Llywodraeth Cymru
Welsh Government

Air Quality in Wales 2020

Welsh *Air Quality* Forum
Fforwm Ansawdd Awyr Cymru

This report has been produced by Ricardo Energy & Environment on behalf of the Welsh Government and Welsh Air Quality Forum

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Introduction

This is the 18th annual report on air quality in Wales to be produced by Ricardo Energy & Environment under the auspices of the Welsh Air Quality Forum (WAQF) for the Welsh Government. It aims to provide Welsh citizens and the air quality community with a user-friendly summary of information on local air quality monitoring, and pollution levels and their impacts throughout Wales during 2020. It also details the WAQF's activities alongside major policy, technical and scientific developments.

More detailed information, analysis and data covering air quality in Wales can be found on the Welsh Governments website (https://airquality.gov.wales). All data used in this report are freely available through the website. The website is used by 22 local authorities to submit monitoring data and by thousands more individuals to download data and learn about monitoring sites and measurements that take place. It contains comprehensive data, graphs and information on health effects from a continually increasing number of monitoring stations, together with local forecasts of air quality over the next 5 days. This provides people in Wales with access to reliable and accurate information on the quality of the air they breathe. Openair data analysis tools provide a free and open-source tool to analyse, interpret and understand air pollution data. The user-friendly, interactive map interface allows users to access and analyse data at a glance.

Chapter 2 presents the WAQF's activities in 2020. Chapter 3 summarises important policy developments that took place in 2020. Chapter 4 presents key air quality statistics from all monitoring networks in Wales and summarises the data from them. The networks include air quality monitoring stations run by Welsh local authorities; and the national monitoring networks run by the Department for Environment, Food and Rural Affairs (Defra) and the Welsh Government. Chapters 5 and 6 discuss long-term trends and the spatial distribution of air pollutants across the country. Chapter 7 reports on topics of special interest – this year it looks at the Landmark Second Inquest Rules that Air Pollution Contributed to the Death in London of 9-Year Old, Ella Adoo-Kissi-Debrah. Chapter 8 is from Public Health Wales providing information a review of Air Quality and Public Health in 2020. Finally, for readers wanting to find out more, additional web-based and published sources of information are summarised in Chapter 9.

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The WAQF and its activities in 2020

The Welsh Air Quality Forum (WAQF) represents the 22 Unitary Councils of Wales and is made up of representatives from Local Authorities, the Welsh Government, Public Health Wales, Natural Resources Wales and several academic institutions. WAQF members direct the operation of the Welsh Air Quality Website and Database, the collection, quality assurance and quality control and dissemination of all data, and the provision of support and training to Local Authorities. The WAQF provides expertise and guidance to ensure that Local Air Quality Management (LAQM) statutory requirements are met and air quality in Wales is reported in an accurate, transparent and timely manner.

WAQF highlights from 2020

- The Air Quality in Wales website (https://airquality.gov.wales) continues to be a valuable resource providing real-time updates and information.
- Use of the website Discussion Forum continues to enable debate and to promote best practice. Topics covered included; discussions on personal air quality monitors and handheld/portable monitors; consultation on technical advice notice and consultation on the Welsh Government draft Clean Air Plan.

WAQF meetings 2020

Due to Covid-19 meetings of the Welsh Air Quality Forum were suspended. However, the Discussion Forum was used by members to share information and to provide advice during the Covid-19 pandemic. The forum discussions included:

- Analysis of Covid-19 lockdown on local air pollution
- Resilience planning
- Analysis of diffusion tubes during the pandemic
- Covid-19 recovery and planning

The Annual Welsh Air Quality Forum Seminar was held as a webinar on 22nd October 2020. There were 46 WAQF members and delegates attending the event. The topics presented were;

- Welsh Government Update
- Indoor study on fine particulates, mould and damp in vulnerable Welsh homes
- Benefits of outdoor exercise and the health risks from air pollution
- Indoor Air Quality
- Covid-19 and the impact of Air Quality in Wales

PDF's of these presentations can be found at https://airquality.gov.wales/reports-seminars/seminars.

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Welsh Government policy update

The Covid-19 pandemic presented new challenges for managing air quality at both local and national level in 2020 and led to changes in air quality levels. The Welsh Government and Ricardo published the report Provisional Analysis of Welsh Air Quality Monitoring Data – Impacts of Covid-19 which outlined the decreases in NO_x and NO_2 concentrations experienced across Wales during the first lockdown period.

The Clean Air Advisory Panel undertook further work to assess the air quality picture and published the report *Impacts of the Covid-19 pandemic on air quality in Wales: March to October 2020*. The report outlines air quality changes seen across a range of pollutants and provides key recommendations with regard to air quality and travel behaviours as we move forward from the pandemic.

Both reports can be viewed at:
https://airquality.gov.wales/reports-seminars/reports

Following consultation events held across Wales, The Welsh Government published the Clean Air Plan for Wales: Healthy Air, Healthy Wales in August 2020. The plan sets out actions to be taken under four themes: People, Environment, Prosperity and Place. Work to deliver the actions in the plan continued throughout 2020 with a White Paper on a Clean Air Bill for Wales published in early 2021 alongside a consultation on proposals to reduce emissions from domestic burning of solid fuels. The Clean Air Plan for Wales can be viewed at: https://gov.wales/clean-air-plan-wales-healthy-air-healthy-wales.

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Monitoring networks and data highlights

The Welsh Government and the Welsh Air Quality Forum (WAQF) work closely with air quality experts and the Department for Environment, Food and Rural Affairs (Defra) to monitor and reduce air pollution in Wales. Figure 4.1 illustrates the long-term trends for nitrogen dioxide (NO_2), fine particles (PM_{10}) and ozone (O_3) concentrations in Wales. Apart from ozone, this shows a steady improvement in pollutant concentrations since the 1990s. As ozone is a regional pollutant that is transboundary in nature, it is outside the direct control of the Welsh Government and local authorities.

As mentioned earlier, analysis of Covid lockdowns showed that there was a significant reduction in some air pollutant emissions for Wales in 2020, and this can be seen in the trends. Nitrogen dioxide levels are sharply down in 2020 compared to the recent trend. Conversely a hot summer combined with lower urban NO_x meant that ozone increased sharply in 2020.

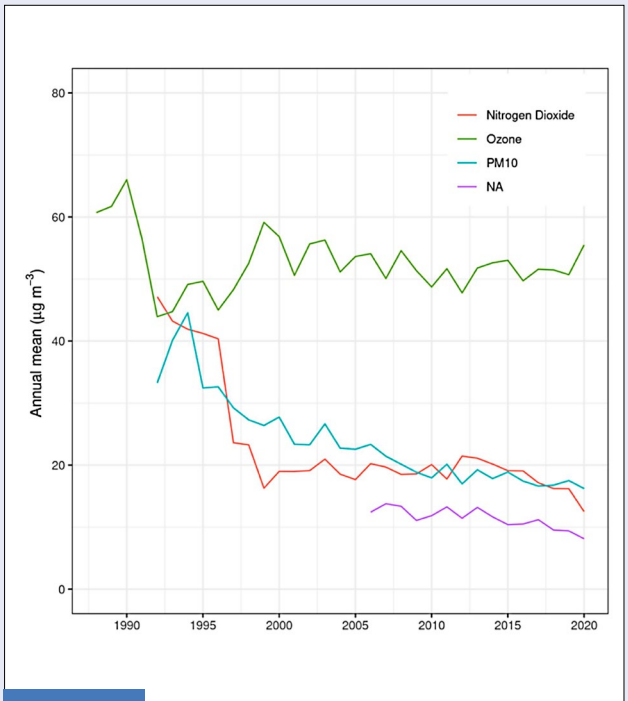

Figure 4.1

Key ambient air pollutant trends in Wales 1990-2020

Local authority monitoring

Air quality monitoring in Wales is undertaken by local authorities and through national networks managed by the Welsh Government. There are two main types of air pollution monitoring – automatic monitoring and passive sampling. Automatic monitoring uses continuous analysis techniques to measure and record ambient concentrations of a range of air pollutants. Passive samplers (such as diffusion tubes) contain a chemical reagent that adsorbs the pollutant from the air. Samplers are exposed for a period of time and analysed in a laboratory. At the start of 2020, there were a total of 38 automatic monitoring sites distributed across Wales that were operated by local authorities, by the end of 2020 this increased to 42 sites. The new sites added to the network were, Bridgend Park Street, Cardiff Castle Street, Cwmbran Crownbridge and Wrexham Chirk. These sites contain equipment that automatically measures carbon monoxide (CO), nitrogen oxides (NO_x), sulphur dioxide (SO_2), ozone (O_3), PM_{10} and $PM_{2.5}$ particulate matter. In addition to these, there were several hundred diffusion tubes measuring monthly mean NO_2 levels. Overall, data capture for the automatic instruments operated by local authorities during the year was 79%, this reflects the fact that 4 new sites opened part way through the year and therefore lowered the overall figure. If these sites are removed, then the overall data capture is 94%

In 2020, ambient concentrations of PM_{10} were 'moderate' on 38 days, 'high' on 8 days and 'very high' on 2 days (as defined by the Daily Air Quality Index bandings). For NO_2, there were 10 days with 'moderate' concentrations, 2 days of 'high' and no days of 'very high'. For SO_2, there were no 'moderate', 'high' or 'very high' levels recorded. For O_3, there were 46 days with 'moderate' levels and no days recorded as 'high' or 'very high' – as measured by the monitoring sites operated by local authorities. Overall, pollution levels in Wales were low for 279 days, moderate for 75 days, high for 10 days and very high for 2 days. So, for 76% of the time, pollution levels were low across the whole of Wales. Details of the Daily Air Quality Index banding system used to describe pollution levels for the public during 2020 can be found at https://airquality.gov.wales/about-air-quality/daily-air-quality-index.

Summary of exceedances

Exceedance statistics generated from the Air Quality in Wales website show that no monitoring sites in Wales exceeded any Air Quality Strategy (AQS) Objectives (or corresponding EU limit values) for PM_{10}, CO, SO_2, benzene (C_6H_6) or lead (Pb) during 2020.

Two Welsh monitoring sites (Bridgend Park Street and Hafod-yr-ynys) exceeded the annual mean objective of 40µg m^{-3} for NO_2. Swansea Station Court High Street exceeded the AQS Objective for hourly mean nitrogen dioxide concentration on more than the permitted 18 occasions in 2020.

Nine sites in Wales exceeded the AQS Objective for O_3 (100µg m^{-3} as a maximum daily 8-hour mean) on more than the permitted 10 occasions. These were Aston Hill, Cardiff Centre, Cwmbran, Marchlyn Mawr, Narberth, Port Talbot Margam, Swansea Cwm Level Park, Swansea Morriston Roadside and Swansea St Thomas DOAS. These exceedances are most likely due to the prolonged hot weather in the summer of 2020.

The national air quality monitoring networks operating in Wales

There are several national air quality monitoring networks operating across Wales. These report air pollution levels in Wales that can be assessed against regulatory requirements and to provide information for air quality researchers, the medical community and members of the public.

Automatic Urban and Rural Network

There are 11 air quality monitoring sites in Wales that are part of the UK Automatic Urban and Rural Network (AURN). The techniques used for monitoring the gaseous pollutants in the AURN are the reference methods of measurement defined in the relevant EU directives. For particulate matter, the AURN uses methods that have demonstrated equivalence to the reference method, but which (unlike the reference method) allow continuous monitoring and provision of this information in 'real time'.

Heavy Metals Network

There are six monitoring sites in Wales for heavy metals and they belong to the UK Heavy Metals Network. Airborne particulate matter is sampled and analysed for metals concentrations in PM_{10}. The metal concentration data are then combined with the local meteorological data (such as rainfall) to calculate values for wet deposition (from precipitation), dry deposition (such as dust settling) and cloud deposition (condensation of cloud droplets).

PAH Monitoring Network

Wales has four polycyclic aromatic hydrocarbon (PAH) network sites. These monitor compliance with Directive 2005/107/EC (the 4th daughter directive), which includes a target value of 1ng m^{-3} for the annual mean concentration of benzo[a]pyrene ($C_{20}H_{12}$) as a representative PAH, not to be exceeded after 31 December 2012. This network uses the PM_{10} 'DigitelTM' sampler. Ambient air is sampled through glass fibre filters and polyurethane foam pads, which capture the PAH compounds for later analysis in a laboratory.

Black Carbon Network

Black carbon is fine, dark carbonaceous particulate matter produced from the incomplete combustion of materials containing carbon (for example coal, oil and biomass (such as wood)). It is of concern due to possible health impacts and as a suspected contributor to climate change. There is one monitoring site in Wales that measures this parameter. The site, in Cardiff, is part of the Black Carbon Network. This uses an automatic instrument called an aethalometer that measures black carbon directly using a real-time optical transmission technique.

UK Eutrophying and Acidifying Pollutants Network

The UK Eutrophying and Acidifying Atmospheric Pollutants (UKEAP) network provides information on the deposition of eutrophying and acidifying compounds in the UK and assesses their potential impacts on ecosystems. Other measurements – including SO_2, NO_2 and particulate sulphate – have also been made within the programme, to provide a more complete understanding of precipitation chemistry in the UK.

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Air quality trends

The number of automatic monitoring sites in Wales has increased greatly in recent years. While this helps to improve our understanding of air quality across the country, it potentially complicates the investigation of how air quality has changed over time. If such investigations are based on all available data, discontinuities and false trends may be introduced because of changes in the composition of the network. Therefore, in this report, investigation of changes has been based on subsets of long-running sites rather than on every site in the network. This should lead to a more robust assessment.

Nitrogen Dioxide

In Wales (and the rest of the UK), the most widely exceeded limit value is the annual mean nitrogen dioxide (NO_2) concentration (40µg m^{-3}). Figure 5.1 shows how annual mean NO_2 concentrations have varied with time.

Urban background sites are represented by the longest running site of this type (Cardiff Centre (since 1992)), and a subset of four long-running sites that have all been in operation since 2003, with annual data capture of at least 50% – Cardiff Centre, Cwmbran, Newport St Julians and Port Talbot (replaced by the nearby Port Talbot Margam site in 2007 – the two Port Talbot sites are treated as one for the purpose of the graph). Cardiff Centre shows a clear decrease from 1992 to 2020 but the annual mean rose in 2019 before dropping again in 2020. The mean for the long-running urban background sites shows a decrease from 2003 to 2020, with a slight increase in 2019 before dropping again in 2020.

Urban traffic sites (those within 10m of a major road) are represented by the longest-running roadside site (Swansea Morriston (since from 2001)), and a subset of two long-running sites that have been in operation since 2002 – Swansea Morriston and Wrexham. The urban traffic locations shown a decrease in NO_2 concentrations for the last four years.

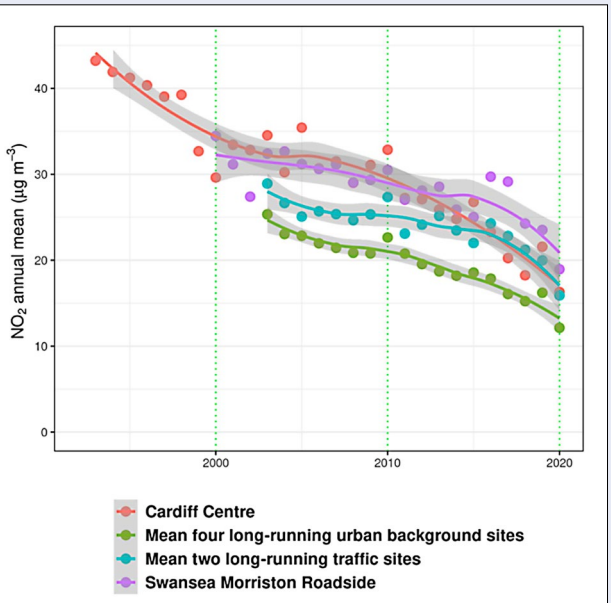

Figure 5.1

Annual mean nitrogen dioxide concentration at long-running sites in Wales

Particulate Matter

Figures 5.2 and 5.3 show how annual mean concentrations of fine particles, both PM_{10} and $PM_{2.5}$ have generally decreased in recent years at urban traffic sites. This is due to the diverse range of sources contributing to Particulate matter, of which vehicle emissions have been most substantially reduced in recent years. Urban background sites concentrations have been stable in recent years.

Urban non-roadside sites in Figure 5.2 are represented by the mean of three long-running sites from 2001 (Cardiff Centre, Cwmbran and Port Talbot/Port Talbot Margam – again, the latter two are treated as one site for this purpose). Please note that Port Talbot/Port Talbot Margam is classified as urban industrial rather than urban background as it is located in the vicinity of a large steelworks. It has been included because there are few long-running urban non-roadside sites.

Urban traffic sites in Figure 5.2 are represented by the mean of two long-running sites from 2002 – Rhondda-Cynon-Taf Nantgarw and Wrexham. Wrexham (the longest-running traffic site) is also shown individually.

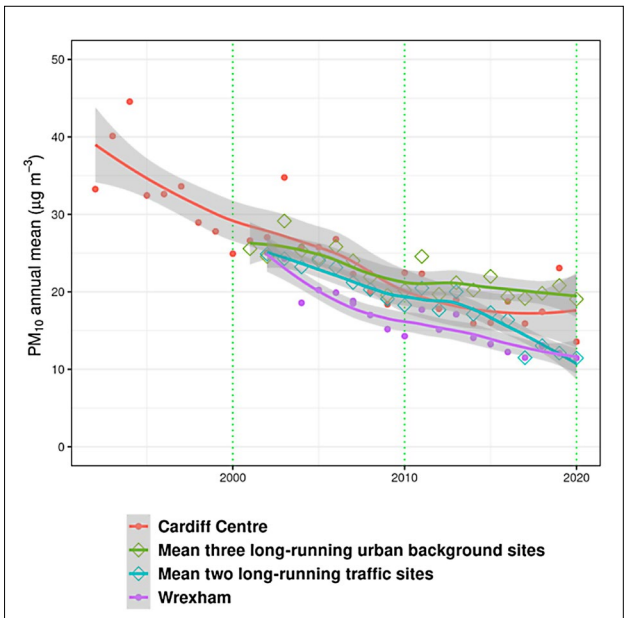

Figure 5.2

Annual mean PM_{10} concentrations at long-running sites in Wales

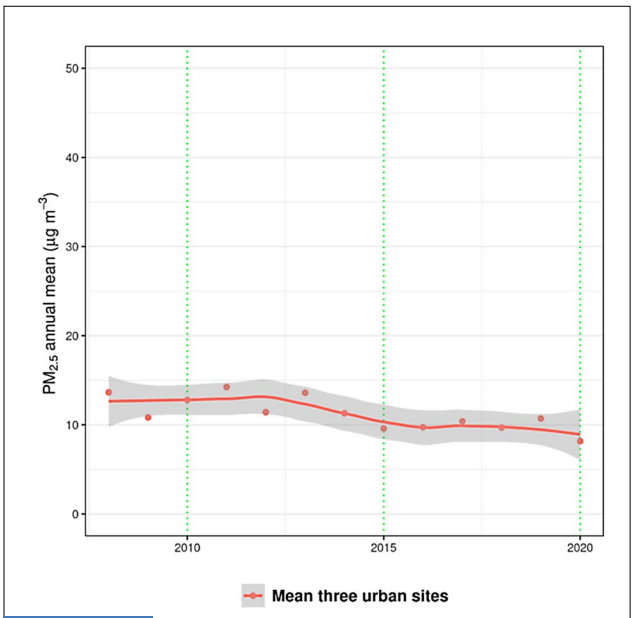

Figure 5.3

Annual mean $PM_{2.5}$ concentrations at long-running sites in Wales

Urban $PM_{2.5}$ sites in Figure 5.3 are represented by the mean of three long-running sites from 2008 (Cardiff Centre, Newport St Julians Comp School and Port Talbot Margam)

Cardiff Centre (which has operated for longer than any other site) is also shown individually in Figure 5.2. Cardiff Centre shows a decrease in PM_{10} concentrations between 2019 to 2020. All sites have at least 70% annual data capture except for Cardiff Centre in 2010.

Ozone

Ozone (O_3) concentrations tend to be highest at rural locations. Figure 5.4 shows how annual mean rural O_3 concentration has changed over time. This is based on the mean concentration measured by three long-running sites in Wales (shown by the blue line) – Aston Hill, Marchlyn Mawr and Narbeth. All have been in operation since 2003 with data capture of at least 70%. Also shown is Aston Hill alone – this site has been monitoring ozone since the late 1980s. Although there are no clear trends, concentrations vary considerably from year to year because of the variation in meteorological factors.

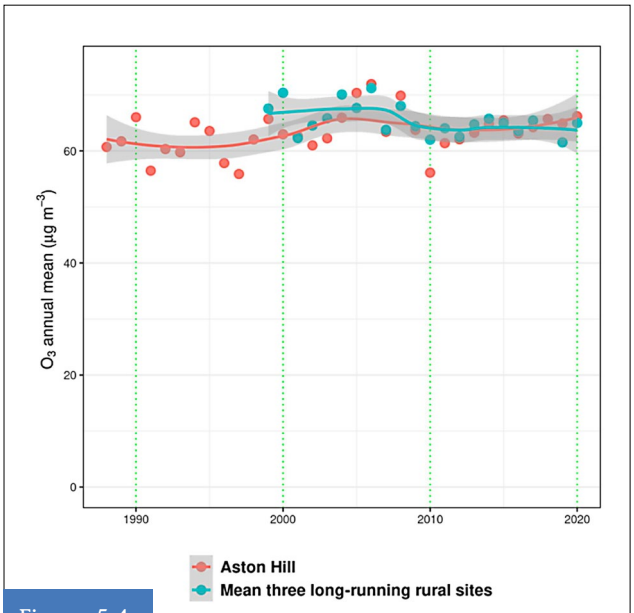

Figure 5.4

Annual mean ozone concentrations at long-running sites in Wales

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Maps of air quality

The maps in Figure 6.1 present 2020 background concentrations for nitrogen dioxide (NO_2), ozone (O_3), PM_{10} and $PM_{2.5}$ particulate matter. These modelled maps of ambient concentrations were calculated from National Atmospheric Emissions Inventory (NAEI) data using a dispersion modelling approach. The model output was calibrated using monitored data from the national monitoring networks. These modelled maps were then verified against the local authority monitoring data. A more detailed report comparing the Welsh air quality monitoring data to modelled concentrations will be published in due course. In these maps, the modelled ambient concentrations are compared with EU limit values.

NO_2

Annual mean (µg m^{-3})

- <10
- 11-20
- 21-30
- 31-40
- >40

The limit value for annual mean concentration of NO_2 is 40 µgm^{-3}. This background map shows elevated NO_2 levels are associated with urban areas and principal road links.

Ozone

Number of days

- <1
- 2-5
- 6-10
- 11-15
- 16-25
- >25

The target value for O_3 is 120 µgm^{-3} as an 8-hour mean, not to be exceeded more than 25 times per year averaged over 3 years. The map shows the number of days the concentration was above the target value in 2020.

PM_{10}

Annual mean (µg m^{-3})

- <10
- 11-15
- 16-20
- 21-30
- 31-40
- >40

The PM_{10} limit value for annual mean concentration is 40 µgm^{-3}. The map shows that elevated levels of PM_{10} are associated with urban areas and major roads.

$PM_{2.5}$

Annual mean (µg m^{-3})

- <5
- 6-7
- 8-10
- 11-15
- 16-20
- >20

The $PM_{2.5}$ limit value is 25 µgm^{-3}. The map shows that elevated levels of $PM_{2.5}$ are associated with urban areas and major roads.

Figure 6.1

Maps showing background concentrations of nitrogen dioxide, ozone, PM_{10} and $PM_{2.5}$ particulate matter.

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Landmark second inquest rules that air pollution contributed to the death in London of 9-year old, Ella Adoo-Kissi-Debrah

Prof Sir Stephen Holgate CBE, MRC Clinical Professor, UKRI Clean Air Champion and Special Advisor to the RCP on Air Quality

On the 15th February 2013, Ella Adoo-Kissi-Debrah, a nine-year old girl who lived in SE London died of asthma. The death certificate stated asthma as the underlying cause leading to acute respiratory failure. Ella's mother, Rosamund, was convinced that there must have been a major underlying cause for Ella's illness and death and spent the next 7 years looking for answers. I read about this tragic case in the Evening Standard and although details were sparse, Rosamund's description of her daughter's asthma rang bells having spent the last 40 years studying asthma mechanisms and the role of environmental and genetic factors. I offered to prepare an initial report to reopen the inquest which, on August 31st, 2018, was granted by Philip Barlow, Assistant coroner for the Inner South District of Greater London. On 11th January 2019, the Attorney General, Rt Hon Geoffrey Cox QC MP, allowed her to apply to the High Court to have a new inquest heard; this then took place over 2 weeks completing on December 16th, 2020.

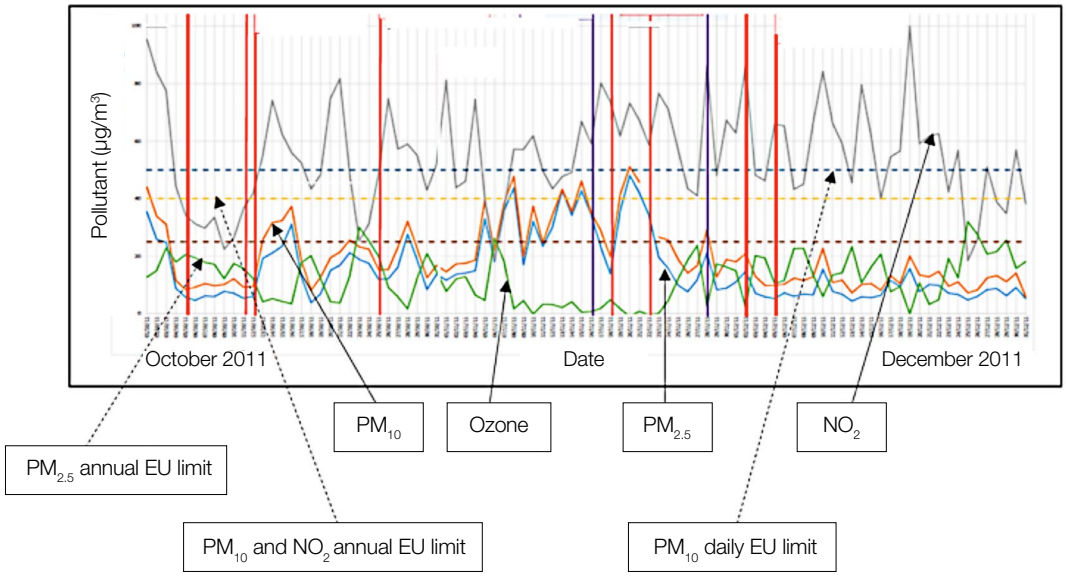
Ella's asthma certainly was unusual in its character, severity, and clinical presentation. Up until the age of 5 years she was a normal highly active child who showed talent in gymnastics, football and performing arts as well as in her school achievements. Then, in the autumn of 2010 she developed a common cold accompanied by wheezing and shortness of breath on climbing stairs. From this time onwards to her death, Ella began to experience repeated bouts of very severe coughing with extensive mucus production.

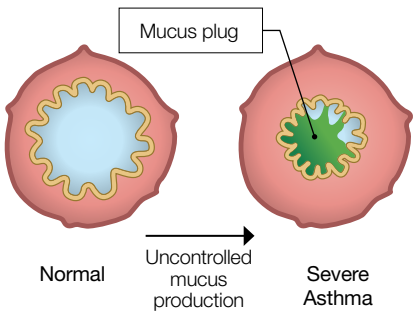
For the next 3 years Ella would have protracted coughing episodes often in the early hours of the morning which, on many occasions, progressed to respiratory and even cardiac arrest, loss of consciousness and seizures (reflex anoxic seizures, not epilepsy) leading to dramatic emergency hospital admissions. Over a 30-month period until she died, Ella was admitted to hospital 27 times with many GP visits in between. Intensive investigations at 6 major London hospitals failed to uncover why her asthma was so severe and what was driving it. What was striking, however that these dramatic events would occur predominantly in the late autumn, winter, and early spring while only occasionally during the summer months. Despite Ella being allergic, this was to pollen not to the usual perennial asthma allergens (dust mite, fungi, and pets). Intensive testing also excluded virus, bacterial and fungal infections as drivers of these severe seasonal episodes. However, what was clear is that mucus secretion causing and on several occasions leading to partial lung collapse, was the principle cause of her dramatic symptoms i.e. hypersecretory asthma. This was supported both at bronchoscopy and post-mortem examination of her lungs where there was clear evidence of profound damage to the cells that lined her airways, the normal cells being almost entirely replaced by mucus-secreting (goblet) cells. On top of classical asthmatic inflammation (eosinophils) there was ongoing airway inflammation of the type seen on pollutant exposure (neutrophils and mononuclear cells) in the absence of infection.

Ella's asthma was treated with the best available treatment according to national management guidelines at the time and there was no evidence of treatment non-adherence, indeed her mother used a bedroom video camera to catch coughing episodes as soon as possible. Traffic-related air pollution is a well-established, but neglected, cause of worsening asthma triggering epithelial damage and inflammation and is now also known to be a risk factor for disease onset. Ella lived within 25 metres of the South Circular Road, one of the most polluted roads in London. Looking at air pollutant concentrations measured at three sites close to where Ella lived it was striking that these exceeded lawful EC limits for NO_2 on an annual basis throughout Ella's illness and for $PM_{2.5}$ for substantial periods of her illness. On top of this, there were peaks in the 24 hours mean readings for NO_2 (maximum 137.5 µg/m^3) and PM_{10} (maximum 84.7 µg/m^3). The LA also had NO_2 data from multiple diffusion tubes sited in and around where Ella lived and travelled to school and the majority breached the EC annual limit value. Significantly, the highest levels of NO_2 and $PM_{2.5}$ coincided with the frequency of the severe episode disease clusters.

Based on this evidence and that of many others at the end of the 14-day inquest the coroner, Philip Barlow, concluded that: *"Air pollution was a significant contributory factor to both the induction and exacerbation of Ella's asthma. During the course of her illness, between 2010-13, she was exposed to levels of NO_2 and PM in excess of WHO Guidelines. The principle source of her exposure was traffic emissions. During this period there was a recognised failure to reduce the level of NO_2 to the limits set by the EU and domestic law which possibly contributed to her death. Ella's mother was not given information about the health risks of air pollution and its potential to exacerbate asthma. If she had been given this information, she would have taken steps which might have prevented Ella's death".*

The Coroner's findings mark a culmination of 7 years of tireless campaigning by Rosamund since Ella's death in 2013, shining a light on the critical issue of air pollution and its impact on human health, especially among the vulnerable and children. This landmark case, which is the first time air pollution has been cited on a death certificate as a contributory factor to death, is having far-reaching consequences 'for other people and other cases' as acknowledged by the Coroner with release, in April 2021, of a Prevention of Future Deaths Report, and highlights the need for further action from governments around the world to reduce dangerous levels of air pollution.





The pattern of Ella's disease and its clinical manifestations were dominated by excess mucus production and accompanying intractable cough rather than classical "bronchospasm".

Airway epithelial damage, sensory nerve exposure, mucus and an increase in epithelial mucus secreting and submucosal glands dominated her disease and provides the underlying hypersecretory mechanisms for her intractable productive cough, cough syncope and hypoxic seizures. After excluding allergy and infection, air pollution toxicity was the most likely driving factor for her disease.

8

Air quality and public health – a year in review

Air pollution and COVID-19

Included in the many questions surrounding COVID-19, is the effect of air pollution and air pollution exposure on spread of disease and risk, and severity, of infection. As many air pollutants can affect lung development and function and increase susceptibility to respiratory infections, it is certainly plausible that air pollution could play a role in the incidence and severity of the disease. There are also some suggestions that incidence is higher where air pollution is greater, but these areas tend to be the most densely populated, are more deprived and have large multi-ethnic populations. Whatever the role, if any, air pollution is found to have in the spread of COVID-19, the pandemic has highlighted health and societal inequalities and inequities, including those relating to air quality. To address these, Public Health Wales is working with local authorities and academics as part of the Clean Air Advisory Panel that will make recommendations to Welsh Government on policies that will protect the most vulnerable from air pollution.

The pandemic has also shown how transport and travel affect air pollution. Work commissioned by Welsh Government and outlined in this Report illustrates the changes in different air pollutants during lock-down. It showed that travel and transport are significant contributors to some air pollutants, specifically nitrogen oxides, and that changes in the need to travel and mode of travel can have significant benefits in improving air quality. Policies that recognise these changes and aim to support them being adopted in the long term are likely to benefit air quality and, therefore health. However, data from the lock-down also demonstrates that for particulate matter the situation is far more complex and is less dependent on travel related emissions. More comprehensive data is needed on $PM_{2.5}$ in Wales to inform any decision around future health-based targets and other policy initiatives.

The pandemic has also had other impacts on air quality in Wales. Changes in air pollution concentrations do not necessarily translate to similar changes in exposure. While the lockdown decreased exposure to some traffic related pollution, it may have increased exposure to air pollution in the home. As there is likely to be a significant shift to home working, more work is needed to better understand our exposure to indoor air pollution. For example, we have heightened our surveillance on carbon monoxide to reflect the fact that more people are spending time at home, while during the first lockdown, many agencies noted an increase in neighbourhood waste and garden fires due to recycling facilities being closed and people being at home.

Working with Welsh Government

Public Health Wales is working with Welsh Government and others to inform the development of new, tougher targets on air pollution. Increased public awareness about air pollution is also a key priority and we are currently reviewing and updating our current resources of air pollution to include better, more specific messaging for different groups such as parents and the health community.

Air Quality Surveillance

Public Health Wales continues to work with Welsh Government and Local Authorities to develop the interactive Public Health Risk Assessment Tool for Outdoor Air Quality in Wales.

The tool comprises different components intended to complement the common risk assessment used by Local Authorities. Air pollution is not an isolated environmental problem; it interacts with other health and social determinants, meaning there is merit in assessing the risk and impacts in the broadest possible public health context. In doing so, air quality assessments can reach and connect with multi-disciplinary work on active travel, overweight and obesity, deprivation and inequalities.

The evolving tool is easy to access and free to use. It can be accessed via: https://public.tableau.com/app/profile/public.health.wales.health.protection/viz/AirQualityinWalesHealthImpactAssessmentTool/LandingPage.

Cutting the default speed limit in Wales

Even before COVID-19, Welsh Government had recognised the need to address the harms that are associated with the road traffic environment and pledged to cut the default speed limit from 30mph to 20mph where people live, work and play. There is evidence to suggest that the potential public health benefits of this will be significant and wide ranging, from reducing the number and severity of crashes, to reducing isolation, loneliness and community severance. There is also some evidence that by encouraging 'smoother' driving, with less acceleration and braking, the change will have positive effects on air quality. In addition, it is also expected to encourage more people to walk and cycle, rather than using the car, which will also have the effect of improving air quality. Due in 2023, should also capitalise on the change in travel behaviours seen during the pandemic.

9

More information

The Air Quality in Wales website

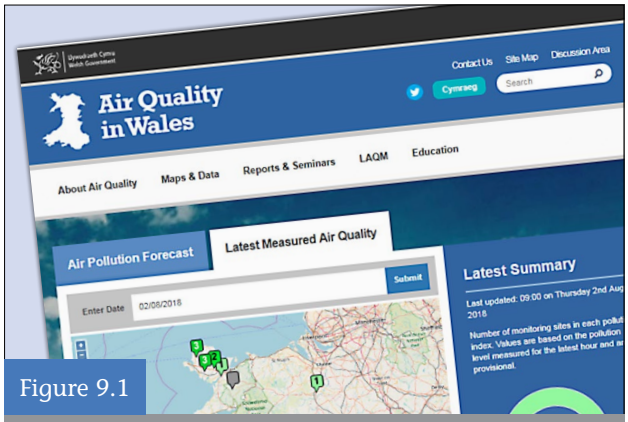


Figure 9.1

The Air Quality in Wales website

The Air Quality in Wales website (https://airquality.gov.wales/) is available in English and Welsh. It provides information on all aspects of air pollution in Wales. The site is one of a family of air quality websites produced by Ricardo Energy & Environment, which includes air quality websites for the UK, Northern Ireland, Scotland and England.

The website has been designed to be a user-friendly and interactive resource containing comprehensive information on all aspects of air pollution:

- A colour coded OpenStreetMap™ showing the overall pollution situation at sites across Wales.
- Latest data from all automatic monitoring sites in Wales, accessible from this map.
- Air pollution forecasts for the whole of Wales.
- Information on the latest, developments and publications.
- Detailed information on automatic monitoring sites.
- A wide range of background information on air pollution sources, health impacts, monitoring techniques, standards and policy issues.
- Access to air quality data and statistics – for automatic and sampler sites – going back to 1986.
- Provision to submit data via innovative web forms to the archive.
- Headline air quality indicators, trends and modelled future scenarios.
- Links to national and global information resources on air quality.
- A password-protected area for members of the Welsh Air Quality Forum (WAQF).
- Overview of the data ratification and verification procedures.

To access data used in this Annual Report, follow these simple steps:

- From the home page, select ‘Maps & Data’ from the main menu.
- Click on ‘Measurements’.
- Click ‘Download/Submit Data’.
- Click ‘Download Data’.
- Select ‘Parameter Group’ (type of data required).
- Select ‘Pollutant Species’.
- Select ‘Local Authority Region’.
- Select ‘Statistic Type’ (for example, daily mean).
- Select ‘Date Range’.
- Select ‘Specific Monitoring Site(s)’.

Then, provide your email address and the data will be emailed to you with a few seconds.

Current and forecast air quality (national and local)

In addition to the Air Quality in Wales website, current and forecast air quality is rapidly available in a user-friendly form from:

- The Air Pollution Information Service on freephone 0800 556677.
- The UK Air Information Resource (https://uk-air.defra.gov.uk/).

Health effects of air pollution

Information on the health effects of air pollution and the UK pollution banding system can be found on the Department for Environment, Food and Rural Affair's (Defra) website (https://airquality.gov.wales/about-air-quality/daily-air-quality-index).

General information on air quality

- The Welsh Government Environment and Countryside links (https://gov.wales/air-pollution).
- The UK Air Information Resource (https://uk-air.defra.gov.uk).
- The National Atmospheric Emissions Inventory (http://naei.beis.gov.uk).
- The Defra Air Quality Information Web Resource (https://uk-air.defra.gov.uk).
- The Northern Ireland Air Quality website (https://www.airqualityni.co.uk/).
- The Scottish Air Quality website (http://www.scottishairquality.scot/).
- The Air Quality in England website (www.airqualityengland.co.uk).
- The Pollutant Release and Transfer Register (https://www.gov.uk/guidance/uk-pollutant-release-and-transfer-register-prtr-data-sets).
- The Environment Agency (https://www.gov.uk/government/organisations/environment-agency).
- Natural Resources Wales (www.naturalresourceswales.gov.uk).

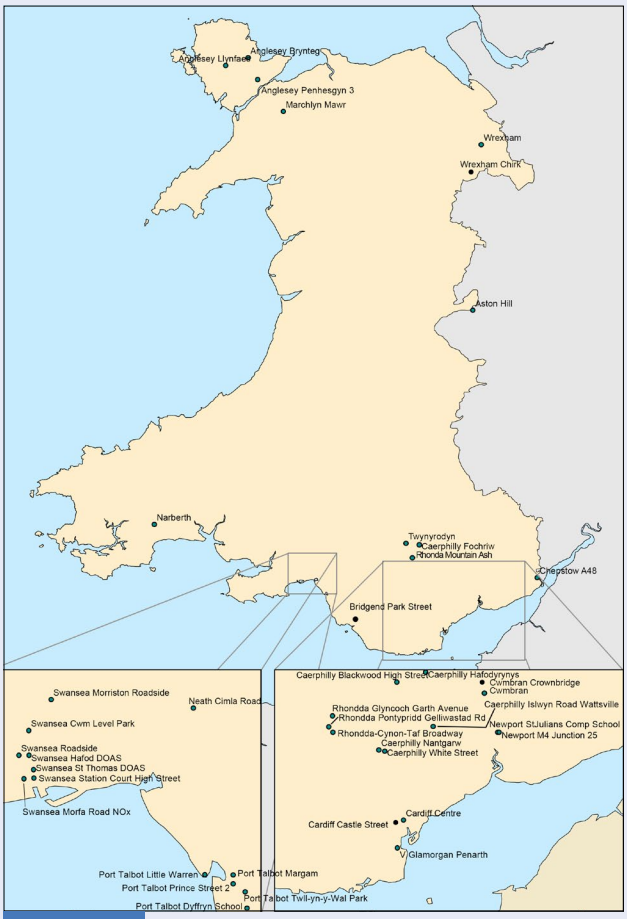


Figure 9.2

Welsh automatic monitoring sites in 2020

Local air quality issues

For further information on air quality issues in your area, please contact the environmental health department at your local district council office. Further information on Local Air Quality Management may also be found on:

- The local authority support site (http://laqm.defra.gov.uk).