

We are built on breakthroughs. Heart transplants. Clot busting drugs. Pacemakers. Breakthroughs born from visionary medical research. Research you fund with your donations.

Heart and circulatory diseases kill 1 in 4 people in the UK. They cause heartbreak on every street. But if we can invent machines to restart hearts, fix arteries in newborn babies, build tiny devices to correct heartbeats, and if we can give someone a heart they weren't born with - imagine what's next.

We research all heart and circulatory diseases and the things that cause them. Heart diseases, stroke, vascular dementia, diabetes and many more. All connected, all under our microscope. Our research is the promise of future cures and treatments.

The promise to protect the people we love. Our children. Our parents. Our brothers. Our sisters. Our grandparents. Our closest friends.

You and the British Heart Foundation.

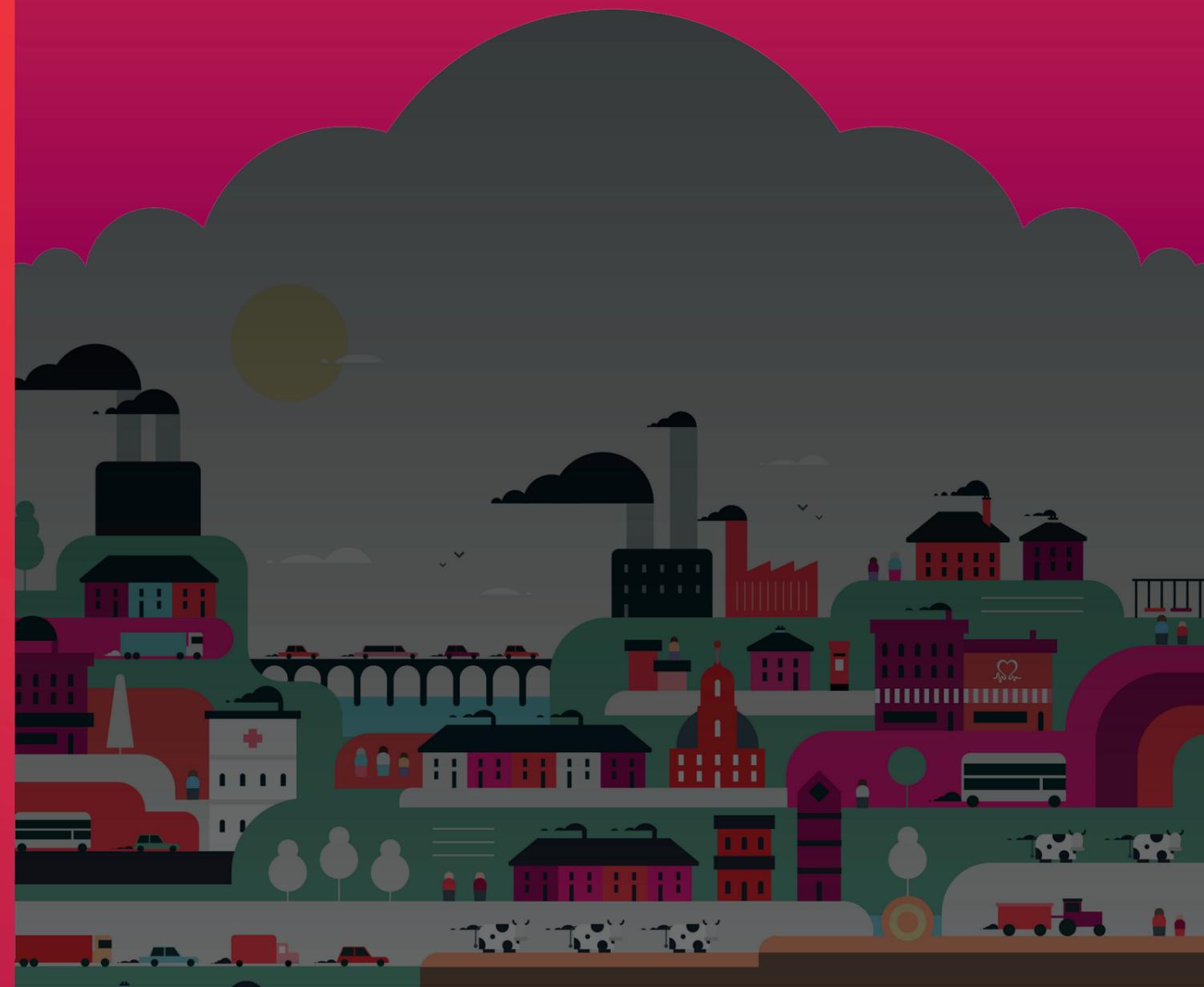
Together, we will beat heartbreak forever.

Beat heartbreak from  heart diseases  stroke  vascular dementia  diabetes



The impact of air
pollution in

Chelmsford



Why is air pollution a problem?

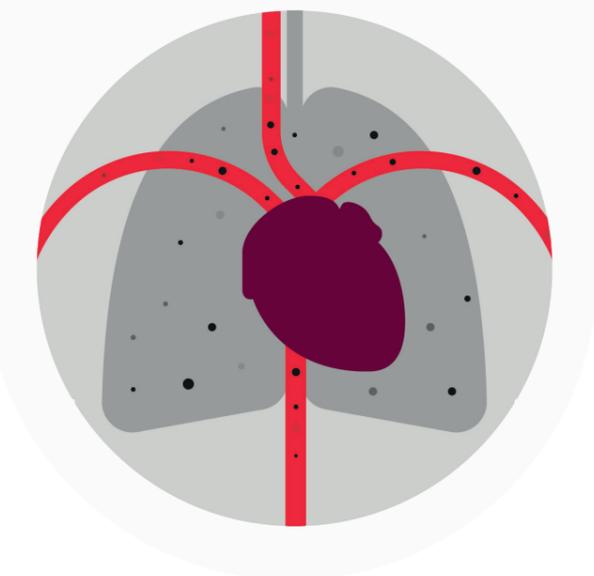
Air pollution is responsible for up to 36,000 deaths nationwide every year and research funded by the British Heart Foundation (BHF) has been at the forefront of increasing our understanding of the damage that it can cause to everyone's heart and circulatory health.



Our research has shed light on how harmful pollutants such as particulate matter (PM) – small particles not visible to the naked eye that are found in emissions from diesel engines and domestic wood burning - can enter the bloodstream and cause damage to people's heart and circulatory system, increasing the risk of potentially deadly heart attacks and stroke.

Poor air quality affects everyone. However, those with heart and circulatory diseases are particularly at risk from the effects of certain pollutants, such as PM_{2.5} and ultrafine particulate matter – the smallest and most harmful particles.

Below: Toxic air pollution particles can remain in your bloodstream for up to three months



Above: Toxic particles can worsen the build up of fatty materials inside the arteries causing blood clots

How does air pollution affect the heart and circulatory system?

Since the early 2000s, the BHF has funded around £5.5 million of research into air pollution. Our research shows that air pollution can affect your heart and circulation by:

- **damaging the inside walls of your blood vessels, causing them to become narrower and harder**
- **restricting the movement of your blood vessels, which can increase blood pressure and add to the strain on your heart**
- **making your blood more likely to clot**
- **affecting the normal electrical functioning of your heart which could cause abnormal heart rhythms**
- **potentially causing small changes to the structure of the heart like those that are seen in the early stages of heart failure.**

This damage can contribute to the development of new health problems, or put people with existing heart and circulatory conditions at increased risk of events like a heart attack or stroke.

The risk air pollution poses in Chelmsford

According to World Health Organisation (WHO) guidelines, levels of PM_{2.5} should not exceed an annual average of 10 micrograms/m³.

Your constituency has been identified as breaching WHO limits for PM_{2.5} in 2017

The average annual concentration of PM_{2.5} in Chelmsford was 10.79 micrograms/m³ in 2017.

Average annual concentration for PM_{2.5} ranking: 94 in the UK

(with 1st indicating the worst concentration levels and 650th the least worst)

Exposure to air pollution not only affects people with heart and circulatory diseases, it also causes harm to healthy people too. The WHO says that there is no safe level of exposure to PM_{2.5}. Everyone is at risk.

This means that the 10,000 people estimated to be living with a heart or circulatory condition in your constituency are at higher risk of a heart attack or stroke due to poor air quality.

11,000

There are an estimated 11,000 air pollution related deaths due to heart and circulatory diseases each year in the UK.

What is the BHF calling for?

Current legal air quality limits for England and Wales do not protect health.

The EU limits we follow are less stringent than the WHO's threshold for harmful pollutants including PM. The Environment Bill, announced in July 2018, provides a once in a generation opportunity to update our air quality legislation to ensure that it protects health, by adopting WHO limits.

This will ensure that efforts to reduce air pollution achieve meaningful outcomes, particularly for vulnerable groups whose lives are impacted by outdoor air pollution. To achieve this, the UK should seek to attain outdoor air pollution levels within WHO guidelines by the end of the next decade.



How you can help

Please work with us to ensure that action to reduce air pollution will be effective in reducing the risk to everyone in your constituency.

To find out more about how you can take action to tackle air pollution, contact:

westminster@bhf.org.uk