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EDITORIAL

Measles, to vaccinate or not to vaccinate: That is the question

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Narrative abstract: Increasingly, cases of measles are being reported by mainstream media. At the time of preparing this editorial US Health officials say this year's US measles epidemic has surpassed 1,000 illnesses which is already the highest in 27 years. However there are claims that the 10-year rolling average suggests measles is not making a comeback. In Australia a sustained slide in reported in routine child immunisation rates is raising alarm as data reveals under-vaccination of one-year-olds has spread from 11 to 53 regions, opening the door to more widespread infectious disease outbreaks.

Dr Blum has prepared this Editorial as a report of his closer look at he topic from his perspective as an active Chiropractic practitioner in suburban USA. He reports findings which give a context on measles and vaccination to assist his reading of *The Measles Book: Thirty-Five Secrets the Government and the Media Aren't Telling You about Measles and the Measles Vaccine,* published by the Children's Health Defense.

He brings a calm approach to a hot-topic issue.

Indexing terms: Chiropractic; measles; vaccination.

Introduction

The *Children's Health Defense* released '*The Measles Book: Thirty-Five Secrets the Government and the Media Aren't Telling You about Measles and the Measles Vaccine*' in 2021 and is now offering the e-book for free. (1) As I embarked on reading the book I wanted to do an independent search of *PubMed* for various articles relating to measles, mortality, and vaccination so I could have some degree of an understanding of what the evidence is showing us.

I also must admit the reality that the pharmaceutical industry directly and indirectly contributes to the jobs and research generated for *PubMed,* so understandably this can compromise the unbiased nature of the research performed and shared. Nevertheless I am hoping that due to the ethics and integrity of the authors and journal peer reviewers there is a good faith effort to maintain the efficacy of our published literature. Likewise I am hoping that the information shared in the *Children Health Defense's 'Measles Book'* is with considered ethics and integrity.

... We must have a calm discussion ... nothing is worse than one side claiming with certitude that their way is the 'right' way and the other side is SO 'wrong' that they don't even want to discuss the issue with them...'

This all leads me to my unanswered wish that those on both sides of the vaccine issue would respectfully sit down and in a transparent manner discuss the risks and benefits of mass vaccination for illnesses such as measles.

The following is not a comprehensive overview but something I tried to explore as I attempted to better understand the dangers of measles and the importance of vaccination. My personal confusion and attempt to better understand the measles vaccination issue stems from me growing up in the 1960s where all my friends and the people I knew had measles and at no time had I ever heard anyone having acute or long term side effects from contracting measles let alone death. In my childhood contracting measles was a time to have a week off from going to school and something associated with a coming of age to some degree.

So what I am trying to unravel is, what are the dangers of measles that necessitate vaccination at this time? I endeavoured to examine this question with a search of *PubMed* for [measles[and [mortality] in the title, with abstracts within the past ten years. I also searched PubMed for [measles] and [vaccin*] in the title, meta-analysis studies, and with abstracts within the past five years. My hope was that as I reviewed these articles I would be in a better position to objectively read the *Children Health Defense's* book on measles.

What does some of the current literature tell us about the dangers of measles?

A study investigating the problem with delaying measles elimination notes '*measles is a highly infectious disease leading to high morbidity and mortality impacting people's lives and economies across the globe. The measles vaccine saves more lives than any other vaccine in the Essential Programme of Immunisation and is also the most cost-effective vaccine, with an extremely high return on investment*'. (2)

Since I live in the United States I tend to have a bias that many of the *World Health Organisation's* concerns about measles and vaccination are occurring in low-income countries. For instance in the Shanks et al study they determined that '*measles mortality fell prior to the introduction of vaccines or antibiotics*' (3) and '*Factors in addition to adult age of infection and epidemiological isolation such as nutritional status and viral virulence may have contributed to measles mortality outcomes a century ago*'. (3)

So I have been unsure how well this translates to higher income countries with better childhood nutrition and quality sanitation issues. Therefore the study by Chovatiya and Silverberg interested me because they reported that '*measles is an extremely contagious, vaccine-preventable infection that was officially declared eradicated in the United States (US) in 2000. However, measles outbreaks are increasingly occurring in the US. Measles cases have considerable morbidity requiring hospitalisation, yet little is known about hospitalization and complications from measles in recent year.*' (4) This study concluded '*measles continues to pose a substantial and preventable health care burden, with serious complications, hospitalisation and inpatient mortality*'. (4)

Still we are all part of one world, I found this 2011 Vaccine Alliance study quite disconcerting: '*Since 2011, GAVI, The Vaccine Alliance, has funded eligible countries to introduce rubella-containing vaccination (RCV) into their national schedule. Two key indicators used to monitor the impact - the future deaths and DALYs (Disability Adjusted Life Years) averted through vaccination conducted in specific periods - are poorly understood for rubella (German Measles) and Congenital Rubella Syndrome (CRS). We calculate these indicators using an age-structured dynamic transmission model for rubella, with historical vaccination coverage projections during 2001-30 in 92 low and middle-income countries considered most likely to require global support to achieve the Global Vaccine Action Plan's objectives. 131,000 CRS deaths and 12.5 million DALYs may be prevented with immunisation campaigns at best-estimate coverage during 2001-30, relative to those without additional support*'. (5)

While it seems that we are focused on the side effects of a measles outbreak what is interesting is that there may be long-term latent immunological effects from measles. Mina et al report '*using population-level data, we show that measles has a more prolonged effect on host resistance, extending over 2 to 3 years. We find that non-measles infectious disease mortality in high-income countries is tightly coupled to measles incidence at this lag, in both the pre- and post-vaccine eras. We conclude that long-term immunologic sequelae of measles drive inter-annual fluctuations in non-measles deaths*'. (6)

What did my search of the meta-analysis studies dealing with measles and vaccination find?

Adverse events following vaccination of infants are a very important consideration. Of interest '*a placebo controlled study found that the frequency of any adverse events (AE) was generally <10% and showed no difference between measles-containing vaccine (MCV1) and placebo-injected infants*'. (7) What becomes crucial is to determine if less than 10% of any AE is acceptable if the benefit of vaccinating infants less than 12 months of age is questionable.

One issue that seemed significant was that the lowering the age for receiving the first dose of a MCV1 was hoped to help to close the emerging immunity gap in infants. In some studies the term '*seroconversion*' is used and in the field of immunology it means the development of specific antibodies in the blood serum as a result of infection or immunisation, including vaccination.

> One key consistent finding was that it seemed that the measles vaccine was not as effective when given at a younger age.

For an instance '*long-term measles seroconversion and seropositivity did not appear to be affected by age at MCV1, while vaccine effectiveness decreased with younger age*'. (8) In addition '*earlier age at measles-containing vaccine (MCV1) decreases measles protection and immunogenicity after one dose and might still have an impact on vaccine failures after two doses of measles vaccine. While two-dose vaccination coverage is most critical to interrupt measles transmission, older age at first vaccination may be necessary to keep the high level of population immunity needed to maintain it*'. (9) Another study questioned the need for early childhood measles vaccination noting that they 'did not detect any effect of early measles vaccine (MV) on subsequent hospitalisation or mortality'. (10)

As might be expected it does seem like having the measles infection is a more powerful immunological event than vaccination since Bianchi et al '*evaluated the proportion of individuals with detectable anti-measles IgG in two groups, those vaccinated with two doses of anti-MMR vaccine and those with a self-reported history of measles infection. Among the 611 students and residents who were tested, 94 (15%) had no detectable protective anti-measles IgG. This proportion was higher among vaccinated individuals (20%; GMT = 92.2) than among those with a self-reported history of measles (6%; GMT = 213.3; p < .0001)*'. (11)

A key issue would be whether having the measles infection is associated with increased morbidity and mortality since it seems with vaccination that Bolotin et al found that measles antibody is found to wane in vaccinated populations. (12) If we are going to be looking at any risk associated with the measles vaccine we would certainly want to make sure that it is reliable and effective. Di Pietrantonj et al report that '*existing evidence on the safety and effectiveness of MMR/MMRV vaccines support their use for mass immunisation. Campaigns aimed at global eradication should assess epidemiological and socioeconomic situations of the countries as well as the capacity to achieve high vaccination coverage*'. (13)

On the other hand this study by Schenk et al (14) investigated the failure of certain measles-mumps-rubella (MMR) vaccine components: '*Despite the universal use of the two-dose trivalent measles-mumps-rubella (MMR) vaccine in the past two decades, outbreaks of these diseases still occur in countries with high vaccine uptake, giving rise to concerns about primary and secondary failure of MMR vaccine components*'. (14) They continued that '*we identified 3615 unique studies, 62 (1·7%) of which were eligible for analysis*'. Estimated overall seroconversion rates for measles were 96·0% (95% CI 94·5-97·4; I2=91·1%) and overall annual waning rates were 0·009 (95% CI 0·005-0·016; I2=85·2%). (14)

One compelling consideration is the concept of '*measles-induced immune amnesia*' (MIA). Benn points out that the '*measles vaccine (MV) has been observed to reduce all-cause mortality more than*

explained by prevention of measles infection. Recently, prevention of MIA has been proposed as an explanation for this larger-than-anticipated beneficial effect of measles vaccine (MV). According to the "MIA hypothesis", immune amnesia leads to excess non-measles morbidity and mortality that may last up to five years after measles infection, but may be prevented by MV'. (15)

What is the take home message?

As I read the article abstracts and pertinent full text articles I am left with some information so I won't be reading in a vacuum '*The Measles Book: Thirty-Five Secrets the Government and the Media Aren't Telling You about Measles and the Measles Vaccine*'. (1) I remain concerned about biased information and prefer balanced reporting on all sides of an issue hence I am reticent to reach a place of certitude (16) until I can be further sufficiently educated. I am not sure if and when that will occur, so I look forward to looking through the *Children Health Defense* book to gather more information. (1)

Due to my searches I am left with some evidence that I hadn't known, which is:

1. It appears that there are studies that describe measles having a global affect on mortality and morbidly that is significant.
2. There are studies that suggest that vaccination for measles convey important immune support.
3. Vaccinating young children and infants for measles may be counter productive and begs the important risk benefit question.
4. It seems that measles has a more prolonged adverse effect on a host's resistance (e.g., measles-induced immune amnesia) which can extend over 2 to 5 years and purportedly prevented with vaccination or contracting measles.

I am also left with some questions unanswered, such as:

1. In healthy properly nourished children what is the incidence of serious mortality and morbidity when contracting measles?
2. What are the various risks of vaccines for measles long term, compared to a healthy individual contracting measles?
3. Are there nutritional or other supplements that can reduce the effects of measles and improve immune function independent of vaccination?
4. Are they ways to mitigate any vaccine side effects with nutrition, vitamins, or other types of supplements so our children aren't overloaded with the various adjuvants used to deliver the active ingredient in a measles vaccine?
5. Is there a subset of the population that is better off not being vaccinated as well as a subset that is better off being vaccinated?

Conclusion

The issue with measles vaccination is a complex one that necessitates experts sitting down with mutual respect and sharing their perspective based on their understanding of the evidence. Clearly there are many perspectives and issues of financial gain that cloud the view for many trying to unravel what is best for our children. At this time nothing is worse than one side claiming with certitude that their way is the 'right' way and the other side is SO 'wrong' that they don't even want to discuss the issue with them.

Healthcare providers, parents, and our children deserve to have open transparent discussions on the various aspects of measles and the measles vaccination, particularly any risks or benefits of being vaccinated or not. I am hoping the *Children Health Defense's* book on measles will give me more information that helps me better understand the issues.

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About

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