PNPV e schedula anti-pneumococco

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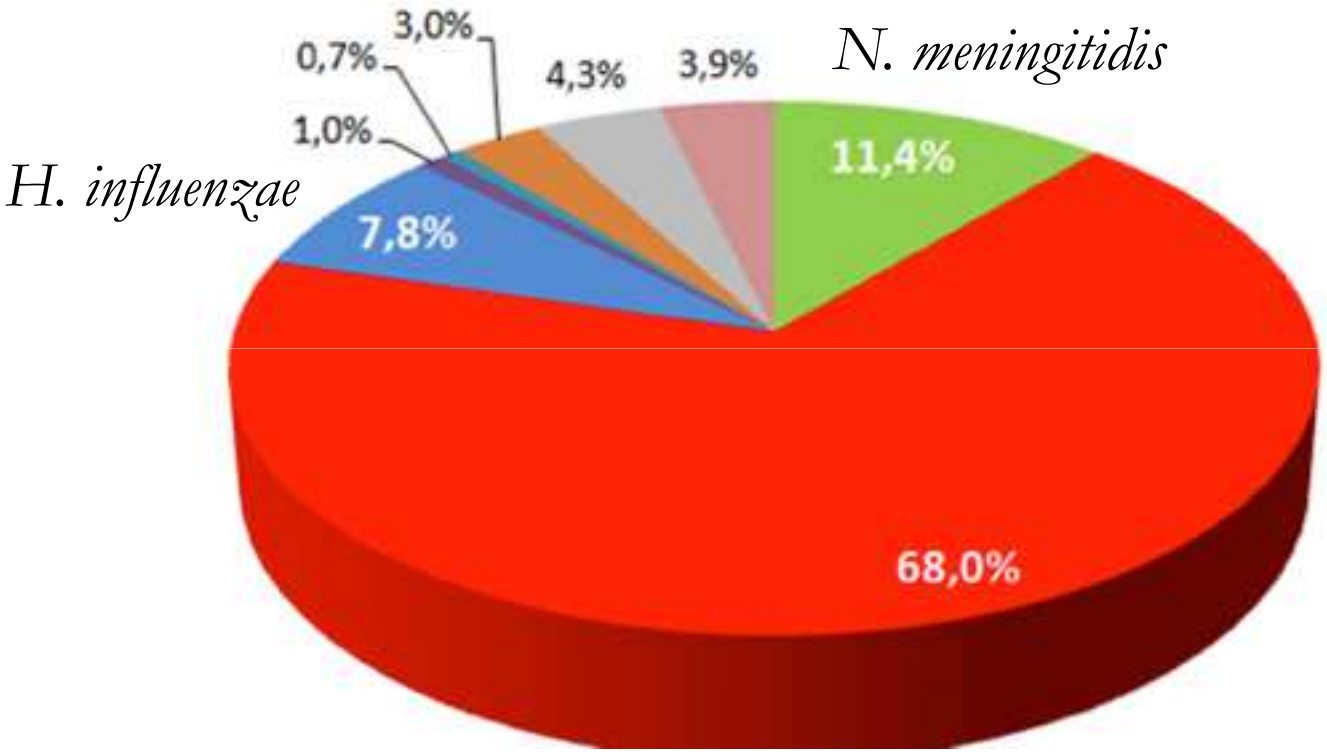
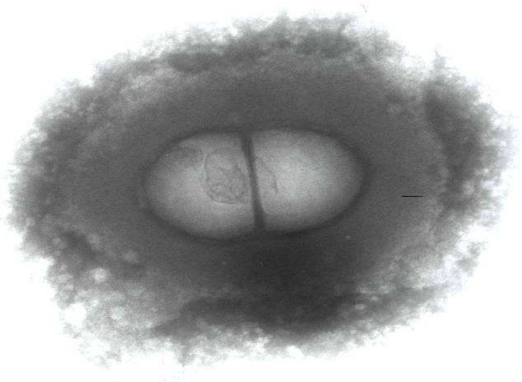
I declare that I do not have any competing interests

Invasive Bacterial Diseases



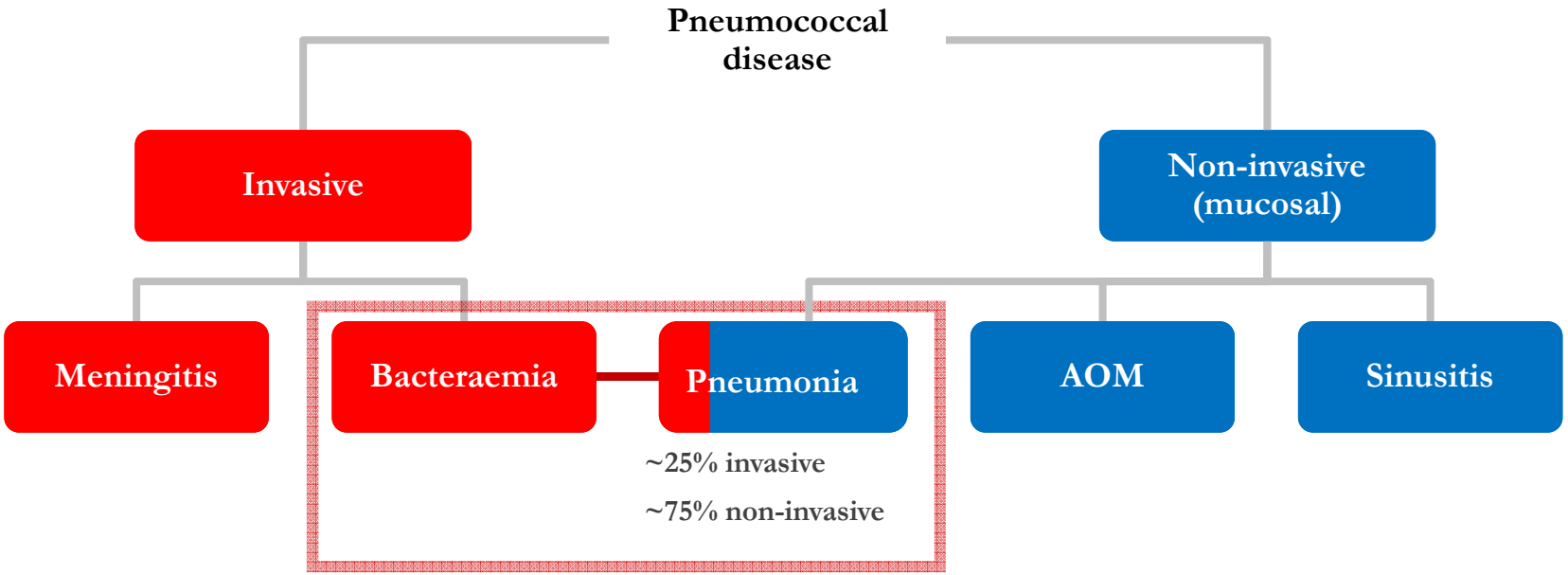
Streptococcus pneumoniae

- ✓ Naso-pharynx of adults (5-10%) and children (60%);
- ✓ Polysaccharide capsule is associated with serotypes →94;
- ✓ Serotype prevalence: differences by geography and age.



Martens P, et al. BMC Infect Dis. 2004
Black S, et al. Pediatr Infect Dis J. 2000
Robbins JB, et al. J Infec Dis. 1983

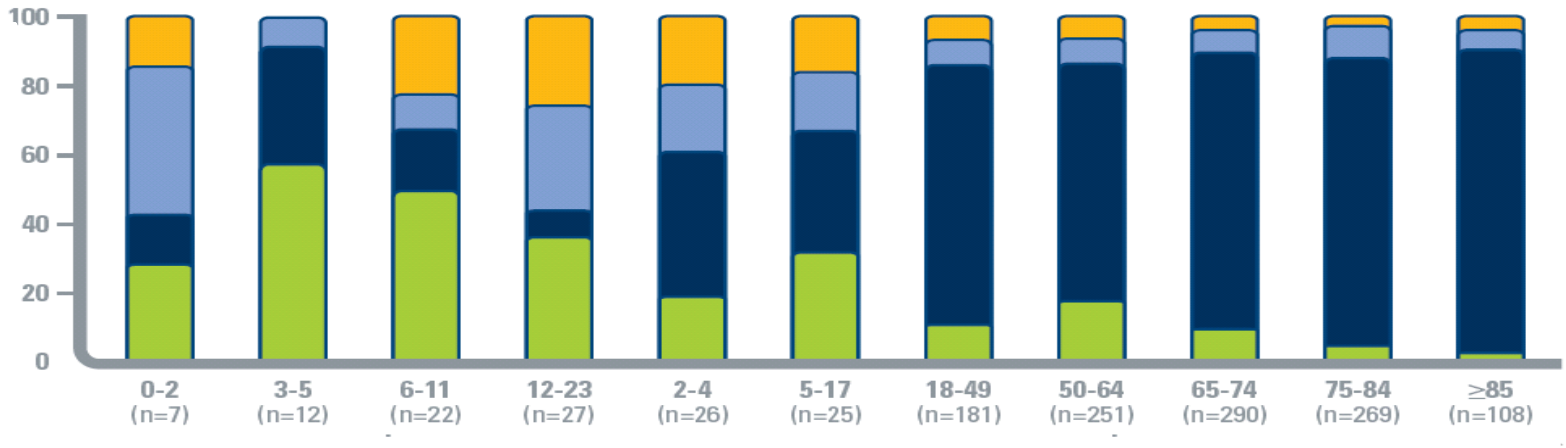
Pneumococcal Disease



Centers for Disease Control and Prevention. Epidemiology and Prevention of Vaccine-Preventable Diseases
Said MA et al. PLoS One, 2013

IPD

The Netherlands, 2004-2006

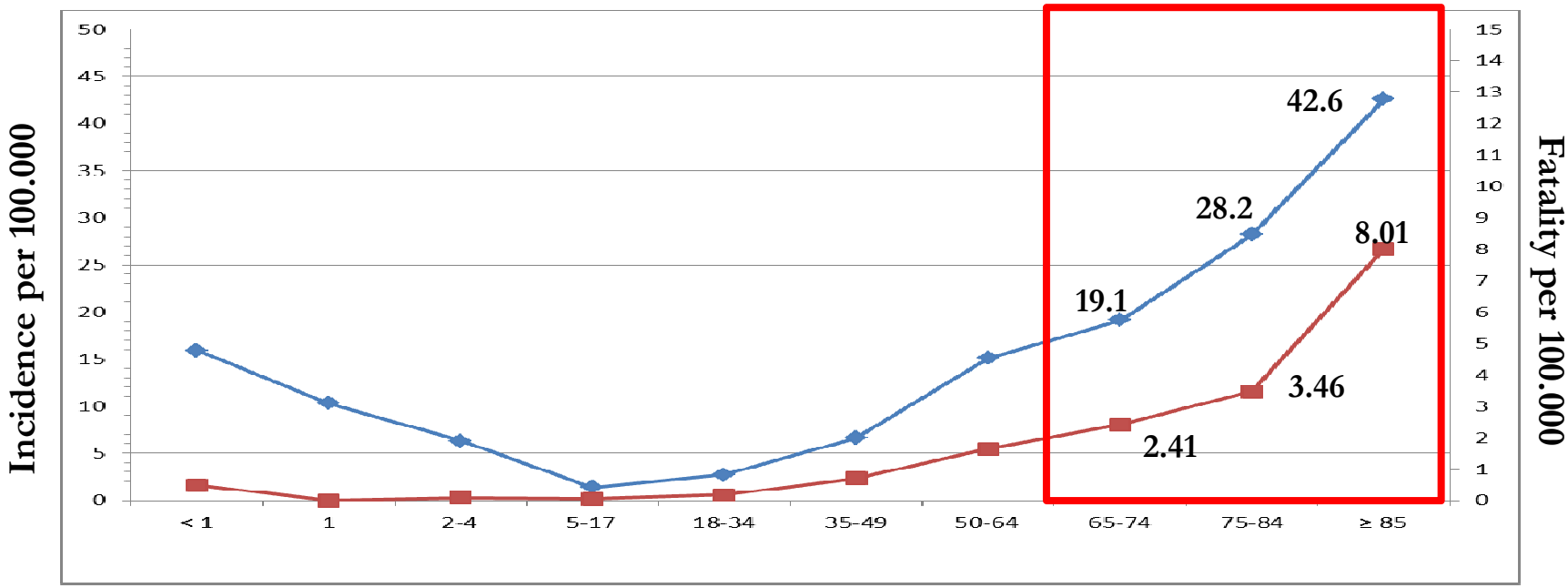


83% in ≥65 years

Invasive pneumonia

Jansen et al. Vaccine, 2009

IPD



Mahamat et al. Human Vaccine and Immunotherapeutics, 2013

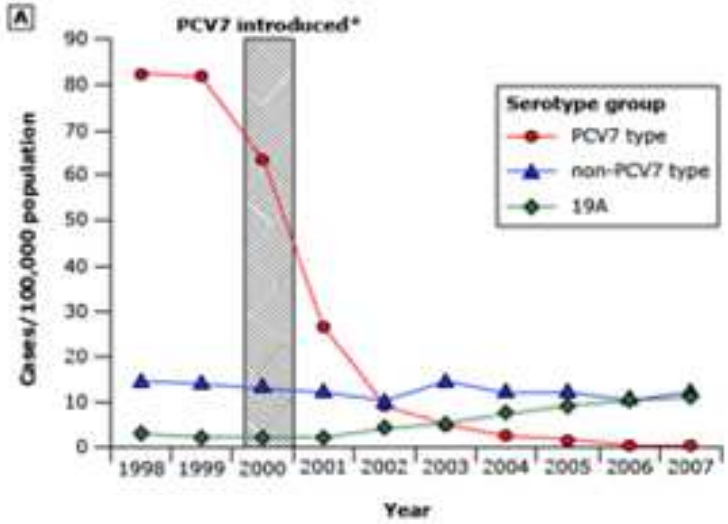
Pneumococcal Vaccine

Conjugate vaccines				Polysaccharide vaccine	
PCV7 (Prevnar 7)	PCV10* (Synflorix)	PCV13 (Prevnar 13)	PCV15¶	PPSV23 (Pneumovax 23)	
4	4	4	4	4	2
6B	6B	6B	6B	6B	8
9V	9V	9V	9V	9V	9N
14	14	14	14	14	10A
18C	18C	18C	18C	18C	11A
19F	19F	19F	19F	19F	12F
23F	23F	22F	22F	22F	15B
-	-	-	-	-	17F
-	1	1	1	1	20
-	5	5	5	5	22F
-	-	3	3	3	33F
-	7F	7F	7F	7F	-
-	-	19A	19A	19A	-
-	-	6A	6A	-	-
-	-	-	22F	-	-
-	-	-	33F	-	-

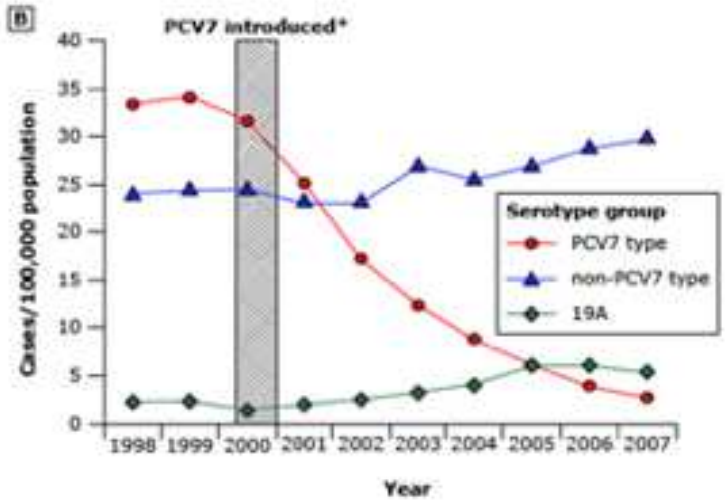
Pneumococcal Vaccine: Pros and Cons

	Polysaccharide vaccine	Conjugate polysaccharide vaccine
Stimulates antibodies in infants and toddlers	No	Yes
Stimulates antibodies in healthy adults	Yes	Yes
Stimulates antibodies in immunocompromised adults	+/-	+/-
Antibodies are long-lasting	+/-	+/-
Primes immunologically for enhanced responses	No	Possibly
Stimulates mucosal immunity, resulting in decreased colonization	No	Yes
Exhibits herd effect (secondary protection of unvaccinated individuals)	No	Yes
Use is associated with replacement strains	No	Yes

Pneumococcal Vaccine: Pros and Cons



Children



Adults

Pilishvili T et al. J Infect Dis, 2010

Rapid increase in non-vaccine serotypes causing invasive pneumococcal disease in England and Wales, 2000–17: a prospective national observational cohort study

Shamez N Ladhani, Sarah Collins, Abdelmajid Djennad, Carmen L Sheppard, Ray Borrow, Norman K Fry, Nicholas J Andrews, Elizabeth Miller, Mary E Ramsay

Findings In 2016/17, overall invasive pneumococcal disease incidence (9·87 cases per 100 000; 5450 cases) across all age groups was 37% lower (IRR 0·63, 95% CI 0·60–0·65) than pre-PCV7 incidence (14·79 per 100 000; 8167 cases) and 7% lower (0·93; 0·89–0·97) than pre-PCV13 incidence (10·13 per 100 000; 5595 cases). By 2016/17, PCV7-type invasive pneumococcal disease incidence across all age groups had decreased by 97% (0·24 per 100 000; 0·03, 0·02–0·04) compared with the pre-PCV7 period, whereas additional PCV13-type invasive pneumococcal disease decreased by 64% (1·66 per 100 000; 0·36, 0·32–0·40) since the introduction of PCV13. Invasive pneumococcal disease incidence due to non-PCV13 serotypes doubled (7·97 per 100 000; 1·97, 1·86–2·09) since the introduction of PCV7, and accelerated since 2013/14—especially serotypes 8, 12F, and 9N, which were responsible for more than 40% of invasive pneumococcal disease cases by 2016/17. Invasive pneumococcal disease incidence in children younger than 5 years remained stable since 2013/14, with nearly all replacement disease occurring in adults. We estimated 38 366 invasive pneumococcal disease cases were prevented in the 11 years since the introduction of PCV7.

40% of invasive pneumococcal disease cases by 2016/17. Invasive pneumococcal disease incidence in children younger than 5 years remained stable since 2013/14, with nearly all replacement disease occurring in adults. We estimated 38 366 invasive pneumococcal disease cases were prevented in the 11 years since the introduction of PCV7.

Interpretation Both PCV7 and PCV13 have had a major effect in reducing the burden of invasive pneumococcal disease in England and Wales; however, rapid increases in some non-PCV13 serotypes are compromising the benefits of the programme.

England, London, UK; Paediatric Infectious Diseases Research Group, St George's University of London, London, UK (S N Ladhani); and Meningococcal Reference Unit, Public Health England, Manchester, UK (Prof R Borrow PhD)

Correspondence to:

PNPV e LEA

LEA A3: Primary vaccine prevention

	Programmi/attività	Componenti programma	Prestazioni
A3	• **Nuovi nati:** cicli di base e successivi richiami (come da calendario nazionale) di vaccino per la prevenzione di difterite, tetano, pertosse, epatite B, polio, Haemophilus influenzae tipo b, **pneumococco**, meningococco B, rotavirus, morbillo, parotite, rosolia, varicella, meningococco C; • **Adolescenti:** ciclo di base (come da calendario) di vaccino meningococcico ACWY135e vaccino anti HPV • **Soggetti di età ≥ 65 anni**: vaccino influenzale stagionale; • **Soggetti di età pari a 65 anni**: ciclo di base (come da calendario) di vaccino pneumococcico **PCV13+PPV23** e vaccino zoster; • **Soggetti a rischio di tutte le età:** vaccinazioni previste dal vigente PNPV 2012- 2014 e da altre normative nazionali sull'argomento	Completamento anagrafi vaccinali informatizzate regionale e trasmissione dati informatizzati a livello nazionale Monitoraggio delle coperture vaccinali e sorveglianza delle reazioni avverse a vaccino Valutazione della qualità dei programmi vaccinali Valutazione dell'impatto di salute dei programmi vaccinali attraverso la sorveglianza delle malattie prevenibili con vaccinazione Monitoraggio della attitudine alla vaccinazione e dei motivi di mancata vaccinazione	Inviti alle persone obiettivo dei programmi vaccinali Vaccinazioni secondo le buone pratiche Interventi di informazione e comunicazione per operatori sanitari, cittadini e istituzioni Esami analitici nell'ambito di interventi di prevenzione delle malattie infettive Produzione di report

PNPV 2017-2019

17 Gennaio 2017 (Gazzetta Ufficiale Sabato 18 Febbraio 2017)

Calendario vaccinale 2017-19

95% — **75%**

Vaccino	0-30gg	3° mese	4° mese	5° mese	6° mese	7° mese	11° mese	13° mese	15° mese	6° anno	12-18° anno	19 - 49 anno	50-64 anno	> 64 anni	Soggetti a rischio
DTPa**		DTPa		DTPa			DTPa			DTPa***	dTpaIPV	1 dose dTpa*** ogni 10 anni			(1)
IPV		IPV		IPV			IPV			IPV					
Epatite B	EpB EpB*	Ep B		Ep B			Ep B								(2)
Hib		Hib		Hib			Hib								(3)
Pneumoccoco		PCV		PCV			PCV							PCV+ PPSV	(4)
MPRV								MPRV		MPRV					(6)
MPR Varicella								*oppure* MPR+V		oppure MPR+V					(5)
															(6)
Meningococco C								Men C§			Men ACWY coniugato				(7)
Meningococco B*^		Men B	Men B		Men B			Men B							
HPV											HPV 2-3 dosi (in funzione di età e vaccino)				(8)
Influenza														1dose	(9)
Herpes Zoster														1 dose#	(10)
Rotavirus		Rotavirus ## (2 o 3a seconda del tipo di vaccino)													
Epatite A															(11)

Co-somministrare nella stessa seduta — Somministrare in seduta separata — Vaccini per categorie a rischio

Pneumococcal Vaccination and Elderly

PCV13+PPV23

2017	2018	2019
40%	55%	75%

Pneumococco coniugato (24° mese)

dato nazionale 88,35
(per 100 abitanti - 2016, coorte 2014)

IPD and Age

- **IMMUNOSENESCENCE**
  - Naïve B cell production decreases.
  - Increased memory B cells and plasma cells with poor specificity, and sometimes impaired.

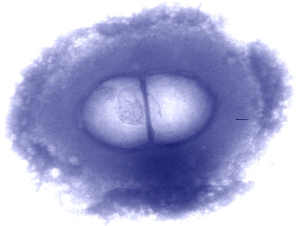
- **COMORBIDITY, INCREASING THE RISK (PNEUMOPATHY, CHRONIC CARDIOPATHY, AND DIABETES)**

Siegrist et al. Nat Rev Immunol 2009. 2. Caruso C, et al. Immun Ageing. 2009;6:10. 3. Kyaw MH, et al. J Infect Dis. 2005;192:377-386.

Medical Conditions at High-Risk

Vaccination against measles, mumps, and rubella
Vaccination against varicella
Vaccination against flu
Vaccination against HAV
Vaccination against HBV
Vaccination against *S. pneumoniae*
Vaccination against *N. meningitidis*
Vaccination against *Haemophilus influenzae* type b
Vaccination against Zoster

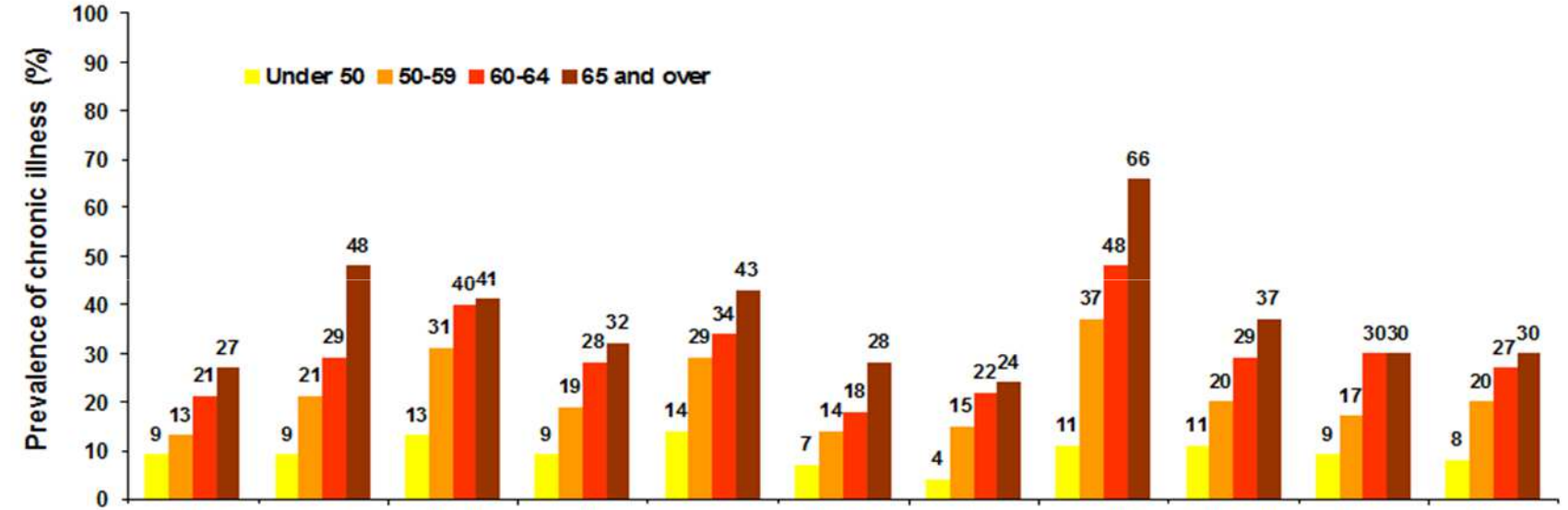
Vaccine and At-High Risk Groups



- Chronic cardiopathy
- Chronic pneumopathy
- Diabetes
- Chronic epatopathy
- Chronic alcohol abuse
- Liquor leakage
- Coclear device
- Haemoglobinopathy

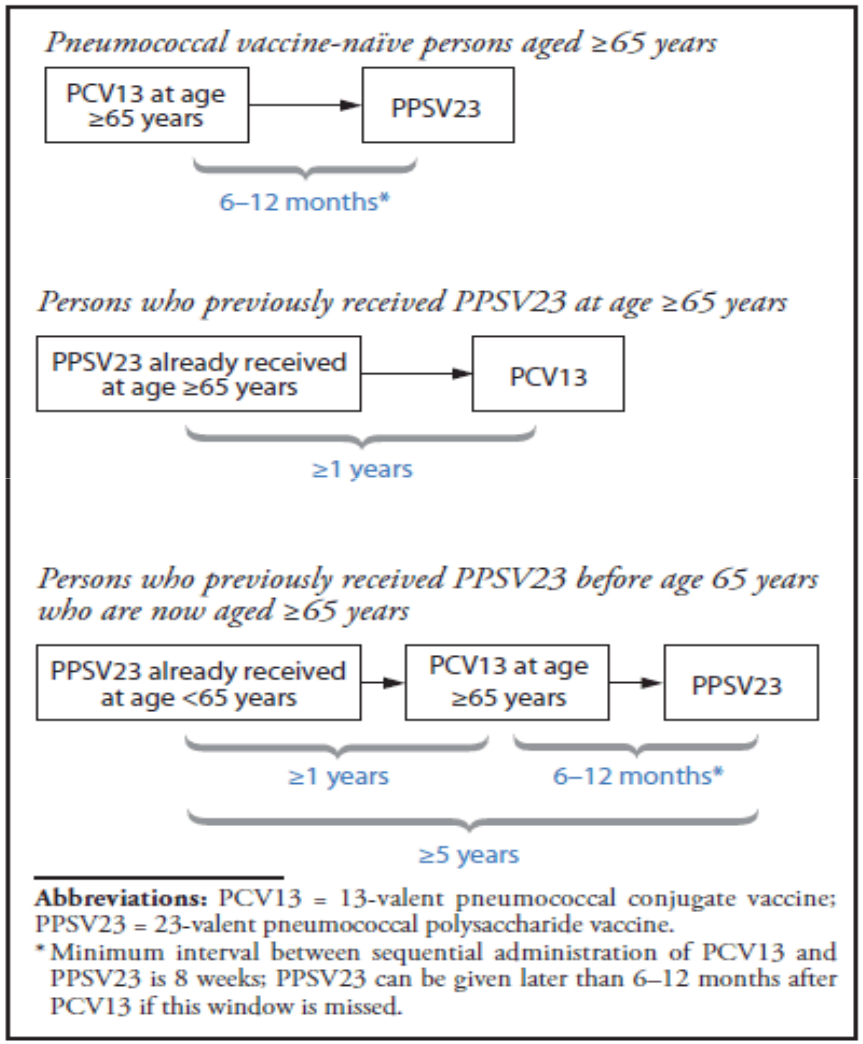
- Immunodeficiency
- Asplenia
- Leucaemia
- Neoplasia
- Transplantation
- Iatrogenic immunosuppression
- Chronic renal failure

Prevalence of Chronic Diseases



<49	*(1201)*	*(1145)*	*(1153)*	*(1137)*	*(1085)*	*(1333)*	*(1178)*	*(1201)*	*(1157)*	*(1322)*	*(1177)*
50-59	*(279)*	*(387)*	*(303)*	*(330)*	*(290)*	*(281)*	*(287)*	*(344)*	*(223)*	*(298)*	*(301)*
60-64	*(126)*	*(145)*	*(234)*	*(131)*	*(132)*	*(122)*	*(188)*	*(128)*	*(221)*	*(134)*	*(121)*
65+	*(394)*	*(325)*	*(312)*	*(402)*	*(495)*	*(266)*	*(348)*	*(327)*	*(400)*	*(246)*	*(392)*

ACIP: PCV + PPV


Pneumococcal vaccine-naïve persons aged ≥65 years
PCV13 at age ≥65 years
PPSV23
6–12 months*
Persons who previously received PPSV23 at age ≥65 years
PPSV23 already received at age ≥65 years
PCV13
≥1 years
Persons who previously received PPSV23 before age 65 years who are now aged ≥65 years
PPSV23 already received at age <65 years
PCV13 at age ≥65 years
PPSV23
≥1 years
6–12 months*
≥5 years
Abbreviations: PCV13 = 13-valent pneumococcal conjugate vaccine; PPSV23 = 23-valent pneumococcal polysaccharide vaccine.
* Minimum interval between sequential administration of PCV13 and PPSV23 is 8 weeks; PPSV23 can be given later than 6–12 months after PCV13 if this window is missed.

Adv Ther (2014) 31:1011–1044
DOI 10.1007/s12325-014-0157-1

REVIEW

Recommendations for Pneumococcal Immunization Outside Routine Childhood Immunization Programs in Western Europe

Paolo Castiglia

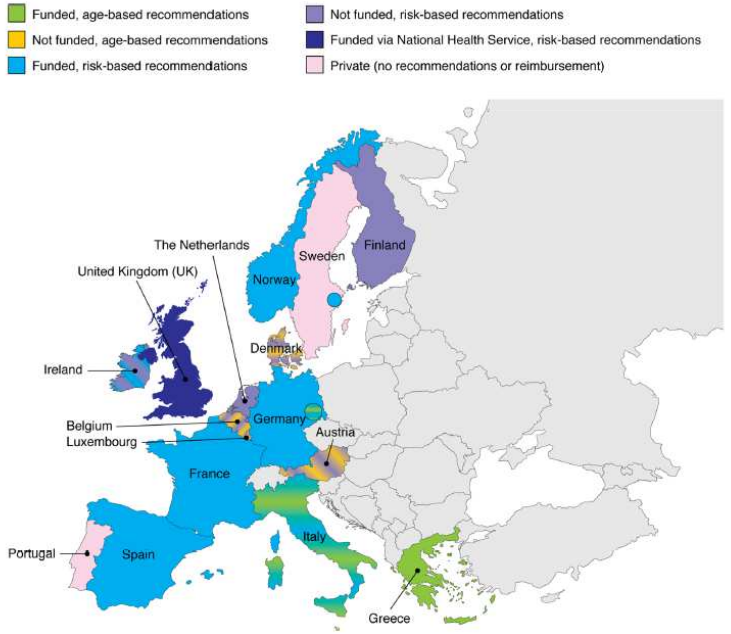


Fig. 1 European national recommendations and reimbursement of 13-valent pneumococcal conjugate vaccine (PCV13) in adults

Risk-based Strategies

- Detection – followed-up by specialists (registries?);
- Failure of Public Hygiene Units →insufficient vaccination coverage;
- Knowledge on vaccines and recommendations (ECM for general pratictioners, paediatricians, and specialists);
- Vaccination responsibility to and registration by several HCWs;
- Integrated information systems.

Age-based Strategies

- Easy detection by Public Hygiene Units;
- High vaccination coverage and herd immunity;
- Increased elderly people. Increased age associated with risk factors. (cardio-vascular diseases, COPD, renal diseases, etc …).

Conclusions

- Vacinnation coverage are low;
- New strategies are needed;
- More attention on elederly people.