Health and the Met Office

The Health forecasting service in the Met Office has 3 main aims: to determine those at risk, when they are at risk and to prevent them from being damaged by weather conditions. Health risks include pollen, UV light, extreme temperatures and seasons (affecting those with Seasonal Affective Disorder).

Allergic reactions, e.g. hay fever outbreaks, can be initiated by different types of pollen which are released throughout the year. The main pollen season is from March to August. Tree pollen is mainly air-born from March to May, grass pollen May to July and weed pollen June to September, but this is dependent on the weather. For example, if we had a bad spring, then the tree pollen may come out a bit later, etc. Thus, weather forecasting is necessary, so that those with allergies can be prepared. In fact, the Met Office provides the only pollen count monitoring network in the UK and is advised by National Pollen and Aerobiological Unit at the University of Worcester and PollenUK.

Chronic Obstructive Pulmonary Disease (COPD) collectively describes diseases such as emphysema and chronic bronchitis which will be aggravated by increased virus levels in winter, muggy weather and heatwaves. Air pollution can also affect sufferers. The Met Office has set up a service, Healthy Outlook, which advises people with these conditions with the assistance of a model which forecasts the risk of COPD admission. Having a respiratory disease is dependent on geographical location and socio-economic factors including

- It is more likely to have COPD in the north of England and in urban areas
- Smokers, manual labourers, those with a poor diet, those in a lower social class and those living in a crowded house are more likely to have COPD

5.2 million people in the UK have asthma, which is thought to be due to pollution, smoking and sometimes even thunderstorms can be a trigger. The particular thunderstorms which seem to have this effect are large summer storms. The link seems to be that the air must be humid before these storms, so that grass pollen or fungal spores rise and survive in the atmosphere. Young adults are particularly at risk. This area is not understood very well, so the Met Office is researching this further.

People can also be affected mentally by the weather. An example of this is Seasonal Affective Disorder. Symptoms include tiredness, depression, lack of energy, change in sleep patterns, decreased libido and a lack of appetite in inclement weather. Brighter Outlook, a scheme tested in the South West, treats people with SAD using light therapy, Cognitive Behaviour Therapy and alerts when weather would become ‘gloomy’ so sufferers would know to use the therapy given by the scheme. It was found to be a success; the scheme clearly improved people’s moods and symptoms.
UV light is an obvious health risk in the summer. Met Office UV forecasts include ozone levels in the stratosphere, position of sun in the sky and likely cloud cover. These forecasts are also produced for 417 cities in the world.

Cold weather causes thicker blood, restrictive airways and can increase the risk of heart attacks. These are more likely to affect the elderly. The Met Office sets up weather warnings when very low temperatures are likely to occur. Extreme heat, a less common occurrence in Britain, is dealt with by the Heat-Health Watch System.

The average threshold temperature for warnings related to extreme heat to be given out is 30°C by day and 15°C by night, but these vary for each region. There are four response levels, which are used as a guide to determine the extent of the heatwave:

- Level 1- the minimum state of vigilance for the summer. Healthcare services must ensure that they are prepared for a change.
- Level 2- this stage is reached when there is at least a 60% chance of the threshold temperature being obtained in at least one region in two consecutive days and the intervening night.
- Level 3- when threshold temperatures for one or more regions have been exceeded for one day and the following night and there is 90% confidence that the next day’s forecast will be meet the threshold temperature for that region, then Level 3 has been reached.
- Level 4- social and healthcare services are unable to cope with demand, even the least vulnerable are suffering as the heatwave is so severe and/or prolonged.

Each of these stages indicates how prepared social and healthcare services should be for people suffering from heat exhaustion.

A recent example of a heatwave in the UK was April 2011, the warmest April since records began. It was also notable for being particularly dry. After little rain in the previous winter, the crop yield is likely to be affected.

Climate change is likely to bring about more severe weather, such as

- More heatwaves
- Heavier precipitation, inc. More flash floods. This also means we will get less rainfall at other times, which could lead to more people suffering from water-borne diseases
- Increased temperatures
- Rising sea levels, which will increase risk of coastal flooding and may cause contamination of water supplies

The Met Office is researching the affects of this change on people’s health by studying the short term effects of weather on people’s health. This is then used to inform policymakers of how big a problem they are dealing with, so they can assess the solutions more effectively.