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The Modern Plague of Anti-Vaccine Extremists

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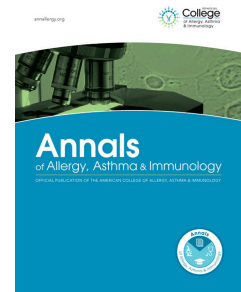
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Title:

The Modern Plague of Anti-Vaccine Extremists

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Conflicts of Interest: none

As an elected official, I have received contributions from many sources to my election campaigns. All contributions are disclosed on the California Secretary of State website: <http://cal-access.sos.ca.gov/Campaign/Candidates/Detail.aspx?session=2019&id=1319205>

Funding Source: none

Keywords: Public Health, Measles, Vaccination

Abbreviations:

NVIC – National Vaccine Information Center
MMR – Measles Mumps and Rubella vaccine
RFK Jr. – Robert F. Kennedy, Jr.
SB277 – 2015 California Senate Bill 277

Word Count: 997

Figures: none

Tables: none

1 In 2019, the World Health Organization declared vaccine hesitancy a top threat to global health¹,
2 and the United States experienced the largest number of measles infections since 1992, almost
3 losing measles elimination status. Vaccine disinformation flourishes on social media, where
4 misleading click-bait conspiracies go viral and families, physicians, and public health advocates
5 are bullied and threatened to silence support for vaccination. As a result, the CDC reported rates
6 of young children not receiving certain vaccinations continues to rise, with states reporting rates
7 as high as 7.7% of kindergarteners granted vaccination exemptions.²

8
9 This fall, the island of Samoa provided a tragic example of what happens when anti-vaccine
10 extremists succeed and government is slow to respond.³ Four years ago, Samoa's vaccination
11 rate was 84%; but in 2018, a nurse killed two infants by reconstituting MMR vaccine with
12 muscle relaxant. The government suspended MMR vaccination during investigation of the
13 deaths, but anti-vaccine extremists engaged in a disinformation campaign to discourage
14 vaccination on the island. Last summer, anti-vaccine extremist Robert F. Kennedy (RFK), Jr.
15 met with anti-vaccine leaders in Samoa. Vaccination rates fell to 31%.

16
17 Andrew Wakefield, the disgraced physician behind the MMR autism myth, with his surrogates
18 targeted vaccine disinformation in New Zealand, which suffered 2172 measles cases in 2019. In
19 September, an infected traveler flew from New Zealand to Samoa, and measles began to spread.
20 By November 17, measles killed seven people, and Samoa declared a state of emergency closing
21 all schools and mandating vaccination. By December 2, the death toll rose to 53, and Samoa
22 imposed a curfew and cancelled public gatherings. On December 5 & 6, the government and
23 businesses closed while civil servants were assigned to a mass vaccination campaign.

24

25 Even as measles patients crowded hospitals and Samoans ran out of coffins to bury their dead
26 babies and children, anti-vaccine extremists continued to attack Samoa with disinformation to
27 discourage vaccination. RFK, Jr. told the Prime Minister of Samoa that the MMR vaccine
28 caused the outbreak and vaccination made measles resistant to treatment. Anti-vaxxers
29 dissuaded parents from seeking medical care falsely claiming vitamins cured measles, eventually
30 leading to the arrest of Samoan businessman Edwin Tamasese, who undermined vaccination
31 efforts and was actively supported by American and Australian anti-vaxxers Jim Meehan and
32 Taylor Winterstein. Appallingly, American anti-vaxxers flooded the Samoa government's
33 Facebook page with one-star reviews and conspiracy-laden comments attacking vaccination.

34

35 On December 28, Samoa lifted the six-week state of emergency. In a population of 200,000
36 people, 5667 measles cases had been reported and 81 deaths, mostly children under the age of
37 five. Vaccination rates rose to 95%, with a dramatic drop in new measles cases.

38

39 This is a story that has been happening around the world. Measles is often the first disease to
40 appear when vaccination rates fall. Worldwide, from a low of 90,000 deaths in 2016, measles
41 killed 140,000 in 2018 and 2019 will be worse. In Europe, there were 5273 measles cases and
42 13 deaths in 2016, 25,869 cases and 42 deaths in 2017, and 83,540 cases and 74 deaths in 2018.⁴
43 Research shows that measles infection causes immune amnesia that increases mortality beyond
44 death from measles itself.

45

In the United States, we have experienced serious outbreaks linked to anti-vaccine campaigns. Andrew Wakefield and anti-vaccine organizations visited Minnesota Somali groups purporting vaccines caused autism, dropping vaccination rates for Somali children from 92% to 42%. In 2017, a Minnesota measles outbreak exposed 8000 people; infected 73, hospitalized 22, and cost the state and county health departments over \$1 million. In 2014, a mysterious anti-vaccine organization, People Educating and Advocating for Children's Health (PEACH) that may be associated with Barbara Loe Fisher and the National Vaccine Information Center (NVIC), started circulating vaccine disinformation targeted at Orthodox Jewish communities. Although overall vaccination rates were high for Orthodox Jews, over 50 Orthodox schools in Rockland County and Brooklyn had low vaccination rates. In 2019, measles infected 312 in Rockland County and 654 in Brooklyn. Furthermore, Larry Cook's organization, Stop Mandatory Vaccination, bought anti-vaccine Facebook ads targeting women interested in being pregnant living in Washington State before an early 2019 measles outbreak infected 72 people in the state. A study showed Stop Mandatory Vaccination and RFK, Jr.'s World Mercury Project, purchased over half of all anti-vaccine Facebook ads.

Anti-vaccine extremists receive millions of dollars, with multi-millionaire supplement seller Joseph Mercola funding NVIC and hedge fund manager Bernard and Lisa Selz funding Del Bigtree. Furthermore, RFK Jr. is worth over \$50 million. Anti-vaccine extremists are financing their businesses and activities by undermining trust in medicine and public health. They use social media to indoctrinate followers and attack public health advocates. Families with children who died of vaccines preventable illnesses have been viciously attacked on social media to suppress their children's stories. Physicians expressing support for vaccination are bullied with

69 poor ratings and negative comments. Lawmakers and staff are harassed and sent death threats.

70 Yet, social media companies turn a blind eye to this bullying.

71
72 In California, a 2015 measles outbreak beginning in Disneyland galvanized action. Parents
73 organized to form Vaccinate California to demand increased vaccination to achieve community
74 immunity so all children are safe at school and sponsored SB277, abolishing non-medical
75 exemptions to school vaccination requirements. The law raised state-wide vaccination rates
76 above 95% for kindergarteners in the first two years and, importantly, raised rates the most in
77 counties with the lowest rates.⁵ Research indicates policy change is the most effective means to
78 raise vaccination rates to restore community immunity. In 2019, New York and Maine voted to
79 abolish non-medical exemptions, and other states are considering similar legislation.

80
81 Vaccination is among humanity's greatest health accomplishments, but its success is presently
82 attacked by self-interested disinformation campaigns that erode trust within our communities.
83 To combat this plague, physicians and other public health advocates must go beyond education.
84 We need to organize pro-science parents to champion policies that hold accountable anti-vaccine
85 extremists who endanger our children with their disinformation and the social media and internet
86 platforms that enable extremists to reach anxious parents and to silence science.

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January 20, 2020

Gailen D. Marshall, MD, PhD
Editor-in-Chief
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Dear Dr. Marshall:

I am pleased to submit a revised manuscript based on the reviewer comments.

Reviewer 1: This is an absolutely wonderful perspective article on a major health problem in the world (and US). The authors have written a compelling and interesting article and should be commended for this. There are some minor issues that if cleaned up would help with the flow of reading. However, these are quite minor issues.

1. Line 49-50 "...cost over the state and county health departments over..." - remove the first "over" (i.e., "...cost the state and county health departments over...").

First "over" deleted

2. I found the sentence on lines 56-58 (starting with "Furthermore, Larry...") confusing. Would it be possible to rephrase/rewrite this sentence to make it clearer?

Sentence rewritten to for greater clarity.

3. Line 63, the "...RFK Jr. iworth [sic] over \$50 million", doesn't actually fit with the prior part of the sentence (which was about billionaire/millionaires funding specific anti-vaccine groups, but not about their individual net worth). Would recommend rewriting this sentence.

Original sentence separated into two sentences so phrase about RFK Jr. is a stand alone sentence.

Reviewer 2: This perspective is very timely and well written. Kudos, and thanks for writing this!

There were 2 very minor typos that I found on p. 3:

line 50: remove the first word "over"

line 63: remove the i before "worth"

Typos corrected.

Please contact me with any further questions. I appreciate the opportunity to submit this Perspective piece for publication in your journal.

Sincerely,

Richard Pan, MD, MPH
California State Senator