Of Microbes and Man –

Could we learn from the experiences of Kitty Wilkinson?

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Kitty Wilkinson, often fondly referred to as *'the saint of the slums',* was born in County Londonderry, Ireland in 1786. Her family left Ireland for England when Kitty was just nine years old. As they approached Liverpool, the ship they were travelling in ran aground in the Mersey, where her father and younger sister were both drowned. By the age of twelve Kitty was working in a Lancashire cotton mill, and by the time she reached her early twenties, she had worked in domestic service, married, borne two children and had become a widow. Kitty was gifted at managing a mangle and she decided to set herself up as an independent laundress, a career she managed with considerable success.

As a person, Kitty was generous to an extreme, and was more than happy to share everything she had. She took in orphans, which she reared as her own, she offered food and lodging to the destitute, and set up regular reading and writing classes for the local children. She eventually remarried and her new husband, Tom Wilkinson, an employee of the influential Rathbone family, seemed to share Kitty's extraordinary humanity and compassion. When an outbreak of cholera occurred in Liverpool in 1832, Kitty somehow managed to grasp the connection between the spread of the deadly disease, and basic hygiene. She possessed a clothes boiler (rare in those days) and invited her neighbours to bring along their soiled bed linen and clothing to reduce the risk of spreading the infection further. Kitty even developed a washing solution based on chloride of lime, which ensured that everything washed in her boiler, was totally free from the cholera bacterium. Her hygiene initiative was such a success that Kitty had to convert a whole cellar into a washroom, and to train others to help her manage the rapidly expanding workload. Although Kitty and her helpers were constantly exposed to highly infectious material, thanks to Kitty's rigorous wash routine, not one of them succumbed to the disease. Word of this remarkable phenomenon reached the Rathbone household, where William Rathbone, an active supporter of municipal reform, (who was later to become both Liberal councillor for Liverpool and Mayor), took up Kitty's cause, and helped her to establish the first public wash house and baths in England.

The achievements of Kitty Wilkinson are all the more extraordinary when we consider how basic the knowledge and comprehension of microbiology was at the time. With the invention of the microscope, biologists such as Antonie Van Leeuwenhoek and Robert Hooke, had observed the existence of microbial life as early as the mid 1600's, but the role of microbial activity in health and disease, was still poorly understood. Kitty, who presumably had no knowledge of microbiology, had managed to combine common sense with experience, and demonstrated convincingly that hygiene was important in preventing the spread of disease. Four decades later, her theory was substantiated by the ground breaking discovery of Robert Koch, who in 1876 clearly established the fact that microorganisms could actually cause diseases. Surprisingly, it took a long time before awareness of the potential dangers of cross contamination via microorganisms reached the operating theatre. Surgeons routinely performed operations dressed in their ordinary clothing, only sometimes wearing an apron to protect themselves from the patient's bodily fluids. Operations

were conducted bare handed, using non sterilised surgical instruments, and this went on until the beginning of the twentieth century.

Antiseptics of one sort or another (such as alcohol), had existed for centuries, though how they worked was impossible to ascertain before it became possible to observe microorganisms under a microscope. Following the Spanish Flu epidemic in 1918, antiseptics became increasingly used in the operating theatre, and general hygiene slowly improved. However, the real game change in our battle with microorganisms occurred in 1928 when, Alexander Fleming, a Scottish scientist working at St Mary's Hospital, London, observed the effects of a blue mould growing on a *Staphylococcus* culture which had been accidentally contaminated. The mystery mould appeared to inhibit the growth and development of the *Staph* bacterium. Fleming isolated the mould and grew it as a pure culture, which he then identified as the fungi *Penicillium notatum*. He called the filtrate of the culture 'penicillin', and although he recognised its effectiveness in destroying *Staph* bacterium, Fleming largely saw the practical application of his discovery to be topical, as in an antiseptic. Other scientists also began to experiment with penicillin, a substance which initially proved difficult to produce in large quantities, and once its potential as an antibiotic became apparent, the race was on to find a way to mass produce the new, wonder medicine. During the Second World War, although still relatively scarce, it is believed that penicillin saved countless lives by preventing infection developing in wounds, or following amputations. The fledgling pharmaceutical companies such as Merck and Co, were swift to recognise the commercial potential of a medicine which had already proven its effectiveness in extreme circumstances. However, it was recognised from the start, that the *Penicilliums* had a limited spectrum of activity; they were only effective against 'gram positive' bacteria such as *Staphylococcus*. As a result of this fact, the focus shifted to developing derivatives of the original penicillin, which would have a greater sphere of action, and remain effective for longer. This basically marked the beginning of the era of drug research, funded mainly by the pharmaceutical industry. We know what happened next: the nucleus of penicillin was eventually isolated, meaning it could be synthesised with other substances to create new, more powerful antibiotics, which until recently, seemed to be capable of combatting a huge range of infectious disease.

However, we miscalculated badly. A product which was promoted and pushed at every opportunity for decades, and which afforded considerable financial gain to the pharmaceutical industry, has now become a serious threat to our long term well-being. We have consistently over-prescribed antibiotics for more than half a century, and now we are paying the price. The bacterium have evolved, but we humans seem to be stuck in a time warp. We have become antibiotic dependant, and what is especially concerning is the fact that doctors are prepared to prescribe antibiotics to treat viral infections, knowing full well that they are ineffective against combatting viruses. Furthermore, we also consume unnecessary antibiotics via the food chain. Alarmingly, in Europe alone, it is estimated that routine administration of antibiotics to production animals accounts for around 50% of Europe's total antibiotic consumption.

Major Global Concern

We have been warned for the last two years that we must reduce our dependency on antibiotics in livestock production, or face serious consequences. This is fast becoming an area of major global concern because overuse or misuse of antibiotics has led to the development of new strains of microorganisms, such as MRSA and Clostriduim difficile, which are proving to be deadly. In April 2011, the World Health Organisation (WHO) issued a stark warning about the imminent dangers presented by antibiotic resistance. In a fact sheet entitled '*Antibiotic Resistance. No action today, no cure tomorrow*' the WHO paints a bleak picture. In Norway and Iceland, an estimated twenty five thousand people die each year from common resistant bacterial infections. This figure is taken

from about half of the fifty three EU member states within the WHO European Region, and the death toll from all of Europe in unknown, but without question, antibiotic resistance is increasing at an alarming rate. All this carries financial costs as well as human costs, with the EU alone paying out an estimated €1.5 billion on dealing with the consequences of antibiotic resistant organisms.

The WHO is highly critical of the overuse of antibiotics in production animals, warning that resistant bacteria can easily spread via the food chain. It appears that outside of the EU, low doses of antibiotics are routinely used to aid growth promotion, a practice which carries health implications for all of us. According to the WHO, failure to take positive action now, and coordinate our efforts to reduce antibiotic use, could lead to us back to the pre antibiotic era, only now we face a new generation of 'super' pathogens with which to contend. Although I know I have painted a rather gloomy picture, I actually believe that this self-inflicted crisis may lead to a (slow) change in the manner in which we manage infectious diseases in the future. After all, we have waged war on the microbes, and despite initial successes, we now seem to be losing the battle. Perhaps the current situation has become sufficiently desperate, for even the most intransigent of the medical profession to be prepared to reconsider how to combat the advance of microbial 'super bugs'.

In March of this year, the Chief Medical Officer (CMO), Dame Sally Davies, produced an extensive report on the potential '*apocalyptic scenario*' presented by the rapid rise of antimicrobial resistant pathogens across the globe. She points out that without effective antibiotics to counteract infection, minor surgery or routine operations could be transformed into high risk procedures. Some of the solutions offered in the CMO's publication are predictable and include: investing in the development of new antibiotics for future generations, preserving the effectiveness of current antibiotics, raising awareness of the dangers of antimicrobial resistance by educating both health care providers and the public, monitoring outbreaks of infection (especially where pathogens are found to be antibiotic resistant), improving diagnostic techniques and reducing the risk of infectious disease by increasing the efficiency of the immunisation programme. I personally find this last recommendation disappointing, not just because of the many adverse reactions associated with vaccinations, but because it suggests that we have learned nothing from our past failed attempts to eliminate disease-carrying microbes.

Just one of the CMO's recommendations raises a small glimmer of hope; the need to preserve the effectiveness of current antibiotics. If we are to achieve this, I think we have to adopt a *Kitty Wilkinson* approach, and change the environment in which pathogens flourish. This means taking a long hard look at all aspects of the way we live today, which includes the food we eat, our lifestyle, our stress levels, the drugs we take, the pollution around us and even the soap we use for washing. To make changes in all those areas would probably be impossible for many, but as we know only too well as practitioners, with the help of homeopathy we could certainly improve our general level of health and well-being.

The good news is that we will shortly be able to present evidence to the House of Commons Science & Technology (S & T) Committee, which demonstrates the important role homeopathy can potentially play, in finding a way to re-balance the microbes. The Committee is especially interested in evidence which can inform the Government's 2013-2018 strategy for managing antimicrobial resistance. The Alliance of Registered Homeopaths' written submission will focus on homeopathic treatment and will highlight the value of reducing individual susceptibility to disease. The conventional battle against pathogens adopts a symptomatic approach, and concentrates on eliminating the causative agent. However, as practicing homeopaths, we are constantly reminded that in order for a disease to flourish, it must find a suitable environment. The most powerful way to create a hostile environment for disease-carrying organisms is to enhance health naturally. A balanced response to exposure to pathogens is the best indicator of a healthy immune system. I

hope that the S&T inquiry results in the submission of useful evidence from all areas of the healthcare sector. We have much to learn from each other and if we are to stand a chance of winning the battle of the microbes, we will need to combine both conventional and complementary approaches!

This article was first published in 'Homeopathy in Practice', Autumn Issue 2013

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