

Ready Reckoner in Medicine



Editors-in-Chief
KK Pareek
Girish Mathur

Editor
Ashutosh Chaturvedi



Anand P Ambali

INTRODUCTION

Over the last 50 years, essential vaccines have saved at least 154 million lives. That is six lives a minute, every day, for five decades. This remarkable success is a testament to the power of vaccines and should reassure us that we can continue to make strides in disease prevention.

Vaccines protect against more than 30 life-threatening diseases across all ages, a fact that underscores their broad and significant impact on public health. This knowledge empowers us to make informed decisions about our health and the health of our communities. Vaccines are recommended for all.

An increase in noncommunicable diseases among the adult population makes them prone to infectious diseases. The older adults are now traveling overseas, undergoing various surgical interventions like replacement and transplant surgeries, which makes them prone to contracting infections that can be easily prevented. The coverage of immunization is also extended to healthcare workers and long-term care providers as well. The new vaccines and new indications keep adding. The recent new indication is the use of the zoster vaccine in patients before receiving immunoglobulins or biologicals.

Recently, a vaccine against malaria was launched, and it is recommended only for children. The Government of India has rolled

out a campaign against cervical cancer by making the Human Papillomavirus vaccine available at a low cost. Vaccines, so far have helped to eradicate smallpox, polio and measles worldwide and will help humankind to live healthy and long lives.

TYPES OF IMMUNIZATION

1. Active immunization is a process that stimulates the body's immune system to produce its own antibodies against a specific pathogen.
2. Passive immunization is when a person is given pre-formed antibodies to provide immediate but temporary protection against a pathogen.

TYPES OF VACCINES

1. Live attenuated vaccine—influenza, Measles Mumps Rubella (MMR), Yellow fever, Chickenpox, and Japanese encephalitis
2. Inactivated vaccine—hepatitis A, rabies, and injectable polio.
3. *Acellular vaccines:*
 - a. Toxoid vaccine—diphtheria and tetanus.
 - b. Split vaccine—influenza vaccine
 - c. Protein subunit and conjugate vaccine (hepatitis B, Human Papilloma Virus, pneumococcal (PCV), meningococcal and shingles).

4. Recombinant vaccines (mRNA and pDNA)—COVID-19
5. Viral vector vaccines—COVID-19

ADULT IMMUNIZATION SCHEDULE

This schedule is proposed by the World Health Organization, the Center for Disease Control and Prevention, the Association of Physicians of India, the Geriatric Society of India, the Indian Academy of Geriatrics, the Indian Medical Association and the Federation of Obstetric and Gynecological Societies of India (Table 1).

BARRIERS TO LOW TURNOUT AMONG THE ADULT POPULATION

- Misinformation regarding vaccine safety
- Less awareness among clinicians
- High cost of a vaccine
- Availability
- Not included in reimbursement and insurance
- Doubts in the minds of the public about the efficacy and safety of the vaccines used for adults
- Very few vaccines are included in the national program.

ROUTE OF ADMINISTRATION

Most of the vaccines are administered intramuscularly, a few subcutaneously and orally, and one intranasal.

The recently launched live attenuated influenza vaccine is administered intranasal for people in the age group between 5 and 49 years only.

SPECIAL SITUATIONS

- During pregnancy, live vaccines are not recommended (varicella, MMR)
- *Travelers and visit to pilgrimage:*

Many countries have also released a list of mandatory vaccines before entering their countries. Common vaccines

recommended are against Hepatitis A and B, typhoid fever, yellow fever, meningococcal meningitis and influenza.

The organizers of mass gatherings are now releasing the list of vaccines that are mandatory before attending the Kumbh-mela and Hajj pilgrimage.

CONTRAINDICATIONS

- All live vaccines are contraindicated in pregnancy, and in human deficiency virus-positive cases.
- Avoid administration during acute illness
- History of Guillain-Barré syndrome within 6 months after previous administration of vaccine

ADVERSE REACTIONS

The adverse effects are mild and do not occur in all recipients. The adverse reactions can be local, systemic and allergic.

Vaccine Adverse Event Reporting System (VAERS) is a system where anyone can report an adverse event to a vaccine. (<https://vaers.hhs.gov>)

World Immunization Week is observed from April 24 to 30 every year to create awareness and promote vaccination across all age groups. The theme for the year 2025 is 'Immunization for All is Humanly Possible'.

GOOD PRACTICES

All the retired Indian army personnel get vaccines in their respective hospitals regularly.

The religious events like Hajj and Kumbha-mela have made it mandatory for all the pilgrims to get certain vaccines.

NEWER VACCINES IN THE LINE

Pneumococcal Conjugate Vaccine 20 is now recommended for single use, replacing PCV 13 and PPSV 23. Vaccines for Mpox, Nipah virus, Ebola and Zika virus are in line.

TABLE 1: Recommended Adult Immunization Schedule as per WHO, CDC, and National Medical Associations.

No.	Name of the vaccine	Dose(s)	Route	Priority	Booster
1.	Human Papillomavirus Vaccine	Three 0, 1 and 6 months	Intramuscular	11 to 26 in females and 13 to 21 years in males	NA
2.	Varicella	Two doses 4 to 8 weeks apart	Subcutaneous	NA	NA
3.	Cholera	One	Oral	Before traveling to endemic areas	NA
4.	Tetanus, Diphtheria (TD) Or tetanus, Diphtheria Pertussis (TDAP)	Three 0, 1 and 6 months	Intramuscular	Tdap if no history of receiving pertussis in past followed by TD	Once in ten years
5.	Hepatitis A	Two 0 and up to 18 months	Intramuscular	Endemic areas	NA
6.	Hepatitis B	Three 0, 1 and 3 or 6 months	Intramuscular	Hemodialysis	NA
7.	Influenza	Once in a year	Intramuscular/ intranasal: Intranasal should not be used in patients above 60 years of age	All older adults above 60 years	Every year
8.	Rabies	Five doses of the vaccine are administered on days 0, 3, 7, 14, and 28	Intramuscular: Deltoid region	Post-exposure prophylaxis	NA
9.	Pneumococcal vaccines are PCV 13, PCV 20 and PPSV 23 Pneumococcal polysaccharide vaccine (PPSV) in for older adults	One dose PCV should be given first, followed by PPSV after 8 weeks gap and or up to 1 year	Intramuscular	<ul style="list-style-type: none"> • Immunocompromised state • Cerebrospinal fluid leak • Cochlear implant • Two weeks before immunosuppressive therapy and planned splenectomy 	PPSV 23 is recommended once in five years after 60 years with comorbidities
10.	Zoster	Two 0 and 6 months	Intramuscular	Above 60 years	NA
11.	MMR	One	Subcutaneous: Deltoid region	All adults with no contraindications	NA
12.	Meningococcal	Two doses, two months apart	Intramuscular	Travel to endemic areas, patient receiving complement inhibitor	After 5 years if person is at continued risk
13.	Typhoid	Oral capsule alternate day for four doses	Oral and injectable are available	Advised 2 weeks before travel	After five years

CONCLUSION

Adult immunizations help maintain a healthy workforce, create herd immunity and prevent disease outbreaks in the community.

Raising awareness among healthcare providers and ensuring all their family members get immunized first, then community will take a long way towards enhanced immunization coverage across our country.

SUGGESTED READINGS

1. https://www.who.int/health-topics/vaccines-and-immunization#tab=tab_1
2. <https://www.cdc.gov/vaccines/index.html>
3. Indian Consensus Guideline on Adult Immunization <https://apiindia.org/reader/IndianConsensusGuidelineonAdultImmunization>
4. https://www.geriatricindia.in/indian_vaccination_guidelines.html

Ready Reckoner in Medicine

Salient Features

- This book "*Ready Reckoner in Medicine*" is designed and published with the aim to serve as a quick-reference guide in Internal Medicine, enabling healthcare professionals to make timely, evidence-based clinical decisions in routine and emergency practice.
- It is a concise, point-of-care ready reckoner covering essential topics in internal medicine in a quick-reference format with high-yield facts, algorithms, and tables for rapid decision-making.
- The book is designed for bedside use, OPD, emergency rooms, and exam revision with emphasis on diagnostic clues, differential diagnoses, and first-line management making it ideal to use for busy clinicians, postgraduates, interns, and final-year medical students.
- Contributors of the book are reputed experts of their respective fields with great academic and clinical acumen.

KK Pareek MD FICP FIAM FACP FRCP(Glasgow, Edinburg, London) FCSI FRSSDI is a Senior Consultant in Medicine, Head, Department of Medicine, and Director, SN Pareek Memorial Hospital (a multispecialty 100-bedded hospital), Kota, Rajasthan, India. He is President, Clinical Cardio-Diabetology Society of India; past President, Association of Physicians of India (API); past President, Indian Association of Clinical Medicine; Founder Chairman, RSSDI-Rajasthan Chapter; past Dean, Indian College of Physicians (ICP); past Honorary Secretary API, Rajasthan Chapter; past Chairman, API Rajasthan Chapter; and Organizing Chairman APICON 2022, Jaipur. His areas of interest are diabetes, infectious disease, and tropical medicine. He is the Chief Editor of *Medicine Update*, Volumes 1 and 2 (2019), *Progress in Medicine* (2016), and *Interesting Clinical Cases in Medicine* (2022). He was the Editor of Monograph on *Pyrexia of Unknown Origin*. He has published numerous articles in *Textbook of Medicine* and delivered guest lectures in CMEs and national conferences for the last 35 years. He is a very popular physician in Rajasthan and has been instrumental in starting and progression of API in this region.

Girish Mathur MD(Medicine) FICP FACP FIACM FRCP(Glasgow, London, Edinburg), Fellow, Diabetes India, FRSSDI is a Senior Consultant in Medicine at Kota, Rajasthan, India. His areas of interest are diabetes, cardiology, infectious diseases, and tropical medicine. He is the Dean, Indian College of Physicians; past President, Association of Physicians of India (2023); past Chairman, RSSDI Rajasthan Chapter; past Vice Dean, Indian College of Physicians; past Vice President, Association of Physicians of India (2015–2018); past Governing Body Member, Association of Physicians of India (2009–2012, 2012–2015); Co-organizing Chairman APICON 2022; Co-Chair Scientific Committee APICON 2019; and Member, National Governing Council of Indian Forum for adult immunization. He is an Associate Editor of *Journal of Association of Physicians of India (JAPI)*, Chief Editor of *Medicine Update 2023*, and Editor of Monograph on *Pyrexia of Unknown Origin*, *Medicine Update*, Volumes 1 and 2 (2019), *Progress in Medicine*, and *Medicine Update*, Volumes 1 and 2 (2016). He is member of the Editorial Board of *Medicine Update*, Volumes 1 and 2 (2013, 2014, and 2015), *Journal of Indian Academy of Clinical Medicine*, and *Indian Journal of Medical Specialization*. He has presented many papers in international and national journals, given guest lectures, and chaired many sessions in state and national conferences. He is admired for his significant contribution in the strengthening and progress of API.

Shelving Recommendation
MEDICINE

ISBN 978-93-7202-734-1



Buy from eJaypee



JAYPEE
BROTHERS