

Current Allergic Rhinitis Experiences Survey (CARES): Consumers' awareness, attitudes and practices

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ABSTRACT

Allergic rhinitis (AR) affects ~60 million people in the United States. This study evaluates awareness, attitudes, and behaviors of AR sufferers on the management of their condition. This U.S.-based survey evaluated 1600 adult AR sufferers to assess their perceptions of AR diagnosis, treatment preferences, and interactions with health care practitioners (HCPs). Two consumer groups of AR sufferers were assessed: users of over-the-counter (OTC) medications only ($n = 1020$) and users of prescription (Rx) $\pm$ OTC medications ($n = 580$). The Rx group included 451 intranasal steroid (INS) users. Eighty-two percent of respondents indicated that they require minimal to no HCP guidance to manage AR; 51% had not visited an HCP in the past 2 years. Eighty-six percent of respondents agreed that they can self-recognize AR symptoms, and 69% suspected allergies before diagnosis. On suspecting nasal allergies, 52% of sufferers purchased an OTC medication. Seventy-two percent of AR sufferers said they are likely to go to an HCP if symptoms persist after they tried multiple OTC options. Rx users perceived INSs to be more beneficial in treating AR and showed a high level of satisfaction (a score of 7.4 out of 10). Forty-eight percent of AR sufferers felt the need for more efficacious OTC medications to better manage their AR symptoms. This study indicated that AR sufferers perceive that they self-recognize AR symptoms and initiate their management with OTC options. The availability of OTC medications did not deter AR sufferers from visiting HCPs for advice when symptoms worsen. Nonetheless, more efficacious OTC options are still desired.

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Allergic rhinitis (AR) is a chronic inflammatory disorder of the nasal mucosa characterized by pruritus, sneezing, nasal congestion, and rhinorrhea.¹ In addition to these symptoms, a number of comorbid conditions are associated with AR, including asthma, otitis media with effusion, sleep disturbances, and sinusitis,² with asthma present in up to 40% of patients with AR.³ AR is the most common allergic disease and is highly prevalent, affecting up to 60 million people in the United States.⁴

Poorly controlled symptoms, including loss of sleep, impairments in learning, decreased cognitive functioning, and decreased long-term productivity, contribute to decreased health-related quality of life in AR sufferers.^{1,5,6} Patients with AR complain of difficulty falling

asleep at night, waking up at night, and a lack of a good night's sleep.⁷ Patients also complain of fatigue, irritability, depression, and dysthymia during allergy season.⁶

In addition to noting the negative effects of AR on health, AR sufferers state that the disease causes limitations in social activities and outdoor activities and that their health limits them from doing well at work.⁷ It is estimated that productivity at work of a patient with AR can decrease by ~20% on days when symptoms are at their worst,^{6,7} and 22% of patients surveyed in the National Allergy Survey Assessing Limitations (NASAL) expressed concern that their health limits them from doing well at work. Only 11% of patients without AR expressed a similar concern.⁷ In addition to decreased productivity at work, an estimated 3.5 million missed work days and 2 million missed school days per year are attributed to AR.⁸

Because of the high prevalence of AR and the nature of AR as a chronic disease, it is associated with high public health costs.⁹ In the United States, the estimated annual costs of AR range from \$2 billion to \$5 billion (in 2003 dollars), which includes both the direct costs of physician visits and the medications and indirect costs such as work absenteeism and decreased productivity.¹⁰ Mean total productivity losses are estimated at \$600/person per year, which is higher than those estimated for other disorders, including migraine headaches, arthritis, anxiety disorder, hypertension, diabetes, asthma, and coronary heart disease.¹¹

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Given the effects of AR symptoms and comorbidities on AR sufferers' physical and emotional health and the high direct and indirect costs of disease, the appropriate management of symptoms is of utmost importance.⁴ Management involves allergen avoidance, pharmacotherapy, and allergen immunotherapy.¹ A number of classes of pharmacologic agents have proven effective in the treatment of AR, and they are available either over the counter (OTC) or *via* prescription (Rx).^{1,4} Second-generation oral antihistamines, intranasal antihistamines, intranasal corticosteroids (INSs), and leukotriene antagonists have proven efficacy and safety and can be given alone or in combination.⁴

The Current Allergic Rhinitis Experience Survey (CARES) was a two-part survey that included a consumer arm and practitioner arm. The consumer arm of CARES was designed to evaluate the awareness, attitudes, and behaviors of consumers with AR to provide insights on how to better manage AR in these sufferers, control their symptoms, and limit the negative effects of AR on physical and emotional health, quality of life, and workplace productivity. The survey evaluated AR sufferer's perception of their diagnosis, treatment preferences, and interactions with health care practitioners (HCPs) and aimed to determine the degree to which AR sufferers self-manage their disease. Results from the HCP arm of CARES are presented in a separate article.

METHODS

This U.S.-based survey assessed 1600 AR sufferers divided into the following groups: (1) receiving OTC medications only (OTC only) versus receiving Rx medications $\pm$ OTC medications, (2) INS users versus non-INS users, (3) male patients versus female patients, (4) diagnosed with nasal allergies by an HCP versus not diagnosed but believed to suffer from nasal allergies, and (5) various age groups (18–34 years, 35–49 years, 50–64 years, and ≥ 65 years). The overall AR sufferer population and each AR sufferer subgroup (listed previously) are representative of their populations at a $\leq 5\%$ margin of error (*i.e.*, results for total AR sufferers are accurate within a range of $\pm 3\%$, and results for each AR sufferer group are accurate within a range of $\pm 5\%$). Study recruitment also ensured that the sample contained an appropriate mix of age, sex, type of AR (allergic, nonallergic [*e.g.*, air conditioning, temperature/weather changes, or perfume or other strong smells], and mixed), severity of AR (mild versus moderate–severe), and presence or absence of asthma. Data were collected *via* an anonymous and confidential online survey conducted by a third party (DeNovo Research Solutions, Delmar, NY). Respondents participating in this research were members of a U.S.-based, national online panel and were sent invitations to participate *via* E-mail.

AR sufferers met the following criteria for participation in the study: were ≥ 18 years of age; had at least one of the following symptoms of rhinorrhea, itchy nose, nasal congestion, postnasal drip, frequent sneezing, and itchy/red eyes; and were taking one or more OTC or Rx medications for nasal allergies. All AR sufferer data are weighted on an individual level using the U.S. population prevalence data (Table 1).

The survey was designed to obtain information to test 17 hypotheses regarding the diagnosis, management, and perception of AR, 15 of which were tested in the consumer group. Table 2 lists the 15 consumer-tested hypotheses. Questions were designed to obtain information relating to the following topics: diagnosis of nasal allergies, interactions with HCPs, treatment of nasal allergies, perceptions of INSs, and demographics.

RESULTS

The demographics of AR sufferers included in this survey ($n = 1600$) are presented in Table 3. The vast majority of AR sufferers included in the survey (74%) were taking OTC medications only. The sample of AR sufferers included a good mix with regard to geographic region, age, and number of AR sufferers with and without asthma.

Survey respondents indicated that they primarily self-managed their AR with both OTC and Rx medications (after obtaining an Rx from their HCP). The vast majority of AR sufferers (82%) stated that they require minimal or no HCP guidance to manage AR, whereas only 3% stated that they required a substantial amount of guidance (Fig. 1). Results were similar for AR sufferers who managed allergies with OTC medications only and those who were managed with Rx medications; results were also similar for AR sufferers with or without a diagnosis of AR by an HCP (Fig. 1). In general, 60% of respondents stated that they were very comfortable without HCP guidance about AR management, and the majority of AR sufferers stated they are very comfortable without HCP guidance on various aspects of AR management (Fig. 2). Comparing AR sufferers receiving OTC medications only and those receiving INSs, 64 and 49% of AR sufferers, respectively, perceive that they can completely manage AR on their own. In practice, 80% of responders stated that they self-manage their allergies, and 60% said they completely self-manage their allergies. AR sufferers who self-manage their AR report increased satisfaction, because 78% of AR sufferers receiving OTC-only medication and 74% of AR sufferers receiving INSs who self-manage their AR reported being completely satisfied (AR sufferers taking INSs felt they could self-manage their AR after obtaining an Rx without further input from their HCP). Only 29% of OTC-only users and 39% of INS users who do not self-manage their AR reported being completely satisfied.

Table 1 U.S. population prevalence data

Demographic	Category	Prevalence (%)
Current AR treatment	OTC only	61.9
	Rx (with or without OTC)	38.1
INS user vs non-INS user	INS user	19.9
	Non-INS user	80.1
Age (yr)	18–34	19.9
	35–49	22.2
	50–64	34.4
	65+	23.6
Sex	Male	36.0
	Female	64.0
AR diagnosis	Diagnosed	74.0
	Not diagnosed	26.0
Time suffering with AR symptoms	≤5 yr	25.1
	>5 yr	74.9
AR severity	Mild	34.0
	Moderate	66.0
Type of rhinitis	Allergic only	55.0
	Non-allergic	3.0
	Mixed	42.0
Asthma sufferer	Suffer	22.2
	Does not suffer	77.8
Region	East	23.0
	Midwest	23.0
	South	33.0
	West	21.0

AR = allergic rhinitis; INS = intranasal corticosteroid; OTC = over the counter; Rx = prescription.

The preference for and frequency of self-management of AR becomes evident when evaluating the step-wise approach most AR sufferers take toward the diagnosis and management of AR. When AR sufferers suspect that their symptoms are caused by allergies, the most common action (as reported by 52% of respondents) is to purchase an OTC medication. Most AR sufferers reported being comfortable selecting and using OTC medications without HCP guidance. Eighty-five percent of AR sufferers typically take one or more OTC medications before any interaction with an HCP and two or more OTC medications before talking to an HCP for the first time about their allergies (Fig. 3). If symptoms persist, AR sufferers' next step in management of AR often involves going to an HCP office. Seventy-two percent of respondents stated that they are likely to go to an HCP office if they are symptomatic after trying one or more OTC medications compared with 13% who stated that they are extremely likely to go to an HCP office when symptoms first occur. However, when their current OTC was deemed to be ineffective, respondents were divided between choosing a different OTC (46%) and seeing an HCP (41%).

The vast majority of AR sufferers who responded to the CARES reported seeing their HCP less than one time in the past year to discuss their AR symptoms, and 51% reported not seeing their HCP in the past 2 years to discuss AR symptoms. Sixty-seven percent of respondents agreed with the statement that allergies require less HCP interaction than other conditions and 48% strongly agreed with the statement that they rarely discuss their AR symptoms with their HCP unless there is a problem. A total of 60% of AR sufferers indicated that they are not talking with their HCP about AR because they can self-manage their symptoms with OTC medications. When AR sufferers do talk with their HCP about their AR symptoms, 57% of respondents stated that the reason for the HCP visit was something other than AR (most commonly an annual medical examination or other medical problem). A total of 40% of AR sufferers stated that allergies are not severe enough to necessitate an HCP visit.

When seeing an HCP for AR, the majority of AR sufferers stated that they were being seen in a primary care setting, with only 30% having been evaluated by an allergist or otolaryngologist. At their first visit, the majority of AR sufferers reported discussing treat-

Table 2 Hypotheses

Hypothesis	
Allergic rhinitis is primarily self-managed with prescription and/or OTC medications	
Consumers can typically self-recognize nasal allergy symptoms	
Nasal allergies are diagnosed mainly based on symptomatology/history	
AR sufferers are knowledgeable about their nasal allergies	
Consumers generally obtain information about treating AR from multiple sources	
Consumers are driving AR discussions with HCPs and generally discuss AR only if dissatisfied or seeking treatment recos/refills	
Detailed discussions are typically NOT occurring in the HCP office about nasal allergies and INSs, when prescribed	
AR can have a major impact on patients' lives	
Consumers are aware that there are different medications available to treat nasal allergy symptoms	
AR is primarily being treated in the primary care setting	
INSs are the gold standard treatment for AR	
Access to Rx meds/INSs is limited for some patients (e.g., patients without Rx drug coverage/health insurance are generally limited in terms of access to the best AR treatment—INSs)	
INSs are perceived to be easy to use	
The availability of OTC medications will generally NOT deter patients from going to their HCP for advice	
OTC medications are perceived to be good treatment for AR	
<i>AR = allergic rhinitis; HCP = health care practitioner; INS = intranasal corticosteroid; OTC = over the counter; Rx = prescription; recos = .</i>	

ments primarily and symptoms secondarily. At their last visit, AR sufferers reported less discussion but indicated that treatment remains the most discussed topic. Most AR sufferers indicated that the diagnosis was made *via* a history and physical examination; however, 53% indicated that some type of test was performed (skin-prick test, blood test, or other).

After seeing an HCP, fewer than one-half of AR sufferers (42%) were asked to return for a follow-up visit. However, 83% of AR sufferers said they would schedule a follow-up visit, and more than one-half said they would do so even if their current medication is effective. Rx refills were determined not to be drivers of repeat HCP visits because only 31% of respondents

Table 3 Demographic profile of adult AR sufferers who participated in the CARES

Demographic	Total (n =1600)
Sex, %	
Male	38
Female	62
Age, %	
18–34 yr	21
35–49 yr	23
50–64 yr	31
65+ yr	25
Type of rhinitis	
Allergic only	53
Nonallergic only	4
Mixed	43
AR diagnosed by an HCP, %	62
Current treatment, %	
OTC only	74
Rx (with or without OTC)	26
INS	19
Patients with asthma, %	18
Length of time suffering from allergies, %	
≤5 yr	26
>5 yr	74

AR = allergic rhinitis; INS = intranasal corticosteroids; HCP = health care practitioner; OTC = over the counter; Rx = prescription.

reported returning to an HCP office for an Rx refill. The CARES showed that HCPs allowed a mean of 7 months before requiring a repeat visit for an Rx renewal, and 25% of AR sufferers indicated that they waited at least 1 year between HCP visits for an Rx refill.

To appropriately manage their AR, AR sufferers must be able to recognize their symptoms and be knowledgeable about the disease. AR sufferers typically are able to self-recognize nasal allergy symptoms without input from an HCP. A total of 86% of AR sufferers agreed and 70% strongly agreed that they know that their nasal symptoms are allergies and not another condition, with similar results established regardless of current therapy (OTC versus Rx) or diagnosis (HCP versus self-diagnosis; Fig. 4). Most AR sufferers (69%) said they suspected allergies before diagnosis, and nearly 60% of AR sufferers reported being extremely comfortable believing their symptoms were indicative of nasal allergies without guidance from an HCP. Common reasons given by AR sufferers for suspecting nasal allergies included symptoms only occurring during a certain time of year, symptoms occurring only in a certain environment, and symp-

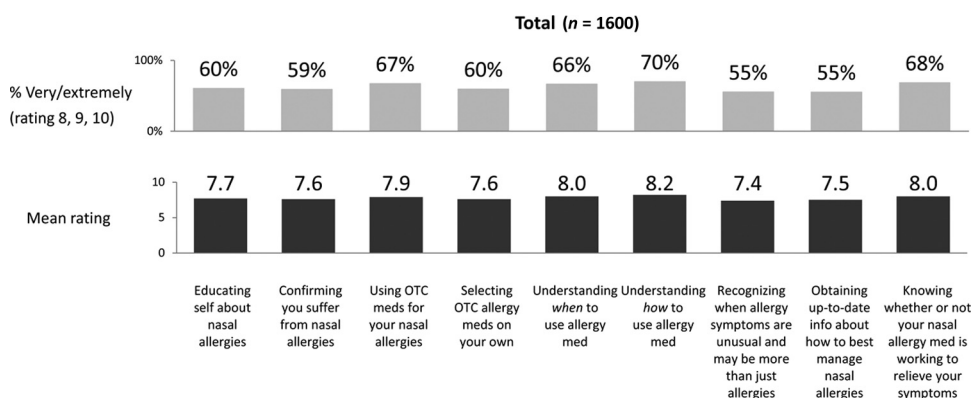
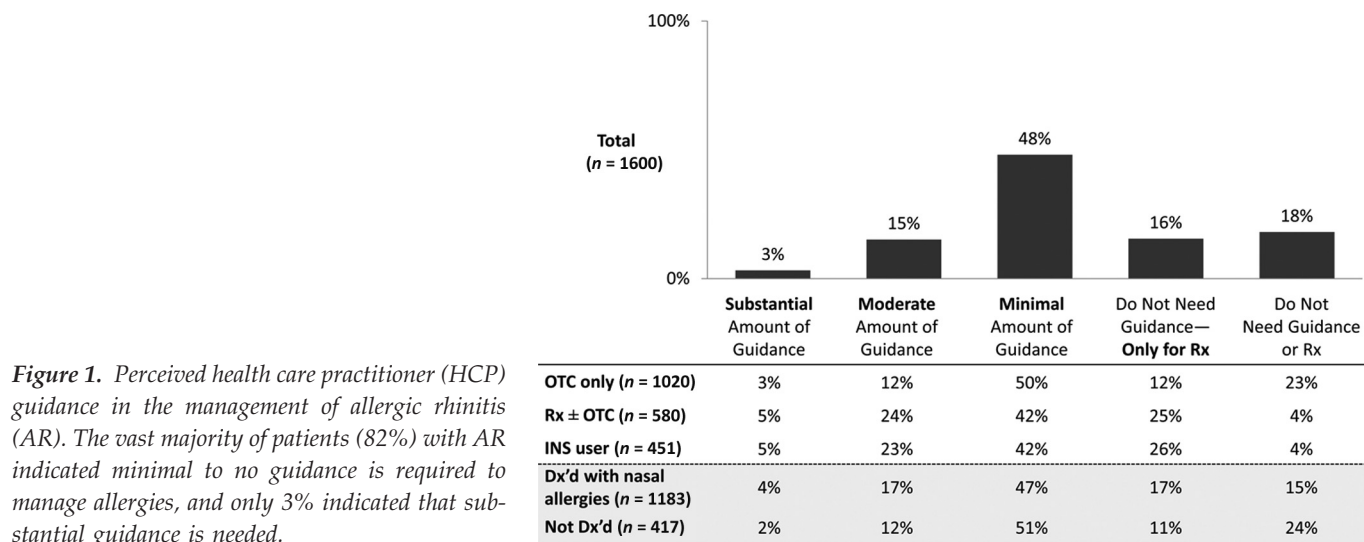
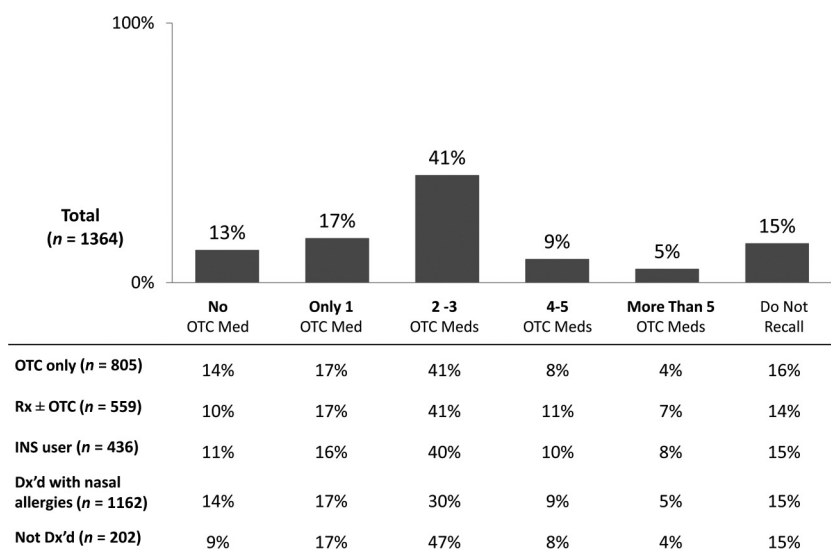


Figure 2. Level of comfort performing each aspect of allergic rhinitis (AR) management without guidance from a health care practitioner (HCP). Patients were asked to assess their level of comfort on a scale of 0–10, with 0 signifying not at all comfortable, 5 signifying moderately comfortable, and 10 signifying extremely comfortable. Patients who were very or extremely comfortable responded with 8, 9, or 10 and are represented as percentage of total responders. The majority of patients were very or extremely comfortable with all aspects of AR management without guidance from an HCP, with mean ratings ranging from 7.4 to 8.2.



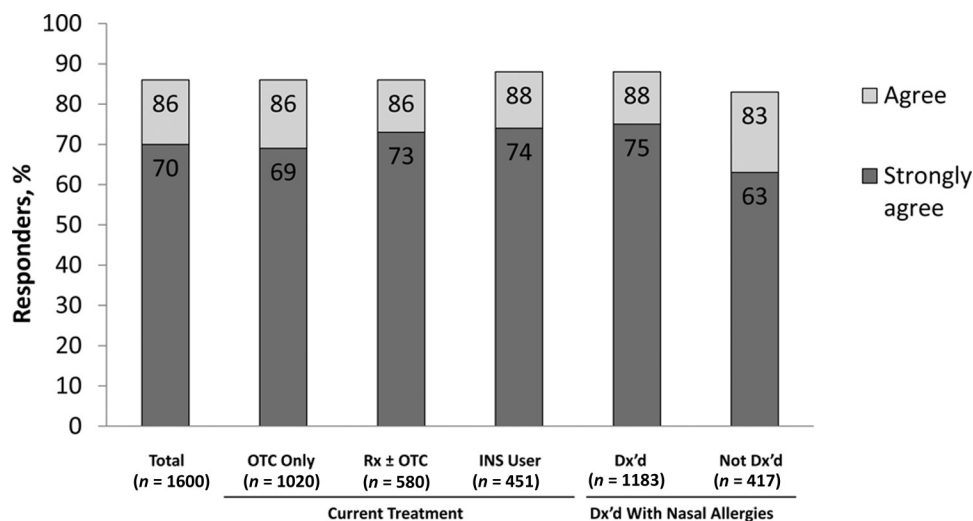


Figure 4. Level of agreement with ability to self-recognize symptoms of allergic rhinitis (AR). Among all patients, 86% agree and 70% strongly agree that they know their nasal allergy symptoms are allergies and not another condition.

toms lasting too long to be a cold or feeling different than cold symptoms. Additionally, 61% of AR sufferers stated that they strongly agree that they can tell the difference between their nasal allergies and a sinus infection.

AR sufferers indicated they are knowledgeable about their disease and reported that during the first discussion with their HCP, 54% of the information presented was new, but at their last conversation with their HCP, only 23% of the presented information was new. Nearly all AR sufferers indicated a suspected cause of their allergies; only 5% were unaware of a cause. AR sufferers stated that they use various sources of information to become informed about AR and stated that HCP, word-of-mouth from friends and family, pharmacists, and Internet searches are the most commonly accessed resources for information about AR.

AR sufferers indicated that they consider their nasal allergies to be bothersome, and the majority (63%) agreed that they take their allergy symptoms very seriously. AR sufferers stated that the most common symptoms are rhinorrhea and nasal congestion, and that while all symptoms are bothersome, the most bothersome symptoms are sleep problems, headache, runny/stuffy nose, and congestion (Table 4). Most AR sufferers stated that allergies moderately affect their daily activities, with 20% of respondents reporting that allergies significantly or very significantly affect daily activities and 20% stating that allergies do not affect or minimally affect daily activities. The impact of AR on sufferers surveyed included, on average, having daily activities affected by AR ~1 wk/mo, missing ~12 days of activities per year, and taking allergy medications ~80 days/yr. Overall, AR sufferers reported spending an average of \$139/yr on medication for AR, with OTC-only users spending an average of \$103/yr and INS users spending an average of \$244/yr. In 2005, direct consumer costs for Rx medications for AR were reported as \$305/yr, an increase from \$207 in 2000.¹²

Table 4 Percentage of patients who stated that each symptom is very or extremely bothersome and not at all or minimally bothersome

Symptom	Very/Extremely Bothersome (%)	Not at All/Minimally Bothersome (%)
Sleep problems	64	3
Headache	59	3
Stuffy nose/nasal congestion	58	1
Postnasal drip/drainage	56	2
Runny nose	53	2
Itchy/red eyes	53	3
Clogged ears	52	4
Watery eyes	51	3
Cough	50	4
Frequent sneezing	47	3
Itchy nose	46	4

Very/extremely bothersome symptoms are shown in the top three boxes on an 11-point scale; not at all/minimal symptoms are shown in the bottom three boxes on an 11-point scale.

The survey showed a high level of consumer awareness of both OTC and Rx medications. AR sufferers reported that >50% of the OTC medications they have taken were recommended by family or friends or were chosen by themselves. Only one-half of AR sufferers surveyed (52%) learned about their current Rx from an HCP. Other sources of education included family/friends, advertisements, and pharmacists. The survey showed high levels of awareness of INS brands among Rx users (93–94%) and OTC-only users (82–87%). The survey also showed high levels of awareness of spe-

Figure 5. Level of satisfaction with intranasal steroid (INS) medications. Patients were asked to assess their level of satisfaction on a scale of 0–10, with 0 signifying completely dissatisfied and 10 signifying completely satisfied. Patients who were very or extremely satisfied responded with 8, 9, or 10 and are represented as percentage of INS users. The majority of INS users were very or extremely satisfied with their medication, with mean ratings ranging from 7.1 to 7.6.

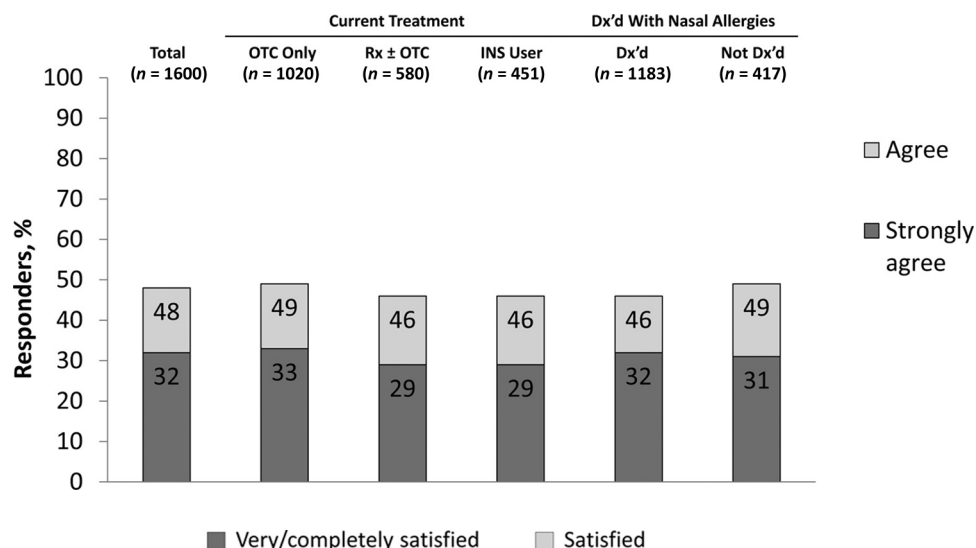
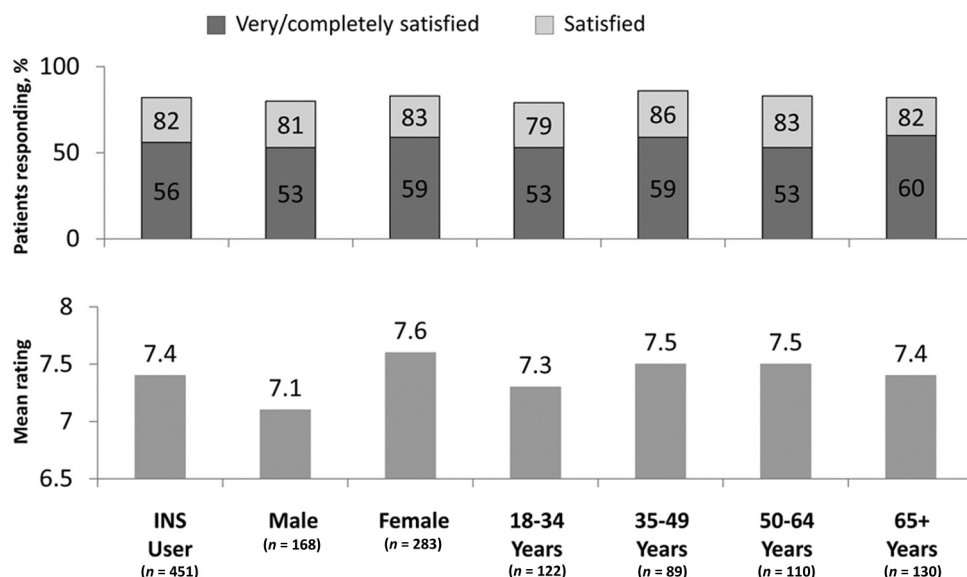


Figure 6. Allergic rhinitis (AR) sufferers want more over-the-counter (OTC) options. Patients were asked whether they could manage their nasal allergies better if more effective medications were available OTC; results are presented as percentage of responders who agreed (top three choices on a 7-point scale) and who strongly agreed (top two choices on a 7-point scale).



cific brands of INSs, because 82% of OTC-only users and 94% of Rx users were aware of Flonase (Glaxo-SmithKline, Research Triangle Park, NC), and 87% of OTC-only users and 93% of Rx users were aware of Nasonex (Aventis-Pharma, Crewe, United Kingdom).

The survey indicated that AR sufferers see the benefits of INSs, and INS users report high levels of satisfaction with their INS medication (Fig. 5). A total of 82% of INS users reported being satisfied with their INS, and results were consistent regardless of sex or age. Fewer than 5% of AR sufferers taking INSs reported being completely dissatisfied with their INS medication. INSs are perceived as being easy to use, with a mean ease-of-use rating of 7.9 on a 10-point scale, with 10 being the easiest to use. A total of 78% of INS users are confident that they correctly spray their INS in their nose and 49% of INS users are extremely confident. A total of 78% of INS users claimed that they reviewed the package insert on an INS to understand how to administer their medication, and 80% stated that it was easy to learn nasal spray techniques.

One-half of AR sufferers (48%) agree and 32% strongly agree that they could better manage their AR symptoms if they had more effective medications available OTC (Fig. 6). However, AR sufferers stated that the availability of OTC medications would generally not deter them from seeing their HCP. When asked the main reasons for taking OTC medications, AR sufferers' most common answers were convenience (more convenient than Rx medications), availability (available to the consumer any time of day and not limited to doctor or pharmacy hours), freedom (gives the freedom to find what works best), minimization of doctor visits (minimizes the number of times the consumer needs to see an HCP), and cost (decreases the overall cost of treating nasal allergies). Costs include the direct cost of the medication, the time required to visit an HCP, and cost of an HCP visit, and 54% of AR sufferers agreed that it is too expensive to go to an HCP for an allergy Rx. Although cost is a factor in preferring OTC medications, <20% of respondents listed insurance issues (lack of insurance or problems with Rx

drug coverage) as a main reason for preferring OTC medications.

DISCUSSION

AR is a chronic inflammatory disorder of the nasal mucosa characterized by pruritus, sneezing, runny nose, and nasal congestion. It is highly prevalent in the United States and throughout the world. AR is associated with multiple comorbidities and has detrimental effects on AR sufferers' physical and emotional well-being. AR places a significant burden on AR sufferers and is associated with high direct and indirect costs and decreased health-related quality of life. The appropriate management of AR is important to minimize the burden of disease. The consumer arm of the U.S.-based CARES was conducted to better understand the awareness, attitudes, and behaviors of consumers with AR.

The CARES indicated that AR sufferers tend to self-manage their nasal allergies and feel comfortable doing so without HCP guidance; one-half of consumers surveyed had not seen their HCP for nasal allergies in the past 2 years. This is consistent with previously published data from the Allergies in America survey, which showed that 47% of all surveyed AR patients and only 57% of patients who complained of severe symptoms had seen an HCP in the past year.⁶ AR sufferers' attitudes toward AR were that it required less interaction with HCPs than other diseases, and AR sufferers feel that they are knowledgeable about the disease and available treatments. Self-management of AR led to increased satisfaction regardless of whether AR sufferers were taking OTC or Rx medications. Another factor contributing to level of self-management of the disease is the perceived ability of AR sufferers to easily recognize their symptoms as nasal allergies and not another condition. Although AR sufferers may often be incorrect, this perception contributes to the self-management of AR.

Additionally, the availability of effective OTC medications allows AR sufferers to self-manage their disease, and the majority of AR sufferers included were currently taking or had taken an OTC medication for the treatment of AR. The CARES was initially designed to enroll equal numbers of AR sufferers into an OTC-only arm and an Rx-only arm to compare any differences that may exist in the attitudes and behaviors of two different treatment populations. However, it was not possible to recruit enough Rx-only AR sufferers because most Rx consumers had taken or were taking OTC medications. The baseline demographics are representative of the preference for OTC medications because almost two-thirds of AR sufferers surveyed were taking only OTC medications for the management of AR. Again, this is consistent with previously published data. The Allergies in America study showed that more

AR sufferers had used an OTC medication compared with an Rx nasal spray in the month before being surveyed (53 versus 36%, respectively).⁶ Similar results were reported from the NASAL study, with 62% of AR sufferers having taken an OTC medication in the past month compared with 30% who had taken an INS.¹³

In practice, AR sufferers typically try one or more OTC medication before visiting an HCP. Once AR sufferers suspected allergies, the most common action among those surveyed was to purchase an OTC medication, and 85% of respondents stated that they typically try at least one OTC before visiting an HCP. There are many reasons for a preference for OTC medications, and one of the most common given by respondents was cost, including both the direct cost of medications and the cost of HCP visits. In a 2005 government report, direct consumer costs of Rx medications for AR were estimated at \$305/yr,^{13,14} and a mean of \$187/yr was spent on ambulatory care visits for AR. Additionally, in 2005 the average retail price for OTC medications was \$7 compared with \$96 and \$28 for brand name and generic Rx drugs, respectively.¹⁵ Furthermore, it was estimated that every dollar spent by consumers on OTC medications saves the U.S. health care system on the whole \$6–7.¹⁶ Beyond cost savings, OTC medications provide value to the consumer by allowing increased access to treatment for common diseases. In this study, AR sufferers stated that OTC medications offer the freedom to choose among different treatment options to determine what works best. In the Allergies in America study, only 29% of patients stated that they never change medications, and the most common reason given for changing medications was lack of efficacy.⁶ The availability of OTC medications and the convenience of obtaining these medications without an HCP visit were also given as reasons contributing to consumer preference for OTC medications.

AR sufferers' preferences for OTC treatment did not, however, prevent them from seeing their HCP if symptoms worsen or symptoms could not be controlled with OTC medications. After failure of a first OTC, AR sufferers stated they were equally likely to see their HCP or try a second OTC. After trying two or more OTC medications, approximately three-fourths of AR sufferers surveyed stated that they are likely to see an HCP if still symptomatic.

In the CARES, AR sufferers expressed a high level of satisfaction with their OTC medications, consistent with data from the Allergies in America study,⁶ and also stated that they could better manage their AR symptoms with more efficacious OTC medications. AR sufferers surveyed in the CARES are aware of INSs, regardless of whether they are receiving an INS, and see the benefit of INSs for the treatment of AR. Prior studies have shown high levels of satisfaction with INSs; in the Allergies in America survey, 98% of patients were either somewhat satisfied or very satisfied

with INS treatment (57 and 41%, respectively), and in the NASAL survey, 66–96% of patients stated that they were very satisfied or highly satisfied with INS treatment. Satisfaction with INSs remained high in the NASAL study regardless of side effects such as throat discomfort or dripping down the back of the throat.^{6,12} Respondents stated that INSs are easy to use, and most review the package insert information to assess methods of administration.

The CARES reinforced previously published data on the overall burden of AR.^{2,6} AR sufferers stated that they take their disease seriously and that nasal and systemic symptoms are bothersome. AR sufferers also expressed that AR has a negative effect on their daily activities. Appropriate management of AR can alleviate these bothersome and activity-limiting symptoms but may be limited by the number of medications available OTC. Given that AR sufferers are likely to initially self-manage their AR, providing consumers with additional options for treatment may allow for improved responses and increased patient satisfaction. INSs, considered to be the most efficacious treatment for AR,^{3,4} have a well-described safety profile¹⁷ and may become a common OTC treatment for AR sufferers.

The data presented in this study were obtained via telephone interviews with consumers, there are some limitations. The questions that were asked of consumers had not been formally validated. However, the same questions were asked of all participants in the study, potentially providing internal informal validation. Secondly, allergic rhinitis was determined via consumer interview and was not necessarily physician diagnosed (26% of respondents did not have a physician-based diagnosis of AR). However, the fact that a quarter of AR sufferers included in this survey do not have a physician-determined diagnosis of AR underscores the major findings; that AR is commonly self-recognized and self-managed by sufferers. Despite these limitations, the results of this survey might be used to improve patient outcomes by providing insight into AR sufferers who may not be commonly seen in clinic.

CONCLUSIONS

In this survey of 1600 AR sufferers, the vast majority of consumers who responded had taken or were currently taking an OTC medication for the management of their AR. AR sufferers indicated that they are able to self-recognize their symptoms as being caused by allergies and are comfortable with self-management of AR. AR sufferers indicated that they initiate treatment with OTC medications and are likely to see an HCP if their symptoms worsen or they are unable to achieve relief with one or more OTC options. AR sufferers

stated that they desire more OTC options to effectively manage their disease, and INS users reported high levels of satisfaction with their medication.

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REFERENCES

- Greiner AN, Hellings PW, Rotiroti G, et al. Allergic rhinitis. *Lancet* 378:2112–2122, 2011.
- Hadley JA, Derebery JM, and Marple BF. Comorbidities and allergic rhinitis: Not just a runny nose. *J Fam Pract* 61(suppl): S11–S15, 2012.
- Bousquet J, Khaltav N, Cruz AA, et al. Allergic Rhinitis and Its Impact on Asthma (ARIA) 2008 update (in collaboration with the World Health Organization, GA(2)LEN and AllerGen). *Allergy* 63(suppl 86):8–160, 2008.
- Wallace DV, Dykewicz MS, Bernstein DI, et al. The diagnosis and management of rhinitis: An updated practice parameter. *J Allergy Clin Immunol* 122(suppl):S1–S84, 2008.
- Schoenwetter WF, Dupclay L Jr, Appajosyula S, et al. Economic impact and quality-of-life burden of allergic rhinitis. *Curr Med Res Opin* 20:305–317, 2004.
- Meltzer EO, Blaiss MS, Naclerio RM, et al. Burden of allergic rhinitis: Allergies in America, Latin America, and Asia-Pacific adult surveys. *Allergy Asthma Proc* 33:S113–S141, 2012.
- Meltzer EO, Gross GN, Katial R, and Storms WW. Allergic rhinitis substantially impacts patient quality of life: Findings from the Nasal Allergy Survey Assessing Limitations. *J Fam Pract* 61(suppl):S5–S10, 2012.
- Kay GG. The effects of antihistamines on cognition and performance. *J Allergy Clin Immunol* 105:S622–S627, 2000.
- Meltzer EO, and Bukstein DA. The economic impact of allergic rhinitis and current guidelines for treatment. *Ann Allergy Asthma Immunol* 106(suppl):S12–S16, 2011.
- Reed SD, Lee TA, and McCrory DC. The economic burden of allergic rhinitis: A critical review of the literature. *Pharmacoeconomics* 22:345–361, 2004.
- Lamb CE, Ratner PH, Johnson CE, et al. Economic impact of workplace productivity losses due to allergic rhinitis compared with select medical conditions in the United States from an employer perspective. *Curr Med Res Opin* 22:1203–1210, 2006.
- Blaiss M. Allergic rhinitis: Direct and indirect costs. *All Asthma Proc* 31:375–380, 2010.
- Fromer LM, Ortiz GO, Ryan SF, and Stoloff SW. Insights on allergic rhinitis from the patient perspective. *J Fam Pract* 61(suppl):S16–S22, 2012.
- Soni A. Allergic rhinitis: Trends in use and expenditures, 2000–2005. Medical Expenditure Panel Survey, Statistical Brief 204, May 2008. Available online at www.meps.ahrq.gov/data_files/publications/st204/stat204.pdf; accessed November 19, 2013.
- Schneider H, Roehring RC, Coppolecchia R, et al. White paper on the benefits of OTC medicines in the United states. *Pharmacy Today*, October 68–79, 2010.
- Consumer Healthcare Products Association. The value of OTC medicine to the United States. Available online at www.yourhealthathand.org/images/uploads/The_Value_of_OTC_Medicine_to_the_United_States_BoozCo.pdf; accessed December 1, 2013.
- Blaiss M. Safety update regarding intranasal corticosteroids for the treatment of allergic rhinitis. *Allergy Asthma Proc* 32:413–418, 2011. □

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