

This Special Report contains substantial amounts of technical information in layman's terms. As you might imagine, the amount of medical and technical data that is available on the subject of allergies is enormous and beyond the scope of this document. For those of you that would like even more and very detailed medical information concerning allergic disease, several excellent resources will be provided in the Resources section at the end of this Report.

While there are many types of allergies, the biggest risk factors for the development of allergic disease are found in the indoor environment. These risk factors are dust mite and pet allergens. Allergies are developed largely by overexposure to these and other allergens. And people with relatively mild allergies can develop very serious, chronic and even life threatening illnesses if they continue to be exposed to such contaminants.

Until now the emphasis has been on trying to eliminate these substances from the indoor environment, which has been an extremely difficult and sometimes impractical task. Instead, drugs and allergy shots and plain old misery have been the primary ways that patients have managed their illnesses.

But now there is a way to actually inactivate these allergens so that the body does not recognize them and does not trigger an allergic reaction! Instead of trying to eliminate dust mites, for example, or to have a family face the trauma of giving away a child's beloved pet, we can now provide a treatment that will "denature" the most dangerous indoor allergens, rendering them harmless.

Section 1

The Allergy and Asthma Crisis

It has been well accepted by the medical community and government organizations such as the U.S. EPA and the Centers for Disease Control that allergic illnesses in America are reaching epidemic proportions. These allergic illnesses include allergic rhinitis (nasal allergies), asthma, allergic conjunctivitis and otitis media (middle ear infection). The symptoms of these illnesses can drastically impact the lives of those who suffer with them. Consider these alarming statistics:

- Well over 50 million North Americans suffer from allergies
- Allergies are the sixth leading cause of chronic disease in the United States
- Allergies are the most frequently reported chronic illness in children
- Up to 40% of North American children suffer from allergies
- 20 million Americans suffer from asthma, including 6.3 million children
- There are two million Emergency Room visits, 500,000 hospitalizations (half of which are children) and 5,000 deaths (including hundreds of children) due to asthma each year

- Asthma is the most common chronic childhood disease. Nearly 1 in 13 school-aged children has asthma, and the rate is rising more rapidly in preschool-aged children than in any other age group
- Approximately 4.2 million children had an asthma attack in the last year
- Asthma is growing at a rampant pace, increasing from 7 million sufferers in 1980 to 20 million in 2001
- Allergies are estimated to cost our economy \$18 billion annually with asthma costs estimated at \$14.5 billion in 2000
- Approximately 14 million school days and an equivalent number of workdays are lost due to allergies and asthma
- Asthma causes over 11 million doctor's office visits each year
- Asthma is the leading cause of school absenteeism due to chronic illness and during the past 20 years, the number of school absences due to asthma has more than doubled
- Asthma accounts for over 100 million restricted activity days each year
- Since 1980, asthma related hospitalizations and deaths are up by 75%
- The number of people affected by allergies, asthma and other allergic diseases is growing by 10% each year, which means that the total cases will double approximately every ten years!

Understanding Allergies and Asthma

What are Allergies?

An allergen is a substance found in the indoor or outdoor environment that is normally harmless to most people. Inhalation is the most common route for allergens, including those found in the indoor environment, to enter the body. Other allergens enter the body through ingestion (food allergies), skin contact (dermatitis) or injection (drug or bee sting allergies).

The first step in the development of allergic disease is a process called sensitization. Sensitization occurs when the body is overexposed to certain allergens, causing the immune system to produce what are known as IgE antibodies in response to these specific allergens. For reasons that medical science is not completely sure of, the body mistakes these harmless environmental substances for materials that cause illness, specifically infection, and creates IgE antibodies in order to protect the body from "sickness" when it encounters these substances in the future.

In effect, the body programs itself to consider these harmless substances as enemies to be defended against. A person can become sensitized without expressing allergic illness. Generally, continued overexposure to allergens and other environmental irritants causes the illness to manifest and symptoms to occur. Allergic illnesses often multiply and lead to much more serious, chronic and debilitating ones such as allergic rhinitis patients developing asthma or sinusitis.

Allergens are proteins that have unique shapes that identify them as allergens to the immune system. The allergen is like a lock and the antibody is like the key that fits only that lock. These IgE antibodies exist continuously in the body, constantly on the lookout for the presence of the allergen they were created in response to, sort of like keys floating

around the immune system looking for the locks they were created to fit. The way IgE antibodies identify allergens that have entered the body involves a kind of confirmation process. The antibodies look for many copies of the allergen protein shape or “lock” in order to confirm that this is indeed the invader that they were created to defend the body against.

When these antibody “keys” find a repetitive pattern of the allergen “locks” that they fit, the antibody and the allergen bind together, setting off a chain reaction designed to protect the body from infection. Part of this process is that the body releases chemicals called mediators, such as histamine, that cause what doctors call an “immunologically mediated adverse reaction” or allergic reaction or attack.

In essence, allergic reactions are the body’s mistaken reactions to fight off disease when the “invader” is actually a harmless environmental substance. These allergic reactions produce symptoms including itching, coughing, wheezing, sneezing, watery eyes, inflammation and fatigue, which are unpleasant, distressing and frequently debilitating, causing millions of missed school and work days each year.

Allergies are not only annoying and uncomfortable to say the least, but many have been linked to a variety of very serious chronic respiratory illnesses such as sinusitis and asthma. Allergic reactions can be severe and even fatal, with thousands of deaths being caused by allergic diseases such as asthma each year. Many people develop allergies simply through overexposure to allergens, especially when they are very young (though some are genetically predisposed to developing allergies). While there are many other risk factors, exposure to indoor allergens is now one of the largest and yet one of the most preventable and controllable causes of allergic illness.

The medical community has identified dust mite and pet allergens as posing the greatest risk for the development of allergies in the first place, continued suffering of those with allergic illness and a component in the development of much more serious allergic diseases such as asthma and sinusitis.

What is Asthma?

Asthma is a chronic, inflammatory, allergic disease in which the body’s airways become sensitive to allergens. When the asthma sufferer is exposed to certain triggers, the linings of the airways become swollen and inflamed, the muscles surrounding the airways tighten and the production of mucus increases, further blocking the airways.

Asthma is often associated with allergy and risk factors for developing asthma include sensitization to indoor allergens such as from house dust mites, animals and cockroaches as well as outdoor allergens, early exposure to tobacco smoke and a variety of other risk factors.

During an asthma attack, which can last from a few hours to several days, breathing is difficult and symptoms also may include wheezing, coughing and chest tightness. Asthma can even cause death.

Each asthmatic has different triggers that cause attacks. These triggers include indoor allergens such as dust mites, animal dander and cockroaches, certain foods, strong fumes,

irritants like cigarette smoke, smog, soot or pollen, respiratory infections, cold or windy weather conditions, and emotions or exercise that cause deep or rapid breathing.

One of the most important ways to control asthma attacks is to determine and eliminate the specific triggers for each individual. A health care professional should also be consulted to decide if allergy tests would be useful and which medications might help. The Relationship Between Allergic Diseases Medical science does not clearly understand the links between allergic illnesses but it is clear that such relationships exist. People suffering from less serious allergies such as allergic rhinitis, for example, are at greater risk for developing much more serious illnesses such as asthma and sinusitis. It is also clear that treating the less serious allergic illness is an important strategy for preventing the development of more serious illnesses or as part of managing the more serious illness once it has developed. There are many diseases that are likely to have an allergic component including rhinitis, conjunctivitis, asthma, dermatitis, urticaria (wheals or hives) and anaphylaxis. Again, the suspected link between allergic rhinitis with the development of asthma, rhinosinusitis, allergic conjunctivitis and otitis media is well established. To provide some idea of the magnitude of these illnesses, rhinosinusitis affects over 14% of the U.S. population and causes over 58.7 million restricted activity days annually and otitis media (middle ear infection) is the most common childhood disease requiring a healthcare visit.

Asthma is also commonly associated with allergic rhinitis, (also known as nasal allergy), which is an inflammation of the mucous membranes of the nose with characteristic symptoms including sneezing, itching, nasal discharge and congestion. In fact, as many as 78% of asthma patients have nasal symptoms and as many as 38% of allergic rhinitis patients have asthma. Treating the allergic rhinitis in asthma sufferers often helps treat the asthma condition as well.

Researchers are not sure why allergic illnesses are so closely related but suspect that the common passageways they share (sinuses, throat and lungs) may be the reason. But whatever the case it is clear that such illnesses can easily multiply and develop into much more serious conditions if allergen exposure is left unchecked. Allergy and Asthma Triggers and Indoor Air Quality Once allergic disease is developed, asthma or allergy attacks can be caused by something that bothers the lungs, typically referred to as triggers. Triggers fall into two basic categories: allergens and irritants. Allergens not only trigger allergy attacks but also the chemicals released during such attacks (called mediators) can, in turn, trigger asthma attacks. The most important triggers in indoor air are dust mite and animal (pet) allergens. These allergen proteins are known by the following designations:

Dust Mite Fecal Matter: Der p 1 and Der f 1 Animal Dander: Dog Dander Can f 1 and Cat Saliva Fel d 1 (though all types of animals and birds may also cause allergy)

Irritants such as cold air, cigarette smoke, industrial chemicals, perfume, paint and gasoline fumes can also trigger asthma. People with asthma may have a wide range of sensitivity to irritants, including cleaning chemicals. Therefore, it is very important to use cleaning products developed specifically for such applications, such as MasterBlend's ResponsibleCare products. These irritants likely trigger asthma symptoms by stimulating irritant receptors in the respiratory tract. These receptors, in turn, cause the muscles surrounding the airway to constrict, resulting in an asthma attack. There is no question

that the quality of indoor air (as well as outdoor air) can pose a significant health risk. Consider that the U. S. EPA states that indoor air pollution is one of top five environmental risks to public health and EPA statistics show levels of indoor pollutants 2 to 5 to up to 100 times more concentrated indoors than outdoors. And, the American College of Allergy, Asthma and Immunology states that, “50 percent of all illnesses are caused by or aggravated by polluted indoor air”.

The cleaning industry has long been aware that lack of proper ventilation, improper design and maintenance of HVAC systems, off-gassing of toxic materials, exposure to second-hand tobacco smoke, exposure to volatile organic compounds and biological agents and the plethora of contaminants in indoor air we are exposed to at home and work have created a serious public health issue.

Given that Americans spend up to 90% of their time indoors, there is little question that indoor air pollution exacerbates allergic diseases, concentrates both triggers and irritants and plays a significant role in triggering allergy and asthma attacks. There are clear links that diesel exhaust and passive tobacco smoke exposure (found in both indoor and outdoor air) are both potent risk factors for allergic disease, for example. It is important to understand that the most serious allergens in terms of the development and progression of allergic disease cannot simply be “cleaned away” or removed by improved ventilation. This is not to say that sound cleaning and maintenance practices are not extremely important to creating a healthy indoor environment in general terms as well as a specifically allergy safe indoor environment. For example, a specially designed cleaning program is an integral component of the MasterBlend ResponsibleCare System of anti-allergen cleaning and treatment, but it should be recognized that cleaning alone will not solve the indoor allergen problem.

Let’s take a look at dust mite and pet allergies in greater detail.

Dust Mite Allergies

Some sources indicate that dust mites are responsible for 25% of all allergies and are the most important cause of asthma worldwide. These sources further indicate that perhaps 15-20% of the earth’s population is severely allergic to dust mite allergen! Physician organizations such as the American Academy of Allergy Asthma and Immunology (AAAAI) states that dust mite feces are a major source of allergen found in house dust. It is clear that dust mite feces is one of the most important and hazardous allergens found in indoor environments.

Dust mites are actually arachnids and not insects. Related to spiders, dust mites are microscopic, eightlegged creatures that are 0.3mm in length (7,000 can fit on a fingernail) and are invisible to the naked eye. Dust mites live on dead human skin cells, (which comprise up to 80% of house dust!) as well as fungi and bacteria. They also live off water vapor, which we provide for them by perspiration and respiration, emitting approximately one pint of moisture per person per night. This is why mites are found even in areas of extremely low humidity and prevention strategies such as reducing humidity levels in the home are generally ineffective.

Dust mites are found in virtually all homes regardless how clean, with the principal source of exposure in the home being the bedroom. Dust mites are found primarily

in mattresses, sheets and blankets, pillows, stuffed animals, carpets, curtains and upholstered furniture. The average bedroom can be infested by millions of microscopic dust mites with up to 20% of the weight of an old pillow being dust mites!

In fact, while dust mites can be found throughout the home, 60% of them live in mattresses, making the bedroom the number one treatment priority. The bedroom provides a plentiful supply of shed human skin cells, warmth and humidity, making it an ideal environment for dust mites to thrive and multiply in. And, given that we spend up to one-third of our lives in the bedroom, we are also exposed to this highly potent allergen for long periods of time, increasing the likelihood of developing or aggravating allergic diseases.

A dust mite will produce 20 to 100 fecal pellets per day. That's 200 times its own body weight in feces during its short lifetime! If dust mite pellets were the size of golf balls, the average queen size bed would have a pile of pellets 70 feet high! A female dust mite will also lay 100 eggs during its approximately ten-week lifetime, with a new generation being produced about every three weeks.

During the night, most people toss and turn up to 60 or 70 times. This expels dust mite feces into the air from bedding and pillows. These allergens can then stay in the air for up to two hours. Once airborne, these potent allergens are inhaled where they can cause allergic illness in the first place and stimulate allergic reactions and asthma attacks in those that already have developed allergic disease. Other activities such as walking, vacuuming (with most vacuum cleaners) and changing bed linens easily stir up dust mite allergens. Dust mite levels are on the rise but no one is really sure why. In 2002 the National Institute of Environmental Health published the results of a three year study determining that 47% of North American homes have bedding containing enough dust mite allergens to cause allergies. Of these homes, 24% had levels that were five times greater than the threshold to cause allergic reactions.

It is speculated that this rise is due to construction of "tight", energy efficient homes and offices, which reduces ventilation and increases humidity as well as the popularity of cool water detergents and cold water washing (hot water washing kills dust mites). Some authorities suspect the prevalence of wall-to-wall carpeting is also a factor in the increasing levels of dust mites. This hypothesis was put to the test in Sweden over 10 years ago. At that time in Sweden it was thought that carpet contributed to the development of allergic illnesses. Installed carpet was banned from public buildings and its market share went from 40 percent to 2 percent today. During that same time period, allergic cases increased 600 percent! Now Swedish authorities believe that the increase in allergies was due to poor indoor air quality. Unfortunately, this assessment comes a little late for the Swedish carpet industry. As we know now, carpet likely acts as a filter or reservoir that holds indoor pollutants until they can be removed from the environment by cleaning.

Still, physicians and medical organizations often recommend minimizing the use of carpets and upholstered furniture, something that you as a cleaning and indoor environmental professional will need to be prepared to refute.

Laurence Lee, a Certified Industrial Hygienist at Argus Pacific has even found high levels of dust mites in office work places. It is being increasingly suspected that work environments are also causing and aggravating allergic conditions.

Pet Allergies It is estimated that there are more than 100 million pets in the United States And more than 70% of American homes have a dog or a cat or both. We are attached to Our pets for a variety of reasons including unconditional love, companionship, security and comfort to name a few.

However, according to the Humane Society of the United States, approximately 15% of the U.S. population is allergic to pets and other animals. People with pet allergies are allergic to a protein, which is found in pet dander (dead skin flakes), oils secreted by the sebaceous (skin) glands, saliva and urine. There is a common misconception that people are allergic to pet hair or fur. It is not the hair itself that causes the allergic reaction. However, exposure to pet hair can and does expose people to allergens carried on the hair. This is because when an animal grooms itself, allergen-containing saliva is deposited on the hair. And, hair and fur can collect dust, pollen, mold and other allergens.

So, while the hair or fur is not an allergen in and of itself, it is easy to understand why the misconception concerning “pet hair allergy” exists. Given that there is no allergy to pet hair, per se, there is no such thing as a non-allergenic pet, even short haired or hairless breeds. Cat allergies are twice as common as dog, though birds, rabbits, rodents and any animal with feathers or fur can create or trigger allergies. Pet droppings are also of concern, especially in the case of birds and rodents. Pet allergen accumulates easily and persistently in carpets, mattresses, bedding, upholstered furniture and clothing. It consists of very small, lightweight particles and can stay airborne for long periods of time when disturbed, being easily inhaled into the nose and lungs or landing on the lining of the eyes.

One would, of course, expect to find animal allergens primarily in homes where animals are present. Surprisingly, however, animal allergens are also found (in lesser amounts) in places where pets have never been present such as workplaces, schools and other public buildings. It is likely that pet allergen is brought into these environments on the clothing of pet owners. Animal dander is sticky and can easily adhere to other surfaces. So while dander on smooth surfaces can be easily removed by simple cleaning, dander on textile surfaces such as carpeting, upholstered furniture, mattresses and clothing can persist for long periods of time. Most estimates are that even after pets have been removed from a home, pet allergens will still be present even after five to six months!

The number one recommendation of allergists to families with pet allergy sufferers is to remove pets from the home. Anyone who has had to face the trauma of giving up a beloved pet will understand why it is estimated that between 75 and 90% of families with pet allergies do not take their physician’s advice and remove their pets from the home.

The Humane Society estimates that one third of people with cat allergies, perhaps the most potent pet allergy, have at least one cat in the home! It’s clear that the benefits of pet ownership clearly outweigh the allergic symptoms for the majority of pet allergy sufferers.

Like dust mites, prolonged exposure to pet allergen can cause the development of allergies as well as aggravate existing allergic illness and stimulate the progression of allergies into more serious allergic diseases such as asthma. In fact, 20 to 30 percent of asthma sufferers also have pet allergies.

Given that people are so unwilling to treat pet allergies by removing the offending pets, and that containing and controlling pet allergen is so difficult, a treatment regimen such as MasterBlend's ResponsibleCare System that renders pet allergen inert and unable to cause allergic reaction is ideal. Can Allergic Illnesses be Controlled and Even Prevented Through Environmental Control?

One of the major reasons people develop allergic illnesses is overexposure to various allergens, especially those found in indoor air. This is due in part to the rapidly increasing levels of serious allergens, especially from dust mites and pets, found indoors combined with the fact that Americans now spend up to 90% of their time indoors. The American Academy of Allergy Asthma and Immunology (AAAAI) states that it is important to implement a system of controlling exposure to indoor allergens (known as Environmental Control or EC) before the expression or manifestation of allergic illness. EC is one of the four general principles of preventing and managing allergic disease recommended by the medical community.

They go on to say that it is important to use Environmental Control in homes with young children in order to prevent sensitization, the first phase in the development of allergic disease, in non-atopic (those without a genetic predisposition to allergic illness) children.

It is now clear that allergies can, in fact, be controlled and even prevented by avoiding the triggers that cause them. These same triggers can cause sufferers to develop additional and often more serious allergic illnesses as well.

With EC, efforts are made to reduce exposure to or eliminate the sources of the most important indoor allergens; dust mites and pets. Often, this approach is focused simply on reducing house dust, which contains these allergens when they are present. The theory being that a reduction in dust will equal a reduction in allergen.

There are many ways that people implement EC. These include mattress covers, HEPA air cleaners, specialized vacuum cleaners and even some exotic practices such as liquid nitrogen treatments. And there have been many reports that these efforts have helped some people.

And while it makes sense to practice EC to the extent that one is able, the real truth is that, until now, there has not been a truly successful way to reduce the most serious allergens found in indoor air without a lot of effort and expense and the very real possibility that no matter how diligent one is at implementing EC, results are uncertain at best.

Doing Nothing Can Make Something

Annoying, Bad and Something Bad, Worse Exposure to dust mite and pet allergen are widely accepted to be one of the most important causes of allergic disease. And, continued exposure aggravates allergic illnesses, which can lead to the development of others. Allergies are also risk factors for the development of more serious, chronic and even life threatening illnesses like asthma and sinusitis.

Why allergic illnesses tend to multiply is not yet clearly understood. Scientists suspect that the common passageways of the sinuses, throat and lungs may be the reason. But in any case, there is a well established suspected link between allergic rhinitis (nose) with the development of asthma (lungs), rhinosinusitis (sinuses), allergic conjunctivitis (eyes) and otitis media (ears). Doctors now recommend that the most important way to reduce symptoms, control and even prevent the development of allergies and asthma is to avoid or minimize exposure to dust mite and pet allergens. One of the most important strategies for treatment of established allergic illness is the use of Environmental Control to minimize exposure to allergens that can lead to multiplication of allergic illnesses and the development of far more serious and even life threatening ones.

“Exposure to allergens produced by house dust mites—found in nearly every indoor environment—can lead to asthma in children who are predisposed to developing the disease.”

Institute of Medicine

“Indoor allergens play a major role in allergic diseases such as asthma and perennial allergic rhinitis. Most Americans spend more than 20 hours indoors each day.” “The Allergy Report”, American Academy of Allergy Asthma and Immunology “20 million Americans are highly allergic to dust mites.”

Asthma and Allergy Foundation of America

Four Principles for Managing Incurable Allergic Diseases

As we have discussed, people first become sensitized to certain substances in the environment due to a variety of conditions including overexposure to various allergens. During sensitization the body develops allergen specific antibodies and programs itself to have allergic reactions when exposed to these allergens. During this phase the allergic illness itself may not yet have developed or expressed. The second phase is when the allergic disease actually manifests and produces symptoms. Prevention is an ideal approach to allergic illnesses given the dramatic rise in such illnesses, that less serious allergic diseases often progress into chronic, serious and life threatening ones and the fact that allergic diseases cannot thus far be cured and can only be managed. Furthermore, prevention of allergic diseases is an important way to attempt to manage the enormous individual, social and economic costs of allergic disease. Therefore, the medical community bases prevention strategies for allergic diseases on the following three stages:

Primary Prevention:

This focuses on blocking sensitization and development of the IgE-mediated response and therefore allergic illness in the first place.

Secondary Prevention:

This strategy attempts to block the expression of the disease, despite sensitization.

Tertiary Prevention:

This tactic seeks to control factors that increase symptoms in persons who already have allergic illnesses.

Diagnostic Testing

While this Special Report focuses on Environmental Control as a prevention and management strategy for allergic illnesses, a medical diagnosis, including specific diagnostic tests, is important to confirm the diagnosis of allergy, to differentiate the allergic disease from other disorders, and to help develop appropriate treatment plans.

While the professional cleaning industry can perform an important and valuable service for allergy sufferers, we should do so in concert with the medical profession at all times. It is wise to always recommend that customers work with qualified medical professionals to treat their conditions.

There are four general principles recommended for managing (and in some cases preventing) allergic diseases by the medical community:

Five Reasons Environmental Control Often Fails

Reason Number 1: Source removal is impractical and quite frankly, impossible.

It makes sense to get rid of dust mites, the source of one of the most potent indoor allergens. But just how does one do that in the real world? We humans provide them with an endless supply of food and water. And regardless how cool and dry (and how uncomfortable for us) we keep the bedroom; we create a warm, moist microclimate every night for mites to thrive in. Eradication of dust mites would require such high levels of pesticide that such treatments would be harmful to humans. And, we always carry some mites on our hair and eyebrows that would be reintroduced to our bedding, starting the whole cycle again. Remember, each mite lays 100 eggs during its short life and a new generation is produced every three weeks. So even if it was appropriate to use pesticides and miticides on mattresses the thickness of a sheet away from an allergic illness patient's skin (which, naturally it is not!) such poisons would not eliminate dust mites.

In terms of pet allergies it is sometimes possible to eliminate the source of the allergen. However, we have already seen that in most cases the source of the allergen will not be removed from the home. Reason Number 2: To have a positive effect, Environmental Control must drastically reduce levels of allergen.

For people with dust mite allergies, to have any real effect EC must reduce dust mite populations to between one tenth and one hundredth of what they were before! And while it is not exactly known what degree of reduction would be required in terms of pet allergen, it is reasonable to suspect that similar reductions are required.

So as you might imagine, an Environmental Control program would have to be comprehensive and diligently followed to produce outcomes that would result in relief for allergy sufferers.

The bottom line is that whatever EC procedures are being followed they must perform very effectively in order to make any meaningful reduction in the allergen load in a home. This inability to adequately reduce the amount of allergen, and therefore symptoms, is often a cause of failure of EC efforts.

1. Environmental Control:

This is a strategy that seeks to avoid or control the factors that contribute to the development or aggravation of allergic disease including allergen sensitization (initial allergen overexposure), continued allergen exposure, and environmental irritants.

2. Pharmacologic Therapy:

There are many effective drugs now available to help manage allergic illnesses. However, these are management tools and not cures. The best results occur when drug therapy is used in concert with Environmental Control practices and allergen immunotherapy when appropriate.

3. Allergen Immunotherapy:

Allergen immunotherapy (also called allergy vaccine therapy or more commonly known as allergy shots) is the repeated, controlled administration of specific allergens to patients with IgE-mediated conditions. It can be useful for patients with allergic rhinitis, conjunctivitis, or asthma. The objective of allergen immunotherapy is to reduce disease severity from natural exposure to the allergens to which the patient is sensitive.

4. Patient Education

The primary source of patient education is likely to be their physician. Allergy sufferers will also obtain information from a wide variety of service and product providers, Internet sources and so on. It is important for cleaning professionals to be up to date on current knowledge concerning allergies, especially in the area of Environmental Control (which is the purpose of this Special Report).

Reason Number 3: EC efforts must be consistent and long term.

Since we already know that we can't eradicate the source of dust mite allergen and that pet allergen can linger for months and even years after the source is removed (when it even can be removed), EC efforts must be ongoing.

The sometimes drastic efforts of EC can be hard to sustain for months and years. EC can represent a real lifestyle change and in today's busy world, it is hard to add much more in terms of tasks or complexity and sustain such activities consistently.

Reason Number 4: EC can be too complex to understand and implement correctly.

There are a lot of theories out there about what steps to take, often proposed by those selling products for that purpose. That doesn't mean those products don't provide a benefit but it can be so confusing to allergy sufferers that they give up on any EC efforts at all.

Reason Number 5: EC efforts can be expensive and financially out of reach for some people.

Many EC efforts involve relatively expensive products such as air cleaners and HEPA vacuum cleaners not covered by insurance. For many people, such expenses are simply unaffordable.

To sum it all up, Environmental Control looks good on paper but often fails miserably in the real world where patients need it the most. Given that EC is one of medicine's

primary strategies for preventing and managing allergic illnesses this has been a real disappointment to people suffering with these diseases.

At last, Environmental Control can be an incredibly powerful weapon to prevent and manage allergic illness with the development of MasterBlend's Anti-Allergen Technology. This technology allows EC to be highly effective, knocking indoor allergen counts down dramatically to levels that will provide real and significant relief to allergic illness sufferers. Levels that can prevent the development of allergies in the first place. And, this technology is simple, non-toxic, scientifically proven to be effective and highly affordable.

Section 2

The Anti-Allergen Technology That's Revolutionizing Environmental Control

Remember that an allergic reaction takes place when IgE antibodies in the immune system come into contact with a repetitive pattern of shapes contained on the surface of allergen proteins. You might recall that we used the example of keys floating around the body looking for locks that only they fit. When these "keys" come together with these "locks" an allergic reaction is the result.

MasterBlend has developed a very simple and highly effective way of changing the shape of the allergen proteins, making it unrecognizable to the body as an allergen! In layman's terms, the chemical or molecular structure of the allergen protein is not changed but the shape of it is. And it is this shape that the antibody looks for in order to identify the substance as an allergen. So when you change this shape, there is no repetitive pattern of shapes that allow the body to identify the material as an allergen and therefore, there is no allergic reaction! Another way of looking at it is that this new Anti-Allergen Technology disassembles the allergen locks. The lock itself is not melted down or changed into something else and nothing is added nor taken away. In a very real way, the lock is still there. But as the antibody "keys" roam the body looking for the locks that only they fit, these allergen "locks" appear as cylinders and tumblers and shackles and cases and screws and rivets and so forth. Because they do not appear as a "lock" to the body, the antibody "key" does not bind with them and there is no allergic reaction! This breakthrough product is called Allergy Relief Treatment™ and is the cornerstone of MasterBlend's ResponsibleCare System of anti-allergen cleaning and treatment. It is effective on dust mite, cat and dog allergen, the most hazardous allergens found in the indoor environment.

Allergy Relief Treatment does not kill mites (or people or pets or anything else for that matter!). It is not a pesticide or a miticide.

Allergy Relief Treatment is a water-based solution that contains a powerful active ingredient derived from naturally occurring extracts found in certain fruit and vegetable seeds. This active ingredient has been scientifically proven to reduce indoor allergen concentrations below the levels that can cause allergy symptoms.

Allergy Relief Treatment provides an immediate reduction in allergen levels. In fact, most of the time, patients report a drastic improvement in symptoms within the first three nights when the bedroom has been completely cleaned and treated.

Even better, when properly applied, this treatment will provide a residual effect for up to six months! In homes where the source of allergies such as pets will not be removed or where allergy symptoms are very severe, treatments may be required every three months.

Allergy Relief Treatment is applied following cleaning with MasterBlend's ResponsibleCare System products simply by pump-up or electric sprayer to mattresses, carpeting, upholstered furniture, rugs and window treatments that are safe to wet clean. Allergy Relief Treatment can also be used to treat bedding in the washing machine. It is so effective that the treatment will remain effective for up to four subsequent machine washings.

Allergy Relief Treatment is not tannic acid, which is sometimes recommended for a similar purpose. Tannic acid can easily discolor many fabrics and even when it has been "decolorized" can make fabrics brittle and subject to strange discoloration when exposed to sunlight.

Allergy Relief Treatment is the foundation of

MasterBlend's ResponsibleCare System of anti-allergen cleaning and treatment, a system that is revolutionizing Environmental Control and providing unheard of opportunities for the cleaning professional to truly help their customers and prosper at the same time!

"This laboratory study has clearly demonstrated the potential for Allergy Relief Treatment as an effective denaturant of the major dust mite allergen Der p 1 protein."

Dust Mite Allergen Denaturation: A Trial of Allergy Relief Treatment
Richard Thorogood, MI Bio., Auckland University School of Medicine

"...Also, and more importantly from the allergen sufferers viewpoint, binding to Der p 1 (dust mite allergen) was reduced by the same proportion (100-1000 fold), demonstrating that exposure to (Allergy Relief Treatment) not only reduces the measurable concentration of Der p 1 (dust mite allergen) but also destroys its allergenicity."

Dust Mite Allergen Denaturation: A Trial of Allergy Relief Treatment Richard Thorogood, MI Bio., Auckland University School of Medicine "(Allergy Relief Treatment) was shown to have denaturing effects on Fel d 1 (Cat), Can f 1 (Dog), Der p 1 (Dust Mites), and Der f 1 (Dust Mites) in dust samples containing these allergens."

P. Brock Williams, Ph.D. Director of Research IBT

Reference Laboratory Lenexa, KS

How Much Allergen Reduction is Enough? One of the drawbacks of many Environmental Control efforts is that the reduction in allergen levels is insufficient to prevent or reduce symptoms or stop allergic illnesses from developing. The active ingredient in Allergy Relief Treatment has been scientifically proven to reduce indoor allergen concentrations below the levels that can cause allergy symptoms. "If an allergen denaturant (Allergy Relief Treatment) is to be of value when used in the home, it must have the potential to reduce dust mite allergen concentrations below the level that can

cause allergy symptoms. There is a threshold concentration of 10ug of Der p 1 (dust mite allergen) per gram of settled house dust, which is widely accepted to increase the risk of asthma symptoms in miteallergic asthmatics. Having the capacity to denature 90% of Der p 1 in house dust, Allergy Relief Treatment has the potential to reduce allergen levels below the 10 ug-g-1 threshold when house dust contains Der p 1 concentration of 100 uf.g-1. The average range of Der p 1 allergen levels in house dust in New Zealand are from 20-70 ug per gram of dust, whereas levels as high as 100 ug.g-1 do occasionally occur.”

Dust Mite Allergen Denaturation: A Trial of Allergy Relief Treatment Richard Thorogood, MI Bio., Auckland University School of Medicine “Allergy Relief Treatment clearly has the potential to fill the role of an effective means of reducing dust mite allergens in carpets and upholstery and has the potential to become an effective aid for the mite sensitive allergy sufferer to minimize allergen exposure.”

Dust Mite Allergen Denaturation: A Trial of Allergy Relief Treatment
Richard Thorogood, MI Bio., Auckland University School of Medicine
How You Can Use MasterBlend’s ResponsibleCare System to Drastically Improve the Lives of Allergy Sufferers.

The ResponsibleCare System consists of cleaners and a treatment specifically for the care of environments in the homes and work places of allergic illness sufferers or those who are chemically sensitive or both. Treatment of such environments is a two-step process. First, surfaces must be cleaned. As we have discussed, it is very difficult to remove allergen from textile surfaces by cleaning. However, we do want to remove the food source for dust mites as well as any allergen that can be released by cleaning. And, more importantly, cleaning removes the soils that might interfere with the application of Allergy Relief Treatment.

All of the ResponsibleCare cleaning products including Allergy Relief Treatment are hypoallergenic, non-toxic, dye and perfume free, contain no solvents, volatile organic compounds (VOC’s), phosphates or other hazardous materials and are biodegradable and environmentally safe and are derived from renewable fruit and vegetable seeds. They are also California CARB compliant.

The products are virtually odor free and have been specially formulated for use around people with allergic illnesses and chemical sensitivities. They can be safely and effectively used in homes with children and pets. Allergy Relief Treatment is so safe that it can even be used on pets!

Allergy Relief Treatment contains no benzyl benzoate and is not a pesticide or miticide. In addition to having no volatile organic compounds (VOC’s), ResponsibleCare products do not contain delimonene, a popular “green” cleaning agent that also off-gasses and can sometimes leave a soil attracting residue.

And, unlike other “green” cleaning products that achieve their non-toxic and green status at the cost of cleaning ability, ResponsibleCare products are formulated to be outstanding cleaners with an alkaline pH (10.0 for Anti-Allergen PreSpray and 9.2 for Anti-Allergen All Fiber Rinse), so you can obtain outstanding cleaning results even on heavily soiled carpets and upholstery.

The Anti-Allergen cleaning products include a Pre-Spray, All Fiber Rinse, Non-Fragrance Oxidizing Deodorizer and the Allergy Relief Treatment. In addition, there is an Anti-Allergen Filter Enhancer used to treat furnace filters and even vacuum cleaner bags. Anti-allergy services primarily focus on the bedroom of the allergy sufferer(s). This is because the bedroom is the area of greatest allergen concentration (in terms of dust mites) and therefore exposure. In fact, 60% of the dust mites in the typical home are found in the mattress.

The environment in the bedroom can be more easily managed in terms of Environmental Control measures such as placing air cleaners, restricting pets, removing dust attracting clutter and so on. And, since we spend one third of our lives sleeping in the bedroom, it makes sense to concentrate EC efforts there. For these reasons, when you are providing services to prevent development of allergies, focusing on the bedrooms of all members of the household is recommended. MasterBlend's ResponsibleCare System is designed to clean and treat mattresses, carpeting, upholstery, rugs, wet cleanable window treatments, baseboards, windowsills and bedding. While servicing the bedroom is the highest priority, significant benefits may also result from cleaning and treating other areas where allergy sufferers spend lots of time. These areas include the upholstered furniture and carpeting in rooms where time is spent watching television, reading and so on.

In homes where the source of allergies is a pet(s) that will remain in the home, all carpeted areas and upholstery that pets have access to should be cleaned and treated in addition to the bedroom. And naturally, the offending pet should never be permitted in the bedrooms.

Allergy Relief Treatment is Safe for You, Your

Customers, Children, Pets and the Environment The safety of the products is likely to be a very real concern of your customers. You should know that all of the ResponsibleCare cleaning products including Allergy Relief Treatment are hypoallergenic, non-toxic, dye and perfume free, contain no volatile organic compounds (VOC's), phosphates or other hazardous material and are biodegradable and environmentally safe. In addition, the products are derived from renewable fruit and vegetable seeds.

The products are virtually odor free and have been specially formulated for use around people with allergic illnesses and chemical sensitivities. They can be safely and effectively used in homes with very young children (who are at the greatest risk for developing allergic illnesses) and pets. Allergy Relief Treatment is so safe that it can even be used on pets!

In addition, some sources indicate that 25% of all allergies are caused by dust mite allergen and that 15-20% of the earth's population is allergic to the waste these creatures produce. Regardless of the actual numbers, the medical community is in agreement that dust mite and pet allergen are the most serious indoor allergens we are exposed to and that preventing or minimizing exposure to these substances is one of the main ways to prevent and manage allergic disease. Naturally, within a group of this size there will be all types of allergies and various levels of severity of the diseases being experienced. The more severe the illness, the more likely the person is to try to educate themselves and be

willing to purchase services that might ease the “pain” they are experiencing. Therefore, the most likely prospect groups are those with the most serious illnesses such as asthma, sinusitis, repetitive otitis media (inner ear infection) and so on.

Pet Specific Measures

Doctors’ number one recommendation to people with pet allergies is to get rid of the pet. However, in an estimated 75-90% of the cases, people do not follow this advice. Therefore, the following steps are recommended in addition to regular anti-allergen cleaning and treatment with MasterBlend’s ResponsibleCare System and the general procedures listed above.

- Indoor pets should be restricted to as few rooms in the home as possible and definitely kept out of the bedroom. The bedroom door should be kept closed at all times.
- Isolating the pet even to one room, however, will not limit the allergens to that room. Air currents from forced-air heating and air-conditioning will spread the allergens throughout the house. Homes with forced-air heating and/or airconditioning may be fitted with a central air cleaner, which may remove significant amounts of allergen. It is recommended to run such a unit at least four hours per day.
- Keep pets off of all upholstered furniture.
- Due to allergens that collect on animal’s fur and in saliva, allergic people should not pet, hug or kiss their pets.
- Place litter boxes in areas unconnected to the home’s air supply such as a closet or pantry. Allergic individuals should keep away from this area.
- More frequent washing of animals is recommended though the science is still inconclusive on whether or not this reduces allergen loads.
- Close forced air heating and air conditioning ducts in the patient’s bedroom.

Cockroach Specific Measures:

The first step in dealing with cockroaches should be eliminating or minimizing cockroach presence in the home. This can be notoriously difficult and pesticides will need to be carefully used for this purpose. Cockroach allergen can linger for years even after roaches have been eradicated. For this reason, the following steps are recommended.

- Keep food or garbage in closed containers
- Wash dishes after every meal
- Keep cupboards free of open food containers
- Take out garbage regularly
- Don’t store paper bags, newspapers, or cardboard boxes as they provide hiding places for cockroaches
- Use boric acid traps or hydromethanon but avoid using poisons around very young children
- Repair leaks under sinks as wet environments provide an ideal breeding ground for cockroaches

Allergy and Asthma Network/Mothers of
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www.aanma.org

American Academy of Allergy, Asthma and

Immunology
611 East Wells St.
Milwaukee, WI 53202
800-822-ASMA
414-272-6071
www.aaaai.org

(Note: The Allergy Report available on their website is
an invaluable source of technical information on
allergies and asthma!)

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11030 Ables Lane
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972-243-2272
www.aarc.org

American College of Allergy, Asthma and
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Arlington Heights, IL 60005
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847-427-1200
www.acaai.org

The American Lung Association
For the affiliate nearest you call 800-LUNG USA
www.lungusa.org

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1233 Twentieth St, NM Suite 402
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Washington, DC 20460
202-233-9370
Indoor Air Quality Information Clearinghouse
800-438-4318
www.epa.gov/iaq/

Scientific Resources

See the MasterBlend website at www.masterblend.net for additional scientific research supporting the ResponsibleCare system of anti-allergen cleaning and treatment.

MasterBlend® is a manufacturer of premium performance cleaning solutions and equipment sold to cleaning and restoration professionals worldwide. We specialize in the development of innovative products to provide opportunities for our customers to offer significant new services and generate new sources of income and profits. Such products include the ResponsibleCare System™, the first anti-allergen cleaning and treatment procedure that requires regular cleaning of carpet and other home furnishings by professionals. MasterBlend is not some giant conglomerate involved in dozens of different businesses. Instead, we are a team of people with over 100 years of combined hands-on experience that is totally focused on the cleaning and restoration industry. As such, we are in touch with the needs of cleaners and restorers like you and are constantly developing new products to meet those needs. As President of MasterBlend I am personally dedicated to delivering to you the highest quality and performance cleaning and restoration products. But we don't stop there. We are also committed to developing ground breaking new products and additional ways for you and your company to prosper

and grow. MasterBlend is here to serve you. You have my word and our guarantee on that. We welcome your ideas, questions and comments. Your success is important to me. If there is any way I can be of service, call me directly at 800-525-9644 or e-mail me at aaron@masterblend.net. I look forward to hearing from you.

Aaron Groseclose

President, MasterBlend

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