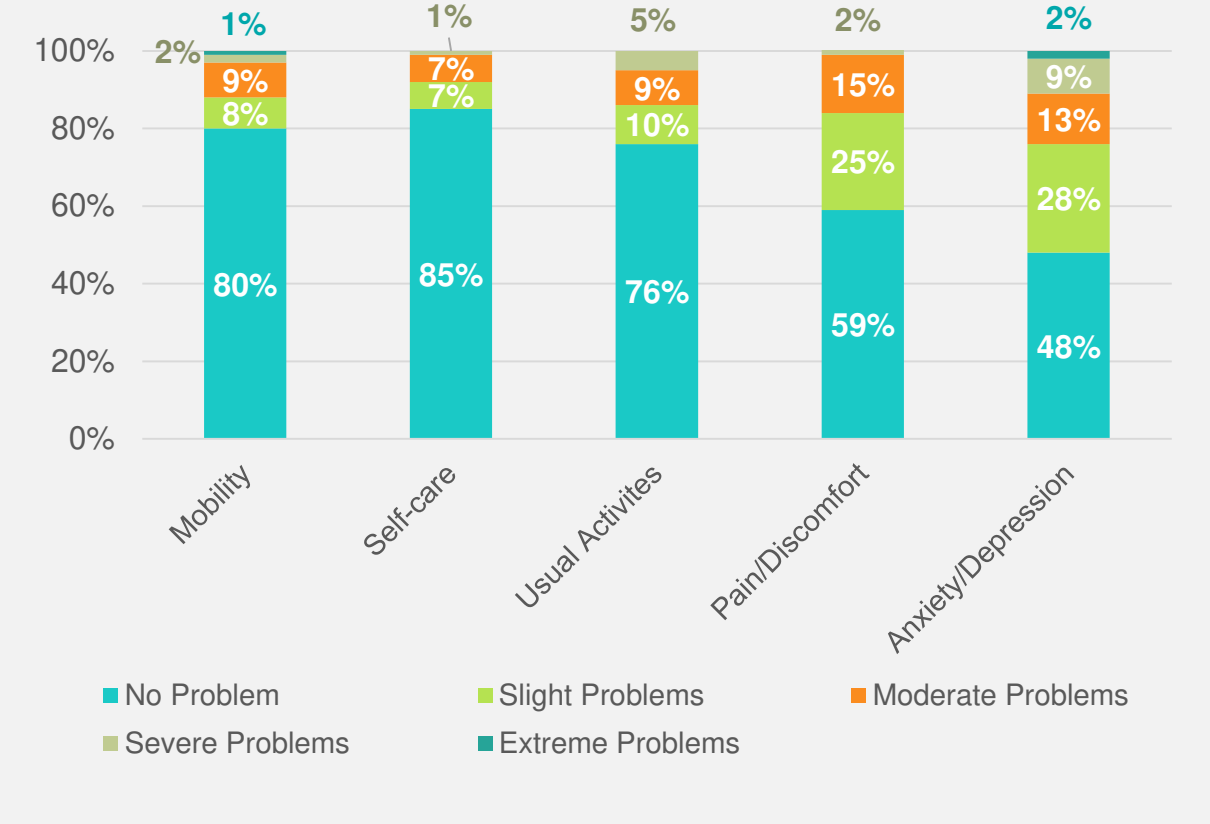
Perceived Risk and Expectations of Allergy Outcomes (FAIM)

- Respondents reported their perceived risk of 4 outcomes associated with their PA on a 7-point Likert scale, ranging from Never/0% Chance to Always/100% chance. The percentages of respondents indicating a Fair Chance, Great Chance, Very Great Chance, or Always/100% Chance across the 4 risks are shown in **Figure 2** and listed below as follows:
 - Risk of accidentally eating something to which they were allergic: 72%
 - Risk of severe reaction if they eat something to which they are allergic: 78%
 - Risk of dying if they eat something to which they are allergic: 59%
 - Not being able to effectively deal with an allergic reaction: 66%

Figure 2. Food Allergy Independent Measure – Perceived Risk of 4 Outcomes



Figure 3. EQ-5D-5L Proportion of Reported Problems for Each Level for Each Dimension



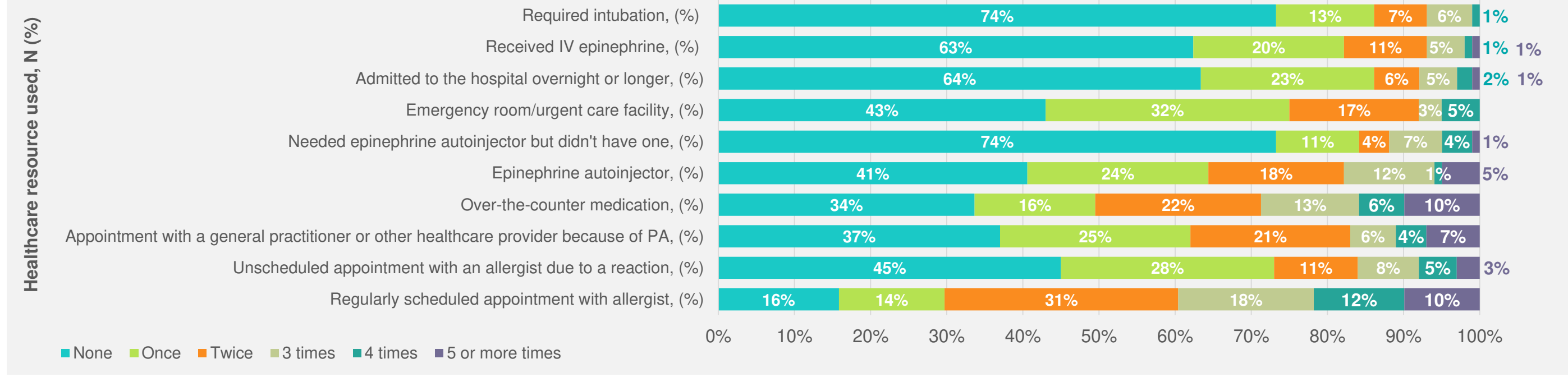
Current Perceived Health Status

- On the EQ-5D-5L, mean health state utility values, depending on US or UK value set, were 0.85 (US) and 0.81 (UK), and visual analogue score (VAS) was 77.1. Median (min-max) health state utility values were 0.88 (0.22–1.00; US) and 0.88 (-0.06–1.00; UK), and median VAS score was 84.00 (9.00–100.00)
 - Currently, there are no normative data in the US for the 5-level description system. However, mean utility scores in this study are lower than those seen in a UK survey study of adolescents with PA (0.97; unpublished data). Mean VAS scores were also lower in our study compared to those seen in the UK survey (84.0)
- Figure 3** shows the proportion of reported problems for each level of each dimension
 - Reflecting these scores, ratings on each of the 5 dimensions showed that over one-half of adolescents reported "no problems" on dimensions of mobility (80.4%), self-care (85.3%), usual activities (76.5%), and pain/discomfort (58.8%)
 - Conversely, slightly over one-half (52.0%) reported being "slightly" to "extremely" anxious or depressed, suggesting that adolescents with PA are most impaired in this dimension

PA-Related Reactions and Healthcare Resource Utilization in the Previous 12 Months

- Adolescents averaged 0.9 severe, 1.3 moderate, and 1.8 mild PA reactions in the previous 12 months
 - Definitions of severity were developed with clinical expert input and provided to respondents so they could assess the severity of reactions appropriately
- Figure 4** shows the healthcare resources used in the previous 12 months to manage PA reactions
 - High rates of PA-related healthcare use in the previous 12 months were reported: PA-related hospitalization (36%); scheduled (84%) and unscheduled (55%) allergist visits; PA-related general practitioner visits (63%); ≥1 epinephrine autoinjector injection (59%); IV epinephrine (37%); emergency department/urgent care visit (57%); and over-the-counter medication for PA (66%)
 - Notably, 26% of adolescents required intubation in the previous 12 months, which highlights the life-threatening nature of PA

Figure 4. PA-related Healthcare Resource Utilization in the Previous 12 Months



CONCLUSIONS

- Despite currently available PA management approaches, adolescents have substantial concerns regarding their health risks and frequently require various forms of healthcare to manage PA reactions
- There remains an unmet need for an approved treatment that safely provides certainty of protection to alleviate the constant fear of accidental exposure and potentially reduce healthcare resource utilization related to PA reactions

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