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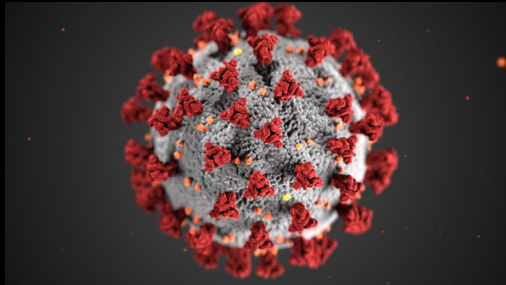


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Risks

Usual travel-related risks
Getting COVID
Spreading COVID
Being stranded
Quarantine

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Travelling to resource-poor setting

Crowding
Poor hygiene
Poor/overwhelmed healthcare
Difficulty evacuating

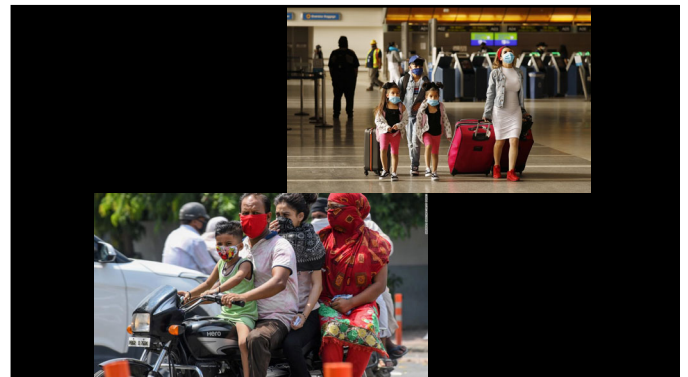
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Should they go?

Those at higher risk for severe illness (elderly, underlying medical conditions) should consider postponing travel

- obesity
- medical complexity
- severe genetic disorders
- severe neurologic disorders
- inherited metabolic disorders
- sickle cell disease
- congenital heart disease
- diabetes
- chronic kidney disease
- asthma and other chronic lung disease
- immunosuppression

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Restrictions

Check travel restrictions, stay-at-home orders, quarantining and testing requirements in all places planning to visit

Check websites of Ministries of Health, Ministries of Foreign Affairs and local health authorities

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Things to avoid

Air travel and cruises, where physical distancing may be difficult for prolonged periods

Travel at peak times and congested routes

Crowded spaces, poorly ventilated enclosed spaces, and any social or mass gatherings eg. concerts, events and parties

Avoid eating out - carry food and drinks

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Reduce risk of infection

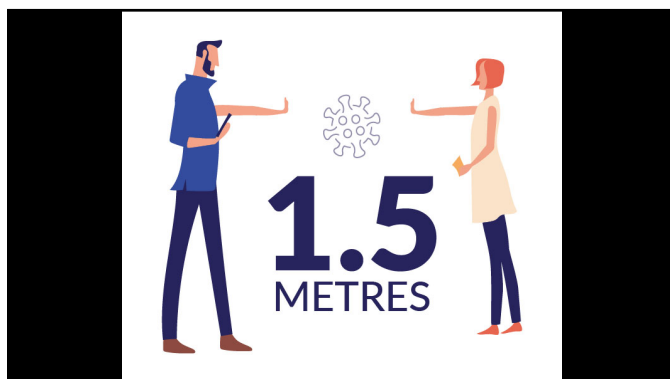
Hand hygiene (carry alcohol rub)

Physical distancing

Mask in public places where COVID-19 is widespread and physical distancing is not possible

Seek medical care early if any symptoms of COVID-19

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Vaccine considerations

Routine vaccines – flu, pneumococcal, etc

Travel vaccines

?? COVID vaccine

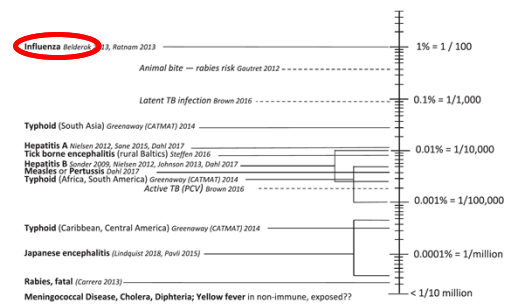
?? MMR, Hep A vaccine, BCG

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Influenza vaccine – the most important travel vaccine of all!



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Current estimates on VPD incidence: Western travelers to tropical/subtropical destinations, Steffen. JTM, 2018

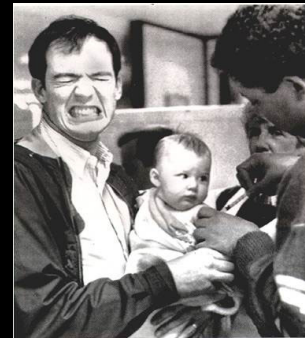
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Flu and pneumococcal vaccines

Protect against flu, partic those with co-morbidities

Reduce risk of secondary bacterial pneumonia due to any respiratory viruses during winter

Save healthcare services at time of high demand



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Table 13.4 Accelerating Routine Pediatric Vaccinations

	Age	Minimum Interval
DTaP	6 weeks	4 weeks
Hepatitis B	Birth	4 weeks
Hib	6 weeks	4 weeks
IPV	6 weeks	4 weeks
MMR	6–11 months, followed by MMR at 12 months old	4 weeks
OPV	Birth	4 weeks
PCV13	6 weeks	4 weeks
Rotavirus	6 weeks	4 weeks

Mackell & Starr. in Keystone J (Ed) Travel Medicine 3rd Ed

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Routine immunisations - boosters

One-off polio booster for endemic countries

Consider tetanus booster if >10 yrs since last one

Give dTpa-inactivated polio vaccine (Boostrix-IPV*, Adacel Polio*) if possible

Repeat doses of Tdap vaccine after 10 years well tolerated and immunogenic in adults

Vaccine 2012 20;30:974-82

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COVID immunity

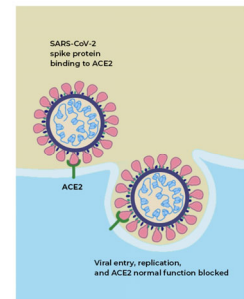
SARS-CoV-2 infection results in development of functional neutralising abs associated with protection from reinfection - ? durability

Both memory T cell and B cell responses specific to SARS-CoV-2 have been found up to 6 mths after infection

BMJ 2020;371:m4838

COVID vaccines

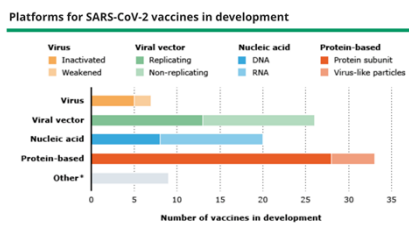
Primary antigenic target is large surface spike protein which binds to the ACE2 receptor on host cells and induces membrane fusion



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COVID vaccines



mRNA vaccines

BNT162b2 (Pfizer/BioNTech)

Approved for use from 16 yrs

2 IM doses 3 w apart

Efficacy > 90%

mRNA-1273 (Moderna)

Approved for use from 18 yrs

2 IM doses one mth apart

Efficacy > 90%

N Engl J Med 2020; 383:2603-2615

N Engl J Med. 2020 Dec 30. doi: 10.1056/NEJMoa2035389

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DNA vaccine

ChAdOx1 nCoV-19/AZD1222 (Oxford/ AstraZeneca)

Adenovirus vector expressing spike protein

Approved for use from 18 yrs

2 IM doses one mth apart

Efficacy ~70%

Lancet 2020; 396: 1979-93

COVID vaccine Immunity

In phase I and II trials, these 3 vaccines induced neutralising abs to the spike protein **and** cellular immune responses

Interim data from phase III trials suggest all 3 vaccines protect against symptomatic infection with SARS-CoV-2

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Other vaccines in late-phase studies

NVX-CoV2373 (Novavax)
Recombinant protein nanoparticle vaccine
2 IM doses 3 w apart

Ad26.COVS.2.S (Janssen)
Adenovirus vector expressing spike protein
2 IM doses 3 w apart

Ad5-based COVID-19 vaccine (CanSino Biologics)
Sputnik V (Gamaleya Institute)
BBIBP-CorV (Sinopharm)
CoronaVac (Sinovac)

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COVID vaccines in kids

Pfizer and Moderna vaccines both currently in Phase 3 trials in kids 12-18 yrs

Sinovac and SinoPharm (China) have opened COVID vaccine studies down to 3 yrs

Given hypothesis that PIMS-TS/MIS-C is associated with immune dysregulation precipitated by SARS-CoV-2, need to monitor closely for adverse effects

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Outstanding efficacy uncertainties

Duration of protection from disease

Potential need for and timing of boosters

Effectiveness in subpopulations not evaluated in clinical trials

Impact on community transmission (ie herd immunity)

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frontiers
in Public Health

NEW REVIEW
published: 28 October 2020
doi: 10.3389/fpubh.2020.01917

Childhood Immunization and COVID-19: An Early Narrative Review

Bojana Beric-Stojic¹, Julie Kalishnik-Hoganson, Denise Rizzolo and Sarajoy Roy

¹Department of Public Health and Community Science, Pennsylvania State University, University Park, PA, United States

Immune response to SARS-CoV-2 virus in children is different than in adults, resulting in differences in the levels of severity of symptoms and outcomes of disease in different age groups

Further clinical investigations are warranted of at least 3 childhood vaccines: BCG, MMR, and Hep A for their potential protective role against SARS-CoV-2 virus

Frontiers University, Australia
Reviewed by
Daniel Martinez Garcia,
Barry Stern Schools, Spain
Andi Serecki,
Independent Researcher, Krasnodar,
Russia, Russia

of symptoms and outcomes of the disease in different age groups. Further clinical investigations are warranted of at least three childhood vaccines: BCG, MMR, and HEP A for their potential protective role against the SARS-CoV-2 virus.

Keywords: children, vaccines, COVID-19, SARS-CoV-2, immunization

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HUMAN VACCINES & IMMUNOTHERAPEUTICS
<https://doi.org/10.1080/21645515.2020.1773141>

Taylor & Francis
Taylor & Francis Group

COMMENTARY

Vaccine repurposing approach for preventing COVID 19: can MMR vaccines reduce morbidity and mortality?

Anand Anbarasu¹, Sudha Ramalath², and Paul Livingstone³

? MMR may confer some immunity to COVID-19:

Induction of interferons

Induction of NK cells

Cross-protective innate immunity

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AMERICAN
SOCIETY FOR
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mBio

RESEARCH ARTICLE
Therapeutics and Prevention



Analysis of Measles-Mumps-Rubella (MMR) Titers of Recovered COVID-19 Patients

Jeffrey E. Gold,¹ William H. Baumgart,² Ramazan A. Okey,³ Warren E. Licht,⁴ Paul L. Fidel, Jr.,⁵ Mairi C. Nover,⁷ Larry P. Tilley,⁶ David J. Hurley,⁸ Balázs Rada,⁹ John W. Ashford¹

Significant inverse correlation between mumps titres from MMR II and COVID-19 severity

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Can Hepatitis A Vaccine Provide Protection Against COVID-19?

Faik Sarialioğlu¹, Fatma Burcu Belen Apak¹, Mehmet Haberal²

Experimental and Clinical Transplantation (2020) 2: 141-143

? Adaptive immune cross-reaction

? Helps keep COVID-19 infection at mucosal colonisation levels, preventing LRTI

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Considering BCG vaccination to reduce the impact of COVID-19

www.thelancet.com Vol 395 May 16, 2020

Beneficial non-specific effects on immune system
protects against wide range of other infections
reduces all-cause neonatal mortality
used to treat bladder cancer

International trial to assess whether BCG reduces incidence and severity of COVID-19 in HCWs

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Tuberculosis

Consider BCG for any child ≤5 yo going for >4 weeks to region of high prevalence

Consider BCG for any VFR child ≤5 yo going for any period

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RESEARCH ARTICLE

Common childhood vaccines do not elicit a cross-reactive antibody response against SARS-CoV-2

Ahmed Kandell^{1,2}, Mokhtar R. Gomaa³, Ahmed El Taweel¹, Ahmed Mostafa^{1,2}, Mahmoud Shehata¹, Ahmed E. Kayed¹, Omnia Kutkat¹, Yasmin Mostafaei¹, Sara H. Mahmoud¹, Mina Nabil Kamel¹, Noura M. Abo Shama¹, Mohamed El Sayes¹, Rabeh El-Shasheny¹, Mahmoud A. Yassin¹, Richard J. Webby², Ghazi Kayali^{1,2,3*}, Mohamed A. Ali^{1,2*}

BCG, Pneumo, Rota, DTP, Hep B, Hib, Mening, MMR vaccines did NOT provide cross-reactive neutralising abs against SARSCoV-2 in mice, 7 weeks post-vaccination

PLoS ONE 15(10): e0241471. <https://doi.org/10.1371/journal.pone.0241471>

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Travelling in the COVID context

Plan

Hand hygiene, physical distancing, masks

Routine vaccines – flu, pneumococcal, etc

Travel vaccines

?? COVID vaccine

?? MMR, Hep A vaccine, BCG

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