

## Why 'Spanish' Flu?

An easy one – about the only question with a definite answer!

All combatant countries employed heavy censorship, for obvious reasons. This meant that there was little or no awareness in many countries of the severity, or even existence, of the problem. However, Spain was neutral, and so the uncensored press there was free to report on the epidemic. Several high-profile cases, including King Alfonso XIII (he recovered), raised awareness still further. Since Spain was the only country reporting a problem, it was widely, and wrongly, assumed it was the source of the outbreak.

## Where did it start?

There are three main theories. In no particular order:-

**China** China, at first neutral because of the number of countries on both sides of the conflict with a presence there, finally sided with the Allies in early 1918 in the hope of obtaining protection from a feared Japanese invasion. Still reluctant to enter the war fully, the country raised the Chinese Labour Corps to provide non-combatant support to Allied troops at the front. As they travelled from China, they may have taken with them into Europe a respiratory disease that had swept the country late the previous year.

**USA** The first high-profile outbreak in the USA was at Camp Funston Army Camp, Haskell County, Kansas, where on 4 March 1918 camp cook Albert Gitchell reported sick. By noon on that day the camp doctor was dealing with 107 cases. However, as early as February the local doctor in Haskell County had reported a large number of cases of what appeared to be influenza, with an unusually high mortality rate, particularly among younger people.

**France** The military camp at Etaples was a 'holding camp' where newly-arrived British soldiers waited to be sent to the front, and wounded soldiers came for treatment or return to Britain. The total population of the camp at any one time was around 100,000, with people constantly coming and going in both directions. The camp kept both poultry and pigs, both known 'reservoirs' of many different flu strains, and was on a migration route for wild birds, making the conditions ideal for an antigenic shift (see below) leading to a new strain. In early 1917 there was an outbreak of a respiratory disease with symptoms that puzzled doctors, including the heliotrope cyanosis (face, lips and extremities turning blue) that later became the best-known symptom of 1918 flu. The disease, labelled 'purulent bronchitis', was also reported at Aldershot barracks.

Whatever the true origin, it spread rapidly throughout the world, travelling along lines of communication by sea, rail and road. It travelled home with returning soldiers and to island communities by mail boats. The war brought about movement of people, both military and civilians, on an unprecedented scale, probably contributing to the speed with which the virus was able to spread.

## How long did it last?

Within the space of around a year and a half (roughly Spring 1918 – Autumn 1919) the virus swept around the world in three waves. The timing and duration of these waves varied from country to country, as did the extent to which each country was affected. Some people believe that the pandemic continued in some areas until late 1920. By mid-1919 some 500 million people, one third of the population of the world at the time, had suffered from the disease to some extent.

### How many people died?

Strangely, after 100 years, this is probably the question that is furthest away from being answered, and may never be answered fully. The best that can be said at present is that between 50 million and 100 million people died worldwide. This represents around 3-6% of the world population at the time, though some areas were hit much harder than others. In Britain and Europe, around 0.5% of the population was lost, while in, for example, Western Samoa, around 22% of the population died, leading to famine in the following year (neighbouring American Samoa, which imposed strict quarantine, allowing no shipping to enter, was the only place in the world to lose no one at all). Remote areas with little contact with the wider world, such as Bristol Bay in Alaska, were especially susceptible once the infection reached them since they had had no opportunity to develop immunity.

Total losses in Britain amounted to about 228,000. This figure included just over 550 in Wolverhampton, 445 in Walsall, 158 in Bilston, 108 in Coseley, 179 in Wednesbury and 459 in West Bromwich. The mortality rate of 7.7 per 1000 of the population in West Bromwich was the second highest of the 82 county boroughs in England and Wales, after Barnsley.

### Why are the figures so vague?

There are several reasons – again, in no particular order:-

**Misdiagnosis** Because of the unusual symptoms, including in some cases projectile nosebleeds, hair and tooth loss, heliotrope cyanosis and severe damage to the lungs revealed at autopsy, and high mortality rate, the disease was frequently initially mistaken for something else, often cholera, typhus (notably in Chile) or pneumonic plague. Even Dr William H Welch, head of the American Medical Association and world-renowned authority in microbiology, at the time working in the US Army Medical Corps, remarked after seeing the lungs of victims at autopsies ‘This must be some kind of new infection or plague’.

**Recording methods** Flu was not a notifiable disease in most places in the world at the beginning of the pandemic, though it became so in some countries when the severity and virulence of the 1918 strain was realised. This meant that many cases, especially in remote areas or in communities where people could not afford the services of a doctor, simply went unrecorded.

Every country, and areas within individual countries, had their own way of counting and recording cases. Some counted all three waves while others included only the second wave, and some counted only deaths directly from flu while others also counted deaths from secondary infections such as pneumonia.

To this day no reliable figures are available for China and Russia, especially for rural areas, in both cases partly because of political upheaval. Clearly inaccurate counting in two areas with such high population could skew the total figures for the world.

**Under/non-counting** (content warning – institutional racism) On 30 November 1918 the *Birmingham Post*, in discussing the death toll in South Africa, added that the number ‘does not include several large native territories, where the aboriginals died like rats’ (apologies, I know that’s a shocking quote to our eyes, but that is exactly as the paper described it).

Together with references to ‘natives’ being ‘buried in batches hourly’ in Kimberley, where the workforce in the diamond mines was devastated (*Birmingham Post* 8<sup>th</sup> October 1918), this is more or less an admission that no real attempt was made to count the real number of indigenous casualties, and this may also have been the case in the other colonies.

In any case, the numbers can only tell part of the story. They do not reveal the variations in mortality between classes, ethnic groups or any other division of society. In New Zealand, for example, mortality among the Maori people as a proportion of the population was 8 times that of people of European origin, though there were wide variations across the country in both populations. The virus was no respecter of persons, affecting rich and poor alike, but those who could afford access to medical care had a much better chance of survival. Medical advice consisted mostly of isolating the patient in a room to themselves and keeping them warm and well fed, which was of little use to people living in small, already crowded houses, unable to afford even to feed their families adequately.

### **Why was it so lethal?**

The influenza virus mutates naturally, undergoing subtle changes in its makeup which can reduce human immunity, a process known as **antigenic drift** (this is why it's necessary for flu injections to be repeated every year). Pigs and, especially, birds carry a number of different strains of the virus. If two strains combine in a single host, either a pig or a human, this can cause a more fundamental mutation known as **antigenic shift**, producing a new form of virus to which humans have no immunity, and if the virus develops the ability to transfer directly between humans this can give rise to a pandemic.

The first wave of the 1918 virus was relatively mild, the number of deaths being largely due to the sheer number of people infected. At some point in the summer of 1918, however, the virus mutated again into a much more deadly form, and it was in this wave that most of the deaths occurred. Many people died from the direct effect of influenza, but many more fell victim to secondary infections such as pneumonia, made vulnerable by the damage done by the virus.

The most striking feature of the 1918 flu was the age profile of victims. Instead of the usual distribution curve, with the highest number of deaths being among the very young and the very old, the curve for the 1918 pandemic showed a large spike in the centre of the graph, showing that most deaths occurred in the 20-40 age group. Various theories have been put forward to explain this, but the currently most widely accepted one is that the fierceness of the virus caused an overreaction in the most robust immune systems, causing a **cytokine storm** (a cascade of chemicals causing overproduction of immune cells, resulting in catastrophic damage particularly to the lungs).

For the civilian population in particular, the effectiveness of medical help was limited. With many doctors needed for the war effort, they were already in short supply, and the number of people falling ill placed a huge strain on them. Even those able to access the services of a doctor found there was often little they could do to help,

Many who survived were left with lasting effects. Some found that they never fully regained their strength. Depression was common, and there were numerous reports of murders and suicides committed by people suffering from or recovering from flu. It is difficult to disentangle this from the aftermath of war, but in neutral Norway in the five years following the pandemic admissions to asylums increased sevenfold. It has since been discovered that the H1N1 virus was able to reach the brain via the olfactory nerve.

### **Could it happen again?**

In theory, yes. There have been a number of flu pandemics since 1918, most recently in 2009, though none have had anywhere near the same mortality rate. The population of the world has risen from 1.5 billion in 1918 to 7 billion, meaning that population density has

increased, and people are much more mobile, both circumstances that make the spread of disease easier.

However, circumstances are different in the 21<sup>st</sup> century. Viruses were unknown at the time, influenza being largely blamed on an organism known as Pfeiffer's bacillus, so doctors and medical scientists were only vaguely aware of what they were dealing with. Viruses are now much better understood and vaccines and anti-viral treatments are available, which can reduce the severity of symptoms and the likelihood of complications. Secondary infections can be treated with antibiotics, although antibiotic resistance may become an issue. The World Health Organisation has an influenza-monitoring system in place so that the emergence of a potential pandemic can be detected early, and the UK has a regularly-updated pandemic preparedness strategy, as do the Centers for Disease Control in the US.

### **Why has it been largely forgotten?**

With the arrival of the centenary, this question has been asked many times by historians and journalists. Again, there are many theories.

Some historians suggest that it was seen by many people as a kind of extension of the war, and people already used to the privations of war, and of disease, took it in their stride.

Conversely, there is a theory that the experience was so horrific that people simply wanted to put it behind them and not think about it.

Possibly wartime censorship also played a part. Although people would have been aware of severe problems in their own area, the global nature of the pandemic may not have been clear to them. One survivor remarked to me in 2003 that 'you had to experience it to know about it'. People can't remember what they never knew.

Author Laura Spinney suggests that it is not so much that the event is forgotten as that collective memory takes time to process events like plagues and pandemics. She feels that the perspective of history is not yet long enough to construct an effective narrative.

Another factor is that there was nothing to be gained by remembering. There was no 'victory' over the virus, it simply disappeared of its own accord, so unlike the ending of the war there was little to celebrate.

All these theories notwithstanding, it is strange that something so massively destructive that impacted countless millions of lives should have almost disappeared from history. Alfred Crosby, in his book about the American experience of the pandemic, observed that 'societies keep very poor records on why they do *not* think something is important'.

### **Was there any lasting effect on the world?**

Obviously it's impossible to say what the effect on the world would have been had any event in history worked out differently, but something as wide-ranging and devastating as the 1918 flu must have had some lasting effect. A few possible examples:-

Pregnant women were particularly susceptible to the virus, and in many countries an increase in the numbers of stillbirths and maternal deaths from miscarriage was recorded.

The unusual age profile of victims meant that some countries saw a fall in the birth rate that took some years to recover.

On April 3<sup>rd</sup> 1919 President Woodrow Wilson was taken ill, at a time when he was playing a key role in the Paris peace talks. Wilson was an influential voice advocating a less harsh imposition of conditions for peace on Germany, while some other participants were pushing for an economically crippling package of 'reparations' and a clause forcing Germany to

admit guilt. Many historians believe that it was Wilson's absence at a crucial stage, and the after-effects of the virus on his health, that led to conditions being imposed that were so harsh they created a great deal of resentment in Germany, paving the way for Adolf Hitler to tap into that resentment to gain power. Furthermore, Wilson's failure to recover fully and subsequent health problems meant he was unable to persuade the US government to ratify the Treaty of Versailles and join the League of Nations.

In India, the response of the British rulers to the devastation being wrought in the country by influenza was seen by many as inadequate, and trust was in any case at a low ebb due to the British (lack of) response to an outbreak of plague a few years earlier. In the absence of any programme to deal with it, the Independence movement worked to fill the void, providing basic health and nursing care to sufferers. Their influence was such that when Gandhi recovered from his own near-fatal battle with flu, he found the movement had grown enormously, and he and other leaders were able to build on this to give impetus to the fight for independence.

The inability of medical science to cope with the disease was a blow to the growing belief in the power of science to transform the world, already shaken by evidence of the destructive power of new technology in the war. The medical profession could offer little but advice, leaving most people reliant on traditional medicines or their own ingenuity in using whatever was to hand. Victor Vaughan, a former president of the American Medical Association who like William Welch worked with flu victims at Camp Devens, admitted 'The saddest part of my life was when I witnessed the hundreds of deaths of soldiers in the army camps and did not know what to do. At that moment I decided never again to prate about the great achievements of medical science, and to humbly admit our dense ignorance in this case'.

One thing that proved to be of more use was nursing care, and the careful management of symptoms nurses could provide probably saved more lives than overworked and baffled doctors. This raised the profile of nursing as a profession and won it new respect. It also opened the eyes of many women who volunteered as nurses to the reality of the conditions many of the population lived in, being for many their first contact with real poverty. However, they were not the only ones whose eyes were opened. Following the war a number of revolutionary and independence movements grew in strength, such as what became the Mau movement in Western Samoa, and these movements may have been influenced by resentment at inequality of treatment during the pandemic as well as by the war.