

## VACCINATION WITH MMR MAY REDUCE DISEASE SEVERITY IN COVID-19 PATIENTS

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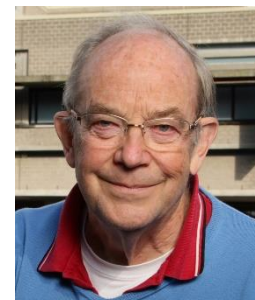
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### Abstract

We hypothesise that MMR vaccination is possibly a safe, cheap, effective and readily available method to reduce the severity of COVID-19 disease course in health care workers, elderly patients and other people at risk. The evidence is based on relevant literature. Suggestions for further studies are given.

**Keywords:** COVID-19, MMR vaccination, Child, Coronavirus

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### HYPOTHESIS

The current corona crisis is taking hold of the world. New vaccines are in preparation but SARS-CoV-2 appears to change its face continuously and a successful vaccine may take a long time to be available for everyone on the globe. Thus, an old, easily available vaccine that has proven effectivity may be a blessing, at least for the time being.

There is much circumstantial evidence that vaccination with MMR (measles, mumps, rubella) may prevent people from getting a severe form of COVID-19. Children are seldom severely ill when infected by COVID-19 or by SARS-CoV-2. This may be explained by the worldwide vaccination program for children. The RNA-virus vaccines and the adjuvants in vaccine programs may help children escape from getting infected [1,2]. Chinese children who all have been vaccinated

against measles had a milder or asymptomatic course of COVID-19 and low mortality [3]. It appears that elderly people who have had measles in their youth, have more severe course of COVID-19 than younger people who have had vaccination. An explanation may be that modern vaccines as provided in MMR are more protective, also against other viruses than a general measles infection [4].

The MMR vaccine became available in the USA in 1971. The measles vaccine is nowadays used in more than 160 countries and in 2018 worldwide 86% of all children received measles vaccine in their first year of life (WHO) [5].

In certain regions in the USA and Western Europe, the anti-vaccination movement resulted in low immunization levels, in some regions below 80% or even 60% grades

in the population [6]. It is remarkable that COVID-19 appears to spread very quickly in regions with strong anti-vaccination movements like New York, Northern Italy, London and also in villages in the Dutch bible belt, where some conservative churches advise not to vaccinate, although crowded churches where the congregation worship through singing, will have played a role. To our knowledge, it has not yet been studied whether people not vaccinated with MMR vaccine are more prone to getting severe COVID -19 disease.

There is evidence that live-attenuated recombinant measles vaccination could induce high titres of neutralizing antibodies and protect mice against intranasal infectious challenge with SARS Coronavirus [7,8]. Live-attenuated replication-competent recombinant measles virus is a promising tool for induction of protective immunity against corresponding pathogens [9]. This attenuated measles virus has been transformed into a versatile chimeric or recombinant vaccine vector and has demonstrated proof-of-principle in humans in preclinical studies, showing rapid adaptability and effectiveness for a variety of pathogens [10]. An excellent review of the perspectives of immune therapy in COVID-19 is given by Gasparyan et al [11].

## CONCLUSIONS

MMR vaccination is possibly a safe, cheap, effective and readily available method to reduce the severity of Covid-19 disease course in health care workers, elderly patients and other people at risk, e.g. with diabetes or chronic heart or pulmonary diseases.

We have the following suggestions:

- To perform a prospective double blinded study, vaccinating health care workers, who are at risk for being infected with COVID-19, with MMR vaccine. Primary end points are: proven infection with SARS CoV-2 (PCR), hospital admission for COVID-19, ICU admission, death.
- To perform an identical study in elderly people at risk, living in nursing homes.
- To study whether people who did not get MMR vaccination in their youth, have higher infection rates and a worse disease course compared to

those who received such a vaccination. Such a study would need the cooperation of anti-vaccination groups. An open prospective pilot study would be feasible in young people up to 50 years, using the same outcome measures as in the studies suggested above. Based on the findings of such a study, further research can be done.

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## AUTHOR CONTRIBUTIONS

Both authors have contributed substantially to the conception or design of the study, analysis and interpretation of the data. Both contributed to the drafting of the work, revising it critically for important intellectual content. Both authors approved the version to be published.

## DISCLOSURE OF INTEREST

The authors have no conflicts of interest to declare.

## ABBREVIATIONS

MMR: measles, mumps rubella;  
 COVID-19: coronavirus disease 2019;  
 SARS: Severe Acute Respiratory Syndrome;  
 WHO: World Health Organisation;  
 USA: United States of America;  
 PCR: Polymerase Chain Reaction.

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## ETHICS APPROVAL AND WRITTEN INFORMED CONSENTS STATEMENTS

Not applicable. No part of the article has been copied or published elsewhere.

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## MMR ВАКЦИНАЦИЯСЫ COVID-19 ПАЦИЕНТТЕРІНДЕГІ АУРУДЫҢ АУЫРЛЫҚ ДӘРЕЖЕСІН ТӨМЕНДЕТУ ҚҰРАЛЫ РЕТІНДЕ

### Түйіндеме

Біздің ойымызша, MMR вакцинациясы денсаулық сақтау қызметкерлерінде, егде жастағы науқастарда және басқа да қауіп тобындағы адамдарда COVID-19 ауруының ауырлығын төмендету үшін қауіпсіз, арзан, тиімді және қол жетімді әдіс болып табылады. Дәлелдемелер тиісті әдебиеттерге негізделген. Әрі қарайғы зерттеулерге ұсыныстар беріледі.

**Түйін сөздер:** COVID-19, MMR вакцинасы, бала, коронавирус

**Дәйексөз үшін:** Раскер Дж., Линн-Раскер С. MMR вакцинациясы COVID-19 пациенттерінде аурудың ауырлық дәрежесін төмендету құралы ретінде. Медициналық гипотеза мен этиканың Орта Азиялық журналы. 2020; 1(2): 127-130. <https://doi.org/10.47316/cajmhe.2020.1.2.04>

## ВАКЦИНАЦИЯ MMR КАК СРЕДСТВО СНИЖЕНИЯ ТЯЖЕСТИ ТЕЧЕНИЯ ЗАБОЛЕВАНИЯ У БОЛЬНЫХ COVID-19

### Резюме

Мы предполагаем, что вакцинация MMR, возможно, является безопасным, дешевым, эффективным и легкодоступным методом снижения тяжести течения заболевания COVID-19 у медицинских работников, пожилых пациентов и других людей из группы риска. Доказательства основаны на соответствующей литературе. Даны предложения для дальнейших исследований.

**Ключевые слова:** COVID-19, вакцинация MMR, ребенок, коронавирус

**Для цитирования:** Раскер Дж., Линн-Раскер С. Вакцинация MMR как средство снижения тяжести течения заболевания у больных COVID-19. Центральноеазиатский журнал медицинских гипотез и этики. 2020; 1(2): 127-130. <https://doi.org/10.47316/cajmhe.2020.1.2.04>