

LIFE COURSE APPROACH TO IMMUNIZATION

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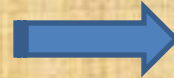
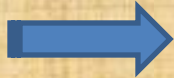
Consultant Internal Medicine

National Professor Geriatrics

Editor – Geriatric Care In India

Chief Editor – A Guide to Elderly Care (*WHO Publication*)

LIFE COURSE



VACCINATION-IMMUNIZATION

- Edward Jenner – 1798 – Smallpox



ADDITIONS

- BCG, Hep B, Polio, DTP, Hib, Pneumococcal, Rotavirus, Measles, MMR, Varicella, Hep A, Tdap, Tetanus, Typhoid, Influenza, Meningococcal & Cholera

Consensus Recommendations on Immunization and IAP Immunization Timetable 2012

IMMUNIZATION

- Elevates immune status
- Prevents Disease
- Reduces severity
- Reduces Morbidity
- Reduces Mortality

Infection

Accelerates Atherosclerosis(old age)

Accelerates Ageing(old age)

VACCINATIONS

Childhood Vaccinations

1. Have reduced diseases ,morbidity & mortality
2. Affect the health in adolescence, adults & elderly.
3. Reduced cross generation infections.

4.Increased the life span

Adult Vaccinations

1. Have reduced Diseases ,mortality & morbidity.
2. Affect the health in adults & elderly.
3. Reduced cross generation infections.
- 4. Increased the life span**

EFFECTS



Disease Burden
Hospitalization



working hours
Longevity

AGEING

Ageing is a Progressive, Generalized impairment of function resulting in loss of adaptive response to stress and in increasing risk of age related diseases

Dr. O. P. Sharma

Geriatric Care in India – 1999.

INTRODUCTION

- Older people are more prone to infections than younger people
 - Microorganisms are getting drug resistant to antibiotics rapidly.
 - In spite of best of antibiotics & support systems in ICUs mortality continues.
 - Prevention via effective vaccines is an important approach to reduce the burden of infections. (Loss of working hours, ↑ Bed Occupancy ↑ Morbidity
↑ Mortality)
- There is an emphasis on childhood vaccination.
 - There is an emphasis on Adult vaccination

➤ **Should it be “Life Course Approach to Immunization”**

Journal of Pharmacy Practice and Research 2012; 42(4): 316- 322

In rural India, infectious diseases were found to be the 3rd leading cause of death in the elderly*

*Indian Journal Of Gerontology 2012;26(4): 441- 584

Health care Infrastructure Grossly Inadequate

Vaccination In Elderly – The Strong Need In India

USA Dr. IGNATZ NASCHER 1909

UK Dr. MARJORIE WARREN 1930

India ??????

? WHO,

? Govt. of India,

? State Governments,

? NGO's,

? Individuals

INDO – UK Workshop

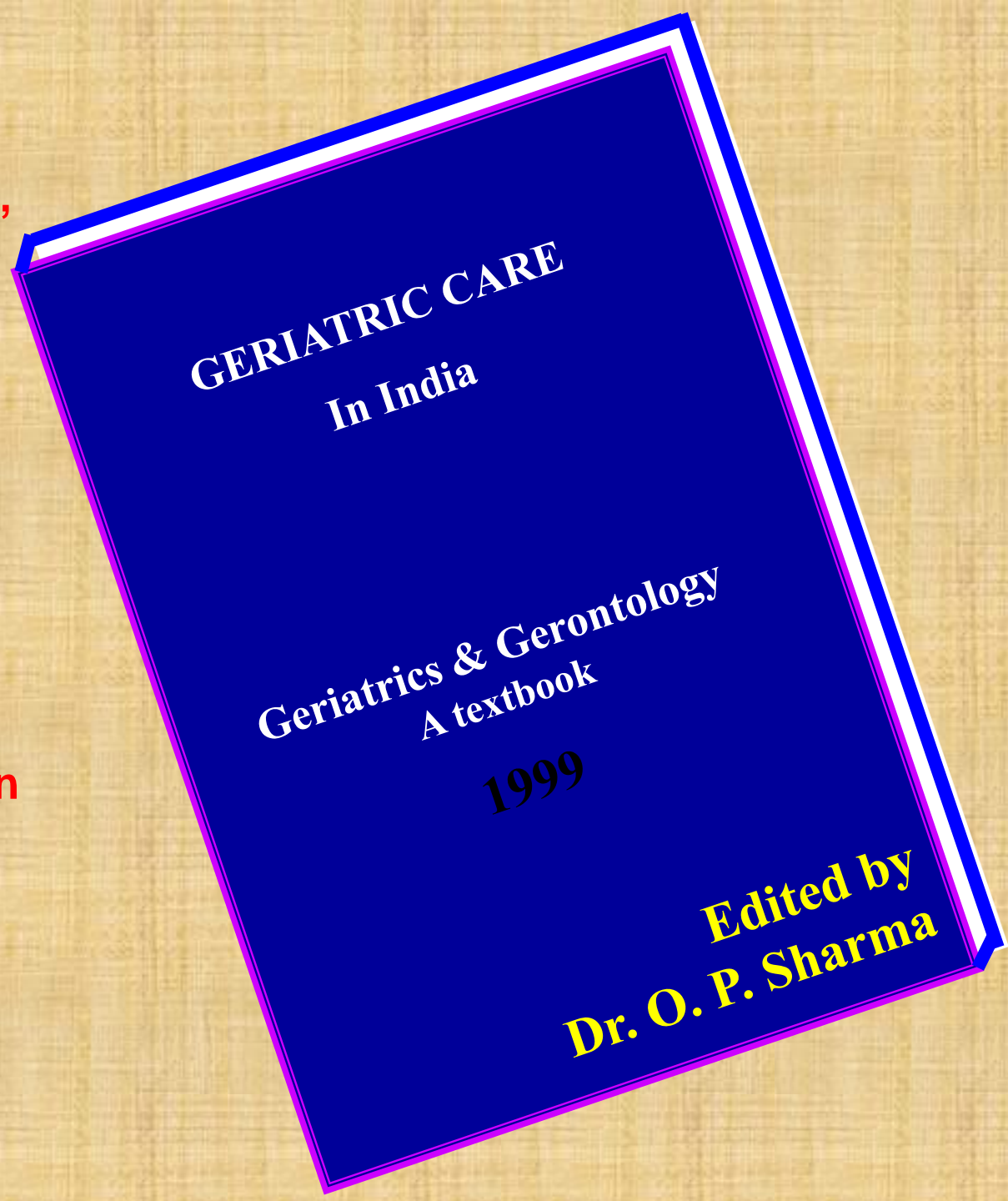
1995

Min. of Health

Revival of

Joint Family System

- ➡ **International Conference on Geriatrics – 1999, 2002, 2004, 2006, 2008. 2010, 2012, 2013**
- ➡ **INDO-US Conference on Geriatrics – 2001**
- ➡ **CME Leh - 2000**
- ➡ **International Conference on Geriatrics – 1999**
- ➡ **National Conference on Geriatrics – 1998**
- ➡ **Orations & Awards - 7**



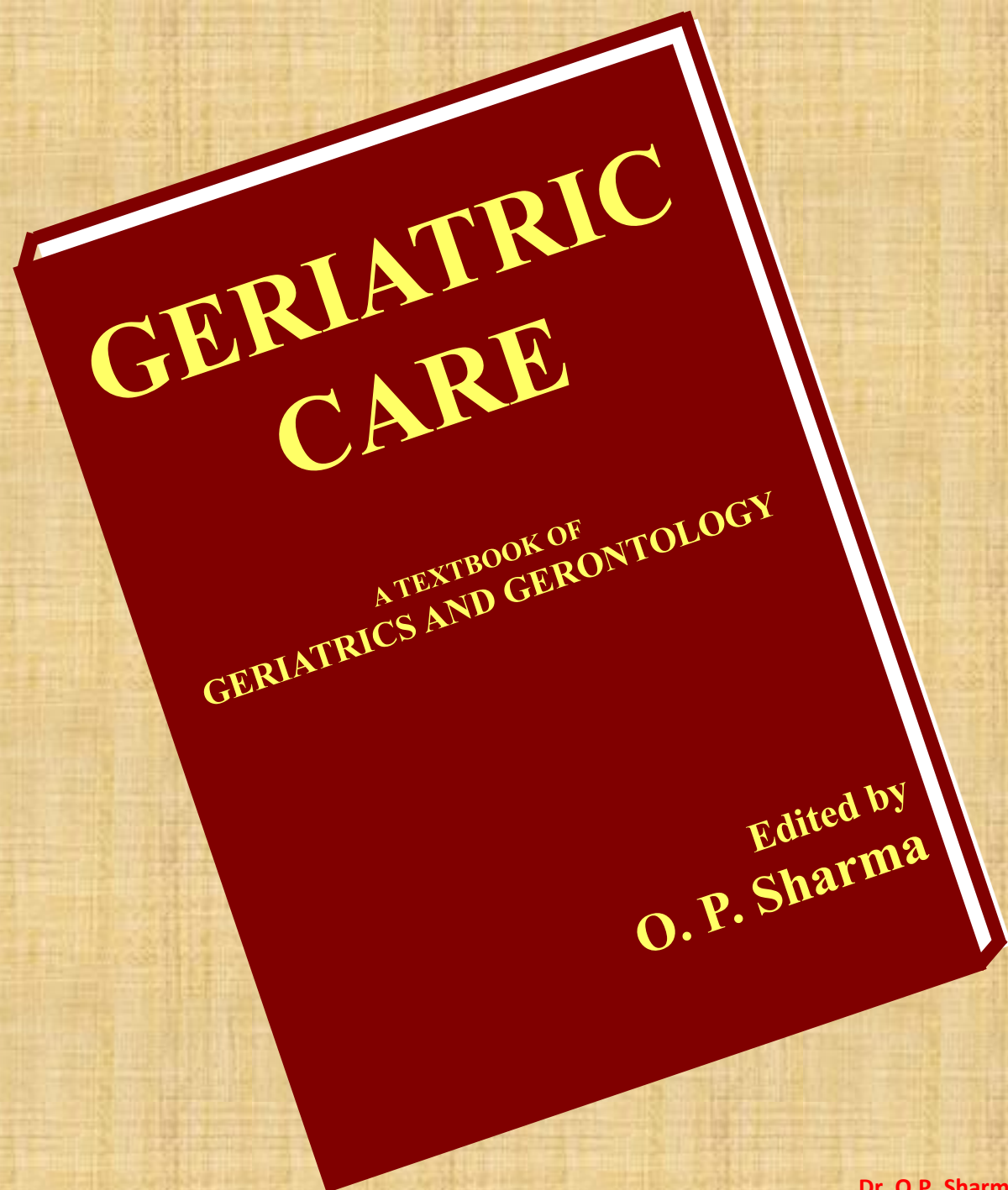
LEARNING MATERIAL

2004

**Textbook on
Geriatrics**

Chapters : 85

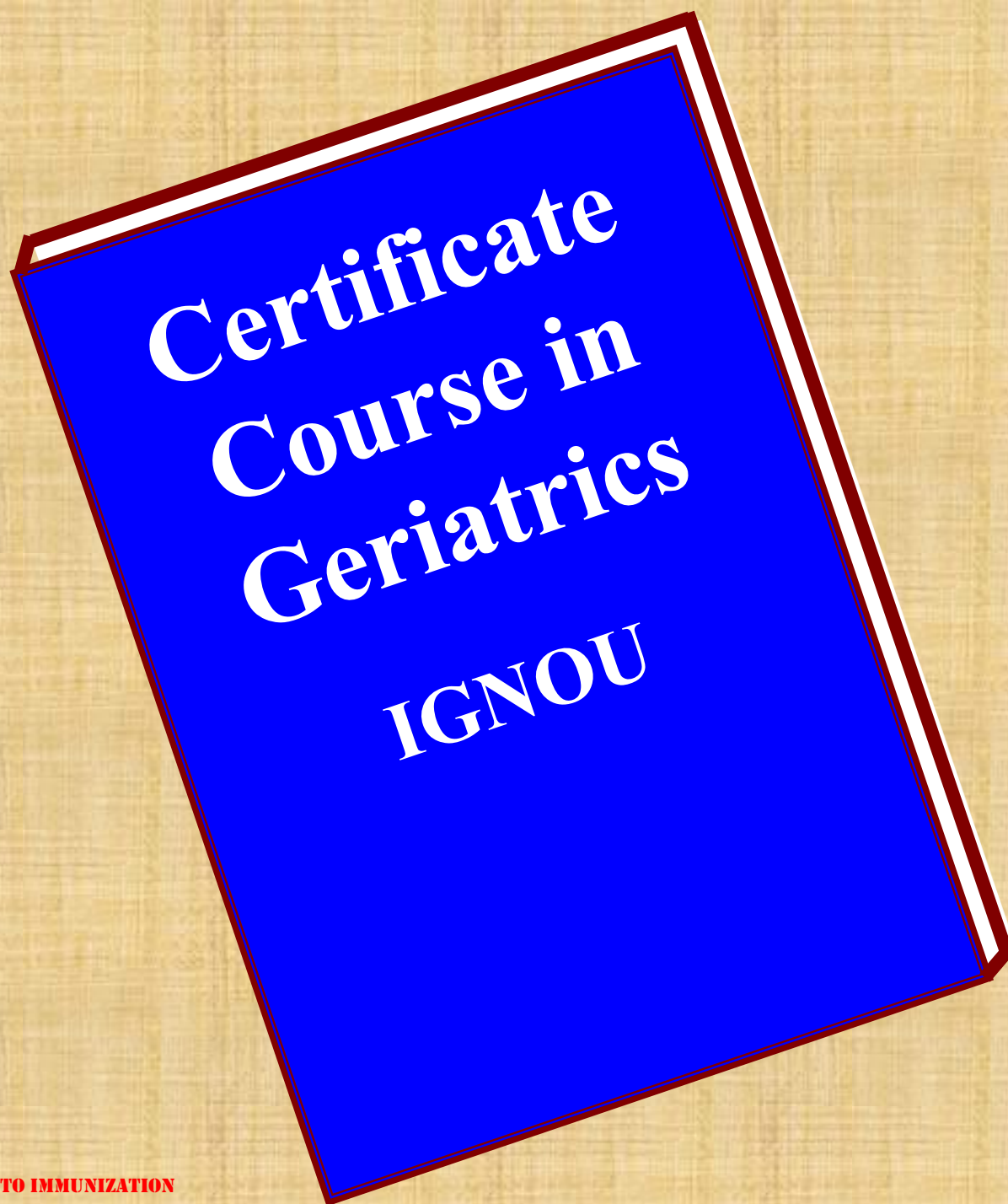
Pages : 700



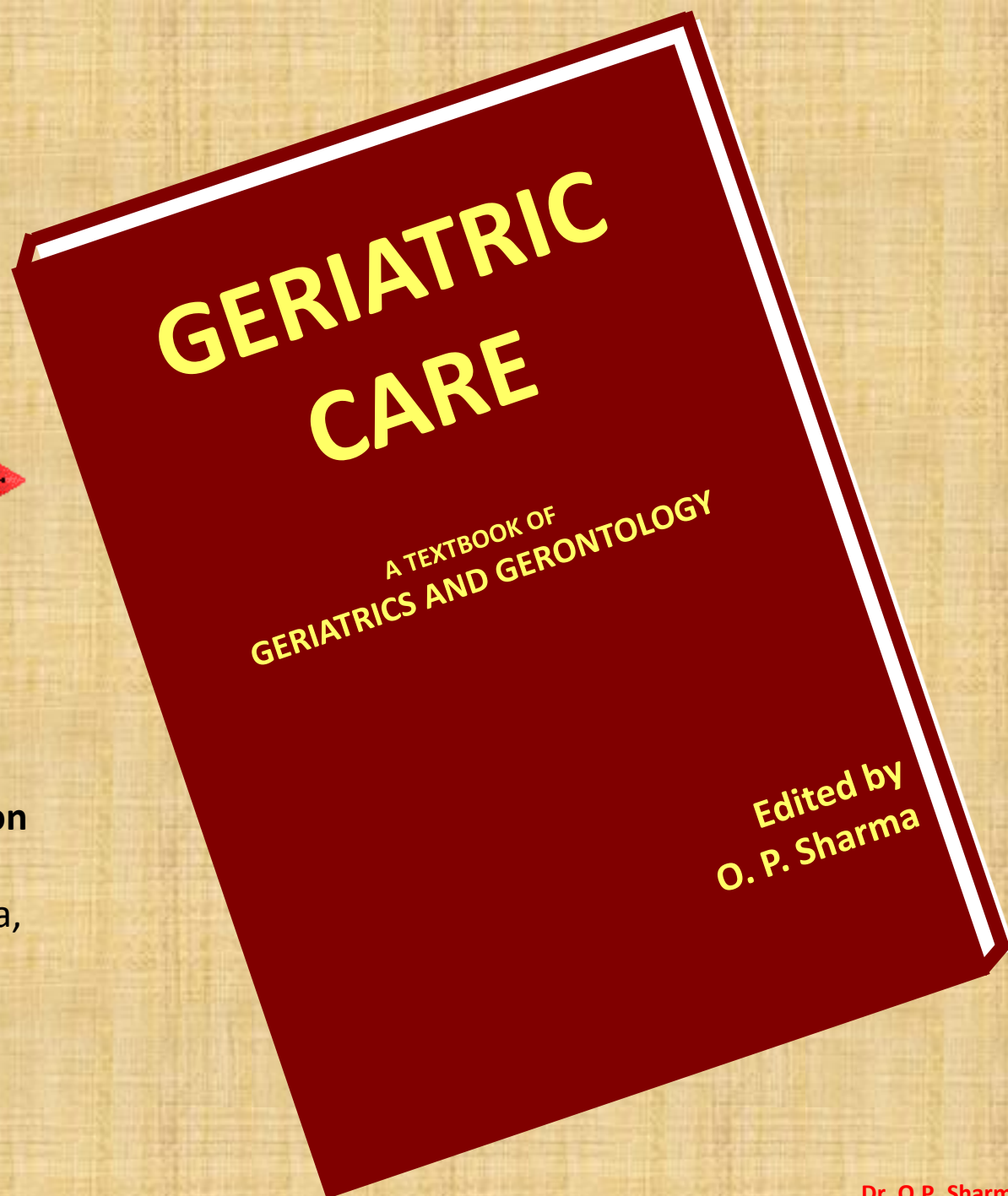
**P G
Certificate
Course in
Geriatrics**

**IMA AKN SINHA
INSTITUTE**

**Edited by
O. P. Sharma**



**YEAR
2008**



Textbook on Geriatrics

- ***Chapters : 94***
- ***Pages : 800***
- **Chapter No. : 88 Vaccination**
Page No. 703-709
 - by Dr. Ashish Sharma,
 - Dr. Mohit Sharma

THE AUSTRALIA AND NEW ZEALAND SOCIETY FOR GERIATRIC MEDICINE HAS REVIEWED THEIR POSITION PAPERS ON IMMUNIZATION OF OLDER ADULTS AND HAS MADE THE FOLLOWING RECOMMENDATIONS



Influenza:

- ✓ Yearly with the current vaccine for everyone over 64 years; Aboriginal and Torres Strait Islander people over 15 years; all residents of aged-care facilities; and healthcare providers and staff of aged-care facilities.
 - ✓ Regular, repeated influenza vaccination may be more effective than first-time vaccination.
- New vaccines and augmentation (e.g. micronutrient supplementation in undernourished older people) need to be considered.

Pneumococcal:

- ✓ Vaccination with the 23-valent polysaccharide vaccine for unvaccinated people aged over 64 years.
- ✓ Revaccination should be considered once after 5 to 6 years but not before 3 years and repeated no more than two times (i.e. 3 doses in total).
- ✓ The role of PCV13 in older people is yet to be defined.

Aboriginal and Torres Strait Islander people should be vaccinated if over 49 years.

Herpes zoster:

- A single vaccine with the current live attenuated Oka/Merck strain for those aged over 60 years who have not received zoster vaccine, whether or not they report a prior episode of shingles.

The role of revaccination is not yet defined and efficacy after age 80 years is unclear.

Tetanus:

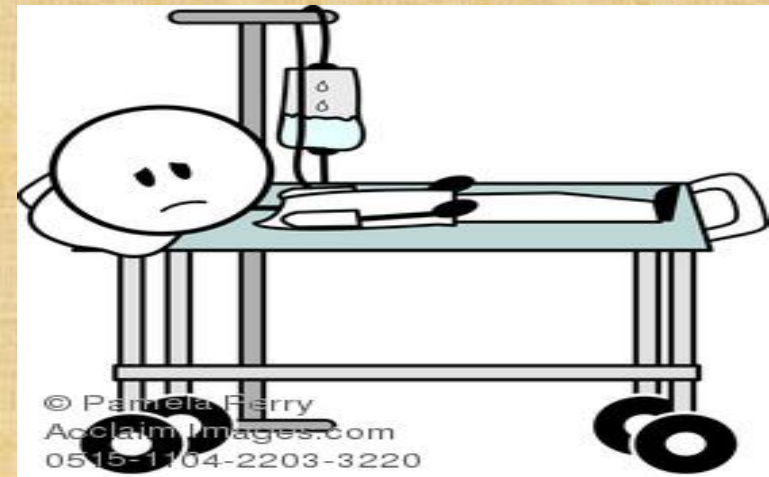
- Previously unvaccinated people should have a primary course of two doses 1 to 2 months apart, followed by a third dose in 6 to 12 months.
- If there is any uncertainty about primary vaccination, this should be repeated.
- Vaccination with tetanus toxoid, combined with diphtheria toxoid, should be maintained with 10-yearly boosters, except in those who have received five doses of tetanus-containing vaccine

DTaP

PNEUMOCOCCAL VACCINE - THE NEED IS SO STRONG IN GERIATRIC GROUP

Higher Hospital Stay:

- Nearly all are admitted to hospital, with mean duration of hospital stay rising with age:
 - 6 days for those under 65 years
 - 13 days for those over 65 years.



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Increase vaccine utilization:

- Various methods can be adopted to improve vaccine use in older people.
- High-risk older populations should be targeted, such as those with
 - CAD, Chronic Respiratory disease
 - Diabetes and Malignancy
 - **Vaccinating staff caring for older people:**
- Staff in regular contact with older hospital patients or residents of aged-care facilities need to be vaccinated annually against influenza.
- Healthcare workers should be vaccinated against hepatitis A and those in contact with blood should also be vaccinated against hepatitis B

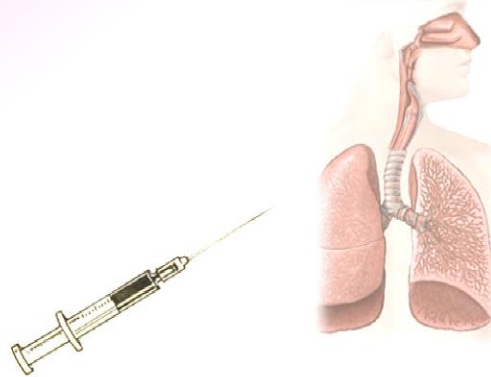
**•Strategies to reach these and
➤ Disease-specific pamphlets**



ELDERLY DIABETICS – THE GROWING BURDEN IN INDIA

- **Diabetes in the elderly** is emerging as one of the most important public health problems of the 21st century
- In developing countries, the majority of people with diabetes are in the age range of **45-64 years**

Guidelines for the use of Pneumococcal Polysaccharide Vaccine in India



A Guide for
Geriatricians, Chest Physicians, Internists, Family Physicians

2008



Edited by
Dr. O.P. Sharma

RECOMMENDATIONS

- Prevention of pneumonia may be possible by administering PPV vaccine.
- It is recommended to use Pneumococcal Polysaccharide Vaccine (PPV)
- to all eligible persons in the following groups:
 - 1. Persons aged 50 years and above
 - 2. Persons with certain underlying medical conditions such as coronary artery disease, congestive heart failure, cardiomyopathy, diabetes mellitus, chronic obstructive pulmonary disease, cirrhosis of liver, and chronic renal failure
 - 3. Immuno-compromised persons who are at high risk for Pneumococcal infections, such as immunoglobulin deficiency, human immunodeficiency virus (HIV) infection, leukaemia, lymphoma, multiple myeloma, Hodgkin's disease, non-Hodgkin's lymphoma, disseminated malignancy,

- 4. who exhibit either a decreased responsiveness to polysaccharide antigens
- or a greater decline in serum antibody concentrations
- Persons with organ or bone marrow transplantation
- 5. Persons receiving long term therapy with corticosteroids, and
- immunosuppressive agents
- 6. Persons who have undergone splenectomy, or exhibit anatomic asplenia,
- or sickle cell disease as they exhibit reduced clearance of encapsulated
- bacteria from the blood stream.
- 7. Chronic smokers
- 8. Persons suffering from sleep disorders
- 9. Persons who are prone to nocturnal aspirations.

CONCOMITANT VACCINATION

- Concomitant vaccination with Influenza vaccine can be done (by separate
- injection in the other arm) without an increase in side effect or decreased
- antibody response to either vaccine. The vaccine can be administered with
- combined diphtheria, tetanus, and pertussis (DTP) or other vaccines like
- polio. No increase in severity of reactions nor a decrease in antibody response
- is noted.⁴²

SPECIAL GROUPS

- Irrespective of age groups, the patients suffering from the following
- diseases/ reasons for morbidity are also advised polysaccharide
- pneumococcal vaccine as per our guidelines.

PATIENTS SUFFERING FROM DIABETES

- Immunisation against influenza and pneumococcal disease is an important
- part of preventive service in diabetic care. Pneumococcal vaccine has to be
- given once while influenza vaccine is given annually.⁴³

Diabetic Care 2003

PATIENTS SUFFERING FROM CHRONIC RENAL FAILURE

- A single dose of 0.5ml of 23 valent pneumococcal polysaccharide vaccine
- administered intramuscularly or subcutaneously on all patients undergoing
- dialysis above the age of 2 years and in elderly is helpful in preventing
- pneumococcal infections.⁴⁴

Indian J Nephrol 2005

CIGARETTE SMOKERS

- Cigarette smoking is the strongest independent factor for invasive
- pneumococcal disease among immunocompetent non elderly adults.⁴⁵

Indian J Pharmacol 2006

PATIENTS SUFFERING FROM CAD, CARDIOMYOPATHY AND CARDIAC FAILURE

- Patients with cardiac failure of various aetiology had higher incidence of
- pneumococcal infections.²

PATIENTS SUFFERING FROM CHRONIC LIVER DISEASE

- Patients with chronic liver disease had higher incidence of morbidity due
- to pneumococcal infections and the use of polysaccharide pneumococcal
- vaccine proved beneficial for them.²

MMWR 1997

PATIENTS SUFFERING FROM SLEEP DISORDERS

- Patient suffering from sleep disordered breathing or have higher risk of
- respiratory infections.³³

PATIENTS PRONE TO NOCTURNAL ASPIRATIONS

- Laxity of gastroesophageal either due to ageing, disease or drugs promotes
- aspirations particularly in sleep.³³

ANCOLI 1991

RURAL ELDERLY

- Majority of the Indian rural elderly have poor access to healthcare delivery
- system. Smoking incidence among them is fairly high and so is the incidence
- of infections.¹⁴

Geriatric Care 2004



Indian Guidelines for Vaccination in Older Adults



Edited by
Dr. O.P. Sharma

PNEUMOCOCCAL VACCINE

PPSV 23 & PCV13

INFLUENZA VACCINE

- Annual vaccination against influenza is
- recommended for any adult who wants to reduce the
- risk of becoming ill with influenza.
- Vaccination is also recommended in :
 - • Persons aged >50 years.
 - • Women who will be pregnant during the influenza
- season.

INFLUENZA VACCINE

- Persons who have chronic pulmonary infection
- (including asthma); cardiovascular (except
- hypertension), renal, hepatic, hematological or
- metabolic disorders (including diabetes mellitus).
- • Persons who have immune suppression (including
- immune suppression caused by medications or by
- human immunodeficiency virus).

INFLUENZA VACCINE

- Persons who have any condition (e.g., cognitive
- dysfunction, spinal cord injuries, seizure disorders,
- or other neuromuscular disorders) that can
- compromise respiratory function or the handling
- of respiratory secretions or that can increase the
- risk for aspiration.
- • Residents of nursing homes and other chronic-care
- facilities.
- • Health-care personnel.

INFLUENZA VACCINE

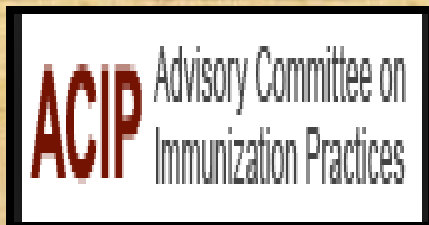
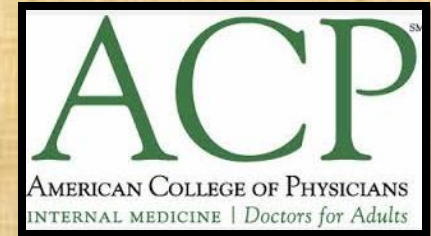
- House hold contacts and caregivers of children
- aged <5 years and adults aged >50 years, with
- particular emphasis on vaccinating contacts of
- children aged <6 months; and
- • House hold contacts and caregivers of persons with
- medical conditions that put them at high risk of
- catching influenza or developing severe
- complications.

TETANUS VACCINE

- Recommended Vaccination Schedules 17,23-25
- Tetanus vaccination is recommended in
- combination with diphtheria and pertussis vaccine.
- There is hardly any recommendation for the use of
- single agent tetanus vaccination in the US presently.
- Children
- DTaP (diphtheria and tetanus toxoids and acellular
- pertussis vaccine) is the vaccine of choice for children
- 6 weeks through 6 years of age. The recommended
- schedule is as under:

- ACIP has recommended Tdap booster dose for
 - All adolescents aged 11 through 18 years (preferred at 11 through 12 years).
 - For those adults aged 19 through 64 years who have not yet received a dose.
 - Unvaccinated adults aged 65 years and older if in close contact with an infant (October 2011).
- Tdap for all adults aged 65 years and older (February 2012).

WORLDWIDE RECOMMENDATIONS ON USE OF PNEUMOCOCCAL VACCINATION IN DIABETICS



CHALLENGES

- Ignorance – People
- Ignorance – Medical Fraternity
- Ignorance – Policy Planners
- Not being part of health facilities.
- Not being part of National programme.
- Not included for reimbursement.
- Not included for reimbursement by Insurance
- Multiple dosage schedules.
- Cost of vaccine.

OUR APPROACH

- Recommendations from world bodies
- (UN, WHO, IFA)
- Political will
- Country Data
- Federation of Senior Citizens
- Medical Association
- Organized Sector
- Insurance Sector
- CSR
- Lay Press – Electronic & Print

ADVOCACY

- UNICEF & WHO
- AGEING Conventions
- Government
- Scientific Departments
- Medical Associations
- Mass media

TAKE HOME MESSAGE

- Vaccines can prevent specific diseases
- Vaccines can reduce morbidity & mortality
- Vaccines can reduce hospitalization
- Vaccines can reduce loss of working hours
- Vaccines can reduce severity of co-morbid conditions (diabetes & cardiac)
- Vaccines can slow down atherosclerosis
- Vaccines can slow down ageing
- Vaccines promotes HEALTHY AGEING

WHOLE- LIFE APPROACH - CARD

- It would be ideal to develop a whole-of-life approach to vaccination, so that the current effective approaches for younger people can also be fully applied to those who are ageing



Journal of Pharmacy Practice and Research 2012; 42(4): 316- 322

THANK YOU



www.geriatricindia.com





CHALLENGES FOR VACCINATION IN THE ELDERLY

- **Aging changes innate immunity**
- **Immunosenescence affects the response to vaccines**
- **The challenges of immunity to infection in the elderly**
- **Vaccine-induced antibody responses wane rapidly in the elderly**

Immunity And Aging 2007; 4(9): 1 -9

WAY FORWARD

- Given the burden of infectious diseases amongst the elderly in India
- The ability to prevent them through vaccines, an immunization policy for the elderly should be considered.

Indian Journal Of Gerontology 2012;26(4): 441- 584

- Routine DTaP Primary vaccination schedule
- Dose Age Interval
- Primary 1 2 months — — -
- Primary 2 4 months 4 weeks
- Primary 3 6 months 4 weeks
- Primary 4 15-18 months 6 months

- Booster doses are recommended after the primary
- vaccination as under
 - • DTap at 4-6 years of age, before entering school
 - • Tdap at 11-12 years of age
 - • Td every 10 years thereafter
- Unvaccinated Adults
- For children older than 7 years and adults who
- have not received primary vaccination as above, the
- recommended tetanus vaccination schedule is as under:

PNEUMOCOCCAL VACCINE - THE NEED IS SO STRONG IN GERIATRIC GROUP

Higher Prevalence Of Pneumonia:

- In Victoria (Australia), the annual incidence of pneumococcal pneumonia and **bacteraemia rises exponentially after age 50 years, to nearly 200 per 100 000 by age 80 years.**
- Pneumonia accounted for 82% of diagnoses of those over 65 years with *Streptococcus pneumoniae*.

**International Conference on
Geriatrics & Gerontology-
1999,2002,2004,2006,**

2008,2010,2011,2012

Proceedings

CME - Leh - 2000

Proceedings

Newsletter IJGC

Guidelines

**INDO-US Conference
on Geriatrics - 2001**

Proceedings

**National Conference and
First Convocation on
Geriatrics**

Proceedings



<http://www.geriatricindia.com>

INFLUENZA VACCINE

- Children younger than 6 months of age (influenza vaccine is not approved for use in this age group).
- • People who have a moderate or severe illness with fever should wait to get vaccinated until their symptoms lessen.
- • People with a history of Guillain-Barré Syndrome (GBS) that occurred after receiving influenza vaccine and who are not at risk for severe illness from influenza should generally not receive vaccine.

PNEUMOCOCCAL VACCINE - THE NEED IS SO STRONG IN GERIATRIC GROUP

Strong Co-morbidity Associations

- Earlier data (unpublished) indicated that 83% of those over 60 years with pneumococcal blood or cerebrospinal fluid infection had a predisposing illness
 - Chronic respiratory disease 45%
 - Cardiovascular disease 34%
 - Malignancy 23%
 - Diabetes 18%

