

Are we making the world too clean essay



**ASSIGN
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Are we making the world too clean? By Kishan Thakar 10T Contents

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” 6 Are we overusing antibiotics? 9 Are cleaner homes/areas causing an

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Conclusion15 Glossary19 Reference: 20 Introduction This topic investigates

the question “ Are we making the world too clean. ” It explores the hygiene

hypothesis, which suggests that people from a young age are now living in a

much cleaner and sterile environment, so when exposed to a different

environment, health problems arise quickly.

In order to answer this question effectively I will divide the question into

three sub-categories “ Are cleaner homes causing an increase in Asthma,” “

Are we overusing antibiotics” and “ Are cleaner homes/areas causing an

increase in young people getting allergies. ” I will weigh up the arguments

and consider the evidence presented from both sides. The evidence will be

analysed critically to ensure its reliability and accuracy. This project will also

include a glossary to highlight the key scientific words in this paper. Science

AsthmaAsthma is an inflammatory disease of the airways, where obstruction

of the bronchi occurs in response to certain triggers. This results in the

airway becoming narrow and causes breathing problems, normal symptoms

are described as wheezing and coughing.

[pic][Figure 1] From figure 1 we can see that inflammation causes narrowing

of the bronchiole, which reduces the amount of oxygen available to the

patient. Normal trigger factors, which can cause an asthma attack include,

pollen, dust and exercise. In asthma sufferers the airway is ‘ hyper-

responsive’ to these triggers, and therefore becomes inflamed. This can

result in the ‘asthma attack’ which is why patients carry an inhaler. Hygiene hypothesis The hygiene hypothesis was a theory proposed by David P.

Strachan. The idea was that a lack of exposure at an early age to germs and other microorganisms due to upbringing in a clean and sterile environment, does not allow the immune system of children to develop. Hence people become more prone to allergies and other illnesses, for example if exposure from a bacterium in cats fur occurs, then the immune system overreacts and ends up creating an allergy for the person. Bacterial resistance (antibiotics resistance) Alexander Fleming discovered the first antibiotic [1928] Penicillin, which is still used today to combat infections.

An antibiotic is a chemical substance produced by a micro-organism, which kills or inhibits the growth of another microorganism. These natural compounds have been structurally modified in a lab, to increase their efficiency. There are many of different types of antibiotics available, which can be specific for gram positive bacteria or gram negative bacteria. All antibiotics function by preventing the formation of the bacterial cell wall. However overuse of these antibiotics has resulted in resistance. This can happen when bacteria are repeatedly exposed to the same antibiotics, or when the bacteria are not completely killed after an antibiotic course (maybe because the patient does not finish the full course, or doesn’t always remember to take the medicine).

Mutations in the bacteria can occur, which make them less selective to the antibiotic. As the antibiotic can no longer kill them, they are able to divide and replicate. These offspring also contain the resistant gene, which allows

them also to be less specific for the antibiotic. This process relates back to Charles Darwin's theory on 'survival of the fittest.

' Therefore the antibiotic is no longer effective in treating the infection. To try and avoid this problem in common infections such as TB, two or three antibiotics are given together. So if the bacteria become resistant to one antibiotic, then the others will still be effective in destroying the organism.

Immune System The immune system is designed to combat infection from bacteria, viruses, and other microorganism. It is composed of T lymphocytes and B lymphocytes which are made in the bone marrow. It involves the complex interaction of proteins, tissues, and organs to prevent disease and carries out the immune response, whereby the immune system attacks organisms that invade the body.

[Fig 3] The diagram below shows how the immune system destroys microorganisms. " Are cleaner homes causing an increase in Asthma? " For A study carried out in Denmark , shows " 33% of all people are asthmatics, this has increased by 25% in 8 years [1]" this is of interest as Denmark has been developing as a tertiary sector, and therefore people are living in a cleaner environment. Hence this supports the hygiene hypothesis, as it shows that when Denmark was more industrialised, fewer people suffered from asthma. However as the country has moved to the tertiary sector, there are more people suffering from the disease. Additionally in New Zealand research showed, that living on a farm during pregnancy decreased the risk of asthma, eczema and hay fever for both the mother and child.

This is expected as the vaccine for small pox was first discovered by Edward Jenner who realised that milk maids who had contracted cow pox, were immune to small pox. The researchers have suggested that bacteria present on the animals, can have effect on immune system of the foetus. They published work in the European respiratory journal, where they stated that exposure to animal bacteria, before and afterbirth halved the risk of the newborn child suffering from asthma. However we have to be aware that some animals may carry infections which could harm the baby. This study observed more than 1, 300 farmers, it was suggested that their children had built up their immunity before birth, with a 50% reduction in asthma cases[3].

Again this evidence supports the hygiene hypothesis, where reduced cleanliness has allowed people to build up their immunity. Another study carried out by the Columbian university, suggests that exposure to cats from an early age (0-6 months) reduces the risk of the child developing Asthma after the age of 5 because they have been exposed to trigger factors that could potentially cause asthma for a significant amount of time [2]. This is because exposure to cats increases exposure to microbes which are found on their fur, and in relation to the hygiene hypothesis; exposure to bacteria stimulates the immune system to prepare defences against these microbes. The following graph [Fig 2] is taken from The Association of British Drivers and shows the percentage of air pollution in relation to time and the percentage of asthma sufferers that have been diagnosed over time. From the graph, we see air pollution has decreased dramatically over the last forty years, however the number of people diagnosed with asthma has increased

significantly. This is surprising, since Sir David Jack discovered Salbutamol in 1969, which is still used today as the first line treatment for asthma.

From the graph we see that despite this major discovery the percentage of people diagnosed with asthma has increased. Therefore the evidence suggests support for the Hygiene hypothesis, as industrialisation decreased, levels of asthma increased. Against However although there is evidence in support of the hygiene hypothesis, there is just as much evidence to discourage the idea that Asthma is caused by increased cleanliness. For example there is evidence to suggest that Asthma is caused by irritant gases in the air such as SO₂.

A study in the USA during the 1900's showed that, 30-34% of children died before the age of 5 when pollutions levels were high. However towards the end of 1997, pollution levels decreased, and so did child mortality rates with figures reaching only 1-4%. [4] this data, goes against the Hygiene hypothesis and suggests that asthma could be caused by other factors such as diet and physical exercise. Also another source states that if both parents suffer from Asthma, than their children, are 6 times more likely to have Asthma. [3] Hence as there was an observed increase in the population in the 1970's, a large percent of the population were diagnosed with asthma.

This suggests that a genetic factor is responsible for the increasing number of asthma sufferers rather than the cleanliness of the environment. Another study suggest that those people suffer from obesity are more likely to develop asthma than those who are not. A person is classified as obese, if their BMI [Body Mass Index] is over 30. The percentage American's

diagnosed with obesity, has increased from 12% to 20% in the last 20 years. This trend correlates with the increasing number of patients diagnosed with asthma [10].

The theory behind this trend, suggest that “ The lungs are under -expanded in obese people, which results in the size of breaths being smaller. These factors make it more likely that their airways will narrow which can cause asthma. ”[9] It seems that obesity is on the increase due to the development of technology and the changes in the diet, with people eating more fast food rather than green vegetables. Hence it seems that cleanliness does not contribute to the levels of asthma experienced. Are we overusing antibiotics? For Antibiotics are leading to bacterial resistant due to overuse in minor infections.

Previously all antibiotics would have to be prescribed by a doctor. In 2005, Chloramphenicol was the first antibiotic to be made available for patients to buy directly from their pharmacy for eye infections. Recently a second antibiotic azithromycin [brand name Clamelle] has been legally sold over the counter to people aged over 16, who have tested positive to Chlamydia [16]. A study shows that 70 to 80 percent of patients visited their doctor for sinus infections, and were given a prescription for antibiotics.

However sinus infections are caused by viruses and the treatment given was designed to kill bacteria, so the treatment was ineffective. Hence the patients were exposed to the wrong medication, and the effectiveness of these antibiotics will decrease if they actually need them in the future. [5] This means that a stronger antibiotic will have to be used by these patients

in order to destroy a minor infection. This is further supported by the data collected in the graphs below. Against On the other hand there are some studies which suggest that use of antibiotics is does not lead to bacteria resistance. A study carried suggest that all bacteria will produce antibiotic resistance through processes such as; mutations, conjugations, and transposition.

Therefore the amount of exposure to antibiotics does not effect the levels of resistance, as all bacteria are prone to resistance anyway. [6] Additionally it is important to appreciate that the era before antibiotics came onto the market; people were dying from minor infections, or they were having to undergo surgery where their arms or legs would be amputated due to gangrene. 7] Today we are worried about the overuse of antibiotics, however one could argue that if these antibiotics were not prescribed than a small infection in one person could become severe. Additionally if this infection was passed on, to another person and they also were denied antibiotics then they too would suffer unnecessarily and could potentially pass the infection on. On a larger scale this could result in an epidemic, which would be ethically wrong, and would cost the government more money in the long run.

Are cleaner homes/areas causing an increase in people getting allergies?

ForThere are a lot of studies suggesting, more people are suffering from allergies in the western part of the world. This is due to the hygiene hypothesis. [pic][Fig 5] The above diagram shows the percentage of people who have an allergy in certain parts of America. As we can see from the graph above, that the border of Texas (TX) and Oklahoma (OK) which is

known for its agricultures and farms have the least amount of people suffering from an allergy. We also see that Los Angeles (L.

A.) has a high amount of people with allergy infection even though the area is very clean, due to health and safety regulations for Hollywood sets. This research is therefore in agreement with the Hygiene hypothesis. Also another study carried shows that 9-16 percent of Americans suffer from common allergies,[11] whilst the developing country Ghana in the eastern part of the world, has under one percent of its population suffering from common allergies, this further supports the Hygiene hypothesis.

This theory can also be supported by tests carried out in animals. A study carried out in two groups of mice. One set were treated with antibiotics and exposed to mould allergens. The second set were kept in the same conditions however did not receive antibiotics. It was found that the first set of mice who had been treated with antibiotics were more sensitive to the mould allergens and they developed Type I Diabetes and other allergies.

[11] Against On the other hand, some researchers at the school of hygiene and tropical medicine in London state the hygiene theory is yet to be proved. In a report carried out for the International Scientific Forum on Home Hygiene, they warned people against allowing dirt back into their home. Any suggestions that we should relax hygiene and sanitation in the developed world is irresponsible,” The researchers suggested it would be impossible for people to allow dirt into their homes without also increasing their risk of contracting infections. “‘ Controlled dirtiness’ is not a feasible concept, raising questions such as: how often should people wash their hands or clean

chopping boards; or how long washing should be delayed after exposure to dirty environments? ” They stated that people should take a balanced approach when it comes to keeping their home clean. We can be clean, hygienic and healthy without attempting to create a sterile environment in our homes” The researchers said there was no clear evidence to suggest that improvements in hygiene were behind rising rates of Asthma, eczema, hay fever and other allergies. “ The relationship of the hypothesis to hygiene practice has not been proved.

“[12] They feel that young children should not be exposed to dirt until the Hygiene hypothesis is proved; as there is a risk that the child may be exposed to dangerous bacterial infections. Evaluation of the studies: From above we see that a number of studies have been examined as part of this project. All were carried out in different parts of the world, and measured different variables. The graph done by the association of British drivers [figure 2] shows the trends between the four major pollutants and their effects on the number of Asthma sufferers; this source uses many external sources to gather up evidence presented.

To try and make the data more reliable, averages have been used. However the researcher is unaware of the errors made by the others, whose sources he has made use of. Therefore the reliability of the data can still be questioned. Additionally Source 3 written by the BBC shows the correlation between pregnant women living on farm and then giving birth to a baby who is less likely to get asthma. The source basically takes the results from New Zealand scientist who used a sample size of 1300 people. This makes the source reliable as it tells the sample size.

However one could argue that it doesn't give any other information regarding the experiment. Source 13, opposed these arguments, and suggests that that children whose parents have asthma are six time more likely. The research done was all primary research and the sample size was extrapolated to cover the actual population of the area. However the sample size was approximately 500 people, so the data is limited as a bigger sample size would have created more accurate results which would make the data more significant.

Another argument to support source 13 and go against source 3 and figure 2 is source 10 which shows that obese people are more likely to get asthma. This source only uses secondary data so the reliability of the data can't be judged. The second part of this case study analyses the use of antibiotics, and their effects on bacterial resistance. Figure 4 describes the overuse and misuse of antibiotics.

The study was taken by the government to investigate prescription wastage, in the terms of prescribing the wrong drug, and how often patients were actually taking their medication. The work was carried out by a private company, in one particular hospital. This study is reliable as a large sample size has been investigated, however again it only represents one particular hospital and cannot represent the whole nation. The source that is disputes this argument is source 6. Source 6 is a very unreliable source as it is written by a journalist, who doesn't have full scientific background.

Furthermore he doesn't reveal how he came to his conclusions. Although this is a very unreliable source, all available data is one sided and supports the

argument, therefore it has been included as a reliable source. The final argument is “are cleaner homes leading to an allergy increase”. Figure 5 shows the percentage of allergy levels across different parts of America. This source uses the national census of America, which is a compulsory document that must be filled out by each US citizen.

The data is then analysed and interpreted using a map which has been used as part of this case study. The source is very reliable represents every single person in America and it has been done by a governmental body so it is not subjected to bias, which would occur if for example the data had been collected by a private company who would want to make the results work in their favour. The argument against this source was found in source 12 which is a BBC article. This article is reliable because it has highlighted the key points from a forum produced by the school of hygiene, and can be easily checked to make sure none of the points have been modified to support or discourage an argument.

Although this study is presented as an article, for publishing in the newspaper, which would have a target audience, we still feel the source is reliable as the BBC is part of the public sector, so its main objective is to offer a quality service to the citizens of the United Kingdom. Hence it is more likely to be reliable than other tabloids that are in the private sector such as the sun and the Guardian. Despite this source being very reliable and accurate, it has been used to compare the levels of allergies with a population in the USA. All evidence collected is relevant, however since we are essentially comparing two separate countries, which are different in size,

climate, population and levels of pollution; it is difficult to draw accurate conclusions.

Conclusion Overall in conclusion, we see that the following question was answered. “ Are we making the world too clean? ” In order to investigate this topic properly the question was subcategorised. “ Are cleaner homes causing an increase in Asthma? ” “ Are we overusing antibiotics? ” “ Are cleaner homes/areas causing an increase in young people getting allergies? ” In the first part of this case study “ Are cleaner homes causing an increase in Asthma? ” Four pieces of evidence were presented that supported the argument, and three pieces which were against the argument. Figure 2 shows the link between the harmful fumes and the rise in asthma; this graph helps to support the hygiene hypothesis because it shows that children are not being exposed to the fumes, they would have experienced 50 years ago and it has resulted in the immune system being more fragile.

Additionally source 3 clearly supports the hygiene hypothesis, and places it in context with the real world. Also as mentioned in my evaluation, the source is very reliable so the data is more likely to be accurate. Source 10 shows the correlation between the rise of asthma and obesity. It shows that the high rate of asthma sufferers in the western part of the world is not a consequence of increased cleanliness, but an increase in obesity, resulting in the airways becoming narrower, predisposing to asthma. Additionally Source 13 shows that genetics plays a key role in the increase of Asthma, as it suggests children, whose parents are asthmatic, are 6 times more likely to have asthma than those who don't. This study provides a possible

explanation for the rising number of people suffering from asthma, as the average family size has increased gradually over the years.

Weighing up the arguments on both sides, to conclude I feel, the arguments that support the hygiene hypothesis are stronger and are more reliable, than those that discourage it. This theory is now becoming more widely accepted and future studies may be carried out, which provide concrete evidence to prove it; however if examining this argument from a moral perspective, we see that cleanliness is needed to reduce child mortality rates as described by source 4. Additionally the combined effects of pollution and exposure to microorganisms, due to dirty living conditions, would have more damaging effects on people's health as they would suffer from much more serious disorders. In my second category " Are we overusing antibiotics? " there are three sources supporting this argument and two against the argument. Figure 4 is in support of this argument which shows a correlation between the number of antibiotic prescriptions given out [possibly as a wrong treatment] and the number of people admitted to hospital with an antibiotic resistant infection. Figure 4 shows that continued misuse of antibiotics will result in an increase in antibiotics resistant infections.

It suggests we should cut down on our overuse of antibiotics; otherwise we will have no defence mechanism against bacteria. On the other hand source 6 suggests that number of resistant bacteria is not affected by the level of exposure to antibiotics. Scientifically it has been proven that we are overusing antibiotics as Figure 4 clearly shows, and since source 6 is a very unreliable source, I feel that we are overusing antibiotics, which is causing bacterial resistance that could potentially cause problems for patients in the

future. However like the first category there is a moral issue, which is mentioned in source 7. Source 7 describes how use of antibiotics is necessary to combat minor infections and save lives. Without using these drugs we are potentially causing a patients health to deteriorate.

If their natural immune system is unable to destroy the microorganism, and we remove the drugs which could destroy it; then we are placing the patient's health at risk. Alongside the patient, we are also placing the population at risk, if the disease turns out to be infectious, then we could be placed with an epidemic that could claim more lives. In the third category "Are cleaner homes/areas causing an increase in people getting allergies?" there are two sources which support the argument and one against the argument. Overall this argument is very similar to the first argument of "Are cleaner homes causing an increase in Asthma? because in both these arguments, we are finding evidence to support or disprove the hygiene hypothesis.

Figure 5 shows the number of allergy sufferers in United States of America and how the allergy sufferers are distributed in different parts of United States of America. It shows that people who live around agricultural areas have less allergy levels than those areas that are more developed and are therefore cleaner. Source 12 is against the hygiene hypothesis, as it states the hypothesis is unrealistic. For example how would we expose our selves to the right amount of dirt? Additionally we have to consider the levels of dirt exposure will be different from person to person, as everyone has different immune systems. Figure 5 uses a census to show how many people have an allergy and therefore is a very reliable source.

On the other hand source 12 is also reliable, as it mentions how the data was received and processed. Weighing up the arguments on both sides I think that “Cleaner home/areas are causing an increase in people getting allergies,” because figure 5 shows clearly that in agricultural areas, less people suffer from an allergy than those who live in cleaner area.

Additionally this figure 5 is more reliable than source 12. Again this question highlights the same moral issues, if young infants are exposed to bacteria, and their immune system is unable to combat the microorganism, we may find the infant develops a more serious disease.

This is because babies do not have a fully developed immune system; those babies who are breastfed obtain antibodies from their mother. However as not all babies are breast fed, exposure to a microorganism could result in disease. Overall there are two main conclusions that we can draw from this investigation. The first conclusion we can make reflects on the science analysed. We feel that “Yes we are making the world too clean” as all the sources gathered are in support of this argument and clearly state that as a consequence of the world being made too clean, we have more and more people becoming ill due to minor illnesses as we can see in source 1 and figure 5.

However the second conclusion is the moral one in which I feel “No we are not making the world too clean;” as half of the sources I have used suggest that if we didn’t make the world cleaner, then many more people would be sufferers of major illnesses that we might not be able to treat if left to long, which could potentially result in more deaths. In my opinion I agree with the second conclusion as if we didn’t make the world too clean then it would

mean that many people would die unnecessarily which would be morally wrong. This would also mean that the people will be suffering without reason meaning many epidemics would take over the human race as human's wouldn't be able to fight these diseases. This could result in the end of the human race as maybe there will be a powerful epidemic and since we can't clean the world we can't fight the disease and we would all die.

Therefore my answer is “ No we are not making the world too clean” because if we didn't make the world too clean then it would be unethical as many people would die and suffer from disease which can be easily prevented. Glossary Asthma: A common disorder in which chronic inflammation of the bronchial tubes (bronchi) makes them swell, narrowing the airways making it harder to breathe. Asthma involves only the bronchial tubes and does not affect the air sacs (alveoli) or the lung tissue (the parenchyma of the lung) itself. [14] Bacterial resistance: Various microorganisms have survived for thousands of years by their being able to adapt to antimicrobial agents. They do so via spontaneous mutation or by DNA transfer.

It is this very process that enables some bacteria to oppose the assault of certain antibiotics, rendering the antibiotics no longer effective. 15] Controlled dirtiness: A scientific concept in which a person, most likely from a young age is exposed to dirt (bacteria) for a certain amount of time to help boost immune activity, it is normally associated with the Hygiene hypothesis but not as well known. Genetic: Having to do with genes and genetic information. [14] Hygiene hypothesis: A hypothesis that states that exposure

to allergens in the environment early in life reduces the risk of developing allergies by boosting immune system activity.

Conversely, relatively clean environment in early life would sway the immune system towards allergy-promoting responses, also called the hygiene theory. [14] Infection: The growth of a parasitic organism within the body. (A parasitic organism is one that lives on or in another organism and draws its nourishment there from.) A person with an infection has another organism (a “ germ”) growing within him, drawing its nourishment from the person. [14] Immune system: A complex system that is responsible for distinguishing us from everything foreign to us, and for protecting us against infections and foreign substances.

The immune system works to seek and kill invaders. [14] Reference: 1: Ronald Kotulak Too Clean For Our Own Good? http://www.tysknews.com/Depts/Health_Care/too_clean.htm [30 March 2010] This study is very reliable as it mentions both the time it was made and the author. Although the article is old it has been checked over recently.

It wasn't sponsored by any companies so their views are more reliable. The overall view of the website was very good and it is very long which made it more reliable. The content of the information was very valid and each point was explained very clearly. The quotes of this source are presented and although it is slightly biased towards one end, it is still very reliable. 2 Study Reveals Link among Childhood Allergies, Asthma Symptoms, and Early Life Exposure to Cats <http://www.mailman.>

columbia. edu/news/article? article= 639 [1April 2010] the website is unbiased as the website present both side of the arguments. Although the website hasn't got the author names it has got contact details so it can easily founded out. The content of the website is very detailed. The quotes of websites are clearly presented.

The data has all been done by a university so it is likely to be scientific. Also the websites has been recently made and it very long so the overall impression is very good. 3Farm pregnancy ' cuts asthma risk' ([http://news.bbc.](http://news.bbc.co.uk/1/hi/health/7586328.stm)

[co. uk/1/hi/health/7586328. stm](http://news.bbc.co.uk/1/hi/health/7586328.stm)) [2April 2010] The article is done by the BBC which I have explained in my evaluations of studies is a reliable article as it is done by a government who's main target is to offer a good service unlike other companies whose target is going to be to make a profit so they wont manipulate the evidence. I did a news bug and scored very highly in most areas. 4 [http://www.](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2327046/)

[ncbi. nlm. nih. gov/pmc/articles/PMC2327046/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2327046/) D Diaz-Sanchez Pollution and the immune response: atopic diseases – are we too dirty or too clean? This journal is a very good source.

It explains both sides of the arguments. The content of the information is very detailed and long. The quotes are all referenced from the sources. The layout is very good however this journal is 10 years old. The journal is a case study so there isn't any scientific data but it is very reliable.

5 Greg Tyler Allison, M. D. , M. Sc Antibiotic Crisis <http://www.shirleys-wellness-cafe.com/antibiotics.htm#overuse> [3April 2010] The website is not as reliable the

other sources because the overall impression isn't that good as the other because it doesn't mention the dates that it was published or when last reviewed. Also none of the quotes have been referenced. However the content of the information is very detailed and the data presented also shows the mechanism of action of the points made so the data is reliable. 6 IS EVOLUTION A FACT? <http://www.campaignforliberty.com/blog.php?view=25194> [4 April 2010] This source is not very reliable. It

was updated quite recently but the studies do show on Antibiotics. But they are not sure exactly how this happened. Although the content of the information is very detailed and there are contact details and it has been doesn't have any sponsor so the data has been done independently 7 Dr.

T. M. Wassenaar, Antibiotics <http://www.bacteriamuseum.org/cms/How-We-Fight-Bacteria/antibiotics.html> [4 April 2010] The source is very reliable as it has no sponsor so it isn't

biased. Also all the quotes have been referenced. There is no scientific data but the article has only been published last year. The overall impression of the website is very good as it has diagrams to help explain data. Finally the content of the information has clearly been explained and it is very detailed. 8 Bacterial resistance to Antibiotics <http://www.https://assignbuster.com/are-we-making-the-world-too-clean-essay/>

darwinismrefuted. com/embryology_01. html [5 April 2010] This website doesn't have an author but the quotes that it uses are all referenced. However the website is slightly biased towards one side of argument. The overall impression of the website is very good and it has content of the information is very detailed and it doesn't have any scientific data as the website is based on evolution and that is still a theory.

9 Kevin C. Myron Is obesity a risk factor for asthma? [http://www.medicalnewstoday. com/articles/24118.](http://www.medicalnewstoday.com/articles/24118.php)

php [6April 2010] this source is very clear in explaining the data that it mentions. The quotes of websites are clearly presented. The data has all been done by a university so it is likely to be scientific. The overall impression of the website is very good as it has diagrams to help explain data. 0 Can Obesity Cause Asthma? [http://www. healthcentral.](http://www.healthcentral.com/asthma/c/55/1826/patient-obesity-asthma)

[com/asthma/c/55/1826/patient-obesity-asthma](http://www.healthcentral.com/asthma/c/55/1826/patient-obesity-asthma) this study is very reliable as it mentions both the time it was made and the author. Although the article is old it has been checked over recently. The overall view of the website was very good and it is very long which made it more reliable. The content of the information was very valid and each point was explained very clearly. It was however sponsored by 2 companies so their views could be manipulated to suit their sponsor so the source is slightly unreliable.

1 The Hygiene Hypothesis or Old Friends Hypothesis [http://www. hygienehypothesis. com/](http://www.hygienehypothesis.com/) [3 April 2010] The website has no authors name written on it and it doesn't even have when it was published. However the

content of the information is very detailed and the data presented also shows the mechanism of action of the Hygiene Hypothesis.

12 Dirty homes ‘won’t stop allergies’ <http://news.bbc.co.uk/1/hi/health/3724391.stm> [9 April 2010] this source is reliable enough to

be used. It has interpreted its argument from a university forum which is clearly presented.

However this source has been independently done so it is still reliable. 13 Pat

Bass Is Genetics One of the Causes of Asthma? http://Asthma.about.com/od/faq/f/faq_genetics.htm [10 April 2010] this source is very reliable as

it mentions where it got its data from, the content of the website is very detailed.

The quotes of websites are clearly presented. The data has all been done by a university so it is likely to be scientific. Also the websites have been recently made and it is very long so the overall impression is very good. 14 Allergic

Cascade Glossary of Terms http://www.medicinenet.com/allergic_cascade/glossary.htm [13 April 2010] this website

is a very useful as a glossary as it gives clear and concise information and although it doesn’t have an author its information is very clear and detailed. The image of the website is very good and it has recently been updated.

15 Bacterial resistances <http://www.reference.com/browse/Bacterial+Resistance> [13 April 2010] this website is a very useful

as a glossary as it gives clear and concise information and although it doesn’t have an author its information is very clear and detailed. However

the definitions have been referenced so they have been checked. The impression of the websites is very good. 6 <http://news.bbc.co.uk/1/hi/health/7542744.stm> Figure: 1 Basic First aid http://www.sonomaasthma.org/display/test_2060asthma2.jpg [30March2010] the website has much detail and it is very good and reliable because it scored very high in the news bug 2 The Association of British Drivers Asthma not caused by outdoor pollution <http://www.abd.org.uk/Asthma.htm> [31March2010] in the websites I only use Graph. The graph is up to date and although it doesn't say the exact authors name it says the organisations that made it. The overall image of the whole website is good and it is very recent. Immune System Learning Unit <http://sites.google.com/site/cyberscienceschool/immunesystem> [5March 2010]I have used the diagram to show the immune response. The content of the information was really good website was really good presentation, with choice of different colours schemes around the website which made website more inviting. However the website itself only included a small amount of detail. 4: Costs of Hospital Acquired Infections <http://biochemusa.com/HAIsCost.asp> [6April 2010]in the websites I only use Graphs.

http://www.sonomaasthma.org/display/test_2060asthma2.jpg [30March2010] the website has much detail and it is very good and reliable because it scored very high in the news bug 2 The Association of British Drivers Asthma not caused by outdoor pollution <http://www.abd.org.uk/Asthma.htm> [31March2010] in the websites I only use Graph. The graph is up to date and although it doesn't say the exact authors name it says the organisations that made it. The overall image of the whole website is good and it is very recent. Immune System Learning Unit <http://sites.google.com/site/cyberscienceschool/immunesystem> [5March 2010]I have used the diagram to show the immune response. The content of the information was really good website was really good presentation, with choice of different colours schemes around the website which made website more inviting. However the website itself only included a small amount of detail. 4: Costs of Hospital Acquired Infections <http://biochemusa.com/HAIsCost.asp> [6April 2010]in the websites I only use Graphs.

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is slightly unreliable. 5 Allergy cases in the USA http://siouxfallsite.com/allergy_full.htm

[7 April 2010] in the websites I only use Graphs. The graph is up to date and although it doesn't have very much information in it. It doesn't have the author's names so it does make it a bit unreliable. However the whole website is government so it uses some kind of census. Therefore this website is very reliable and the overall impression of the website is very good. Websites that I didn't use they were very unreliable: [http://climate.](http://climate.weather.com/articles/dc2clean2009.html)

[weather.com/articles/dc2clean2009.html](http://www.cleaning101.com/whatsnew/05-20-04.cfm) This website itself had too many sponsors which was the only reason why I didn't include it in my case study [http://www. cleaning101. com/whatsnew/05-20-04.](http://www.cleaning101.com/whatsnew/05-20-04.cfm)

[cfm](http://www.yakult.com) The website was sponsored “ Soap and Detergent Association” who would want to prove that the hygiene hypothesis is false or else people would stop buying soaps and detergent which would mean less business for them. [http://www. yakult. com. u/resources/documents/Yakult_Q; Aautumn.](http://www.yakult.com)

[pdf](http://en.wikipedia.org/wiki/Commensal_flora) Yakult don't give the evidence for the results and because they are a company who would customer to buy there product so the data is likely to be biased ([http://en. wikipedia. org/wiki/Commensal_flora](http://en.wikipedia.org/wiki/Commensal_flora)) This source is very unreliable as it is Wikipedia so anyone can alter the data so anyone could change the data and maybe give the wrong data. ([http://www. asthme- quebec.](http://www.asthme-quebec.ca/eng/asthma.html)

[ca/eng/asthma. html](http://www.asthme-quebec.ca/eng/asthma.html)) The website keeps contradicting itself as it doesn't come to a clear conclusion so it keeps the reader hanging I felt.

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