« Best Of » en maladies infectieuses: vaccinologie

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Effect of Introduction of the Pneumococcal Conjugate Vaccine on Drug-Resistant *Streptococcus pneumoniae*

Moe H. Kyaw, Ph.D., M.P.H., Ruth Lynfield, M.D., William Schaffner, M.D., Allen S. Craig, M.D., James Hadler, M.D., M.P.H., Arthur Reingold, M.D., Ann R. Thomas, M.D., M.P.H., Lee H. Harrison, M.D., Nancy M. Bennett, M.D., Monica M. Farley, M.D., Richard R. Facklam, Ph.D., James H. Jorgensen, Ph.D., John Besser, M.S., Elizabeth R. Zell, M.Stat., Anne Schuchat, M.D., and Cynthia G. Whitney, M.D., M.P.H., for Active Bacterial Core Surveillance of the Emerging Infections Program Network

Impact de la vaccination pneumo conjuguée sur les infections invasives
Vaccin pneumo conjugué 7 valences, 5/7 sérotypes =78% des souches péniR

	Infection invasives sérotypes vaccinaux (cas/100 000)	**Infection invasives sérotypes non vaccinaux (cas/100 000)**
Enfants < 2 ans		
1999	65.1	0.8
2004	1.2	1.9
Change	-98%	+150%
Sujets > 65 ans		
1999	12.3	0.6
2004	2.6	1.9
Change	-79%	+208%

Kyaw MA et al. N Engl J Med 2006;354 (14): 1455-63

Impact du vaccin pneumo conjugué sur les infections invasives à pneumo chez l'enfant < 2ans

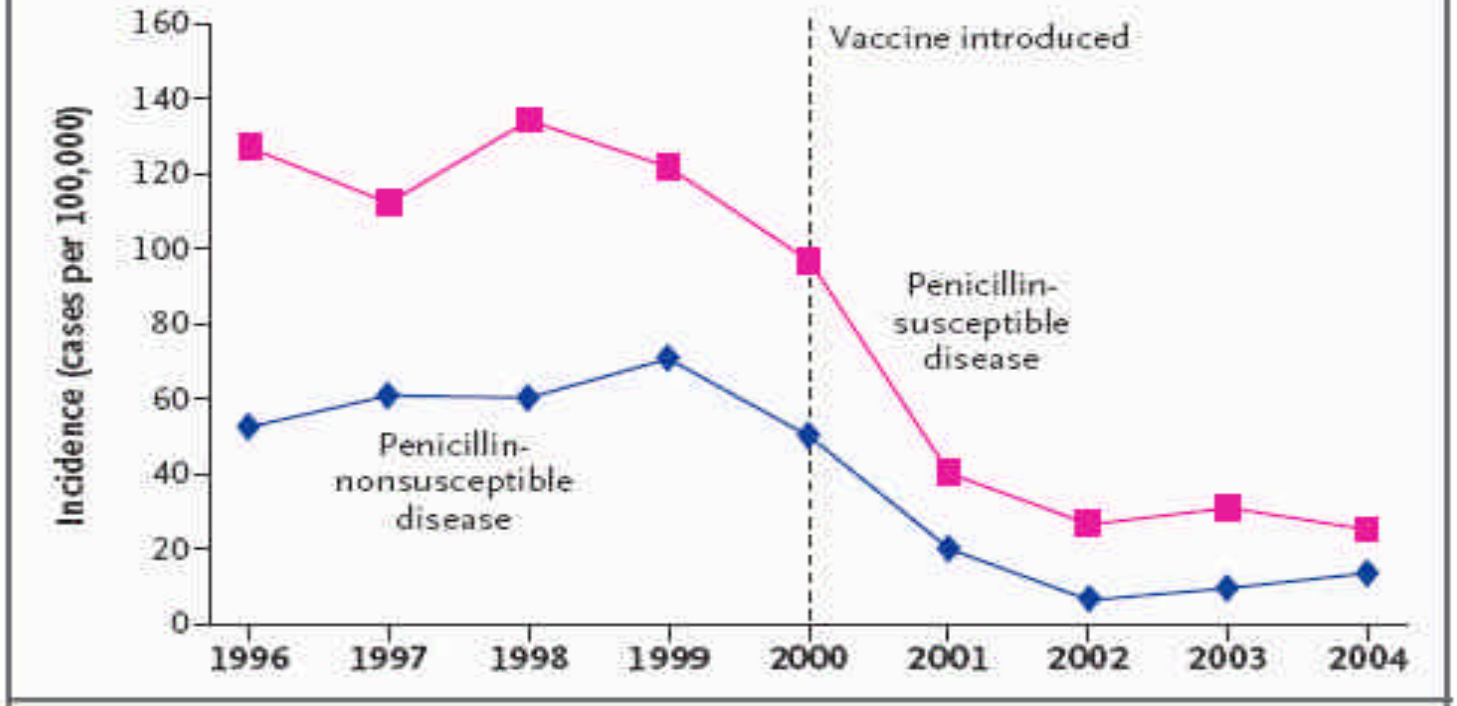


Figure 1. Annual Incidence of Invasive Disease Caused by Penicillin-Susceptible and Penicillin-Nonsusceptible Pneumococci among Children under Two Years of Age, 1996 to 2004.

Kyaw MA et al. N Engl J Med 2006;354 (14): 1455-63

Impact du vaccin pneumo conjugué sur les infections invasives à pneumo peniR dans différentes classes d'âge > 2ans

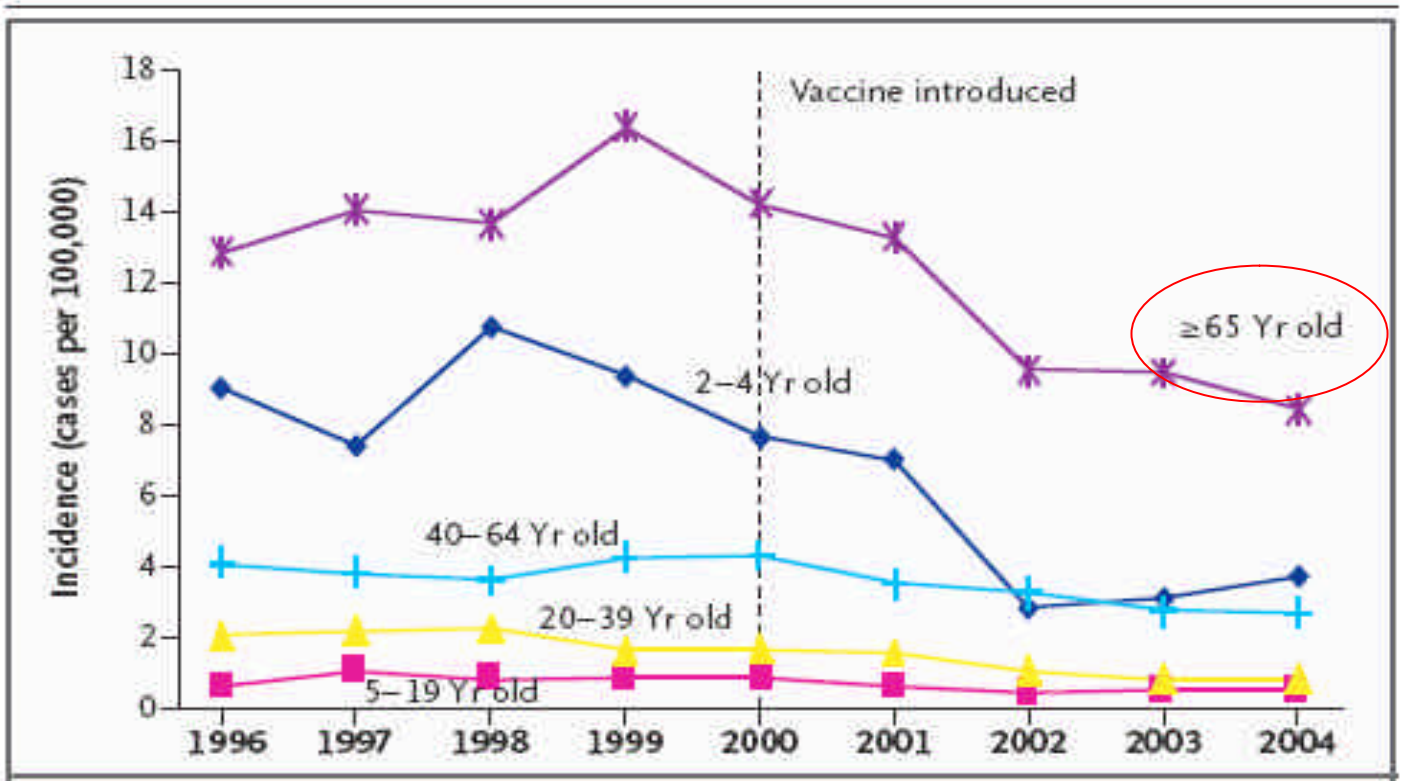
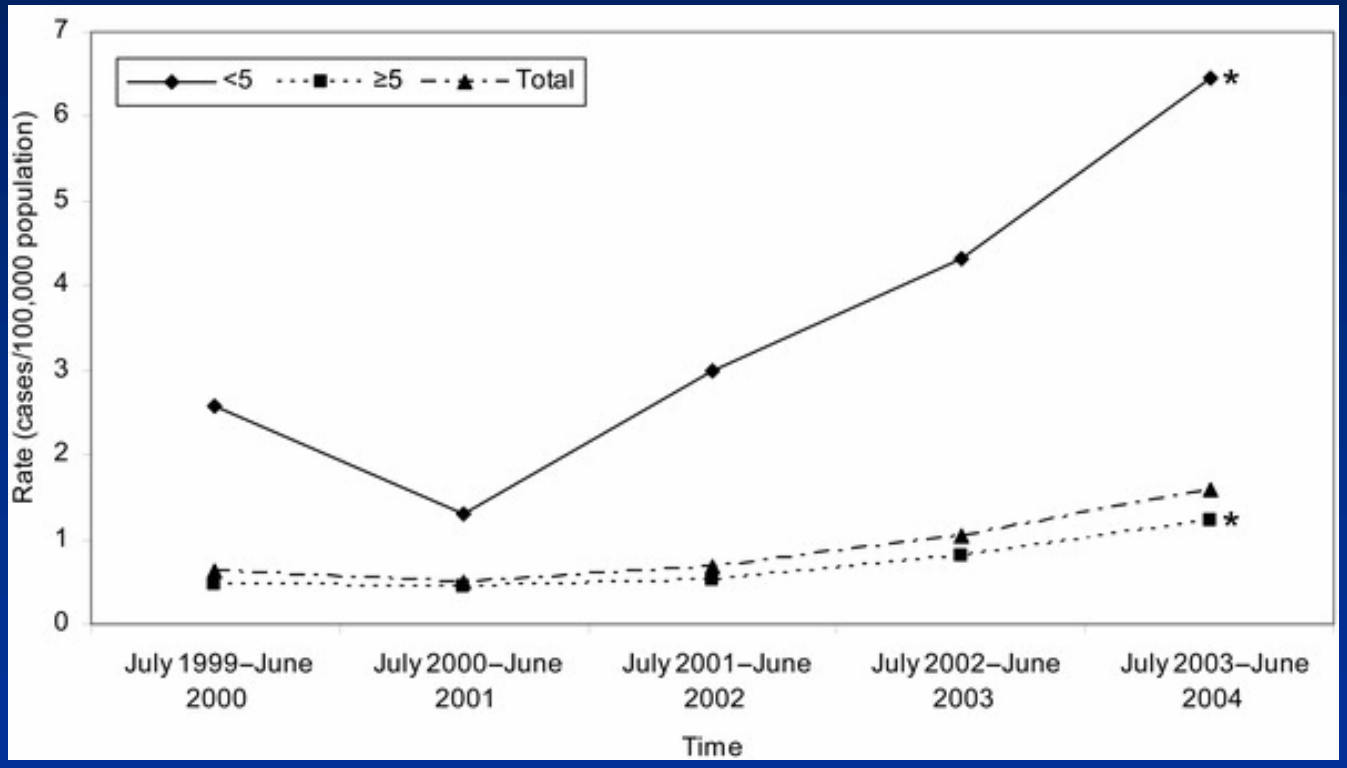


Figure 2. Annual Incidence of Invasive Disease Caused by Penicillin-Nonsusceptible Pneumococci in Persons Two Years of Age or Older, 1996 to 2004.

Kyaw MA et al. N Engl J Med 2006;354 (14): 1455-63

Augmentation de l'incidence des infections à pneumocoque de sérotype 19A Péni R



Pai R et al. J of Infect Dis 2005;192:1988-95

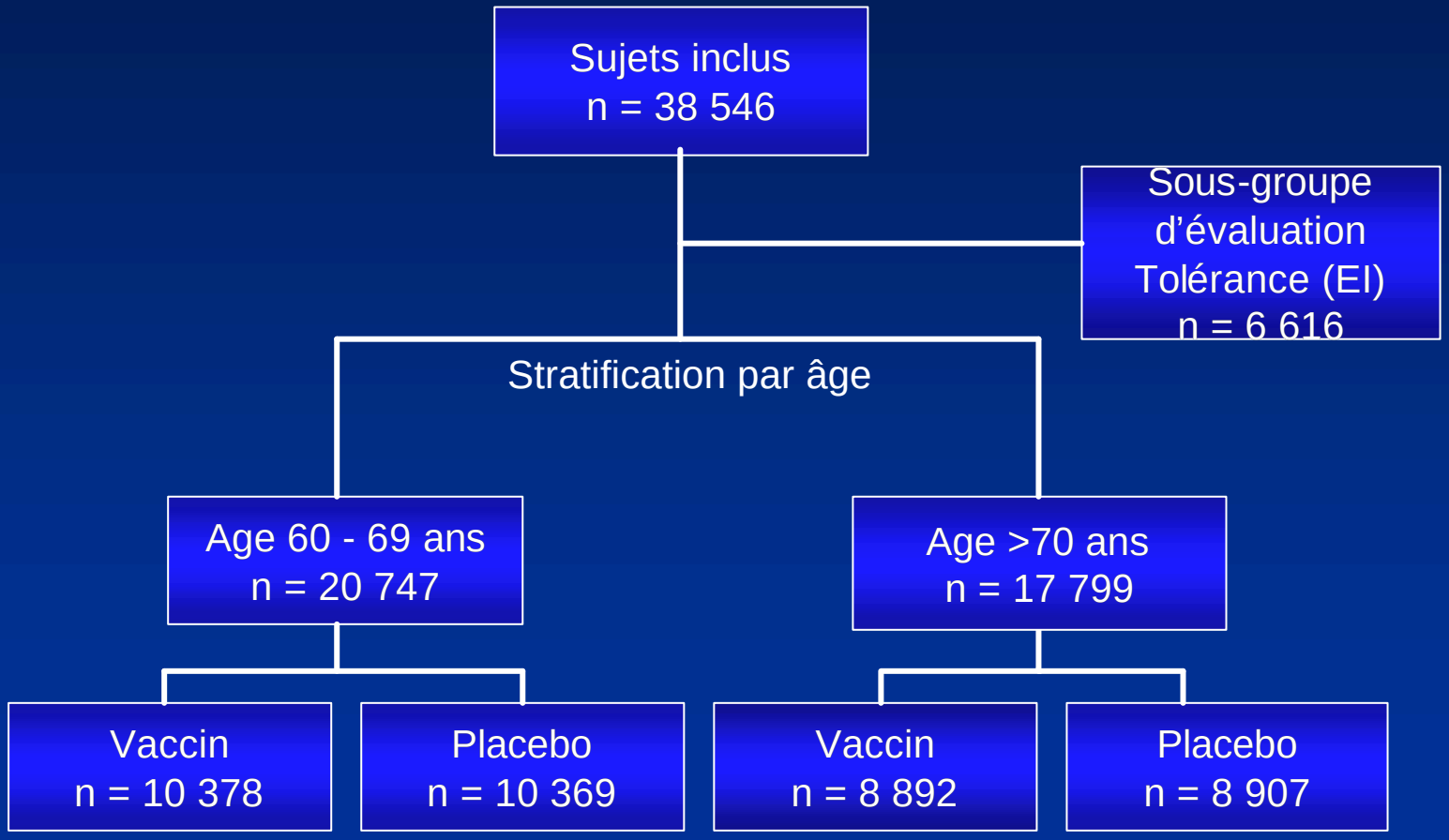
The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 JUNE 2, 2005 VOL. 352 NO. 22

A Vaccine to Prevent Herpes Zoster and Postherpetic Neuralgia in Older Adults

M.N. Oxman, M.D., M.J. Levin, M.D., G.R. Johnson, M.S., K.E. Schmader, M.D., S.E. Straus, M.D., L.D. Gelb, M.D., R.D. Arbeit, M.D., M.S. Simberkoff, M.D., A.A. Gershon, M.D., L.E. Davis, M.D., A. Weinberg, M.D., K.D. Boardman, R.Ph., H.M. Williams, R.N., M.S.N., J. Hongyuan Zhang, Ph.D., P.N. Peduzzi, Ph.D., C.E. Beisel, Ph.D., V.A. Morrison, M.D., J.C. Guatelli, M.D., P.A. Brooks, M.D., C.A. Kauffman, M.D., C.T. Pachucki, M.D., K.M. Neuzil, M.D., M.P.H., R.F. Betts, M.D., P.F. Wright, M.D., M.R. Griffin, M.D., M.P.H., P. Brunell, M.D., N.E. Soto, M.D., A.R. Marques, M.D., S.K. Keay, M.D., Ph.D., R.P. Goodman, M.D., D.J. Cotton, M.D., M.P.H., J.W. Gnann, Jr., M.D., J. Loutit, M.D., M. Holodniy, M.D., W.A. Keitel, M.D., G.E. Crawford, M.D., S.-S. Yeh, M.D., Ph.D., Z. Lobo, M.D., J.F. Toney, M.D., R.N. Greenberg, M.D., P.M. Keller, Ph.D., R. Harbecke, Ph.D., A.R. Hayward, M.D., Ph.D., M.R. Irwin, M.D., T.C. Kyriakides, Ph.D., C.Y. Chan, M.D., I.S.F. Chan, Ph.D., W.W.B. Wang, Ph.D., P.W. Annunziato, M.D., and J.L. Silber, M.D., for the Shingles Prevention Study Group*

Vaccin vivant atténué, 1 injection sous-cutanée 0,5 ml souche VVZ Oka/ Merck (14 x vaccin varicelle)



Oxman MN et al. N Engl J Med 2005; 352 (22): 2271-84

Efficacité sur l'incidence du zona et des névralgies post-zoostériennes

VE $_{HZ}$ = 51.3%*

(IC 95%: 44.2-57.6%)

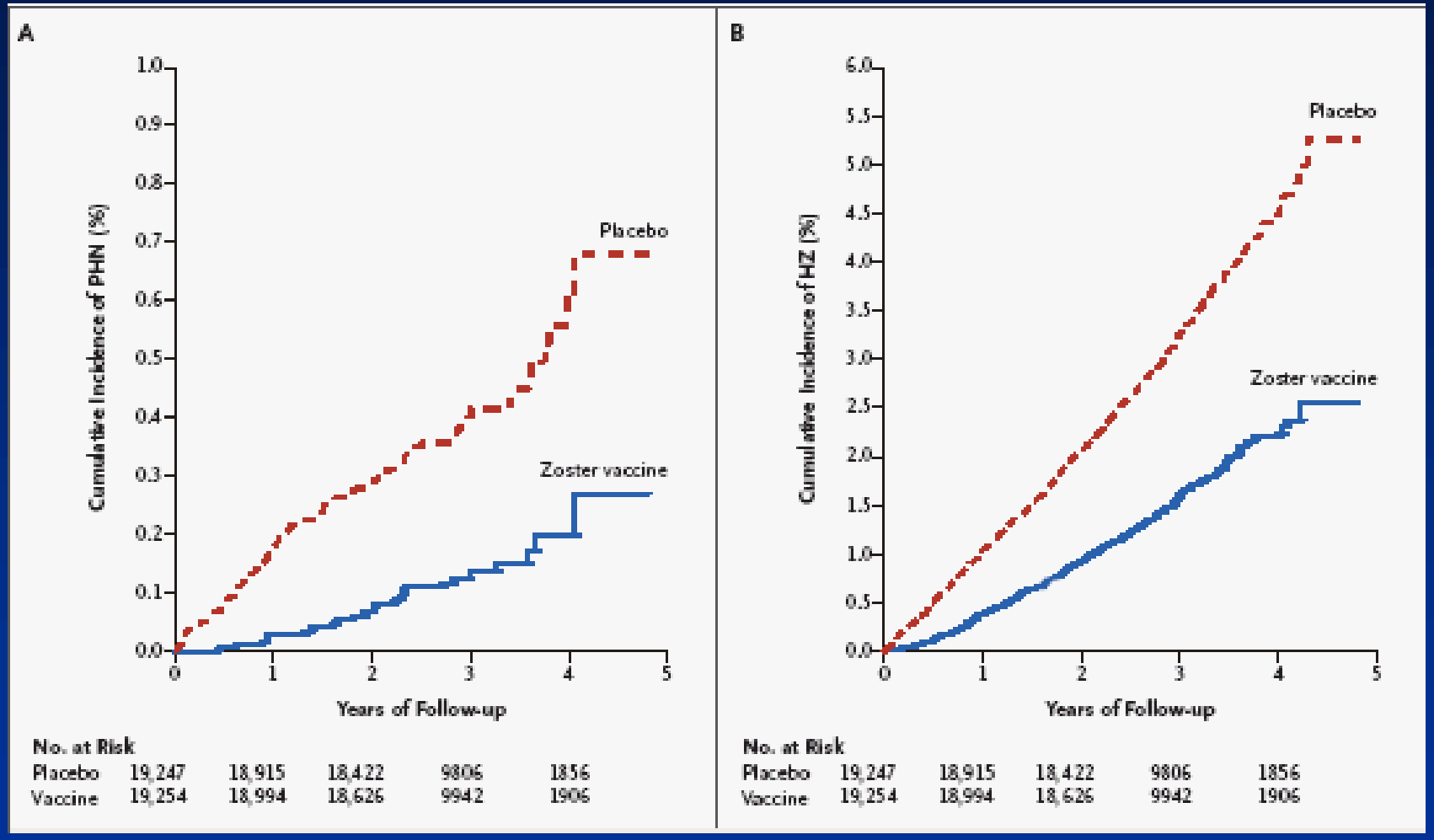
VE $_{PHN}$ = 66.5%*

(IC 95%: 47.5-79.2%)

* p<0.001 versus placebo

Oxman MN et al. N Engl J Med 2005; 352 (22): 2271-84

Incidence cumulée des NPZ (A) et du zona (B)



Oxman MN et al. N Engl J Med 2005; 352 (22): 2271-84

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 JANUARY 5, 2006 VOL. 354 NO. 1

Safety and Efficacy of an Attenuated Vaccine against Severe Rotavirus Gastroenteritis

Guillermo M. Ruiz-Palacios, M.D., Irene Pérez-Schael, M.Sc., F. Raúl Velázquez, M.D., Hector Abate, M.D., Thomas Breuer, M.D., SueAnn Costa Clemens, M.D., Brigitte Cheuvart, Ph.D., Felix Espinoza, M.D., Paul Gillard, M.D., Bruce L. Innis, M.D., Yolanda Cervantes, M.D., Alexandre C. Linhares, M.D., Pío López, M.D., Mercedes Macías-Parra, M.D., Eduardo Ortega-Barría, M.D., Vesta Richardson, M.D., Doris Maribel Rivera-Medina, M.D., Luis Rivera, M.D., Belén Salinas, M.D., Noris Pavía-Ruz, M.D., Jorge Salmerón, M.D., Ricardo Rüttimann, M.D., Juan Carlos Tinoco, M.D., Pilar Rubio, M.D., Ernesto Nuñez, M.D., M. Lourdes Guerrero, M.D., Juan Pablo Yarzábal, M.D., Silvia Damaso, M.Sc., Nadia Tornieporth, M.D., Xavier Sáez-Llorens, M.D., Rodrigo F. Vergara, M.D., Timo Vesikari, M.D., Alain Bouckenooghe, M.D., Ralf Clemens, M.D., Ph.D., Béatrice De Vos, M.D., and Miguel O'Ryan, M.D., for the Human Rotavirus Vaccine Study Group*

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Safety and Efficacy of a Pentavalent Human–Bovine (WC3) Reassortant Rotavirus Vaccine

Timo Vesikari, M.D., David O. Matson, M.D., Ph.D., Penelope Dennehy, M.D., Pierre Van Damme, M.D., Ph.D., Mathuram Santosham, M.D., M.P.H., Zoe Rodriguez, M.D., Michael J. Dallas, Ph.D., Joseph F. Heyse, Ph.D., Michelle G. Goveia, M.D., M.P.H., Steven B. Black, M.D., Henry R. Shinefield, M.D.,

Vaccin humain monovalent (GSK)

Vaccin vivant atténué administré par voie orale, monovalent G1

Réduction de **85% des gastro-entérites sévères à rotavirus et des hospitalisations pour gastro-entérites à rotavirus**
schéma

Réduction de **42% (IC95%: 29-53%) des hospitalisations pour diarrhée toute cause confondues**

pas d'augmentation des invaginations intestinales aiguës

Ruiz-Palacio GM et al. N Engl J Med 2006;354 : 11-22

Vaccin réassortant humain-bovin pentavalent (Merk)

Vaccin vivant atténué administré par voie orale pentavalent G1-G4, P

Table 3. Efficacy of the HRV Vaccine against Gastroenteritis during the Period from Two Weeks after Dose 2 until One Year of Age.*

Type of Gastroenteritis	HRV Vaccine (N=9009)		Placebo (N=8858)		Relative Risk†	Vaccine Efficacy (95% CI)
	No. of Infants with ≥1 Episode	1000 Infant-Yr Ratio‡	No. of Infants with ≥1 Episode	1000 Infant-Yr Ratio‡		
Severe, according to clinical case definition§						
Rotavirus gastroenteritis						
Severe	12	2.0	77	13.3	0.153	84.7 (71.7 to 92.4)
Hospitalization	9	1.5	59	10.2	0.150	85.0 (69.6 to 93.5)
Gastroenteritis from any cause						
Severe	183	30.9	300	51.7	0.600	40.0 (27.7 to 50.4)
Hospitalization	145	24.5	246	42.4	0.580	42.0 (28.6 to 53.1)
Serotype-specific gastroenteritis						
G1P[8]¶	3‖	0.5	36**	6.2	0.082	91.8 (74.1 to 98.4)
G3P[8], G4P[8], G9P[8]	4††	0.66	31‡‡	5.3	0.126	87.3 (64.1 to 96.7)
G2P[4]	6	1.0	10§§	1.7	0.590	41.0 (−79.2 to 82.4)

Vesikari T et al. N Engl J Med 2006;354 : 23-33

Sustained efficacy up to 4·5 years of a bivalent L1 virus-like particle vaccine against human papillomavirus types 16 and 18: follow-up from a randomised control trial

*Diane M Harper, Eduardo L Franco, Cosette M Wheeler, Anna-Barbara Moscicki, Barbara Romanowski, Cecilia M Roteli-Martins, David Jenkins, Anne Schuind, Sue Ann Costa Clemens, Gary Dubin, on behalf of the HPV Vaccine Study group**

Infections à HPV

environ 75% des femmes sexuellement actives infectées au cours de leur vie

99,7% des cancers du col de l'utérus associés à HPV

Genotypes (les plus fréquents)	*Maladies associées*
1…	verrues plantaires
2, 27…	verrues communes
3, 10…	verrues plates
6, 11, 42,16…	verrues génitales (condylomes), papillomatose laryngée…
16, 18, 31, 45…	cancer du col utérin, autres cancers anogénitaux

HPV 16 et 18 : retrouvés dans environ 70% des cancers du col de l'utérus [2]

HPV 6 et 11 : retrouvés dans plus de 90% des verrues génitales (condylomes) [3]

2 vaccins anti-HPV
VLP (Virus Like Particule)

- Gardasil (Merk)
  vaccin quadrivalent: HPV 6, 11,16, 18
- Vaccin bivalent (GSK)
  HPV16 et 18

- Efficacité à 2 ans:
  - prévention de l'infection et des infections persistantes à HPV
  - prévention des lésions pré-cancéreuses

Efficacité à 4.5 ans du vaccin HPV bivalent 16/18

- Maintien de la séropositivité HPV16/18 (98%)
- 96.9% d'efficacité sur l'infection par HPV16/18
- 94.3% sur les infections persistantes (6mois)
- 100% sur les infections persistantes (12 mois)
- 100% sur les lésions dysplasiques (CIN) associées à HPV16/18

Harepr D et al, Lancet 2006; 367:1247-55

Safety and immunogenicity of an inactivated split-virion influenza A/Vietnam/1194/2004 (H5N1) vaccine: phase I randomised trial

Jean-Louis Bresson, Christian Perronne, Odile Launay, Catherine Gerdil, Melanie Saville, John Wood, Katja Höschler, Maria C Zambon

Summary

Background Pathogenic avian influenza A virus H5N1 has caused outbreaks in poultry and migratory birds in Asia,

Lancet 2006; 367: 1657–64

Articles

Safety and immunogenicity of an inactivated adjuvanted whole-virion influenza A (H5N1) vaccine: a phase I randomised controlled trial

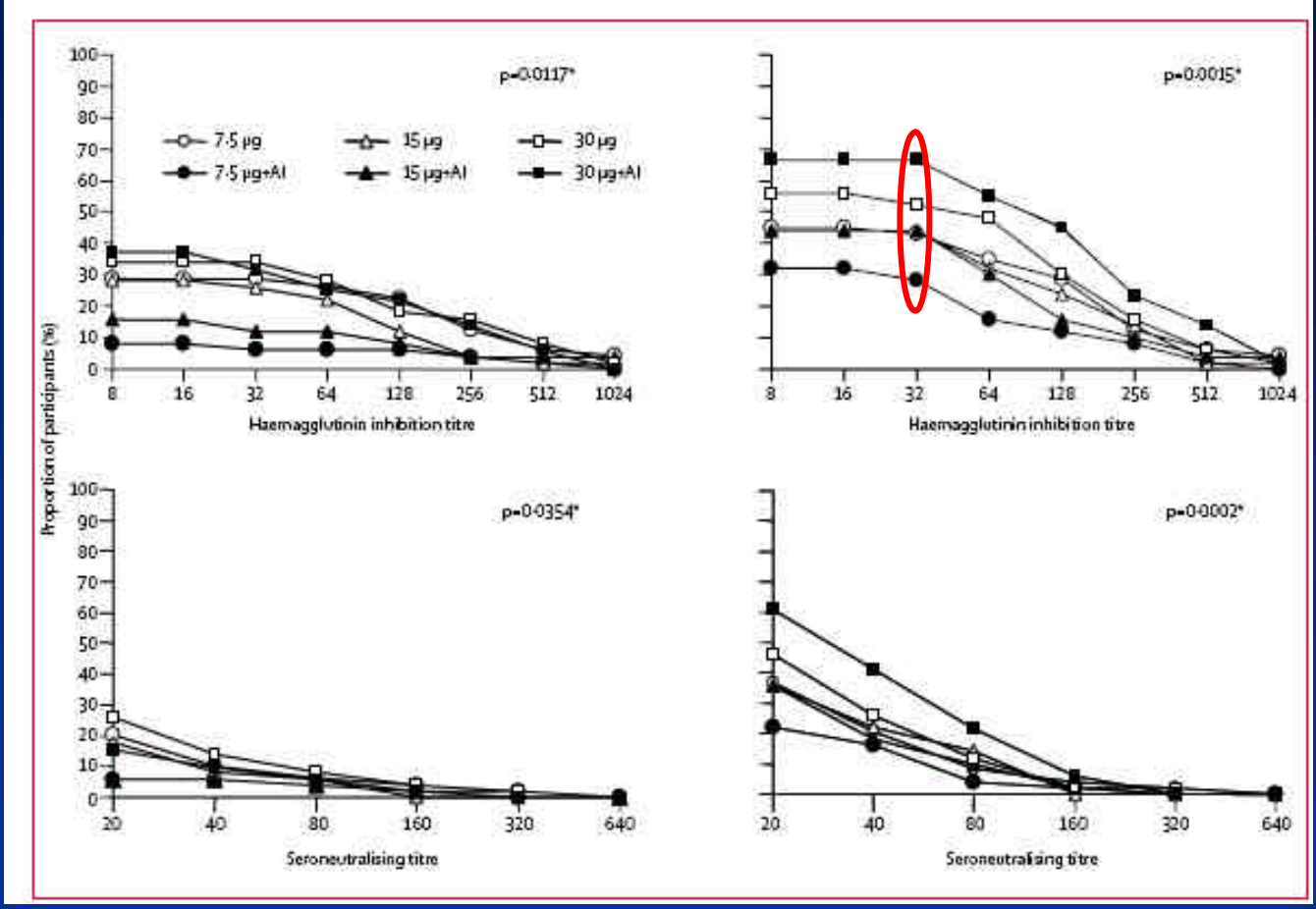
Jiangtao Lin, Jiansan Zhang, Xiaoping Dong, Hanhua Fang, Jiangting Chen, Nan Su, Qiang Gao, Zhenshan Zhang, Yuxuan Liu, Zhihong Wang, Meng Yang, Ruihua Sun, Changgui Li, Su Lin, Mei Ji, Yan Liu, Xu Wang, John Wood, Zijian Feng, Yu Wang, Weidong Yin

Summary

Background Avian influenza A virus H5N1 has caused widespread infections that have resulted in severe disease or

Lancet 2006; 368: 991–97

Vaccin H5N1 sous-unité



3 doses (7.5, 15 et 30 µg)
+/- Alum
67% de séroconversion après 2 injections dans le groupe forte dose + Alum

JL Bresson et al, Lancet 2006; 20;367(9523):1657-64

Vaccin H5N1 virus entier

	Haemagglutinin dose				
	Placebo (n=24)	1·25 µg (n=23)	2·5 µg (n=24)	5 µg (n=24)	10 µg (n=23*)
Day 0					
GMT	5·0 (..)	5·2 (4·9–5·4)	6·7 (5·0–9·0)	5·6 (4·8–6·6)	5·0 (..)
Seroconversion factor	..	..	..	..	..
Seroconversion	0	0	0	0	0
Seropositivity	0	0	2 (8%, 1–27)	0	0
Day 14					
GMT	5·0 (..)	8·3 (5·4–12·9)	10·6 (7·0–15·9)	15·4 (9·3–25·5)	31·4 (18·5–53·4)
Seroconversion factor	1·0 (..)	1·6 (1·3–1·9)	1·6 (1·4–1·9)	2·8 (2·5–3·1)	6·3 (6·0–6·6)
Seroconversion	0	2 (9%, 1–28)	2 (8%, 1–27)	5 (21%, 7–42)	7 (30%, 13–53)
Seropositivity	0	2 (9%, 1–28)	5 (21%, 7–42)	6 (25%, 10–47)	7 (30%, 13–53)
Day 28					
GMT	5·2 (4·9–5·4)	8·6 (5·3–14·0)	10·3 (6·6–16·2)	15·4 (9·5–25·2)	28·7 (17·9–46·2)
Seroconversion factor	1 (..)	1·7 (1·4–2·0)	1·5 (1·3–1·7)	2·7 (2·4–3·0)	5·7 (5·4–6·0)
Seroconversion	0	1 (4%, 0–22)	3 (13%, 3–32)	6 (25%, 10–47)	9 (39%, 20–62)
Seropositivity	0	1 (4%, 0–22)	5 (21%, 7–42)	6 (25%, 10–47)	9 (39%, 20–62)
Day 42					
GMT	5·0 (..)	13·9 (8·7–22·2)	17·8 (13·1–28·0)	27·5 (17·8–42·4)	57·4 (36·9–89·4)
Seroconversion factor	1 (..)	2·7 (2·4–3·0)	2·7 (2·5–2·9)	4·9 (4·7–5·1)	11·5 (11·2–11·8)
Seroconversion	0	3 (13%, 3–34)	5 (21%, 7–42)	8 (33%, 16–55)	18 (78%, 56–92)
Seropositivity	0	3 (13%, 3–34)	7 (29%, 13–51)	8 (33%, 16–55)	18 (78%, 56–92)

4 doses 1.25, 2.5, 5 et 10 µg + Alum versus placebo

Lin J et al, Lancet 2006;368:991-997