

HEALTH FACTSHEET

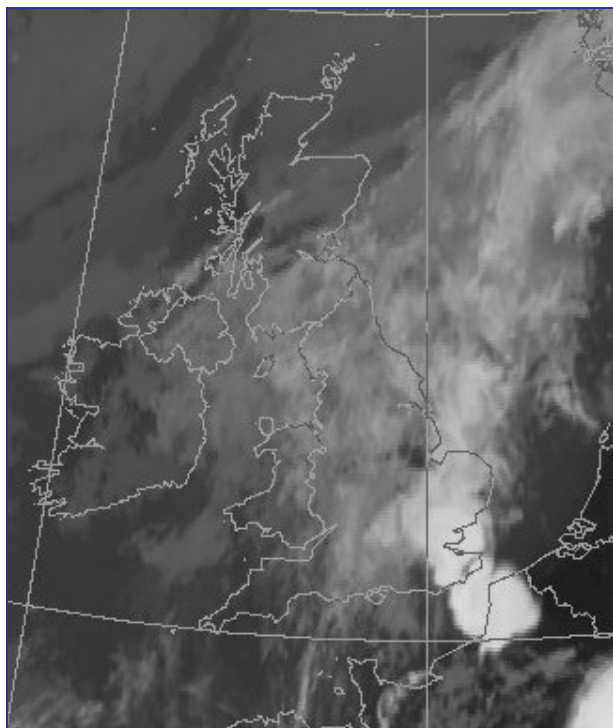
Thunderstorm-related asthma



Background

- Asthma is a growing health problem affecting adults and children across the world. In the UK, asthma affects 5.2m people, 1.1m of whom are children. In 2002 there were over 69,000 hospital admissions and 1,400 deaths from asthma.
- Asthma patients can manage symptoms through routine reviews with doctors or nurses; repeat prescriptions, and a personal asthma action plan.
- Asthma patients are at risk of their symptoms becoming suddenly worse — an asthma attack. Severe attacks may result in attendance at A&E, or even a hospital admission.
- Doctors do not know what causes most cases of asthma, or how to cure them, but it is possible for many to take action to prevent symptoms and reduce the risk of severe attacks.

Thunderstorm at 7 p.m. on 24 June 2005



How does the environment affect asthma?

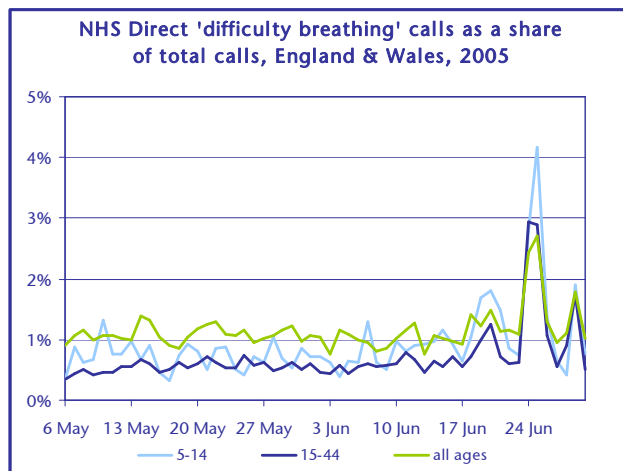
- Over recent decades there has been an increase in asthma which remains unexplained. Levels of smoking and pollution have fallen, making it less likely that these are responsible.
- Asthma attacks have a seasonal pattern.
- It is now widely recognised that certain thunderstorms have a strong link with asthma attacks and admissions.

What happens in thunderstorm-related asthma

- Thunderstorm-related asthma is not yet fully understood, because it is caused by a combination of factors.
- Events seem to be triggered during the summer by a combination of large storms caused by converging masses of air; previous hot and dry weather; high humidity, and possibly high levels of air pollution.
- Not all thunderstorms trigger asthma. Small local storms after a hot day are not thought to be triggers.
- Humidity before the storm must be high enough so that grass pollen or fungal spores are released and survive in the atmosphere.
- Grass pollen is higher in June and early July. Fungal spores are released from crops during harvesting in late July and August.
- If there are high levels of ozone, the lungs may become more sensitive, resulting in more severe symptoms.
- As large thunderstorms pass over the land, they draw up pollen and spores. Very high humidity in the cloud causes the pollen or spores to break into pieces which are small enough to penetrate deep into the lungs. These pieces are brought back down to the ground by cold, dry air flows. The inside of a pollen grain is also more allergenic, triggering a more severe reaction.

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Who is affected?

- There are different types of asthma, and not all asthma patients will be at risk from all thunderstorms.
- Younger adults appear to be particularly at risk.
- Some people are more allergic to grass pollen, and some to fungal spores.
- Most people affected will have had hay fever and/or chest symptoms in the past, and many may not have been diagnosed with asthma.

Recent asthma thunderstorms

- 6-7 July 1983, Birmingham, fungal spores
- 24 June 1994, London, grass pollen. More than 1,000 A&E attendances
- 29-30 July 2002, Cambridge, fungal spores. 30 admitted to hospital, five to intensive care
- 24 June 2005, London and the South East, grass pollen. Eight-fold increase in A&E attendances

How you can use this information

- Asthma patients should be aware of what triggers worsening asthma symptoms, especially any allergies to pollen or spores.
- Hay fever sufferers should be aware they may be affected by thunderstorms.

- During the summer, asthma and hay fever sufferers should be aware of pollen and air pollution levels, and weather forecasts.
- If an asthma thunderstorm is forecast, asthma and hay fever sufferers should stay inside and take preventative medication.

How the Met Office uses this information

- When the Met Office is forecasting large-scale thunderstorms, we contact air quality and pollen experts to determine whether to issue a warning of thunderstorm-related asthma. After the storm, the Met Office contacts NHS Direct, GPs and hospitals to determine whether the warnings were correct.
- We predicted both the July 2002 and the 24 June 2005 events. For the latter we issued warnings on TV; in the national press, and to hospitals. Hospitals which received the warning were able to cope with the increase in A&E attendances.

Future work

- The Met Office is working with asthma and pollen experts to improve understanding of asthma thunderstorms.
- The Met Office is publishing its work in academic journals; to make healthcare staff everywhere aware of asthma thunderstorms.
- The Met Office is working with NHS staff to understand the best way of delivering warnings and preparing for thunderstorm-related asthma.
- The Met Office is working with Asthma UK to understand the best way of delivering warnings to asthma and hay fever sufferers.

Further information

Health Forecasting at the Met Office
www.metoffice.gov.uk/health

Information from Asthma UK
<http://www.asthma.org.uk>

Sources: Asthma UK, MAARA, NHS Direct, HPA West Midlands/HPA Cfl, Met Office