Chapter 5. Future Research

Future research priorities were identified by reviewing the available evidence for each question addressed by the report. When the evidence was seriously flawed or insufficient to adequately answer a question, important gaps in evidence and research priorities were identified. These are discussed below. Additional areas for research are also identified in the Agency for Healthcare Research and Quality (AHRQ) evidence report, "Management of Allergic and Nonallergic Rhinitis" (Long, McFadden, DeVine, et al., 2002).

Costs and Work Performance

Although several studies have estimated the burden of illness due to allergic rhinitis, cost estimates vary widely, and both methodological issues and changes in current practice limit the applicability of these studies. Methodological challenges include: the definition of allergic rhinitis (particularly when using administrative datasets); valid cost estimates that include over-the-counter medications; and valid, objective measures of productivity changes. Additional data are needed regarding how allergic rhinitis in children affects working parents' productivity. In addition, existing analyses antedate the increased use of non-sedating antihistamines and nasal glucocorticoids. An updated study that adequately addressed these issues would give a more valid estimate of the direct costs associated with allergic rhinitis.

Ideally, the effects of treatment on work performance would be determined from randomized trials that include objective measures of work performance. Alternatively, one could model the impact of treatments on work performance if valid links existed between symptom outcomes or health-related quality of life (HRQOL) measures and work performance. Unfortunately, we did not identify any studies that establish these links. Since symptom outcomes and HRQOL are typically easier to measure than productivity, studies that would allow one to associate a given change in symptom or HRQOL score with a corresponding change in work productivity across a variety of jobs would be a particularly valuable contribution.

Environmental Measures

Based on the pathophysiology of allergic rhinitis, interventions that decrease allergen exposure through environmental control measures are conceptually appealing. The small number of studies evaluating such interventions did not yield definitive results, but the data for house dust mite controls are encouraging. Future studies will need to overcome a number of conceptual and methodological challenges. Since individuals are often allergic to more than one allergen, allergen avoidance measures may be needed for each significant allergen. Most studies to date have focused environmental controls on house dust mites or indoor aeroallergens. More comprehensive measures, such as those recommended in the National Heart, Lung, and Blood Institute's "Practical Guide for the Diagnosis and Management of Asthma" (National Heart, Lung, and Blood Institute, 1997), should be tested in patients with allergic rhinitis and significant functional impairment. If comprehensive measures are effective, future studies should identify the most critical components, since lifestyle changes are often difficult for patients to adopt. Another practical issue is whether allergen avoidance measures are more effective when tailored

to an individual patient's specific allergic sensitivities, or whether more general recommendations without specific allergy testing are adequate.

Immunotherapy

Immunotherapy (IT) is a potentially important treatment for allergic rhinitis. However, it requires special expertise, a committed patient, and is relatively expensive. Immunotherapy may be administered by injection, nasally, or sublingually, but there are few studies using the latter two routes of administration. Most studies have focused on patients with grass-pollen- or ragweed-induced seasonal allergic rhinitis. To better understand the role of IT in the treatment of allergic rhinitis, we need clinical trials employing vaccines containing most or all of the relevant allergens for each individual, which would allow us to assess IT as it is administered in most community settings. Such polyantigen studies would require new approaches to outcome measurement; currently, studies on seasonal allergens rely on timing symptom assessment to peak allergen levels. Additional future research objectives should be focused on the following: methods to identify patients likely to benefit from IT; cost-effectiveness and quality-of-life analyses of IT; determination of whether IT alters the natural history of allergic rhinitis and reduces possible sequelae such as bacterial sinusitis and asthma; comparisons of immunotherapy and the best available medical management and/or allergen avoidance; and studies clarifying the optimal duration of IT. Studies should be of sufficient duration to evaluate the short- and long-term effects of treatment, and adverse effects should be collected and reported systematically. An important subgroup to study is patients with co-occurring asthma, since effective treatment for allergic rhinitis has the potential to improve asthma symptoms.

Combined Treatments

To develop the most cost-effective management strategies, it is important to determine the relative efficacy of combinations of treatments compared to monotherapy. Compared to monotherapy, combined treatments are significantly more costly, and the potential effects range from no additional benefit to synergistic increases in efficacy.

The combination of an antihistamine plus a decongestant compared to either medication alone has been well studied in a large number of relatively short-term trials. Similarly, antihistamines plus nasal glucocorticoids have been compared adequately evaluated compared to either medication alone. Over 80 percent of these studies were done in patients with seasonal allergic rhinitis; longer duration studies in patients with perennial allergic rhinitis would provide useful efficacy data. In addition, longer duration "effectiveness trials" that included outcomes such as health-related quality of life and cost-effectiveness in primary care populations with clinically diagnosed seasonal or allergic rhinitis could guide policy. Other combinations (antihistamine, mast cell stabilizer, nonsteroidal anti-inflammatory drugs, ophthalmic antihistamine, and ipratropium) have been evaluated in single trials and more data are needed to better understand the efficacy of these combinations.

Clinician Specialty Differences

To understand the quality of current care for patients with allergic rhinitis, we need studies describing current practice patterns. Theoretically, earlier and more aggressive treatments that include allergy avoidance measures, immunotherapy, and medications may lead to better functional status, better work productivity, and fewer disease-related complications. Observational studies that compare treatment patterns and outcomes across specialties will need to pay careful attention to case-mix adjustment. A standardized and validated severity-of-illness scale would facilitate this research. In addition, prospective studies that compare symptomatic treatment to allergen identification with specific treatment would directly address two approaches commonly used in generalist and specialty practices. The development, implementation, and testing of clinical practice guidelines may provide the impetus for studying clinician practice patterns and outcomes as well as a framework for improving practice and evaluating outcomes. Finally, studying patient preferences and expectations for treatment and consulting behavior may provide important insights into clinician specialty case mix, practice patterns, and outcomes.

Racial and Ethnic Variation

Racial variability in disease prevalence, treatment patterns, or response to treatment can serve as cues to underlying differences in genetic susceptibility, environmental exposures, access to care, quality of care, or differing patient preferences for care. The few studies of disease prevalence did not show important differences by race. We did not identify any studies that described differences in treatment patterns or treatment response, in part because study populations were often incompletely described. We recommend that future studies give more complete descriptions of patient populations, including racial descriptors that might permit important subgroup analyses.

Need for Improved and More Uniform Trial Reporting

This evidence report highlights the need to improve the quality and homogeneity of trial reporting. Better reporting would aid interpretation and application of research findings and facilitate future literature syntheses. For clinical trials, the process for recruiting the study population and the population's clinical and demographic characteristics were often inadequately described. Thus the generalizability of study findings was often unclear. Design characteristics that help clinicians assess the validity of trial results were often incomplete, particularly information on randomization, allocation concealment, and, in some instances, blinding. Following the recommendations of the Consolidated Standards of Reporting Trials (CONSORT) statement for reporting trials would improve assessments of generalizabilty and validity (Moher, Schulz, Altman, et al., 2001).