DONATIONS - A Big Thank you

A Big Thank you *to everyone who made a donation and continues to support MAARA.*

Gift Aid It!

If you want to support MAARA Gift Aid It! If you are a UK tax payer you can fill in a gift aid form. You must pay an amount of income tax and/or capital gains tax at least equal to the tax that MAARA reclaims.

How Gift Aid Works

Gift aid donations are treated as having basic rate tax deducted which MAARA can reclaim. So for every £10.00 you give, MAARA will receive another £2.80 from the government.

If you would like a gift aid form please contact Eva Day.

Become a Member

Why not join MAARA, at present we have 110 Members but would like more. By joining the charity you will be contributing to the research work that MAARA funds and you will be supporting people with asthma and allergy. Our updated website (www.maara.org) has proved very popular.

Would you like to become a fundraiser for MAARA by holding a Bring and Buy, Coffee Morning, Sponsored Run, Charity Lunch. No event is too small we are grateful for all donations

DONATIONS

Loughborough Family History Society	A. C. Gill Ltd	Bonar Floors	Mr A. P. Spier	I. F. Milward
Mrs M. A. Green, Turnditch Whist Drive	Mrs P. Vince	M. Thorne	G. Petrie	Mrs O. Green
Graham Fear & Co Solicitors	Trevor Harvey	Sheila Hartfield	P. J. Wade	J. F. Rapley
E.J. & G.J. Burkinshaw	M. T. & J. R. W. Newman	Mr P. V. Hancock	Mrs Diana Page	J. W. B. Green
Moments Card & Gift Shop	A. J. Harding	Richard Keene	Mr & Mrs Doyle	J. M. & R. Saunby
Mr & Mrs J. C. Marshall	Sylvia Richardson	Barrow Runners		

In Memoriam

Keith Austin	Derek Barber	Jacob Fleming	Brenda Waldron	Mabel Knott
Kathleen Bird	Maureen Snape	Joy Kniveton	Norman Nixon	Gladys Jenkins
Elsie Richardson	Dean Wainwright	S. Klak	Kathleen Wilby	

Legacies

Evelyn Mary Bullen	Harry Bernard
Lottie Redshaw Massey	Alice Warner

Mrs Bina Thakrar of Moments Card & Gift Shop, South Wigston, Leicester with Eva Day. Mr & Mrs Thakrar have been supporting MAARA for many years by making a donation every month through their bank account. They welcome MAARA members to their shop and offer a 10% discount on goods bought which they will donate to charity.

MAARA President Presentation

Dr Martin Stern, Julie Corden, Donald Pearson and Edward Stanger at the presentation of a Macintosh computer to Don to mark his moving from Leicester to Leighton Buzzard due to ill health. Don, has been involved with MAARA for over 20 years, in the capacity as a patient, committee member and chairman. He continues to take a great interest in the activities of the Association which will always be special to him.

Mr & Mrs Wainwright attended a presentation by the Social Committee of Bonar Floors based in Ripley Derbyshire in memory of their son Dean, who died suddenly of asthma aged 45. Dean was a very popular member of staff and is greatly missed by his colleagues. A Race Night was held in his honour and raised £800. Family and friends also made donations in memory of Dean.

Mrs Diana Page is a music teacher who has been donating the proceeds of her annual music concert to MAARA for many years. The picture shows Henry Sumner playing the violin at Our Lady's Catholic Junior School, Wellingborough, Northants.

Mick Ballard Chairman of the Barrow Runners presenting Roger Chappell MAARA Treasurer with a cheque for £500.

Contacts

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maara

Midlands Asthma & Allergy Research Association

SPRING 2008

Celebrating Forty Years

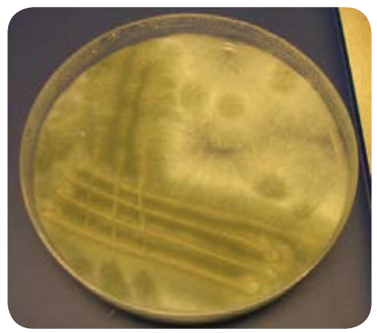
Registered Charity No. 257131

MAARA has been in existence for 40 years and continues to help fund research into asthma and allergy. Without your support over the years MAARA would not exist so please continue to give your support. We are hoping to make this a special year with lots of fundraising events so if you are holding an event remember MAARA.

Current Research Projects being undertaken in the Aerobiology unit

Indoor exposure to airborne fungal spores

Interest in the fungal composition of indoor air has increased with growing awareness of their potential adverse effect to health. An association between home dampness, mould and respiratory symptoms has been reported, with clinical symptoms reduced following remediation. Increased fungal exposure in buildings has been associated with increased asthma symptoms and ER visits.



Culture plate showing Aspergillus fumigatus green colonies

Normal ranges of indoor airborne fungal spore concentrations have not been characterised in the UK. There is also a lack of dose-response data, and methods used to collect and measure fungal levels are not standardised. The aim of this project is to generate normal ranges for indoor exposure to airborne fungal spores, and to compare these to a number of building characteristics to determine which, if any, affect fungal spore levels. This is investigated using portable air samples, with the samples being analysed using microscopy to identify fungi by their spore morphology.

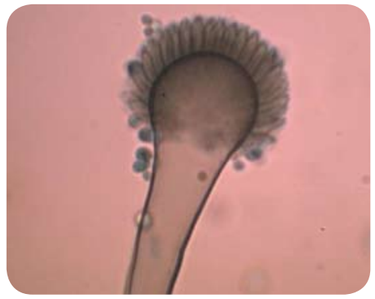
Over 120 Leicestershire properties have been sampled, with at least 100 of them filling all inclusion criteria to determine baseline data and analysis is well underway.

Investigation of indoor fungal spore exposure in relation to symptoms of allergy

Using the normal ranges generated as mentioned above, the association between indoor fungal spore exposure and allergy symptoms will be investigated by giving asthma patients with fungal allergies and asthma patients without known allergies portable air samplers. These will monitor the levels of exposure to fungal spores within the home. This study has been started with a number of patients recruited to date, and traps currently being taken to their homes. An example of a portable air sampler can be seen in the photo of Abbie Fairs with one of the patients taking part in this study. The air sampler shown was donated in memory of Jacob Fleming.

Identification of Aspergillus fumigatus in clinical samples

Aspergillus fumigatus is a commonly occurring fungus, the spores from which are routinely found in the air. Most people are naturally immune to it, however, when disease does occur it can take several forms ranging from an allergy-type illness to life-threatening generalised infections. One such condition is known as Allergic bronchopulmonary aspergillosis (ABPA). This condition is quite common in asthmatics with up to 5% of adult asthmatics. There are a number of patients who appear to have the symptoms of ABPA, but the fungus itself is difficult to culture using current techniques. Confirmation of the presence of the fungus could lead to alternative treatment methods that would benefit the patients.



Distinctive spore head at x630 magnification

Suspected and known ABPA patients are being recruited. Detection is being attempted using a number of different methods, including both molecular and traditional means. Initial results have been promising but more work is required.

.....continued on page 2

THIS ISSUE

Chairman's Message

2007 has been a year with good progress on some fronts but disappointments on others. A significant factor has been the illness of our General Manager, Val Kellogg during the second half of the year. At the time of writing Val has still not recovered and we wish her a speedy return to normal health as soon as possible.

I would like to record my appreciation to Eva Day who has so willingly accepted the resultant extra workload involved.

With a view to ensuring that the funds we have available to further MAARA's research responsibilities are properly directed we have formed a medical advisory committee and this is functioning well. Projects approved include research into the care of nut allergy patients after they have been treated in hospital and the effects of particulate matter air pollution and asthma in children. We continue to finance the work of Dr Catherine Pashley and Abbie Fairs including their current research to understand airborne allergenic fungal spores not currently recognised as affecting asthma and allergy and you will read separately in this newsletter of the progress of these projects.

2008 is the 40th Anniversary of the formation of MAARA and the Executive Committee is considering ways of fundraising to commemorate the occasion which I hope will have your support.

Edward Stanger

.....continued from page 1

DNA based methods for the identification of fungal samples in the air.

Fungal spores occur in great numbers in outdoor air. Many have been shown to be allergenic (that is to induce allergic responses in susceptible individuals) and allergens from fungal spores can be potent inducers of asthma and seasonal allergic rhinitis. Fungal spore identification is currently achieved by microscopy, however, many spores are difficult to identify so are often grouped together according to morphological similarities. A more accurate assessment of the potential allergens in the air would be of great benefit to many asthma sufferers.

Two projects are currently underway that aim to use DNA based methods for identifying the presence of fungi in air samples. If successful these should be able to identify any fungi present to a more specific level than possible with microscopy.

1) Fungi present in outdoor air samples

As a prelude to investigating novel techniques for identifying fungi in outdoor air, the first step is to have a clear picture of what is actually present. Due to the limitations in spore morphology discrimination alternative methods must be employed.

Research is currently being undertaken that aims to extract DNA from everything in an air sample, then to use molecular methods to amplify a specific region of any fungal components of the sample. These fungal regions can then be separated out using a cloning approach, and the individual fungi identified by sequencing. Preliminary experiments to identify a suitable fungal DNA region to amplify and extracting DNA from an air sample have been promising.

2) Fungi present in indoor air samples

A method has recently been developed in the USA to specifically identify certain fungal species using DNA based technology. The unit are currently attempting to adapt this technique to indoor air samples from properties in the UK, investigating a subset of the fungal species available for analysis that have been selected either for their clinical relevance or because they are routinely found in indoor air.

Abbie Fairs and patient with the personal air sampler used to collect samples for the microscopic identification on fungal spores

Two sources of indoor fungal contamination will be compared, air and dust samples. Air samples are often analysed as they represent what is actively present and presumably

Catherine Pashley and patient with spore trap used in the molecular investigations

inhaled. The ability of such exposures to provide reliable assessments of long-term exposure has been questioned, however, due to variability over short time periods. Fungal composition of dust may more accurately reflect long-term exposure, although the validity of this assumption has also been questioned. Therefore, samples from both sources may be necessary for an accurate indication of fungal exposure.

MAARA have recently awarded a grant to the unit to purchase the reagents required for this particular project, and sampling in properties for this study has begun. A special spore trap is used to sample the air and condense it into small sterile tubes. The trap used can be seen in the photo of Catherine Pashley with another of the patients recruited to the study. This trap was also donated in memory of Jacob Fleming.

Catherine Pashley & Abbie Fairs

.....continued

particle in spite of living in higher pollution areas (therefore breathing in more particles). This suggests that macrophages are not clearing particles efficiently. This finding suggests that the toxic chemicals from eosinophils may be impairing the function of macrophages (and preventing them from clearing particles).
To prove this hypothesis we are developing a methodology to quantify the amount of toxic product of eosinophil in macrophage. This study is being conducted in a well-established respiratory research center at Glenfield General Hospital. We will be using safe and well-established procedures to obtain samples. It is with the generous help of MAARA and all the donors that we are able to work on this novel idea. I would like to take this opportunity to thank everyone, and we aim to keep everyone updated with the progress in future newsletters.

Dr Neeta Kulkarni and Professor Christopher Brightling
Institute for Lung Health, Glenfield Hospital

Annual Golf Day 2007

On the 8 June MAARA's 3rd Golf Day got off to a sunny start at the Leicestershire Golf Club. 15 teams entered and we were joined by new and familiar faces. A tombola and raffle proved very popular with some delightful prizes.

Thanks to all those who kindly donated gifts and prizes which were of a very high standard. The day was thoroughly enjoyed by all and raised £2674 towards research projects funded by MAARA.

A special thank you to all our helpers who made the day a success.

MAARA Golf Day Winners - Leicestershire Lads. Rocky Knight, Keith Chell, Chris Sturney and Don Clarke

Winners

1st Leicester Lads scored 76 and won a day at a Marriot Championship Golf Course (pictured opposite).

2nd Broadway Bafflers score 75
Jim Hyde, Ian Williams, Richard Cadwallader, Tony Gisbourn

3rd Tissue Culture Club score 74
David Smith, Jeff Baxter, Robin Frances, Tim Haycock

The prize for nearest the pin was a car service donated by Farmer and Carlisle and was won by Martin Wheelwright.

Holes were sponsored by Chris Whitmore Associates and Sturgess Jaguar

Scorekeepers Pam Aldwinckle & Alwyne Catchpole

Raffle & Tombola prizes were donated by:

Firenze
Tonic Beauty Salon
Leicester Football Club
Osbornes Stationers
Knights Chemist
CO-OP
Bargain Booze
Delta Force Paintballing
Waitrose
ASDA
HSBC
Caves du Patron
Threshers
Deli Flavour Francis Street

A Date for Your Diary

GOLF DAY 2008

4th MAARA Golf Day

The MAARA 4th Annual Golf Day will be held on Friday 6 June. Once again the venue will be the Leicestershire Golf Club, Evington Lane, Leicester. If you would like to play or participate in some other way by sponsoring a hole, making a donation or providing a prize please contact Eva Day on 0116 2707 557

Derbyshire Children's Hospital moves to help Allergy Sufferers

Following a good deal of support from MAARA, Derby Hospitals Foundation Trust has been persuaded to pilot a dedicated allergy service for local children. The clinics will initially run monthly at the Children's hospital, although we anticipate the clinic will be oversubscribed. We are expecting the clinics to start early in 2008. I suspect I will either be grey or bald by the end of the year as we will have 6 months to prove our worth.

There are many advantages to seeing children in a specialised clinic and I am really looking forward to the opportunity to improve service provision for families locally. I have already been seeing the children with allergy in my general paediatric clinics. By moving to a separate clinic day then it should be possible to run the clinic in conjunction with a dietician and allergy nurse. It should also enable us to make more use of skin prick testing in the clinical setting (rather than relying on blood tests).

We are currently doing our best to expand the range of treatments available on the NHS (none of the local paediatricians do private work). Fighting for new treatments in a period of unprecedented budget cuts is a tough battle. However, I will continue to press the case for sublingual immunotherapy to grass pollen and anti-immunoglobulin E therapy locally. I will report back in the next MAARA newsletter.

In the meanwhile if families would like more information about allergy services in Derbyshire they are welcome to email me on: will.carroll@nhs.net.

Dr Will Carroll
Consultant Paediatrician
Derbyshire Children's Hospital

Bronchoscope

The incidence of asthma in the UK continues to increase, however this fact often goes unrecognised. Public awareness of the condition is much lower than it should be and to date there have been no significant government initiatives to address the problems arising from asthma. This must change in future as the impact of asthma becomes more evident.

Asthma is due to chronic inflammation of the breathing tubes (bronchi). This is caused in many people by allergies to dust mites, pollen and animals; although in many adults the cause is not clear. In order to find out how to switch off the inflammation we need to find out more about it. Knowledge gained through scientific research is essential to any strategy aimed at tackling such a serious problem. One particular piece of equipment that is useful in our research is a bronchoscope.

Bronchoscopes are currently used in hospitals to diagnose lung infections and lung cancer. It comprises of a flexible, camera-equipped tube, which is passed through the nose or mouth into the lungs and allows physicians to view the airways and tissue within the lung. A new type of bronchoscope has recently become available which allows us to reach deep inside the lungs.

Thanks to part funding from the Jacob Fleming Appeal we have been able to acquire this state of the art piece of equipment. In many patients with severe asthma, the inflammation is deep in the lungs and being able to sample this area could hold the key to us understanding why people develop asthma. The bronchoscope will allow us to take samples of the bronchi and look at the inflammation under a microscope. This can also be useful when we want to confirm that our diagnosis is correct, particularly in adults and children with more severe disease, where steroids are being used. In the future it may help us to understand why some people suffer from difficult or even life-threatening asthma.

Professor Andy Wardlaw
Professor of Respiratory Medicine

Methodology to quantify eosinophilic material in airways macrophages

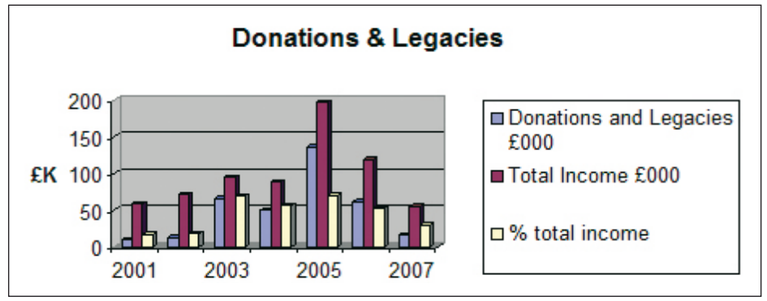
Fay Hollins Res. Assistant, Prof Christopher Brightling (Co-PI) and Dr Neeta Kulkarni(PI) in the laboratory at Glenfield Hospital.

Imagine the consequence of the bin men not coming to empty your rubbish…. or bins are too full to take in any more rubbish. It is this efficient system that keeps our roads clean. Similarly in our "airways" we are constantly clearing the "rubbish" of dead cells and particles from air pollution. Macrophages (similar to the bin men) clear this promptly without spilling any harmful products.
As we are all aware, asthma is a very common condition and affects people of all ages. You may have either heard in the news or experienced that fumes from traffic worsen symptoms. These fumes consist of multiple toxic chemicals including particles. We know that macrophages help us clear the toxic particles that we breathe in. We also know that there is an association of exacerbation of symptoms and the amount of air pollution particles. But we do not completely understand, how particles work on cells, thus limiting our ability to find therapies. In asthma, cells called eosinophils are increased in airways and their toxic products are harmful. Macrophages help us by clearing dying eosinophils, which is evident in sputum samples from people suffering with asthma. We have observed that macrophages from children with asthma have a lesser amount of

.....continue

Income & Fundraising

In recent years, we have benefited from the generosity of those who have remembered the Association in their Will, but after a unique year in 2005 when bequests peaked at nearly 70% of total income, we have experienced declines in both 2006 and 2007. Fortunately we have been able to offset some of the decline in legacy income through increased investment income, but the overall picture remains uncertain with all other types of income down. Fundraising through other avenues, such as our Golf Day and money raised by external organisations, is important, but more is needed on this front.



In addition to the costs of the day-to-day activities of the Association - our small team of staff, office costs, insurance and so on - the majority of our expenditure, now running at over £100,000 per year, is devoted to charitable projects. These include aerobiology and associated research into the effects of pollen and spores in the air on asthma and allergy disease, and other research grants to academic and medical institutions in the Midlands. One current project we are funding involves an investigation into the experiences of children who suffer from allergic disease and how these can be used to improve the advice provided by medical professionals.

As always, we thank all those who have donated to MAARA in one way or another to help us in our battle against asthma and allergy.

Dr Roger Chappell
Treasurer

MAARA

Funded Research Projects

Aerobiology at Leicester University

—

Asthma Research at Glenfield Hospital

—

Nut Allergy at Leicester Royal Infirmary

Officers

President
Mr Donald Pearson

—

Honorary Consultant
Dr Harry Morrow Brown

—

Chairman
Mr Edward Stanger

—

Vice Chairman
Professor Andrew Wardlaw

—

Honorary Secretary
Mr Jeremy Barlow

—

Honorary Treasurer
Dr Roger Chappell

—

Medical Adviser
Dr Martin Stern

NUT ALLERGY - The first five years

It came as a shock when our 9 month old son, Stephen, was diagnosed as having life-threatening allergies to nuts and fish and a lesser allergy to egg. However with adjustments - preparing lots of his food freshly and checking labels on baby food, we seemed to cope okay, everything was rosy..... until about age three:-

Where could we have his birthday party?
How could we take him on holiday?
How could we find a playschool which would accept him?

We found that generally, the big players in the market, 'Billy Bear's', 'Superbowl' etc. were aware of allergies, but their ability to cope was down to the local manager. A tried and tested method was to check at the time of booking, what guaranteed nut free food was available,(in many cases this was "none"!). By taking a pack of micro chips and a pizza from our own nut free sources, the kitchen staff preparing them and serving them in the same bowl or basket as the rest of the children, Stephen did not feel different to the others.

Holidays were challenging; again the big hotel chains are very much on the ball and can cope with catering for allergies and we always stuck to the carvery menu. Air travel was possible but a good wipe round on the seat and armrests with a 'wet wipe' and a request not to serve nuts on the flight gave extra peace of mind. We haven't dared to travel abroad with the inevitable language barriers around allergies, but have settled on the Channel Islands where we discovered a hotel where the Chef is happy (and able) to cater for us; his daughter is nut allergic and he is acutely aware of the problems.

We found a playschool attached to a local primary school where the staff were happy to take on the responsibility for administering the Epi Pen. This was just a matter of ringing round to check. The local school nurse carried out the training to the staff and we had to work with them regarding the provision of biscuits and sweets, generally on the same basis as above – a separate supply, provided by us, served in the same way as the other children so as not to emphasise the problem.

There are different views held about the items above, many parents would not consider taking nut allergic children to hotels or 'restaurants' on the basis that "you can't trust the food unless you've cooked it yourself". Our view has always been to balance risk against the wish to lead as normal a life as possible.... He's fifteen now, it gets worse the older they get!!

Steve Watson - Executive Committee Member

Living with nut allergy

The incidence of nut allergy is on the increase in Western societies, as is the attention it receives from the public and from the media, yet little research has been carried out on the impact of living with the condition.

A University of Leicester research project is now to look at the views and experiences of children and their families living with nut allergy, which accounts for the majority of severe food-related allergic reactions.

Peanut allergy, which currently affects around 1 per cent of children, is the most common food trigger of anaphylaxis.

Funded by MAARA (Midlands Asthma and Allergy Research Association), Dr Emma Pitchforth, of the University's Department of Health Sciences, is carrying out a qualitative study involving interviews with children and their parents. Depending on the age of the child, they may be interviewed separately or with their parents.

The research is being carried out with colleagues Dr David Luyt and Dr Emilia Wawrzkowicz, consultant paediatricians involved in the management of childhood allergies.

From these investigations, the team hope to understand better the impact on family and everyday life of living with these allergies. They will be looking at sources of information and strategies families use to cope.

The interviews will be audio-recorded (with permission) and the resulting transcriptions will help the researchers to identify recurring themes. All data is anonymous and confidential.

Dr Pitchforth commented: "First allergic reactions to nuts usually develop in children at a young age and do not resolve as they get older. This means that for those affected nut allergy is a permanent, potentially life-threatening condition.

"Clinical management of nut allergy typically involves educating children and their families to avoid all products containing nuts. They need to learn to recognise early signs of allergic reaction and to administer self-injectable epinephrine when they need to.

"The number of deaths resulting from nut allergy is extremely low, but it is a risk and patients are told to avoid all types of nuts and their traces, and to carry an 'epi-pen' at all times, in case they suffer an anaphylactic shock."

Emma Pitchforth - Living with Nut Allergy

For more information on this please contact:

Dr Emma Pitchforth,
Department of Health Sciences,
University of Leicester,

Tel: 0116 229 7261
E-mail: elp17@leicester.ac.uk

Thunderstorms, Spores and Asthma - The role of Alternaria

I collaborated on a paper published last year, which considered the role of pollen and fungal spores in thunderstorm asthma. This paper studied in detail the violent thunderstorms, which occurred over many parts of the country at the end of July 2002. The thunderstorms were present in Eastern England including Derby and the East Midlands. At the same time a thunderstorm – related outbreak of asthma occurred in eastern England and consultants in Cambridge decided to undertake a case controlled study of patients at Addenbrooke's Hospital Cambridge presenting with asthma within 3 days of the thunderstorm. For this study meteorological data associated with the thunderstorm was provided by the Met Office and pollen and spores by MAARA in Derby. Numbers of asthma attendees during June-August 1996-2005 were collected from the Cambridge University Hospital ER records, and asthma admissions to hospitals in Norfolk, Suffolk & Cambridgeshire Strategic Health Authority (NSC SHA; configuration prior to July 2006) from the Hospital Episodes Statistics (HES) database using the ICD10 codes for asthma J45, J46. Asthma admissions data was also extracted from HES for Trent SHA.

Complete and broken Alternaria x1000

We investigated daily counts of Derby 2002 pollen and spores especially from June to August and hourly counts recorded from 28th July to 3rd August 2002. Broken or damaged Alternaria spores were also counted at this time and expressed as a percentage of the total. Pollen and spore data was also investigated from 1990-2005. Very high numbers of spores were present in the air at the time of the 2002 thunderstorm.

Results suggest that epidemic thunderstorm-related asthma towards the end of the grass pollen season is most strongly associated with fungal spore sensitivity and particularly to Alternaria. The paper proposes that Alternaria sensitivity results in thunderstorm-related epidemic asthma in sensitised asthmatics. A prolonged grass pollen season leads to bronchial hyperresponsiveness in subjects doubly sensitised to grass pollen and Alternaria, and a large-scale thunderstorm occurring at the time of harvesting and high fungal spore and fragmented Alternaria levels combine to trigger symptoms. Vulnerable groups of asthmatics can be identified from previous asthma exacerbations and should undergo appropriate skin tests. Collaboration between the Met Office and aeroallergen counting centres should allow prediction of future epidemics and warn at-risk groups in time.

T.B. Pulimood, J. M. Corden, C. Bryden, S.M. Nasser. Epidemic asthma and the role of the fungal mould Alternaria alternata
J Allergy Clin Immunol 2007;120 (3) 610-617

Also submitted to BAF news.

Airborne Pollen in the East Midlands

Pollen season, 2007

In general, 2007 was a low year for pollen, in part due to the poor weather over the summer months. This report and the data shown are based on counts obtained in the East Midlands by the MAARA funded aerobiology unit.

The most allergenic of the tree pollens present in the air during the earlier part of the pollen season is birch. As seen in Figure 1a, birch pollen appeared much earlier in 2007 than it had in 2006, and overall the levels were far lower. This is consistent with what was observed throughout the UK with birch this year.

Another of the allergenic tree pollens is oak, although this shows moderate allergenicity compared to the highly allergenic birch. As with birch, the oak season appeared earlier in 2007 than it had in 2006 (Figure 1b), and was again lower in terms of severity. This was consistent with other pollen sites in the south and midlands, but to the north levels were higher.

Grass is the primary allergenic pollen affecting the majority of hayfever sufferers. In 2007, the grass season started slightly earlier than in 2006, and persisted for slightly longer, but was much less severe (Figure 1c). Again, the data from the East Midlands is consistent with that from the rest of the UK.

Nettle is the main weed pollen present in the air for most of the summer months. The season started slightly earlier in 2007 than 2006 (Figure 1d), and didn't reach as high levels as it had previously. However, the tail of the season (August) was much more severe than in 2006. Again this is consistent with the rest of the UK.

Catherine Pashley & Abbie Fairs

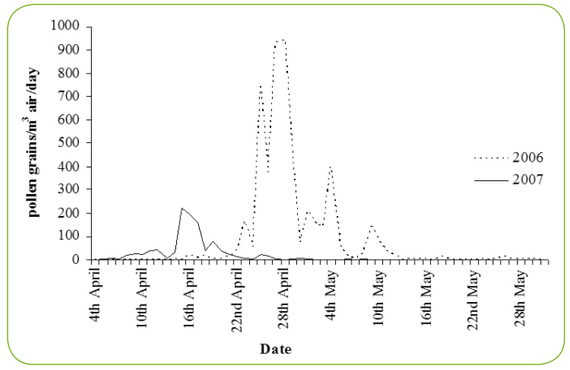


Fig. 1a. Birch levels in the East Midlands during the 2006 and 2007 seasons

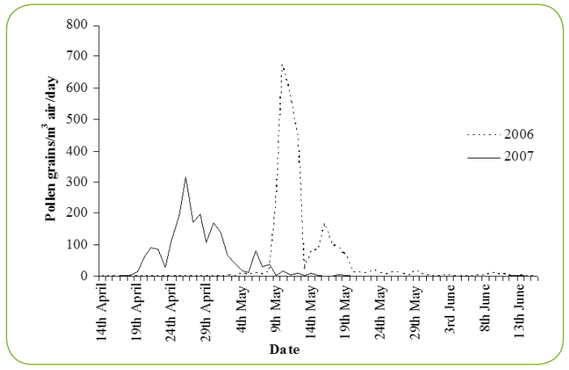


Fig. 1b. Oak levels in the East Midlands during the 2006 and 2007 seasons

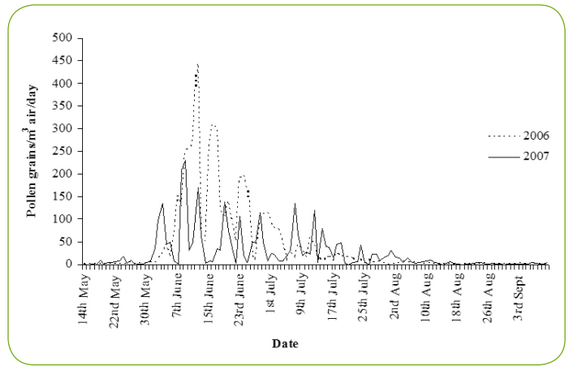


Fig. 1a. Grass levels in the East Midlands during the 2006 and 2007 seasons

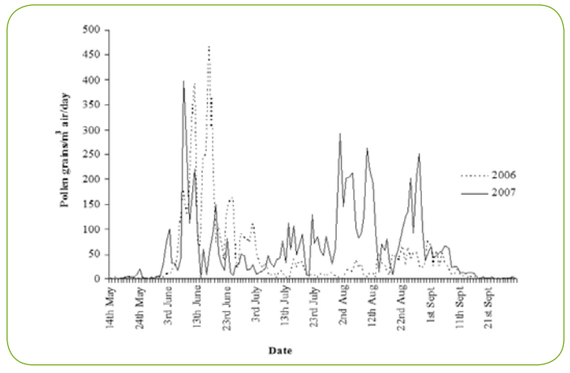


Fig. 1a. Nettle levels in the East Midlands during the 2006 and 2007 seasons