

# Allergic rhinoconjunctivitis in the Australian population: Burden of disease and attitudes to intranasal corticosteroid treatment

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## ABSTRACT

**Background:** Allergic rhinoconjunctivitis (AR/C) is a global health problem causing significant morbidity and has a major impact on quality of life (QOL) and health expenditure. Despite the widespread prevalence, the overall health impact of AR/C may be underappreciated. The results of a survey designed to capture the burden of allergic rhinitis within the Asia-Pacific region have been published recently. Of particular note when evaluating treatment in this region was the fact that despite the value of intranasal corticosteroid (INCS) use, only a small percentage of patients used them. Whether this same trend is present within the population of Australian sufferers is unknown. This study examines the burden of AR/C and explores use of, and attitudes, to INCS sprays in the Australian population.

**Methods:** Three hundred three completed interviews from adults and children who had physician-diagnosed AR/C and who were symptomatic or had received treatment in the previous 12 months were analyzed for QOL measures and attitudes to INCS use.

**Results:** Most patients surveyed had received their diagnosis from a general practitioner (GP), and in most cases, a GP provided the majority of ongoing medical care. Only 8% of respondents had consulted a relevant specialist. Diagnostic tests had not been performed in 55% of respondents. The major symptoms causing most distress were nasal congestion and ocular symptoms. The burden of AR/C was considerable; 42% described significant work or school interference because of symptoms, one-third reporting moderate-to-extreme interference with sleep. Despite the significant impact on QOL reported by this sample, 17% had never used INCS and 27% had not used them in the previous 12 months. Respondents' knowledge about INCSs was poor.

**Conclusion:** AR/C is a common disease associated with significant morbidity and impairment of QOL. Improvement in diagnosis, management, and patient education is needed.

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Allergies have emerged as a major public health problem in developed countries during the 20th century. Allergic rhinoconjunctivitis (AR/C) is generally recognized as the most common chronic respiratory disorder worldwide. It is characterized by nasal blockage, rhinorrhea, sneezing, and nasal or palatal itching. The majority of people also report ocular symptoms, consisting of ocular itch, tearing, and redness. Australia and New Zealand have among the highest prevalence of allergic disorders in the developed world. In Australian youth (aged 12–24 years), 3 of the 10 most common self-reported chronic illnesses are AR/C (14%), asthma (9%), and chronic sinusitis (5%).<sup>1</sup>

Traditionally, AR/C has been regarded as a nuisance rather than a significant health problem; however, a number of studies have indicated that allergic rhinitis and AR/C can be associated with significant morbidity, not only limited to its physical symptoms but including significant impact on patients' quality of life (QOL).<sup>2–4</sup> A number of studies have shown significant consequences of AR/C on emotional well-being, productivity, and cognitive functioning.<sup>5–7</sup> Much of this impairment may stem from significant sleep disturbances associated with chronic AR/C.<sup>6</sup> In addition, there is a considerable economic burden that includes both direct costs to patients and indirect costs caused by absenteeism and presenteeism (decreased productivity at work/school).<sup>8</sup>

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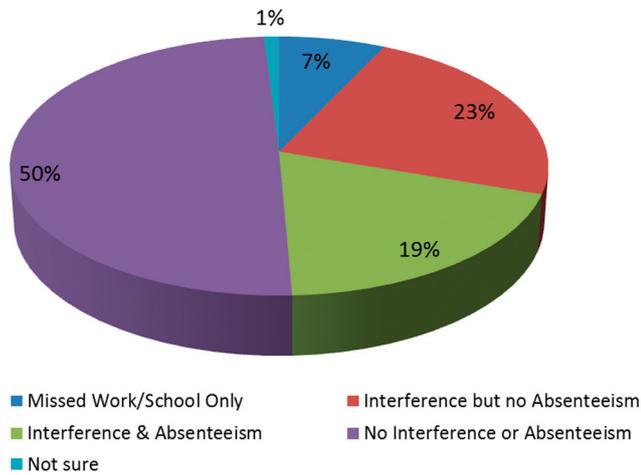
Intranasal corticosteroids (INCSs) are commonly used medications for patients with AR/C because they address the underlying inflammatory component and relieve all symptoms of AR/C including nasal blockage and ocular symptoms.<sup>9</sup> It is for these reasons that most treatment guidelines for AR/C recommend INCSs as treatment of choice for moderate-to-severe disease.<sup>10–15</sup> However, despite these recommendations, the results of a survey designed to capture the burden of allergic rhinitis within the Asia-Pacific region have been published recently and of particular note when evaluating treatment was the fact that despite the value of INCSs, only a small percentage of patients (adults, 25%; children, 18%) in this region used them.<sup>16</sup> Whether this same trend is present within the Australian population is unknown.

The present study was designed to use robust data collection methods to examine the burden of AR/C and its management in the Australian population in 2010.

## METHODS

This study was part of a wider survey of nasal allergies in the Asia-Pacific region, which was conducted in nine Asia-Pacific countries. The survey sought out adults, adolescents and children (≥4 years old) who had physician-diagnosed AR/C and who were symptomatic or receiving treatment for their problem in the past 12 months. A detailed description of the overall methodology has been published.<sup>16</sup> Telephone or in-person interviews were conducted between December 2009 and January 2010. Sample weights were developed to correct for sampling bias and differences between eligible patients screened and interviewed. In accordance with the National Statement on Ethical Conduct in Human Research, prior ethical review was not undertaken for this activity. The survey was conducted from December 5, 2009, to January 20, 2010.

In this study, we present the findings from the Australian survey. Three hundred three individuals (262 adults with AR/C and 41 carers of adolescents or children with AR/C) completed a detailed survey exploring symptoms, impact on QOL, and INCS use and attitudes to this medication.



**Figure 1.** One-half the respondents reported interference with performance and/or interference with attendance at school or work as a result of allergy symptoms. Data are presented as percentage of all responses ( $n = 303$ ).

## Survey Questions

We extracted data focusing on impact of AR/C on QOL and effectiveness and side effects of AR/C medications in particular INCSs.

## RESULTS

### Diagnosis of AR/C

Most individuals had the diagnosis made by their general practitioner (GP; 84%), and it was also the GP who continued to manage the condition (92%). Only 8% of patients had consulted a specialist (allergist; ear, nose, and throat specialist; or respiratory physician) in the preceding 12 months.

Diagnostic investigations had been performed in a minority of respondents; 15% had undergone skin-prick tests for allergy; 13% stated that a blood test had been performed and 15% had received both blood tests and skin-prick tests.

### Symptom Pattern

There was a definite springtime peak when respondents were asked to nominate the worst month for experiencing symptoms. September, October, and November were nominated by 61, 66, and 52%, respectively, as being the peak month of symptoms (spring months in Southern Hemisphere).

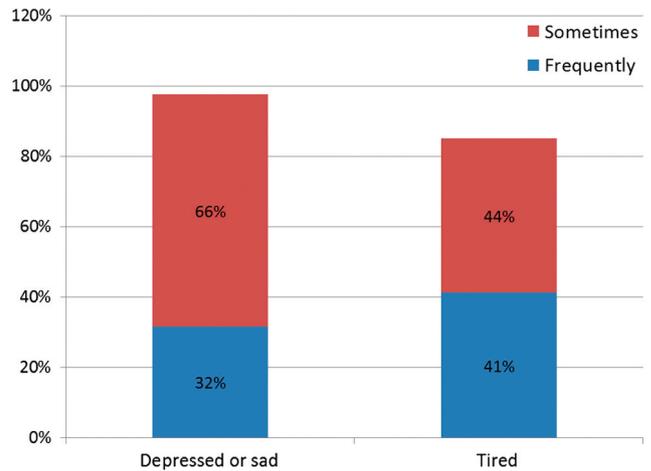
Fifty-two percent of respondents could not tolerate AR/C symptoms without medication relief.

### Burden of AR/C

Interference with performance at work or school because of symptoms was noted by 42% of respondents (Fig. 1). Nearly one-half of this group stated that their performances were significantly affected. When asked about their feelings during the worst month of allergy symptoms this group reported experiencing significant impairment in well-being. Figure 2 shows this burden on well-being and energy levels. In a similar fashion, sleep is greatly impacted with almost one-third of respondents reporting moderate-to-extreme interference (Fig. 3).

### Management

Unsatisfactory symptom control over the preceding 4-week period was reported by 47% of respondents. Fifty-two percent of respondents had consulted their GP about AR/C symptoms in the last 12



**Figure 2.** Symptoms of depressed mood and fatigue were frequently experienced by many respondents. Respondents were asked if they experienced these feeling frequently (blue bars) or sometimes (red bars). Data are presented as percentage of all responses ( $n = 303$ ).

months with mean number of doctor visits for AR/C being 4.3 for the year.

In this survey 17% of AR/C patients had never received an INCS. An additional 27% had not used an INCS in the previous 12 months. Forty-three percent of respondents had never been shown how to use a nasal spray correctly, and an additional 35% had been shown >1 year ago.

For those patients using INCSs as a management option, satisfaction was high; 64% stated that most or all symptoms were effectively relieved and only 4% reported no significant symptom relief. All respondents who had ever used INCSs were asked reasons for non-compliance (Fig. 4). Among children, concerns about dependence and the dislike of nasal sprays were more common reasons for non-compliance than among adults, and symptoms' not being severe enough was more frequently reported among adult patients.

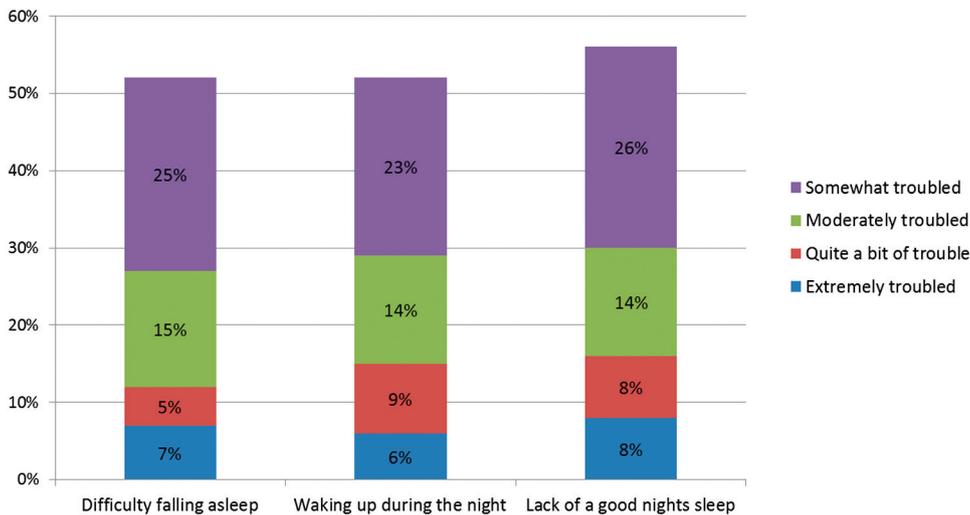
Patient knowledge regarding INCSs was poor; 67% stated they had no or little knowledge about INCSs and an additional 22% admitted to having only modest knowledge. One in five had no idea of what they could expect from INCSs with respect to symptom relief.

Side effects from medication frequently result in non-compliance. For INCS users the most commonly reported side effect was the sensation of dripping down the throat. Other reasons for non-compliance with medication included lack of effectiveness (69%), <24-hour symptom relief (16%), bothersome side effects (9%), and safety concerns (6%).

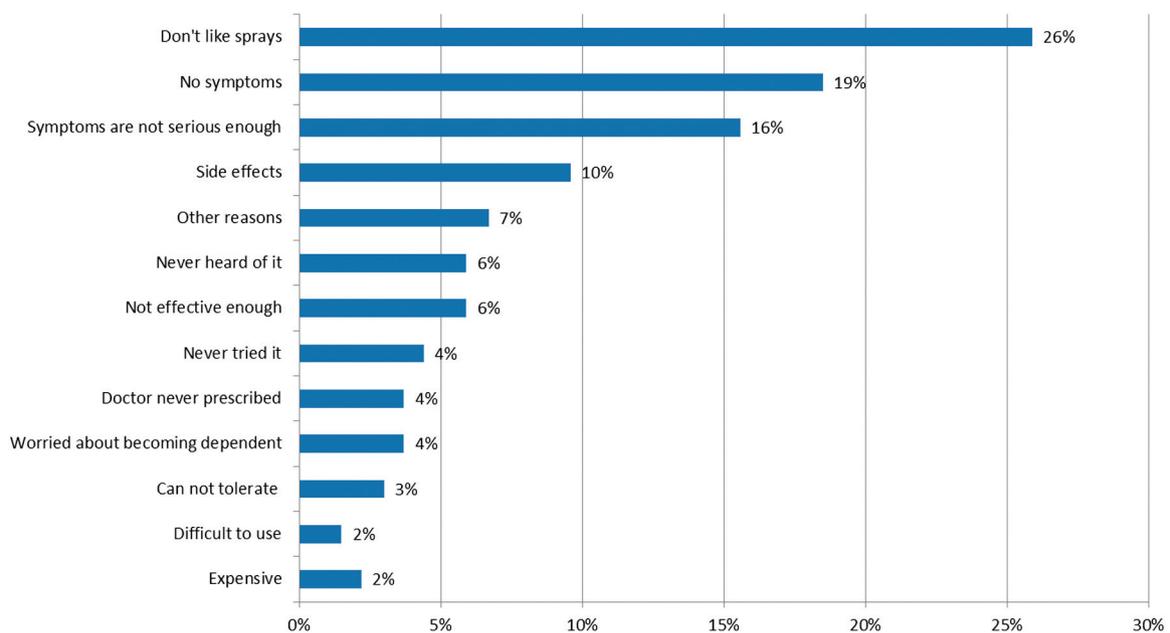
## DISCUSSION

Our results indicate that 55% of patients with clinically diagnosed AR/C have never had any formal testing (neither *in vitro* specific IgE testing or skin-prick testing) performed. Considering the burden of this disease and its economic impact on the community,<sup>17</sup> the authors believe that a more standardized approach to formal diagnostic testing should be implemented.

Harmsen *et al.* considered the effect of GP versus specialist care on the QOL in asthma patients with or without AR/C. They found a significant improvement in patient QOL with specialist rather than GP care.<sup>18</sup> Our results showed that 84% of patients were first diagnosed with AR/C by a GP and 92% of patients were most often treated by a GP. The burden of AR/C on patient productivity and QOL is often underestimated by health care providers.<sup>19</sup> A significant consequence of AR/C, which is not typically considered by the health care practitioner, is the reduced quality of sleep due to the nasal obstruction. More than 50% of respondents



*Figure 3.* The majority of respondents reported sleep interference during the previous week before the survey. Respondents were asked to report how troubled they were by different aspects of sleep interference. Data are presented as percentage of all responses (n = 303).



*Figure 4.* Respondents gave numerous different reasons for noncompliance. Data are presented as a percentage of all responses (n = 303).

had difficulty falling asleep and had nocturnal awakenings. In other studies, this has been shown to lead to daytime drowsiness, fatigue, and significant impairment in both learning and cognitive function.<sup>20-22</sup> Our data support the importance of lost productivity as a result of allergy symptoms. More than 80% of respondents complained of feeling tired and >45% reported feeling depressed and/or miserable because of their AR/C. Nearly one-half of our sample admitted to absenteeism or interference with work/school as a result of allergy symptoms.

AR/C is such a prevalent condition in the Australian population that it must be managed appropriately by GPs. There are too few specialists in the country to meet the need of referral for every patient so this should be reserved for complicated cases or for an opinion regarding the advisability of surgery (ear, nose, and throat specialist) or immunotherapy (allergist/immunologist).

Our results suggest a poor understanding by patients of their condition and its management. It has been well documented by numerous studies that patients' symptoms and QOL are significantly improved by appropriate intranasal treatment.<sup>19,23-25</sup> Leading AR/C management guidelines indicate that INCSs are the most effective

drug class and preferred medication for management of moderate-to-severe AR/C<sup>10,11</sup>; however, in this study the overall knowledge about the use of INCSs was poor. In our study 67% of patients stated they had "little or no knowledge" about the use of INCS sprays. An additional 22% admitted "only modest knowledge" with only 11% of respondents claiming knowledge about their treatments. In our study, 64% of patients reported that most or all of their symptoms were effectively relieved and only 4% reported no symptom relief. In the patient group where INCS was ceased, the rationale given was a lack of efficacy of the treatment; however, we do not know whether this was caused by poor technique and compliance rather than ineffectiveness of INCS. Because correct INCS application technique is important,<sup>26,27</sup> it is likely that improved patient education regarding the correct use of INCS sprays may improve compliance and efficacy.

## CONCLUSIONS

This study confirms that AR/C in the Australian population is associated with both high morbidity and significant negative impact

on QOL. Results of our study reveal an inadequate diagnostic pathway for many patients, resulting in suboptimal treatment. Because the majority of patients are diagnosed and managed by GPs, educational activities targeting appropriate investigation and management of this chronic condition are still required. Patients themselves have reservations about current management strategies, indicating a need for improved patient and practitioner education. These findings are in agreement with the results of studies performed in other regions of the world.<sup>16,28–30</sup> Finally, for some patients there remains a treatment gap both in drug efficacy and in problems with delivery systems.

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