

Vaccinations VS The Anti-Vax Movement

Text by Dr Hsu Li Yang

Origin of vaccination

The term “vaccination” describes the administration of a vaccine, which is a “biological preparation that improves immunity to a particular disease.”¹

This term was coined by Dr Edward Jenner after “variolae vaccinae” (Latin for “smallpox of the cow”), a story that is reasonably well known.²

Dr Jenner, however, was neither the first person to discover vaccination nor even the first to use cowpox to protect against smallpox. Grinding up the dried scabs from smallpox survivors and inoculating these into uninfected persons (variolation) had been practised for centuries in China, India and the Middle East; Lady Mary Wortley Montague is credited for her advocacy in establishing the practice of variolation in England.³ Variolation was not exactly safe – the mortality was estimated to be 2%, which was nonetheless approximately seven times lower than the fatality rate of smallpox.²

Others before Dr Jenner had observed that cowpox infection protected against smallpox, and it is widely acknowledged that farmer Benjamin Jesty from Dorset, England was the first to inoculate cowpox into his wife and two sons in 1774, protecting them from the smallpox outbreak that occurred in his region.² However, this does not in any way reduce Dr Jenner’s achievement on 14 May 1796 and afterwards, as he was the first to study the phenomenon scientifically and to publicise the results. Many – most notably the great Louis Pasteur – have stood on his shoulders to pave the way for the study of immunology and the discovery of even more vaccines.

“Anti-vaxxers” or vaccine hesitancy

The World Health Organization (WHO) listed vaccine hesitancy as one of the top ten threats to global health for the first time in 2019.⁴ Vaccine hesitancy

refers to “delay in acceptance or refusal of vaccines despite availability of vaccination services”,⁵ and this issue has been around probably for as long as there has been vaccines. Rev Cotton Mather, a preacher who had advocated variolation in Boston, had a bomb hurled through his window in November 1721 with the following note: “Cotton Mather, you dog, dam you! I’ll inoculate you with this; with a pox to you.” The bomb fortunately did not detonate.⁶

Sir William Osler, who is still venerated today as a father of modern medicine, issued a challenge to “anti-vaxxers” that bears recounting, and which also hints at the shape and scale of the anti-vaccination movement of his day: “I would like to issue a Mt Carmel-like challenge to any ten unvaccinated priests of Baal. I will go into the next severe epidemic with ten selected, vaccinated persons and ten selected unvaccinated persons – I should prefer to choose the latter –

three members of Parliament, three anti-vaccination doctors (if they can be found), and four anti-vaccination propagandists. And I will make this promise – neither to jeer nor jibe when they catch the disease, but to look after them as brothers, and for the four or five who are certain to die, I will try to arrange the funerals with all the pomp and ceremony of an anti-vaccination demonstration.”⁷

Vaccine hesitancy has at its core conflicts within the relationships between humans, science, the power of the state and public health practice. Two primary themes have threaded through the “anti-vaxxer” movements of the past and present: firstly, vaccines cause more harm than the diseases they are supposed to prevent; secondly, the issue of freedom of choice (conscientious objections) versus compulsory vaccination.⁸ There have always been doctors, unfortunately, that are part of the “anti-vaxxer” movements, the most infamous of recent times being Dr Andrew Jeremy Wakefield who published a fraudulent *Lancet* paper in 1998, claiming to link the measles, mumps and rubella (MMR) vaccine to autism and gut disease. His work has been discredited multiple times and he has been struck off the UK medical register, but his “alternative facts” have not come unstuck and he remains very much a hero to the anti-vaccination movement.

The ease of access to information via the Internet and social media appears to have made matters worse rather than better, as confirmation bias has led to the formation of online communities and “echo chambers” where selective sharing of scientific research and experiences have created greater uncertainty around the safety of vaccines.⁹ What is new today, relative to the past, has been the exploitation of this issue on social media by malignant “state actors” (to borrow a recently popularised local term) to amplify social discord, which in turn erodes public trust and consensus on vaccination.¹⁰

Unfortunately, the way forward is not straightforward. WHO did not find a single intervention that addressed all instances of vaccine hesitancy, recommending instead multi-component strategies that target specific under-vaccinated groups, including interventions that enable vaccination behaviour.⁵ One recent tragedy of vaccine hesitancy is the ongoing measles epidemic in Philippines that began at the start of this year, with more than 20,000 cases and 300 deaths as of March. The Filipino authorities have attributed this outbreak to the loss of trust in the country’s immunisation programme following the Dengvaxia scandal in 2017, with a steep plunge in vaccination rates of measles and other diseases as a consequence in 2018.¹¹

Local context

In Singapore, at this time, we are fortunate that the anti-vaccination movement is not as organised as in other countries, with our vaccination rates for the mandatory childhood measles and diphtheria vaccines holding out at 95% of the eligible population yearly. It is important today to have an effective communication strategy involving mainstream and social media channels around the topic of vaccines, even though it is understood that the most rabid “anti-vaxxers” will not be swayed by any amount of scientific evidence. On a perpetual basis, we should continue to publicly commit to the safety of our vaccines (and drugs), as well as to implement the vaccination programmes – particularly the mandatory vaccines for children – in an even-handed and responsible manner. ♦

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