

COVID-19

Duration of COVID-19 vaccines protection

It is widely known that COVID-19 vaccines' effectiveness will wane over time. As the COVID-19 vaccinations in LMIC continue to rise, it's essential to know just how long their protection lasts. A team of researchers in England, through a case-control study design estimated ChAdOx1-S and BNT162b2 vaccines' effectiveness against symptomatic COVID-19, its related hospitalisation, and death. It was noted that vaccine effectiveness peaks a few weeks after the second dose, but fell by 20 weeks. The researchers also noted that waning was greater in persons 65 years or older, or those with comorbidities, than in healthy adults. They, therefore, concluded that there was limited waning in COVID-19 vaccine effectiveness with two doses of vaccines.

Andrews N, Tessier E, et al. Duration of Protection against Mild and Severe Disease by Covid-19 Vaccines. *N Engl J Med.* 2022 Jan 27;386(4):340-350. doi: 10.1056/NEJMoa2115481. Epub 2022 Jan 12. PMID: 35021002; PMCID: PMC8781262.

High dose ivermectin in the early treatment of COVID-19

Ivermectin has been fronted as one of the therapies in the treatment of COVID-19. Its safety and efficacy are however still debatable. A randomised controlled trial was conducted to assess the safety and efficacy of high-dose ivermectin in reducing viral load in individuals with early SARS-CoV-2 infection. Participants were randomly assigned to any of the three arms i.e placebo, single-dose ivermectin 600 µg/kg plus placebo for 5 days, or single-dose ivermectin 1200 µg/kg for 5 days. Primary endpoints were serious adverse drug reactions (SADRs) as well as viral load change on day 7. At termination, the study had registered no SADRs and there were no significant differences in viral load reduction. The researchers concluded that high-dose ivermectin was safe but wasn't efficacious.

Dora Buonfrate, Fabio Chesini, et al. High-dose ivermectin for early treatment of COVID-19 (COVER study): a randomised, double-blind, multicentre, phase II, dose-finding, proof-of-concept clinical trial. *International Journal of Antimicrobial Agents*, Volume 59, Issue 2, 2022, 106516, ISSN 0924-8579, <https://doi.org/10.1016/j.ijantimicag.2021.106516>.

SARS-CoV-2 positivity in offspring and timing of mother-to-child transmission

Coronavirus and viral fragments can be detected in maternal blood, placenta, and amniotic fluid and, breast milk of pregnant mothers with SAR-CoV-2 infection. It's been however unclear to what extent mother-to-child transmission of SARS-CoV-2 happens. A systematic review and meta-analysis of major databases were conducted. The review included cohort studies, case series, and case reports of pregnant and recently pregnant women with a diagnosis of SAR-CoV-2 infection. Overall, 1.8% of babies born to SARS-Cov-2 infected mothers were found positive for Covid-19. The researchers also confirmed mother-to-child transmission in utero, intrapartum, and early postpartum but vertical transmission was rare; and the severity of maternal covid19 disease appeared to be associated with SARS-CoV-2 positivity in offspring.

Allotey J, Chatterjee S, et al. SARS-CoV-2 positivity in offspring and timing of mother-to-child transmission: living systematic review and meta-analysis. *BMJ.* 2022 Mar 16;376:e067696. doi: 10.1136/bmj-2021-067696. PMID: 35296519; PMCID: PMC8924705.

Proning in moderate hypoxaemia due to COVID-19

Prone positioning of patients with severe acute respiratory distress is considered a gold standard of care. Whether this strategy could also ameliorate outcomes in less critical patients remains to be ascertained. Researchers set out to assess the effectiveness of prone positioning in patients with moderate hypoxemia. Two hundred fifty-seven patients were equally randomised to either proning or standard of care (no instruction to prone). The outcome measures were in-hospital death, mechanical ventilation, or worsening failure. It was noted that the median time spent proning in the first 72 hours was only 6 in the intervention arm, versus 0 hours in the standard-of-care with no differences in outcomes. The researchers recommended works to improve adherence to this potentially beneficial strategy of prone positioning.

Fralick M, Colacci M, et al. Prone positioning of patients with moderate hypoxaemia due to covid-19: multicentre pragmatic randomised trial (COVID-PRONE). *BMJ.* 2022 Mar 23;376:e068585. doi: 10.1136/bmj-2021-068585. PMID: 35321918; PMCID: PMC8941343.

Pre-hospitalisation Proton pump inhibitors (PPIs) on COVID-19 outcomes

Research shows that COVID-19 can also present with gastrointestinal symptoms, which could be managed by PPIs in pre-hospital settings. The ensuing hypochlorhydria could aid the escape of inactivation of the coronavirus by gastric acid. Researchers sought to ascertain the association between prehospital PPIs use and clinical outcomes in hospitalised COVID-19 patients. A total of 295 patients were enrolled, 15.6% were on PPIs at home. Mortality among the PPIs-users was 2.3 times higher than non-users, and 2.3 times higher risk of acute respiratory distress syndrome. The researchers hence confirmed that prehospitalisation PPIs exposure was associated with worse clinical outcomes.

Ramachandran P, Perisetti A, et al. Pre-hospitalization proton pump inhibitor use and clinical outcomes in COVID-19. *Eur J Gastroenterol Hepatol.* 2022 Feb 1;34(2):137-141. doi: 10.1097/MEG.0000000000002013. PMID: 33252418

General

Single-dose liposomal amphotericin B in cryptococcal meningitis

Amphotericin B, the backbone of treatment for Cryptococcal meningitis a leading cause of HIV-related death is notorious for its toxicity, highly dependent on the length of exposure. It's been unclear if a single-dose amphotericin B is efficacious. A total of 844 participants in 5 African countries were randomised to either receive a single high dose of liposomal amphotericin B on day 1 plus 14 days of flucytosine and fluconazole or the WHO-recommended treatment i.e amphotericin B deoxycholate plus flucytosine followed by fluconazole. Researchers observed the outcome (all-cause death) in 101 participants in the intervention arm compared to 117 in the control arm, and no differences in fungal clearance from cerebrospinal fluid. Single-dose liposomal amphotericin was found non-inferior to the WHO-recommended standard, and has fewer adverse events.

Jarvis JN, Lawrence DS, Mehta DB, et al. Single-Dose Liposomal Amphotericin B Treatment for Cryptococcal Meningitis. *N Engl J Med.* 2022 Mar 24;386(12):1109-1120. doi: 10.1056/NEJMoa2111904. PMID: 35320642.

Alternative to prophylactic antibiotics for recurrent urinary tract infections

In the current era of antibiotic stewardship, alternatives to their use are being sought after. In this study, researchers compared the efficacy of methenamine hippurate with low-dose prophylactic antibiotics in the prevention of recurrent urinary tract infections (UTIs). Adult women requiring prophylactic treatment were randomised to either group and followed up for 12 months. Incidence of symptomatic, antibiotic-treated UTIs was measured during treatment. The researchers found no difference in the incidence of UTIs between the methenamine hippurate arm and antibiotic arm i.e 0.89 Vs 1.38 episodes per person-year, or adverse events. The researchers concluded that methenamine hippurate was non-inferior as a non-antibiotic alternative to recurrent UTIs.

Harding C, Mossop H, et al. Alternative to prophylactic antibiotics for the treatment of recurrent urinary tract infections in women: multicentre, open label, randomised, non-inferiority trial. *BMJ*. 2022 Mar 9;376:e068229. doi: 10.1136/bmj-2021-0068229. PMID: 35264408; PMCID: PMC8905684.

Social and health factors associated with adverse treatment outcome of MDR-TB in Sierra Leone

Multi-drug resistant TB is a public health threat. Understanding factors related to its treatment outcomes would go a long way to reducing its burden. In this national (Sierra Leone) cohort study, researchers evaluated MDR-TB treatment outcomes and factors associated with adverse outcomes. A total of 365 persons were eligible for study participation. The median age was 35 years, 72% (263) were male, 19% (71) were HIV-positive, 35% (127) were severely underweight. Age 45-64 years, severe underweight, untreated HIV, chronic lung disease, previously unsuccessful drug-sensitive TB retreatment, and a long regimen were associated with adverse outcomes. The findings highlighted the need to integrate TB, HIV, and non-communicable disease services along with nutritional and socioeconomic support for MDR-TB patients.

Kamara RF, Saunders MJ, et al. Social and health factors associated with adverse treatment outcomes among people with multidrug-resistant tuberculosis in Sierra Leone: a national, retrospective cohort study. *Lancet Glob Health*. 2022 Apr;10(4):e543-e554. doi: 10.1016/S2214-109X(22)00004-3. PMID: 35303463; PMCID: PMC8938764.

Secondary prophylaxis reduces the risk of latent Rheumatic heart disease progression

Rheumatic heart disease (RHD) when identified early and progression halted prevents related deaths. Secondary prophylaxis is the cornerstone of managing RHD, but whether it prevents disease progression is unclear. A large study conducted in Uganda involved 916 children and adolescents, participants were randomised either to receive injections of penicillin G benzathine, 4-weekly for 2 years or no prophylaxis. Echocardiography was obtained at baseline and 2 years after randomisation. The primary outcome was an echocardiographic progression of latent RHD at 2 years. The researchers found 3 (0.8%) participants in the prophylaxis group with the primary outcome compared to 33 (8.2%) in the control group. The study confirmed that secondary prophylaxis indeed reduced the risk of latent RHD progression.

Beaton A, Okello E, et al. Secondary Antibiotic Prophylaxis for Latent Rheumatic Heart Disease. *N Engl J Med*. 2022 Jan 20;386(3):230-240. doi: 10.1056/NEJMoa2102074. Epub 2021 Nov 13. PMID: 34767321.

Impact of Antihypertensive Drug Class on Outcomes

This study included a secondary analysis of the SPRINT (Systolic Blood Pressure Intervention Trial) and aimed to investigate if greater exposure to any major antihypertensive drug class had an impact on primary outcome events. A total of 9252 participants were included in the analysis. Exposure for 1 year or greater to thiazide-type diuretics or renin-angiotensin system (RAS) blockers was associated with fewer primary events than less exposure, unlike beta-blockers whose greater exposure to, increased the primary events. The scientists also found that thiazide-type diuretics and RAS blockers were associated with a reduction in heart failure, and myocardial infarction events respectively. The researchers concluded that greater exposure to thiazide-type diuretics and RAS blockers reduced adverse cardiovascular events where beta-blockers increased the events.

DeCarolis DD, Gravely A, Olney CM, Ishani A. Impact of Antihypertensive Drug Class on Outcomes in SPRINT. *Hypertension*. 2022 May;79(5):1112-1121. doi: 10.1161/HYPERTENSIONAHA.121.18369. Epub 2022 Mar 9. PMID: 35259925.

Effects of intensive systolic blood pressure lowering in patients with low baseline diastolic blood pressure on the risk of stroke

Targets of intensive blood pressure (BP) control are a systolic BP of less than 130mmHg. There's a concern however that reducing the blood pressure this low in patients with a low baseline diastolic blood pressure could increase the risk of stroke. Researchers conducted a secondary analysis of the Secondary Prevention of Small Subcortical Strokes trial that randomised participants with a history of small subcortical strokes to either intensive (<130mmHg) or standard systolic targets (130-149mmHg) and the effects of blood pressure intervention on stroke examined across a range of baseline diastolic blood pressures. The study found the risk of strokes or cardiovascular events in both arms similar. The researchers hence concluded that intensive systolic control doesn't increase the risk of stroke with low baseline diastolic pressure.

Shihab S, Boucher RE, et al. Influence of Baseline Diastolic Blood Pressure on the Effects of Intensive Systolic Blood Pressure Lowering on the Risk of Stroke. *Hypertension*. 2022 Apr;79(4):785-793. doi: 10.1161/HYPERTENSIONAHA.121.18172. Epub 2022 Feb 4. PMID: 35114798; PMCID: PMC8917090.

Effect of Sleep Extension on Energy Intake among Adults with Overweight in Real-life Settings

With evidence showing that inadequate sleep increases the risk for obesity, it is not clear if extending sleep duration may lessen the risk. Researchers, through a randomised controlled trial with 80 participants, studied effects of a sleep extension intervention (individualised sleep hygiene counseling session intended to extend sleep duration to 8.5 hours) on objectively assessed energy intake, energy expenditure, and body weight in real-life settings among adults with overweight who usually slept for less than 6.5 hours per night. Sleep duration increased by about 1.2 hours per night in the intervention group vs the control group. This increased sleep duration inversely correlated with change in energy intake with a reduction of about 270kcal in the intervention group compared to the control group. There was no significant change in total energy expenditure. Consistent healthy sleep duration may play a role in obesity prevention and treatment.

Tasali E, Wroblewski K, et al. Effect of Sleep Extension on Objectively Assessed Energy Intake Among Adults With Overweight in Real-life Settings: A Randomized Clinical Trial. *JAMA Intern Med.* 2022 Apr 1;182(4):365-374. doi: 10.1001/jamainternmed.2021.8098. PMID: 35129580; PMCID: PMC8822469.

Risk factors for physician burnout: a perspective from Tanzania

Physician burnout is a growing concern but there is paucity of information on the underlying factors among physicians in lower income countries. A recent cross-sectional study in Tanzania assessed for physician burnout and the contributing factors among two cohorts: 1) Emergency Medicine (EM) trained physicians in Tanzania and; 2) specialists at Bugando Medical Centre. They reported burnout in 67% of the EM providers and in 70% of the specialists. Contributory factors in EM physicians included dissatisfaction with career choice, considering switching institutions, working in an urban setting, inadequate coverage for emergencies/leave, and financial housing responsibilities. Important factors among the specialists included; unnecessary administrative paperwork, working overnight shifts, pressure to achieve patient satisfaction or decrease length of stay, meaningful mentorship, and not having a close friend/family member die. The researchers concluded that targeting these risk factors may provide opportunities to boost physician wellness.

Shweta Iyer et al. Risk factors for physician burnout: a perspective from Tanzania. *Pan African Medical Journal.* 2022;41:298. [doi: 10.11604/pamj.2022.41.298.31055] Available online at: <https://www.panafrican-med-journal.com/content/article/41/298/full>

MCH

Optimising the management of uncomplicated acute malnutrition in under 5s

Acute malnutrition treatment is not only complicated but its access also low. This is contributed by different programmes using different products to manage severe or moderate acute malnutrition differently. This large study conducted in Congo aimed to assess if a single-strategy for both severe and moderate acute malnutrition using one product ready-to-use therapeutic food (RUTF) at a decreasing dose as MUAC and weight increased, wasn't inferior to

the standard strategies. A total of 912 children were equally randomised and followed up for a favorable outcome at 6 months. In both analyses: intention-to-treat and per protocol, researchers found a single strategy was superior to the control i.e. 72% Vs 63% and 74% Vs 61% respectively; a strategy with greater potential to improve access to malnutrition treatment.

Cazes C, Phelan K, et al. Simplifying and optimising management of acute malnutrition in children aged 6 to 59 months: study protocol for a community-based individually randomised controlled trial in Kasai, Democratic Republic of Congo. *BMJ Open.* 2020 Dec 2;10(12):e041213. doi: 10.1136/bmjopen-2020-041213. PMID: 33268424; PMCID: PMC7713214.

Residual mother-to-child transmission risk of Hepatitis-B virus

Receipt of Hepatitis-B virus (HBV) birth-dose vaccines in Sub-Saharan Africa remains sub-optimal. It has been suggested that perhaps additional measures e.g peripartum antiviral prophylaxis be employed. Scientists through this longitudinal observational study sought to estimate the residual risk of mother-to-child transmission of HBV at a single centre in Cameroon. Over a period of 8 years, 3901 (17.5%) of mothers that accepted antenatal HBV screening were HBsAg positive. Half of the children born to these mothers received the HBV birth-dose vaccine. Researchers found a high prevalence of HBV in children even with birth-dose vaccines. A positive HBV e antigen and high viral load were strongly associated with HBV transmission. Researchers suggested that on top of HBV birth-dose vaccination, peripartum antiviral prophylaxis could be beneficial.

Yusuke Shimakawa, Pascal Veillon, et al. Residual risk of mother-to-child transmission of hepatitis B virus infection despite timely birth-dose vaccination in Cameroon (ANRS 12303): a single-centre, longitudinal observational study. [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(22\)00026-2/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(22)00026-2/fulltext)

Mosquito net use and survival to adulthood

The role of insecticide-treated mosquito nets (ITNs) in malaria control can't be underestimated. There is however debate about the long-term impact of their use, some studies suggesting it might skew deaths to adulthood due to a delay in acquisition of functional immunity. This prospective study in rural Tanzania sought to estimate the association between early-life ITNs-use and survival to adulthood. Of the

6706 children enrolled, the vital status of 89% was verified at follow-up. Researchers found that participants who reported to have used ITNs at half the early life visits or more had a hazard ratio (HR) for death of 0.57, with a corresponding HR between 5 years and adulthood as 0.93. It was concluded that the survival benefit of ITNs persisted to adulthood.

Fink G, Mrema S, et al. Mosquito Net Use in Early Childhood and Survival to Adulthood in Tanzania. *N Engl J Med.* 2022 Feb 3;386(5):428-436. doi: 10.1056/NEJMoa2112524. PMID: 35108469.

Shorter treatment for non-severe TB in children

Pediatric TB treatment is a challenge due to the long treatment course. In this study conducted in India and 3 African countries, including Uganda, researchers evaluated the efficacy of a 4-month regimen as compared to the current 6-month regimen. A total of 1204 children (under 16 years of age) were equally randomised to either arm. The outcome measure was a composite of treatment failure, loss to follow-up, or death by 72 weeks. The median age of participants was 3.5 years, 52% were male, 11% had HIV, and 14% had bacteriologically confirmed TB. There was a similar incidence of the primary outcome event in both arms which is 3%. The researchers concluded that the 4-month regimen was non-inferior to the 6-month regimen in children with non-severe TB.

Turkova A, Wills GH, Wobudeya E, et al. Shorter Treatment for Nonsevere Tuberculosis in African and Indian Children. *N Engl J Med.* 2022 Mar 10;386(10):911-922. doi: 10.1056/NEJMoa2104535. PMID: 35263517; PMCID: PMC7612496.

Evaluation of zinc in blood, semen and their relationship to sperm quality among males attending infertility clinic

Male infertility, a clinically significant problem is not well studied. Researchers from the Kenyatta National Hospital Infertility clinic, contributed to the body of evidence through a recent study. Through a cross-sectional study, they studied the relationship between the concentration of zinc in semen and in blood serum and sperm quality of 277 randomly selected men who attended the infertility clinic. They found a positive correlation between zinc concentration in blood and semen with sperm motility, normal sperm morphology, sperm count and volume. The researchers recommended that

Zinc assay be considered as a routine test in management of male infertility especially when there are abnormalities in sperm motility, morphology and concentration and in semen volume. They also highlighted the need to pay attention to micronutrient malnutrition especially Zinc among men.

L.O. Onono, G. Orinda, L. Munga. Evaluation of zinc in blood, semen and their relationship to sperm quality among males attending infertility clinic in Kenyatta National Hospital. East Africa Medical Journal, <https://www.ajol.info/index.php/eamj/article/view/220119>

Factors associated with readiness to start antiretroviral therapy (ART) among young people in Uganda

Despite the availability of efficacious ART, HIV care for young people is still very challenging and the HIV burden in this group continues to rise. Researchers in Uganda, through a cross-sectional study evaluated the demographic and psychosocial factors associated with readiness to start ART among newly diagnosed HIV positive young people aged 15-24 years at 4 HIV clinics at Mulago Hospital. They found that the majority (53.3%) were very ready and

very motivated (51.1%) to start ART. Female sex, thinking that ART cures HIV, history of having unprotected sex, anticipating negative HIV results, internalised stigma and knowledge of positive ART effects for others were associated with higher treatment readiness. They concluded that understanding the factors associated with ART readiness among young people could guide the strategies for their care.

Nkalubo J, Mugaba M, et al. Factors associated with readiness to start antiretroviral therapy (ART) among young people (15-24 years) at four HIV clinics in Mulago Hospital, Uganda. *Afri Health Sci.* 2021;21(4):1603- 14. <https://dx.doi.org/10.4314/ahs.v21i4.14>

Assessment and management of venous thromboembolism (VTE) risk during pregnancy and puerperium: An experience from South Africa

Pregnancy and puerperium are a documented risk factor for VTE and there is a need for evidence on VTE assessment and thromboprophylaxis use during this period. Researchers in South Africa, through a cross-sectional study evaluated the local practice of

VTE risk stratification among pregnant women and senior doctors' attitudes to VTE prophylaxis. 104/127 (81.9%) of the women identified as at risk of VTE received some form of VTE prophylaxis. Of those who received pharmacological treatment, 15/15 received low-molecular-weight heparin during pregnancy and before delivery and 87/100 during the puerperium. Thirty-four patients received thromboprophylaxis for only 5 - 10 days after caesarean delivery, and 2 received mechanical thromboprophylaxis during pregnancy. The researchers concluded that pharmacological thromboprophylaxis was the most commonly used intervention and mechanical thromboprophylaxis was underutilised. There was poor adherence to VTE guidelines, specifically on duration of thromboprophylaxis.

P Naidoo, R Mothilal, L.C. Snyman.

Assessment and management of venous thromboembolism risk during pregnancy and the puerperium (SAVE): The South African cohort. *South African Medical Journal*, <https://www.ajol.info/index.php/samj/article/view/184361>



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