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

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FROM THE EDITOR'S DESK: ILLUMINATING HEALTH THROUGH IMMUNIZATION THIS DIWALI

Dear Readers,

As we usher in the final quarter of 2024, the festive season of Diwali brings with it a sense of renewal, light, and unity—a fitting theme as we reflect on the strides made in immunization efforts this year. In this Diwali edition, we invite you to delve into a selection of articles focused on key advancements and ongoing challenges in the field of vaccination and immunization.

This issue shines a spotlight on outbreak updates, particularly where vaccine-preventable diseases are emerging as a concern, along with a closer look at both national and international efforts in immunization. Our coverage emphasizes the critical role of AEFI (Adverse Events Following Immunization) surveillance in ensuring vaccine safety and strengthening public trust in vaccination. You'll find this information, along with national and global event updates, offering a comprehensive view of the current immunization landscape.

In keeping with the festive spirit, our "Fun Frenzy Zone" has a fresh puzzle designed to test and expand your knowledge on vaccination. Dive in to recharge your understanding and enjoy a light-hearted challenge!

In the spirit of Diwali, let us continue to spread the light of knowledge and the power of prevention. Your commitment to this cause strengthens our collective impact, bringing us closer to a future free from vaccine-preventable illnesses. We are deeply grateful for your ongoing dedication and invite your feedback to help us further enrich our mission. Together, let's illuminate the path to health for everyone, especially as we celebrate this season of hope and unity.

Wishing you a joyous and safe Diwali!

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"OUTBREAK ALERTS"

National and International Round-up of Vaccine Preventable Outbreaks

Surge in Dengue Cases Across India: A State-by-State Overview

Between September and October 2024, India experienced a significant dengue outbreak across multiple states. Delhi reported 3,082 cases, marking a five-year high and resulting in three fatalities. Bihar saw 4,700 cases, with 1,500 new infections in October alone, predominantly in Patna. Rajasthan recorded a sharp increase with 6,901 total cases and two deaths. Uttar Pradesh's Prayagraj region also reported a surge, with 78 new cases identified in October. In addition to Prayagraj, Lucknow in Uttar Pradesh also faced a surge in dengue cases with over 1115 cases. Local health authorities reported an increased number of cases across urban areas due to prolonged rains, which created favorable conditions for mosquito breeding. Both Prayagraj and Lucknow have been designated focus areas by health officials, with targeted interventions aimed at controlling the outbreak through mosquito control and public health education campaigns. The World Health Organization (WHO) highlighted a global rise in dengue cases and urged enhanced surveillance and early detection measures to combat the spread. Indian health authorities are focusing on mosquito control and community awareness to mitigate this outbreak.

Source: Times of India

Diphtheria Outbreak in Nigeria: The Urgent Need for Vaccination

Nigeria is currently facing a critical diphtheria outbreak, which has resulted in over 1,191 deaths since May 2023, according to the Nigeria Centre for Disease Control (NCDC). Alarmingly, there have been more than 38,000 suspected cases and 23,000 confirmed cases. The majority of those affected are children aged 4 to 15 years who have not received a single dose of the diphtheria vaccine. This situation underscores the urgent need to address low vaccination coverage in the country, particularly in northern regions where the outbreak is most severe. UNICEF has highlighted that a staggering number of children in Nigeria remain unvaccinated, contributing significantly to the ongoing outbreak. In response, the Nigerian government, supported by international organizations, has initiated extensive vaccination campaigns. Dr. Muzzammil Gadanya, Incident Manager at the National Diphtheria Emergency Operations Centre, emphasized the importance of enhancing vaccination efforts as a crucial strategy in combating the outbreak. Community engagement, public awareness, and routine immunization are vital to ensuring that every child receives protection against preventable diseases like diphtheria

Source: IRFC, UNICEF

Global Measles Resurgence: Rising Cases and Outbreaks Across 57 Countries Amid Low Vaccination Rates

Between September and October 2024, measles has notably affected both the United Kingdom and the United States, with the UK experiencing a surge of cases particularly in London, the West Midlands, and East England. In the past month, 36 new confirmed measles cases were reported in the UK, primarily among children and unvaccinated individuals, with areas like Essex and London reporting clusters of new cases. This ongoing outbreak reflects a broader trend, as 57 countries have seen recent increases in measles cases, with global case numbers being linked to low vaccination rates and unvaccinated travelers importing cases from areas with active outbreaks

Source: Gov.UK

Mpox Outbreaks: A Global Overview from Africa to India, Pakistan, and Uganda

In August 2024, Uganda reported its first two cases of monkeypox (Mpox) in Mpondwe and Bwera, following rising infections in the Democratic Republic of the Congo (DRC). The African Union allocated $10.4 million to combat the outbreak across the continent. Historically, the DRC has recorded the first human cases of monkeypox since 1970, with transmission primarily from infected animals to humans. The recent global outbreak, which began in 2022, was linked to sexually transmitted Clade II infections, prompting the World Health Organization to declare a public health emergency, which concluded in May 2023 after over 90,000 cases and approximately 140 deaths worldwide. Notably, a novel Clade Ib variant detected in the DRC is more deadly and contagious. The Africa CDC has initiated enhanced vaccination access and monitoring efforts. In September, a suspected case linked to travel from the Central African Republic revealed two clusters of infection in the DRC. Meanwhile, UNICEF has launched an emergency tender for up to 12 million Mpox vaccine doses, collaborating with various health organizations. In Pakistan, authorities reported a third Mpox case, linked to a new variant, prompting increased surveillance. In India, a recent travel-related case was confirmed as clade 2, isolated and not posing a public risk, with ongoing contact tracing to prevent spread.

Source: WHO News Section, PIB, Social Trends

Contributed By: Dr Madhvi Dhamania (Senior Resident, PSM, MAMC)

First Human Case of Bird Flu Reported in Missouri

The CDC has reported the first human case of bird flu (H5) in Missouri in 2024, marking the 14th case in the U.S. this year and notable for lacking known animal exposure. This case highlights the ongoing importance of monitoring avian influenza, especially as the virus may not always follow expected transmission patterns. Vaccination and immunization remain critical in protecting poultry and reducing the risk of zoonotic transmission. Continued vigilance and adherence to vaccination guidelines are essential in combating potential outbreaks of avian influenza in both animals and humans.

Source: Centre for Disease Control

Mass Polio Vaccination Drive in Gaza

In September 2024, Gaza launched an ambitious mass vaccination drive in response to the first confirmed case of polio in 25 years, involving an 11-month-old boy with paralysis. The campaign aims to immunize 640,000 children under ten using the novel oral polio vaccine type 2 (nOPV2), with a target of administering 1.3 million doses within three days. The initiative, supported by 2,700 health workers, is rolled out in three phases: Central Gaza (September 1-3), where 187,000 children were immunized; Southern Gaza (September 5-8), targeting 340,000 children; and Northern Gaza (September 9-12), aiming for 150,000 children. The drive is crucial to achieve a 90% vaccination coverage to prevent the re-emergence and international spread of the disease, exacerbated by interruptions in routine immunization and unsanitary living conditions due to the ongoing conflict. WHO Director-General Tedros Adhanom Ghebreyesus emphasized the need for urgent protection of health teams and called for a lasting ceasefire to ensure the safety of health workers and the immunization campaign in this critical public health crisis.

Source: WHO News Section

"STAY IN THE LOOP: STAY INFORMED!"

Up-to-Date With Events and Recent Advances

AEFI Training Report

The Delhi State Health Department conducted a successful workshop to disseminate new operational guidelines on Adverse Events Following Immunization (AEFI) Surveillance and Response, in collaboration with the World Health Organization (WHO) and the Immunization Section of the Directorate of Family Welfare (DFW). This initiative gathered District Immunization Officers (DIOs), pediatricians from medical colleges, members of the state AEFI Committee, and Surveillance Medical Officers from WHO. The primary goal was to train health officials on updated protocols and empower them to share this knowledge with their teams, thereby strengthening AEFI surveillance across Delhi.

Key objectives included disseminating the latest operational guidelines from the Immunization Division, Ministry of Health and Family Welfare (MoHFW), enhancing the AEFI surveillance system with new methods and technologies, and establishing an efficient response mechanism for managing AEFI cases. Expert facilitators led sessions on critical topics such as changes in AEFI guidelines, DIO responsibilities, and effective communication strategies during AEFI incidents. The workshop emphasized practical training, featuring case studies and group discussions. Senior officials highlighted the importance of robust AEFI surveillance in India's expanding immunization programs, with a focus on utilizing digital tools like SAFE VAC and UWIN for data collection.

To ensure effective knowledge transfer, participants received training materials to conduct similar workshops at district levels, promoting consistency in implementing the new guidelines. Evaluations showed high satisfaction levels among attendees, reinforcing their confidence in applying the guidelines. The state committed to strengthening AEFI surveillance through regular review meetings and supportive supervision visits, ultimately aiming to enhance public trust in immunization programs and reduce vaccine hesitancy.

Report Summary Compiled By: Dr Amita Raoot and Dr Ruchir Rustagi, Delhi State AEFI

ACIP's 2024–2025 COVID-19 Vaccine Recommendations

Advisory Committee on Immunization Practices 2024–2025 COVID-19 vaccination guidance recommends the updated vaccines targeting Omicron strains JN.1 and KP.2, aiming to protect against severe disease, hospitalization, and death. Based on data from 40 public meetings since June 2020, the analysis found moderate protection benefits, though immunity wanes over time. Vaccination is advised for everyone six months and older, prioritizing high-risk groups like the elderly and immunocompromised. Economic evaluations highlight cost-effectiveness, particularly for individuals 65+, with a strong emphasis on equitable access to maximize public health benefits.

Source: Centre for Disease Control

Latest Updates on Ebola Vaccines from the Strategic Advisory Group of Experts

In 2024, the Strategic Advisory Group of Experts (SAGE) on Immunization met to revise recommendations for Ebola vaccination, focusing on two vaccines: Merck & Co.'s rVSVΔG-ZEBOV-GP (Ervebo) and Janssen Pharmaceutica's Ad26.ZEBOV with MVA-BN-Filo (Zabdeno and Mvabea). Ervebo, a single-dose vaccine, demonstrated 100% efficacy in non-pregnant adults, with sustained antibody levels for at least five years and a strong safety profile, despite some adverse events. It is particularly effective for rapid outbreak response via ring vaccination, recommended for healthcare and frontline workers, with revaccination advised if outbreaks occur more than six months post-vaccination. In contrast, Zabdeno and Mvabea require two doses and showed about 53% survival in animal studies against lethal doses, with antibody persistence for five years. Although slightly more reactogenic, it poses no higher risk of severe adverse events and is better suited for preventive measures in low-risk areas. Overall, the strategy prioritizes Ervebo for immediate outbreak protection while considering Zabdeno and Mvabea for broader vaccination efforts.

Source: Weekly epidemiological record, World Health Organization

CDC Authorizes Self-Administration for Flumist Nasal Vaccine to Enhance Accessibility

The CDC has approved Flumist, a live attenuated influenza vaccine, for self-administration by adults 18 and older, while caregivers may administer it to children ages 2–17. This change is intended to improve access and convenience, encouraging greater vaccine uptake. Through the Flumist Online program, adults complete an online questionnaire, reviewed by a pharmacist, before the vaccine is shipped for at-home use.

Source: Centre for Disease Control

Upcoming Events: Mark Your Calendar!!

National Events:

1. IMMUNOCON-2024 on 17th to 20th October, 2024 at J.N. Tata Auditorium, IISc, Bengaluru
2. International Conference on Virology and Infectious Diseases (ICVID) on 9th December, 2024 (Goa, India)
3. International Conference on Virology and Infectious Diseases (ICVID) on 30th January, 2024 (Bengaluru, India)

International events

1. Advisory Committee on Immunization Practices (ACIP) Meeting, Centers for Disease Control and Prevention (CDC) on October 23-24, 2024 (Atlanta, Georgia and virtually)
2. International Vaccines Congress on 24th October 2024 (Maryland Heights, United States)
3. 2024 Clinical Vaccinology Course, National Foundation for Infectious Diseases (Virtual Nov 6-8)
4. ASI 2024: 52nd Annual Scientific Meeting of the Australian and New Zealand Society for Immunology (25–29 November, 2024 Sydney, Australia)
5. International Conference on Virology and Immunology (ICVI) on Dec 30, 2024 (Honolulu, USA)
6. Midwinter Conference of Immunologists on 25–28 January, 2025 (Asilomar, California, USA)
7. International Conference on Virology and Immunology (ICVI) on Jan 30, 2025 (New York)

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

"PUBLIC HEALTH CHALLENGES AND STRATEGIES"

NITI Aayog's Pandemic Preparedness and Emergency Response Framework (PPER)

NITI Aayog's Pandemic Preparedness and Emergency Response Framework (PPER) presents a strategic roadmap for managing the first 100 days of a new outbreak. Key recommendations include:

1. **Governance, Legislation, Finance, and Management:** Enact a Public Health Emergency Act, create a strong governance framework, establish a continuous monitoring group, and initiate a dedicated PPER fund for response activities.
2. **Surveillance, Data Management, and Early Warning:** Develop an integrated surveillance system for human, animal, and environmental data, increase BSL-3 and BSL-4 labs, and use predictive modeling for early threat detection.
3. **Research, Innovation, Infrastructure, and Capacity Building:** Focus on R&D for priority pathogens, expand production of drugs, vaccines, and diagnostics, enhance logistics infrastructure, and establish research institutes dedicated to diagnostics and workforce training.
4. **Partnerships, Community Engagement, and Risk Communication:** Develop a comprehensive risk communication plan, engage communities, and foster collaborations with the private sector and international organizations.

This framework emphasizes proactive and collaborative measures to ensure robust pandemic preparedness and rapid, effective response.

Source: NITI Aayog

Understanding HPV Infection and the Importance of Vaccination in Males

Introduction:
Human papillomavirus (HPV) is one of the most common sexually transmitted infections worldwide, affecting men significantly by causing genital warts and various cancers, in addition to its well-known link to cervical cancer in women. HPV vaccinations represent a crucial advancement in reducing the virus's incidence and impact. This essay discusses the importance of male HPV infection and emphasizes the need for vaccinations while comparing strategies in India and globally.

HPV Infection in Males

HPV in males can cause genital warts and various cancers, including penile, anal, and oropharyngeal cancers. Types 6 and 11 primarily lead to genital warts, while types 16 and 18 are linked to cancer. Studies indicate that men are less likely than women to clear the virus, highlighting the need for HPV vaccination.

HPV Vaccinations

Three HPV vaccines are available: Gardasil, Gardasil 9, and Cervarix. Gardasil protects against types 6, 11, 16, and 18; Gardasil 9 includes additional types; and Cervarix targets types 16 and 18. Vaccination is recommended for preteens aged 11 to 12, with catch-up options up to age 26 or 45.

Worldwide Situations

Global efforts to vaccinate against HPV, backed by the CDC and WHO, emphasize early vaccination. Countries like Australia have seen significant drops in HPV-related conditions due to robust vaccination programs. The CDC recommends routine vaccination at ages 11 or 12, but rates remain below desired levels.

The Indian Situation

India faces challenges in HPV vaccination, such as low awareness and cultural barriers. The ICMR and NCDC have been instrumental in promoting vaccination, yet coverage is still low. Incorporating the vaccine into the national immunization program is essential, with promising pilot projects in Sikkim and Delhi. Educational and public health initiatives are critical for increasing vaccination rates.

Conclusion

Men are at higher risk for HPV-related diseases, making vaccination vital for prevention. Despite global advancements, India needs to enhance immunization policies to protect its population. Collaborative efforts among governments, communities, and healthcare providers are essential for improving vaccination coverage and reducing HPV-related illnesses.

- Dr Bhawna (Senior Resident, PSM, MAMC)

Strengthening Rabies Control through Vaccination and Collaboration: Key Takeaways from National Webinar

On the eve of World Rabies Day 2024, Smt. Alka Upadhyaya, Secretary of Animal Husbandry, chaired a national webinar attended by key officials and over 1,000 participants from veterinary departments, universities, and NGOs. She emphasized the need for collaborative efforts to eliminate dog-mediated rabies, with mass dog vaccination (MDV) identified as the most cost-effective control method. The webinar underscored the importance of managing stray dog populations for effective rabies prevention, alongside promoting public awareness, responsible pet ownership, and coordinated vaccination efforts. Success stories from Goa, Kerala, and Sikkim showcased effective rabies control models through mass vaccination, sterilization, and awareness campaigns. Dr. Simmi Tiwari, Joint Director and Head of the Centre for One Health at NCDC, provided updates on India's National Rabies Control Program, which aims for rabies elimination by 2030, highlighting the need for improved surveillance, legislation, and reporting systems.

Source: Press Information Bureau

RENDEZVOUS WITH RESEARCH

Long-term waning of vaccine-induced immunity to measles in England: a mathematical modelling study

Background

Between 2010 and 2019, the proportion of measles cases in England among individuals who had received two doses of the vaccine increased, particularly among young adults. This rise may be due to rare infections in vaccinated individuals who did not develop immunity, a decrease in those born before the vaccination era, or waning vaccine-induced immunity. These factors pose new challenges for measles control in near-elimination settings. Our aim was to assess whether the measles dynamics observed in England during this period align with waning vaccine-induced immunity.

Methods:

A compartmental mathematical model stratified by age group, region, and vaccine status, fitted to individual-level case data reported in England from 2010 to 2019 and collected by the UK Health Security Agency was used. The deterministic model was fitted using Monte Carlo Markov Chains under three scenarios: without the waning of vaccine-induced immunity, with waning depending on time since vaccination, and with waning depending on time since vaccination, starting in 2000. Stochastic simulations were generated from the fitted parameter sets to evaluate which scenarios could replicate the transmission dynamics observed in vaccinated cases in England

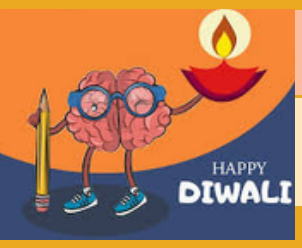
Results

The scenario without waning overestimated one-dose recipients among measles cases and underestimated two-dose recipients over 15 years old, with median cases of 75 (95% simulation interval [SI] 44–124) without waning versus 196 (95% SI 122–315) with waning. Observed cases numbered 202. Onward transmissions from vaccinated cases accounted for 83% (95% credible interval 72–91%) of those from unvaccinated cases. The estimated waning rate was slow at 0.039% per year (95% credible interval 0.034–0.044%), yet sufficient to elevate measles burden.

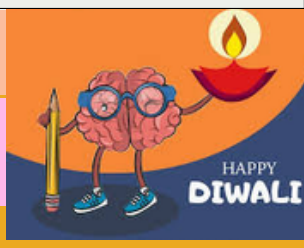
Conclusion

Measles case dynamics in England suggest waning vaccine-induced immunity contributes to outbreaks. Due to measles' high infectivity, slow waning increases cases among both vaccinated and unvaccinated individuals. Our findings indicate that while the vaccine remains effective for decades and most transmission occurs among unvaccinated people, breakthrough infections are becoming more common among those aged 15 and older who have received two doses.

Source: Robert A, Suffel AM, Kucharski AJ. Long-term waning of vaccine-induced immunity to measles in England: a mathematical modelling study. The Lancet Public Health. 2024 Oct 1;9(10):e766-75.

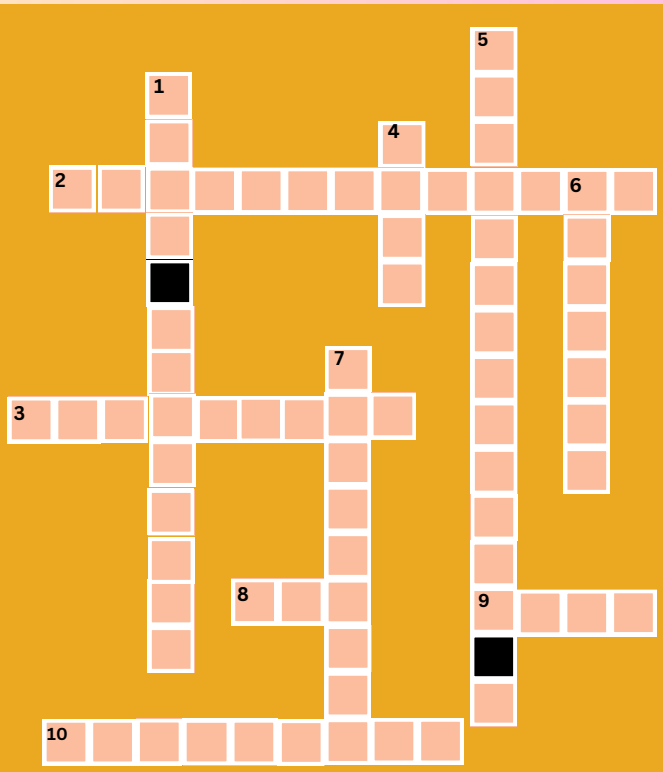


"FUN FRENZY ZONE:"



Immunization Brain Buster
CROSSWORD #3

SCAN ME



Across

2.The vaccine schedule for a premature infant is based on their _____ age.

3. The primary adjuvant used in the DTaP vaccine

8. Specific antibody type primarily involved in response to mucosal vaccines.

9. MMR and Varicella vaccines are both _____ vaccines

10. Which type of vaccination failure occurs when a person's immunity to a vaccine wanes or is incomplete, allowing them to become infected with the disease despite being vaccinated

Down

1. Phenomenon where vaccination of a proportion of a population provides protection to unvaccinated individuals

4. Minimum gap in weeks required between MMR and Yellow Fever vaccines.

5. First vaccine known to be developed using reverse vaccinology techniques

6. _____ testing is able to separate primary from secondary vaccine failures

7. First country to introduce the HPV vaccine into its national program

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

Scan the QR code or Email the answers to aefitechnicalcentre.mamc2021@gmail.com by 30th November 2024. The names of the winners will be given in the next issue along with answer key.

Winner for Crossword #2

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

Dr Heena, Senior Resident, Department of Community Medicine, MAMC

Answer Key Crossword #2

1. Polyvalent
2. Across: Cholera
2. Down: Yellow Fever
3. Twice
4. Chennai
5. Direct
6. Autogenous
7.Uromune
8.Nominal
9. Edmonston