Widely used MMR, MR and live attenuated measles vaccines (referred collectively herein as "MCV" or measles containing vaccines) are theorized by the author to be the reason why children, teenagers and other young adults rarely have symptoms from COVID-19, and few if any deaths can be attributed to COVID-19 in young populations. The author will go on to explain herein why there are so many different outcomes related to COVID-19 happening in different countries.

In countries where vaccination "catch up" programs have been instituted in recent decades where two doses of MCV have been properly given to older teenagers and young adults, there seems to be the lowest incidence of deaths, and in a few instances no deaths at all, from COVID-19.

Unlike most countries which only give MCV to children, several countries which have reported zero deaths and zero cases of COVID-19 have had aggressive MCV programs which include a large percent of the adult population: North Korea (many adults vaccinated through age 45), Turkmenistan (many adults vaccinated through age 40), Cook Islands (many adults vaccinated through age 35), Marshall Islands (many adults vaccinated through age 40), Solomon Islands (many adults vaccinated through age 29), and Tuvalu (many adults vaccinated through age 34).
Other countries which have had MCV programs reaching beyond young children are also seeing fewer and in some cases no deaths from COVID-19. Such countries include: South Korea, Russia, Vietnam, Laos, Mongolia, Nepal, Sudan, Maldives, Libya, Kuwait, Djibouti, Kyrgyzstan, Kazakhstan, Myanmar, Republic of Georgia, El Salvador, Uruguay, Nicaragua, Bolivia, Honduras, Guatemala, Belarus, Armenia, Oman, Somalia, Azerbaijan, Cambodia, Sri Lanka, Papua New Guinea, and Micronesia.

One small country in Asia, Bhutan, with zero COVID-19 deaths, has in recent years vaccinated nearly their entire population of children and adults with MCV.

Also of note, South Korea had a huge outbreak of measles in 2000 - 2001 (55,707 reported cases) resulting in the government going back and vaccinating its population well above the typical child-only MCV protocols in most other countries. South Korea is showing an unusually low incidence of death from COVID-19 as compared to other countries with similar populations infected at the same time.

[ SOUTH KOREA MEASLES OUTBREAK:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3534158/ ]
Hong Kong in response to a Measles outbreak close to the same time as the one in South Korea, initiated a large “catch up” MCV program. As of March 28, 2020 only four people have died from COVID-19 in Hong Kong despite its proximity to mainland China.

[ HONG KONG MEASLES CAMPAIGN: https://www.who.int/bulletin/archives/80(7)585.pdf ]

On the opposite end of the spectrum, Italy had a large scale measles outbreak in 2017 affecting over 4,000, caused by a much lower than typical MCV rate in that country. The lack of sufficient MCV is perhaps the reason why there are so many more deaths in Italy from COVID-19 when compared to most other similarly affected countries. According to one researcher, the immunization rate in Italy in 2005 was just 85%, one of the lowest in Europe.

[ ITALY MEASLES OUTBREAK: https://www.ncbi.nlm.nih.gov/pubmed/28933342 ]
[ INADEQUATE VACCINATION IN ITALY: https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5243a4.htm ]
[ MEASLE VACCINATION RATES IN ITALY: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6321942/ ]

Analysis of data related to topics like MCV are, of course, never straightforward. For example, Iran is one of the countries that has been hardest hit by COVID-19 deaths, yet Iran engaged in an aggressive MCV strategy in 2003. Iran vaccinated over 33 million of its citizens that year, up through age 25. Assuming the theory put forward herein is validated, it seems contradictory that Iran's death rate would be so high. The possible reason for this becomes more clear once the data
is examined further. A study in 2007 found that just a few years after Iran's immunization program, measles immunity levels were as low as 72.7% in vaccinated children aged 11-15. It is known that immunity levels continue to decrease over time, so now, another 13 years later, it is likely that immunity levels are even lower. The reason Iran's ambitious vaccination program failed to live up to expectations was that only one vaccination was given, while two vaccinations at least 28 days apart are required for proper effectiveness of an MCV.

[ MEASLES VACCINE FAILURE IN IRAN: ]
[https://www.sciencedirect.com/science/article/pii/S120197120700080X ]

Young children may be the most protected from COVID-19 because not only have nearly all children received two MCV, mothers of current generation children and teens have also most likely also had two MCV themselves, thus providing additional passive immunity to infants.

The efficacy of MCV has been shown to go down with age, leaving some of those who received the vaccines in their youth more vulnerable as they age. Further, people over age 60 likely never received any form of MCV. As a side note, it would be interesting to investigate whether there is any correlation between having had a prior case of measles and either a higher or lower incidence of death or complications from COVID-19. A 2019 Harvard report describes how measles wipes out 20 to 50% of antibodies against viruses and bacteria unrelated to measles itself.
It would also be useful to research titer levels for MCV in young, healthy people who are getting sick or dying from COVID-19. Equally useful would be to examine titer levels of elderly people who are unaffected by COVID-19 despite living in close quarters with an infected person. Outside of countries where MCV have been widely given to adults, many adults get additional MCV as part of a vaccine protocol when traveling to certain countries.

The exact mechanism of the protective effect of current MCV for COVID-19 needs to be further explored. A live measles vaccine has previously been considered in studies as a base for other Coronavirus vaccines including SARS. Novel alphacoronaviruses and paramyxoviruses (the measles family) have also been found to cocirculate. Further, MCV have been shown to generally increase immunity against many unrelated viruses.
In reaching the connection described herein regarding a possible association between MCV and COVID-19, data sets consisting of people who test positive for COVID-19 were not used since such data is currently grossly incomplete and widely inconsistent. Similarly, data regarding death rate in a given population (as compared to total number of people with COVID-19) was also not used since it is based upon the same inconsistent COVID-19 testing protocols. As such, the data reviewed for the analysis described herein was simply a review of total number of COVID-19 related deaths in any given country, compared to that country’s MCV protocols. On initial review, it appears that the total number of deaths from COVID-19 in any given country and the rate at which the total number of deaths from COVID-19 may or may not be increasing in that country, appears to correlate with the rate and style of MCV protocols.

In conclusion, the author believes the use of MCV should be investigated further to determine if an aggressive MCV program with two MCV spaced 28 days apart could quickly and economically protect vulnerable populations from COVID-19.

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