STATE AEFI TECHNICAL COLLABORATION CENTRE DEPARTMENT OF COMMUNITY MEDICINE MAULANA AZAD MEDICAL COLLEGE, DELHI



E-NEWSLETTER



OUTBREAK ALERT: INDIA & GLOBALLY Diphtheria Zika virus Varicella **Cholera Monkey Pox Hepatitis E** West Nile Fever RECENT **UPDATES** 6th IEAG-MR **GAVI 6.0 CHALLENGES** & STRATEGIES **Vector Borne Disease** Vaccines RESEARCH **Burden of Long COVID-19**

EDITORS

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FROM THE EDITOR'S DESK: IMMUNIZATION MARVELS THIS MONSOON

Dear Readers,

As we step into the third quarter of the year 2024, the monsoon season brings its unique set of opportunities and challenges for vaccination efforts. In this edition of our newsletter, we encourage you to explore a diverse array of articles, each offering valuable insights and perspectives on immunization, vaccines, and AEFI surveillance.

This edition also includes the essential outbreak alerts, highlighting recent spikes in vaccine-preventable diseases globally as well as nationally, underscoring the importance of continuous vigilance and proactive measures. Additionally, you'll find a section on updates on recent advances in vaccination technology the latest research work, and new initiatives aimed at promoting immunization. We also spotlight upcoming global and national events in the field of immunization to keep you connected with the broader healthcare community.

To add a touch of fun amidst the serious business, our "Fun Frenzy Zone" features a specially curated crossword puzzle designed to test your knowledge on vaccination. Engage with it to refresh your understanding and stay motivated.

As we navigate through this monsoon season, we are more committed than ever to creating a healthier future for all through our collective efforts in immunization and public health. This newsletter is designed for you—healthcare professionals, community workers, and concerned citizens alike. Your engagement is crucial and we eagerly welcome your feedback to help us continue enhancing our efforts. Together, let's stay informed, stay motivated, and make a meaningful impact in the fight against vaccine-preventable diseases. Thank you for your dedication and commitment to a healthier tomorrow.

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Outbreak in Odisha: Suspected Diphtheria Claims Multiple Lives

As of June 14th, a suspected diphtheria outbreak in a village in Odisha's Rayagada district has resulted in five fatalities. Within a span of one week, the outbreak has affected a total of 15 people, including elderly individuals, children, and adolescents. The Chief District Medical Officer (CDMO) of Rayagada confirmed the deaths and also stated that three children are ontreatment at the district headquarters hospital. Blood samples from symptomatic children have been sent to Bhubaneswar for confirmation. On June 12th, a health team led by a child specialist visited the village and identified an adult male aged 61 years, exhibiting similar symptoms. Poor connectivity and transportation facilities in the village have compounded the difficulties. A team from WHO, the Regional Medical Research Centre (RMRC), and public health specialists are investigating the outbreak, conducting surveys to ascertain the source and spread of the disease. The immunization status of the deceased children has not been specified. In February of this year, the same district reported four deaths and about 50 infections from an unidentified disease.

Source: Times of India

Zika virus outbreak in Maharashtra

As of this year, Maharashtra has reported a total of 28 Zika virus cases, the highest number so far, with 24 of these cases coming from Pune city. Since June 20, the Pune Municipal Corporation (PMC) has identified 24 Zika cases, including 10 among pregnant women, all reported within a single month. Active transmission is noted in 10 ward offices across Pune. According to experts from the ICMR-National Institute of Epidemiology (NIE), local transmission is confirmed, with the potential for more cases if further testing is conducted. Unlike other cities such as Jaipur, Ahmedabad, and locations in Kerala, where Zika cases appeared in clusters, Pune's cases are more sporadic, suggesting widespread mosquito presence. The state had 27 cases in 2021, three in 2022, and 15 in 2023, with 28 cases reported this year, including 24 from Pune, two from Pune rural (Saswad and Bhugaon), and one each from Sangamner and Kolhapur. Testing is available at NIV Pune, NCDC Delhi, and ICMR labs, though experts warn of potential underreporting due to limited diagnostic facilities and emphasize the need for genomic sequencing along with routine case detection. Continuous surveillance is managed by the Integrated Disease Surveillance Programme (IDSP) and the National Center for Vector-Borne Diseases Control (NCVBDC).

Source: Hindustan Times

Ongoing Varicella Outbreak in NYC: 873 Cases Reported and Vaccination Efforts Underway

As of March 8, 2024, New York City has reported 873 varicella cases, with onset from September 2022 to March 6, 2024. Cases, reported by medical providers, shelters, and schools, include 17.5% children under 4 years, 53% children aged 4-18 years, and 29% adults over 18. The median age of hospitalized patients is 22 years, with 15 cases involving severe complications. Despite vaccination efforts by DOHMH and other NYC agencies, the outbreak continues to affect mainly children and adolescents, highlighting the need for increased vaccination coverage.

2024 Global Cholera Crisis: Cases Surge Amid Vaccine Shortage

As of April 2024, there have been 27,696 new cholera cases reported globally, marking a 31% increase in cholera-related deaths compared to the previous month. The Eastern Mediterranean Region has the highest number of cases, followed by the African, European, and South-East Asia Regions. The World Health Organization (WHO) has classified the global reemergence of cholera as a grade 3 emergency, indicating an extremely high worldwide risk. There is a severe shortage of Oral Cholera Vaccines (OCV), with 82 million doses requested but only 3.2 million doses available as of May 2024. Despite challenges such as natural disasters, data quality issues, and resource limitations, WHO continues to support countries with coordination, surveillance, laboratory support, and vaccination campaigns. The organization has outlined steps to address these complex outbreaks, which are exacerbated by factors like population mobility and climate change.

Source: WHO News Section Contributed By: Dr Madhvi Dhamania (Senior Resident, PSM, MAMC)

Global Status of the Mpox Outbreak

The latest WHO Mpox External Situation Report provides a detailed overview of the global Mpox outbreak, reporting 97,745 confirmed cases and 203 deaths across 116 countries, with a particularly severe outbreak and high case fatality rate in South Africa. In May 2024 alone, 646 new cases and 15 deaths were recorded, mainly in the African, European, and American regions. The report underscores the issue of significant underreporting, particularly in the Democratic Republic of the Congo (DRC). It also reveals that 96.4% of the cases are male, predominantly aged 18-44, with sexual contact being the primary mode of transmission, and a 51.9% co-infection rate with HIV. In response, the WHO recommends targeted vaccination for high-risk groups and emphasizes the need for robust public health interventions and accurate reporting to effectively manage the outbreak.

Source: WHO News Section

Hepatitis E Outbreak in Chad

Between January 2 and April 28, two health districts in Ouaddai province, Adre and Hadjer-Hadid, reported a total of 2,092 suspected hepatitis E cases, including seven deaths. The majority of these cases, 95%, were linked to seven camps and transit locations for refugees. Among the suspected cases, 27 were pregnant women, with the most affected age groups being 18-59 years (23.9%) and 6-17 years (53.2%). Hepatitis E cases have been recorded in camps within the Ouaddai district, which shelters Sudanese refugees and returnees from Chad. Response efforts in the affected districts involve support from UNICEF, WFP, UNHCR, MSF Spain, MSF Switzerland, and WHO, focusing on epidemiological surveillance, laboratory case confirmation, infection prevention and control, water, sanitation, hygiene (WASH), and risk communication and community engagement (RCCE). Additionally, MSF Switzerland and WHO have provided training to community health professionals to bolster response efforts.

Source: WHO International news section

West Nile Virus Surge in Kerala: Recent Outbreak Details

The State Surveillance Unit, Directorate of Health Services, Kerala, has reported 6 confirmed cases, 1 death, and 1 suspected case of West Nile virus to the Integrated Disease Surveillance Programme (IDSP) in May 2024. In response, District Vector Control Units have intensified vector control measures, mosquito sample testing, and awareness activities.

Source: Directorate of Health Services, Kerala

^{GG}STAY IN THE LOOP: STAY INFORMED!^{DD}

Up-to-Date With Events and Recent Advances

AEFI Training Report

With the aim to strengthen the Adverse Events Following Immunization (AEFI) surveillance and reporting, State Technical Collaboration Centre for Adverse Events Following Immunization, Department of Community Medicine, MAMC, Delhi organized a training session on Reporting, Investigation and Assessment of Adverse Event Following Immunization on 16th April, 2024 in the Department of Paediatrics, LNJP. Around 40 participants including faculty and residents from Department of Paediatrics, LNJP, MAMC had attended the session. Resource persons from WHO India, INCLEN, SEPIO and government health departments led sessions. Sessions included basic concepts, case investigation, causality assessment, and proper completion of AEFI forms. AEFI reporting formats including AEFI registers, HMIS, SAFEVAC, and COWIN SAFEVAC were discussed followed by group activity. Pre-test and post-test evaluations showed an average improvement of 3 points in participant scores. Feedback highlighted the need for more such workshops, comprehensive training for all residents, and suggestions for session improvement, including timing and case discussions. The session concluded with facilitation of the resource persons and distribution of certificates to the participants.

Report Summary Compiled By: Dr Madhvi Dhamania (Senior Resident, PSM, MAMC)



India's Zero Implementation Plan

"Zero-dose children" are those who have not received any basic vaccines, operationally defined as children who haven't received their first dose of the Pentavalent vaccine by one year of age. This number is calculated by subtracting the number of infants vaccinated with Pentavalent 1 from the estimated number of surviving infants. These children typically reside in missed communities, which also have a significant number of under-vaccinated children. These areas are prone to outbreaks of vaccine-preventable diseases, worsening health outcomes.

The IRMMA framework (Identify – Reach – Monitor – Measure – Advocate) helps countries address this issue and IDENTIFY zero-dose children, REACH them with full course of vaccines, MONITOR, MEASURE the performance, and evaluate interventions, ADVOCATE for continued political commitment and financial resources, in the identified districts across select states.

India's new interventions include improved microplanning, Rapid Immunization Skill Enhancement (RISE), capacity building, training healthcare workers, monitoring and mentorship, mobilizer incentivization, Behavioural and Social Drivers (BeSD) surveys, engagement of civil society organizations, U-WIN, data analytics, and program monitoring.

Source: Guidance Document on Strategic Approach for Reaching Zero Dose Children in India Dr Bhawna (Senior Resident, PSM, MAMC)

Key Recommendation from the 6th meeting of India Expert Advisory Group on Measles and Rubella (IEAG-MR)

- 1. Vaccinate all children under two with two doses of MR vaccine.
- 2. Conduct active case searches for sporadic cases.
- 3. Hold regular State and District Task Force meetings on immunization.
- 4. Update MR outbreak preparedness and response plans.
- 5. Perform readiness assessments and outbreak simulations, with response immunization during outbreaks.

Coverage Goals:

- Every district needs to achieve a coverage of >95% with both the doses of MR vaccine with an NMNR (Non-Measles Non-Rubella) of >2/100,000 population and zero transmission of the virus in the community.
- Currently, 198 districts meet the >95% coverage target, and 610 districts have achieved the NMNR benchmark.

Source: Ministry of Health and Family Welfare

Gavi 6.0: A Strategic Shift to Strengthen Global Immunization and Pandemic Preparedness

"Gavi, the Vaccine Alliance, has introduced its "Gavi 6.0" strategy for 2026-2030, aimed at enhancing global immunization efforts. In response to climate change and pandemics, the alliance will adjust co-financing and eligibility criteria to maintain immunization programs and improve health security. Gavi plans to boost vaccine manufacturing in Africa through the African Vaccine Manufacturing Accelerator (AVMA) and has established a \$500 million First Response Fund for swift pandemic responses. The strategy includes new vaccines for tuberculosis, dengue fever, group B streptococcus, hepatitis-E, and mpox, while COVID-19 vaccinations are set to phase out by 2025 to shift focus towards emergency preparedness. Gavi will continue to address outbreaks such as measles and cholera, reinforcing its mission to support sustainable immunization and global health resilience. The shift towards emergency response mechanisms post-2025, including ongoing support for outbreak responses like mpox in the Democratic Republic of the Congo, highlights Gavi's commitment to maximizing vaccine impact in the face of evolving global health challenges. These updates were finalized during a recent meeting in Geneva.

Source: Global Alliance for Vaccines and Immunization

Upcoming Events: Mark Your Calendar!!

National Events:

1) International Conference on Vaccines and Vaccination (ICVV) - Dec 09, Goa, India

2) 6th National Conference of Family Medicine and Primary Care, 28-29 Sept. 2024, AIIMS Rishikesh. International events

International events

1) National Immunization Conference 2024 on August 12-14, 2024 (Atlanta, Georgia)

2) 18th Vaccine Congress will take place from 8-11 September 2024, Altis Grand Hotel, Lisbon, Portugal

3) European Congress of Immunology, September 2024, 1–4, Dublin, Ireland

4) Advisory Committee on Immunization Practices (ACIP) Meeting

5) Centers for Disease Control and Prevention (CDC) on October 23-24, 2024 (Atlanta, Georgia and virtual mode)

Contributed By: Dr Anjali (Junior Resident, PSM, MAMC)



PUBLIC HEALTH CHALLENGES AND STRATEGIES

Floods-the New Normal: Is the Public Health System Prepared to 99 Tackle Vector-borne Diseases?

Vector-borne diseases, highly sensitive to climate changes, are rising globally. Increased temperatures, shifting rainfall patterns, and extreme weather events complicate disease elimination efforts. Monsoon rainfall is expected to rise by 5% with each degree of warming, worsening floods, particularly in India, which has the highest number of poor people at risk. Assam's frequent floods are now the "new normal," with three or four major floods yearly. In the year 2023, the Yamuna River in Delhi broke a 45-year record due to relentless rain and floods, and brought the national capital to its knees.

This contaminated flood water becomes the ticking bomb for dengue, chikungunya, and malaria outbreaks, leading to immediate and long-term health impacts. Despite flood adaptation measures, local implementation challenges persist. Vaccines are crucial public health tools against these diseases, proving more effective than other control methods. However, vaccine development for most vector-borne diseases, except yellow fever and Japanese encephalitis, remains difficult.

Challenges in Vaccine Development

- 1. Higher chances of virus mutation due to increased international travel.
- 2. Severe epidemiological and immunopathological issues, especially for Togaviridae and Flaviviridae viruses, complicate vaccine development.
- 3. Vaccine efficacy decreases over time.
- 4. Disparity between national and WHO-reported malaria cases may undermine the real burden, with WHO categorizing India in very low-transmission settings, which dispels it from requiring immediate deployment of available vaccines as they hold promise for high-transmission settings, such as African countries.
- 5. Existing malaria vaccines target P. falciparum, while India has a significant burden of P. vivax, which is further complicated by the overlapping distributions of P. falciparum and P. vivax. The high genetic diversity and a complex life cycle of P.vivax, complicate the development of vaccine against it.

Platform	Key Features
mRNA Vaccine	Fast production and low manufacturing costs.
Viral-Vector Vaccine	Excellent at inducing immunity, especially adenovirus-vectored.
DNA Vaccine	Requires adjuvants or efficient delivery systems due to lower antibody titers.
Virus-Like Particles (VLP)	Mimic virus structure, display multimeric antigens, safe for elderly and immunocompromised.

Key Features of Potential Vaccine Development Platforms:

Recent Updates in Existing Vector-borne Disease Vaccines:

Vaccine	Updates
RTS, S/AS01	First malaria vaccine recommended by WHO in 2021; ~40% reduction in malaria episodes; routine immunization in many African countries starting Q1 2024.
R21 vaccine	Second malaria vaccine recommended by WHO in 2023; reduces symptomatic malaria by 75% after a 3-dose series; available mid-2024.
Dengvaxia	Approved for use in dengue-experienced persons aged 9-16 in hyperendemic areas.
Ixchiq	First live-attenuated, single-dose chikungunya vaccine approved by FDA in Nov 2023; 96.3% seropositivity reported; severe adverse reactions in trial.
TAK-003	WHO prequalified on May 10, 2024; live-attenuated dengue vaccine for children aged 6-16 in high-risk regions; two doses three months apart.
Butantan-Dengue vaccine	Phase 3 trial: 80% protection for never infected, 89% for previously infected; involved 16,235 participants in Brazil.

Conclusion:Given 21st-century climate changes, developing next-generation vector-borne disease vaccines is crucial. Despite various vaccine platforms being explored, none have yet shown significant global impact. Effective vaccines must address both macroecological factors like climate and urbanization, and microenvironments where vectors, hosts, and pathogens interact.

Dr Madhvi Dhamania (Senior Resident, PSM, MAMC)

Interlinking India's Urban and Rural Healthcare

India's diverse geography and populations pose unique healthcare challenges, particularly in bridging the gap between urban and rural areas. Launched in 2005, the **National Rural Health Mission (NRHM)** aimed to improve healthcare access and quality in rural areas, later evolving into the **National Health Mission (NHM)** in 2013, which also includes the **National Urban Health Mission (NUHM).** The mission focuses on decentralizing healthcare and integrating various determinants of health, such as water, sanitation, and education. Key to this mission are **infrastructure and human resource**, guided by Indian Public Health Standards Despite urbanization, rural areas remain crucial, with the 2011 Census and 2013-14 Economic Census showing 69% and 59% rural populations, respectively.

The **boost to digital health** under the Ayushman Bharat Digital Mission (ABDM) aims to strengthen digital health infrastructure, promoting integrated digital pathways through initiatives like **mHealth**, telemedicine, and mobile health platforms. However, challenges such as limited network connectivity and equipment availability persist. **Financial Protection** is another crucial aspect, with the PM-JAY scheme providing health coverage of Rs. 5 lakhs per family to over 12 crore vulnerable families, targeting zero out-of-pocket expenses.

Community engagement and awareness, led by Frontline Health Workers (FLWs), is vital for effective healthcare delivery. These workers help address and refer health issues, promote healthy behaviors, and increase service demand. Analyzing healthcare outcomes, patient flow, and resource allocation, along with exploring innovative funding models and public-private partnerships, can help optimize service delivery and **ensure "Health for All"** across India's urban and rural areas. Focusing on basic health infrastructure, staff, and efficient referral systems, while analyzing healthcare outcomes and exploring innovative funding and delivery models, is crucial for improving service delivery and ensuring equitable access across urban and rural India.

Dr. Ruchir Rustagi, Medical Officer (Immunization) Directorate of Family Welfare (DFW), Govt. of NCT of Delhi

RENDEZVOUS WITH RESEARCH

Burden of Long COVID-19 in a Cohort of Recovered COVID-19 Patients in Delhi, India

Background

The long COVID phase is characterized by signs and symptoms persisting for at least three months after recovery from acute COVID-19 illness. There is limited data on comprehensive long-term clinical follow-up of COVID-19 patients.

Aims: This study aims to explore the burden and symptomatology of long COVID syndrome and its association with various health parameters.



Settings and design:

This prospective observational study was conducted in Delhi from May 2022 to March 2023. **Methods and material:**

A total of 553 adult patients who had recovered from COVID-19 were enrolled in the study. A sociodemographic and clinical profile was obtained using validated questionnaires, along with an evaluation of biochemical parameters to assess the associated factors.

Statistical analysis used:

Chi-square test, unpaired t-test, and bivariate regression analysis were applied using Statistical Product and Service Solutions (SPSS, version 28; IBM SPSS Statistics for Windows, Armonk, NY). A p value of <0.05 was considered significant.

Results

A total of 252 patients (45.6%) had long COVID syndrome, which was significantly associated with the presence of any pre-existing comorbidity (OR=1.46 (1.02-2.09); p=0.039), previous history of hypertension (OR=1.82 (1.07-3.09); p=0.027), and vaccination against COVID-19 (OR=1.392 (1.171-1.656); p=0.003). The most common symptoms reported were persistent fatigue (33.3%) and persistent dry cough (28.5%). Patients with long COVID syndrome are also reported to have poorer sleep quality. Biochemical findings showed abnormal T lymphocytes (9.3%) and raised HbA1c (11.9%).

Conclusion

Multiple risk factors and symptoms associated with long COVID syndrome were identified in this study. Research efforts and knowledge regarding the pattern of illness will aid in long-term monitoring and development of interventional strategies and guidelines for the care of recovered COVID-19 patients.

Source: Singh, M. M., Sharma, H., Bhatnagar, N., Borle, A. L., Rao, S., Mishra, S., Singh, G., Singh, T., Kapoor, M., & Kumar, N. (2024). Burden of Long COVID-19 in a Cohort of Recovered COVID-19 Patients in Delhi, India. Cureus, 16(5), e60652. https://doi.org/10.7759/cureus.60652



- 2. These two vaccines cannot be given together: _____ (to be filled across) and _____(2 words)
- [to be filled down]
- Temperature of vaccines should be monitored in PHC. (related to number of times monitoring is done)
- 5. A _____ relationship exists between the rate of colour change and temperature in VVM
- 7. Name the sublingual vaccine used to prevent recurrent urinary tract infections

4. DANISH 1331 strain is prepared in BCG laboratory of which capital city in India?

6.Vaccine prepared from cultures of microorganisms obtained from an individual and then used to immunize and provide immunity to that same individual

8.____scale of measurement is best to interpret VVM results.

9. The Schwartz, the Edmonston-Zagreb, and the Moraten strains all have been derived from _____strain.

Contributed By: Dr Madhvi Dhamania, SR, PSM, MAMC

Scan the QR code or Email the answers to aefitechnicalcentre.mamc2021@gmail.com by 31st August 2024. The names of the first five winners will be given in the next issue along with answer key.



Winner for Crossword #1

Dr Shweta Goswami, Assistant Professor, Department of Community Medicine, MAMC

Three

1. Hepatitis B

- 5. Across: MMR
- 8. Ulceration

Answer Key Crossword #1

- 2. Encephalitogenic
- 5.Down: Measles
- 9. Four

6. Serological

3. Two

4. Three 7.BCG