

## ANTIBIOTICS CAUSE ASTHMA

In 1994 I stated on Prime News TV in Canberra the capital of Australia, that as a result of studying the medical records of children up to the age of twelve in England in 1991, I believed that the epidemics of asthma were due to antibiotics. Since then and increasingly so as shown in the table 1, there have been multiple reports linking antibiotic exposure to asthma.

YEAR	COUNTRY	CONCLUSION
2007	Canada	Asthma more likely to develop in children who had antibiotics in first year of life. Risk highest in children receiving more than 4 courses of antibiotics. <sup>1</sup>
2009	New Zealand	Use of antibiotics in first year of life associated with increased risk of asthma symptoms. <sup>2</sup>
2009	Canada	Use of antibiotics in first year of life associated with small risk of developing asthma with risk increasing with number of antibiotics prescribed. <sup>3</sup>
2011	USA	Newborns treated with antibiotics in first 6 months 52% more likely to develop asthma and allergies by 6 years. <sup>4</sup>
2011	Poland	Wheezing and asthma may be enhanced by broad spectrum antibiotics used in early childhood. <sup>5</sup>
2013	Denmark	Children whose mothers took antibiotics during pregnancy slightly more likely than other children to develop asthma. <sup>6</sup>
2013	UK	Dose-dependent association found between antibiotic use in first 2 years and asthma at age 7.5 years. <sup>7</sup>
2013	Denmark	Use of antibiotics during pregnancy increases the risk of asthma in early childhood. <sup>8</sup>
2014	Sweden	Antibiotic exposure in foetal life associated with increased asthma risk. <sup>9</sup>
2014	Sweden	Maternal use of antibiotics in pregnancy was associated with an increased risk of childhood asthma. <sup>10</sup>
2015	Finland	Mothers use of antibiotics during pregnancy linked to increased risk of asthma in child. Child's use of antibiotics during first year associated with increased asthma risk. <sup>11</sup>
2016	Italy	Antibiotic exposure in infancy is associated with an increased risk of asthma up to adolescence. <sup>12</sup>
2018	Canada	Antibiotic exposure during pregnancy associated with dose-dependent increase in asthma risk. <sup>13</sup>

2018	Japan	Antibiotic exposure during foetal period associated with early asthma development. Exposure to antibiotics during the first year of life associated with childhood asthma. <sup>14</sup>
2019	USA	Administration of antibiotics within first 12 months significantly associated with lifetime asthma. <sup>15</sup>
2020	USA	Babies and toddlers who received one dose of antibiotics more likely to have asthma, hay fever, food allergies, celiac disease. <sup>16</sup>
2021	Canada	Reducing early life exposure to antibiotics may decrease the risk of childhood asthma. <sup>17</sup>
2021	Finland	Early exposures to antibiotics were associated with increased risk of asthma. <sup>18</sup>
2021	USA	Early antibiotic exposure associated with an increased risk of childhood-onset asthma, attention deficit hyperactivity disorder, atopic dermatitis and celiac disease. <sup>19</sup>
2022	Norway	Mothers antibiotic use during pregnancy associated with asthma at 7 years of age. <sup>20</sup>
2023	Australia	Early life antibiotic exposure associated with increased risk of early persistent childhood asthma. <sup>21</sup>
2023	Belgium	Excessive (> or equal to 4 courses) antibiotic use in first year of life showed more than twice the incidence density of asthma compared to <4 courses. <sup>22</sup>

**Table 1. Asthma publications by year and country with conclusion**

World maps showing the incidence rates of asthma reveal variation between countries, which points to environmental agents being responsible for the disease. A map by The Centres for Disease Control and Prevention (CDC, USA) shows that in the USA there is also variation between the states for self-reported asthma prevalence for adults (2018). A map published by the CDC which shows the number of antibiotic prescriptions by state for 2021, also shows variation between the states.

So if antibiotics cause asthma, rates would be expected to vary according to the number of antibiotic prescriptions. The maps show some likeness in that the eastern states tend to have a greater number of antibiotic prescriptions, and asthma in children for the period 2001-2005 is higher in the eastern states. However it is hard to compare the data, since ideally one needs data for the same years and number of prescriptions subdivided into prescriptions for adults and those for children.

Asthma in the UK existed before penicillins, but the incidence has shown an exponential increase particularly in children since about 1955. What would account for asthma before penicillins were available? Asthma before the introduction to penicillins could have been due to earlier antimicrobials such as sulphonamides which can cause breathing problems. People have taken more antimicrobials during the twentieth century as drugs became mass produced. The founding of the National Health Service in 1948 also enabled people in the UK to visit a doctor for free and obtain cheap medicines. The UK has one of the highest rates of asthma in the world.

The Health and Safety Executive (HSE) Britain's national regulator for workplace health and safety publish a long list online of chemicals that can cause asthma. Included on the list are penicillins, cephalosporins and

spiramycin. They state that '*penicillins such as ampicillin can cause a delayed asthmatic reaction*'. Anaphylactic reactions to penicillins were reported soon after their introduction and asthma became recognised as part of the anaphylactic response to systemic administration of penicillin.<sup>23</sup>

The HSE have in September 2023 confirmed to me that occupational asthma is the same as asthma that most asthmatics suffer from. So it follows that taking antibiotics can cause asthma.

In the UK since 1982, over forty-one years, asthma acquired at work can be compensated from around £5,000 to £65,000. Guideline compensation figures are issued by the Ministry of Justice.

The list of possible symptoms of occupational asthma can include wheezing, coughing, shortness of breath, chest tightness, runny nose, nasal congestion and eye irritation. The symptoms and treatment of occupational asthma and asthma suffered by most people are the same. Both can be treated with short-acting beta agonists, corticosteroids, long-acting beta agonists, leukotriene modifiers and combination inhalers containing both a corticosteroid and a bronchodilator.

Some doctors may argue that occupational asthma is different from asthma that has reached epidemic proportions, because it occurs following inhalation of antibiotic dust. However there are reports of doctors and nurses becoming asthmatic after coming into contact with penicillin solutions.<sup>24</sup> Topical administration of the antibiotic amoxicillin has also been reported as causing asthmatic breathing. There is also a report of a chick breeder handling feed laced with antibiotics becoming asthmatic.<sup>25</sup> What touches the skin can be absorbed into the body and reach the lungs.

The side-effect of penicillins include anaphylaxis which can cause bronchoconstriction with severe asthma and is listed in pharmacopoeias such as Martindale, Goodman & Gilman's The Pharmacological Basis of Therapeutics and the American Hospital Formulary Service (AHFS). The approximate number of pages for the pharmacopoeias mentioned above are 2,500, 1,500 and 3,823 respectively, far more than the British National Formulary (BNF) publication. Surprisingly the National Institute for Health and Care Excellence (NICE) that lists BNF information online neglects to list anaphylaxis as a side-effect.

It has been said that 'Drug-induced lung diseases manifest themselves as bronchial reactions (bronchial asthma)... pharmaceuticals that are absorbed in the gastrointestinal tract also reach the lungs...most drugs cause toxic and allergic reactions'.<sup>26</sup>

In some of the publications listed in table 1 there are arguments that asthmatics have had more exposure to antibiotics because they suffer more frequently from infections. However I am of the opinion that if one sees someone who has had multiple exposures to penicillins become asthmatic, it's logical to conclude that the asthma was caused by penicillins especially since we know that exposure to penicillins can cause asthmatic breathing. A dose-dependent effect also supports the conclusion that antibiotics can cause asthma.

It's just that it's harder to spot an adverse drug reaction if it takes several exposures before a disease manifests itself. Clinical trials as far as I am aware do not tend to study children or the effect of repeated exposures in children or adults.

As for the microbiome theory for asthma aetiology, I believe this argument is seriously flawed since bacteria colonise the mouth every time we eat and drink, so we're always going to have bacteria in our mouths and gut.

If we look at former medicines such as arsenic and mercury that are now considered poisons, some of their side effects are very similar to those of antibiotics. Symptoms include leucopenia, diarrhoea, vomiting, convulsions, inflammation of the conjunctiva, sore mouth and throat and dermatitis which convinces me that the side effects of penicillins are toxic effects. In the past many medicines like mercury which is toxic to the respiratory system bore the warning 'poison' on the label.



### **Arsenic was freely available until 1940**

During August and September 2023, I submitted a questionnaire that would take a couple of minutes to complete, to 110 professors worldwide via the media dept of their university or hospital. Most of the professors were respiratory professors, thirty professors were from the UK, twenty-five were from Australia, forty-four were from the USA, nine were from Singapore, one was from Sweden and another from Switzerland. Only two responded. The British professors were emailed the questions on two separate occasions.

The two British professors who answered my questions said in response to my question did they know about occupational asthma, replied that they had known about occupational asthma twenty and forty years ago. I believe that most of the professors who didn't want to answer my questions could well have been taught about occupational asthma in medical school and didn't want to answer my last question 'Have you ever considered that the epidemics of asthma could be due to antibiotics?' because they didn't want to lie which is commendable.

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