

VIRAL HEPATITIS PREVENTION BOARD

Technical
Viral Hepatitis Prevention Board
Meeting
Milan, Italy, November 17-18, 2011

Hepatitis B immune memory in children primed with hexavalent vaccines

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Hexavalent vaccines - 1

- In 2000, Hexavac[®] and Infanrix Hexa[®] were licensed in the EU for vaccinating children against hepatitis B, tetanus, diphtheria, pertussis, poliomyelitis and invasive infections caused by *Hemophilus influenzae b*.
- In 2005, Hexavac was suspended by EMA because of concerns over the immunogenicity of HBsAg contained in this vaccine.

Hexavalent vaccines - 2

- No action was taken over Infanrix Hexa since the immunogenicity of its HB component did not raise equal concern.
- Until suspension, approx 10 million doses of Hexavac were distributed globally.

THE LANCET Infectious Diseases
Volume 10, Issue 11, November 2010, Pages 755-761

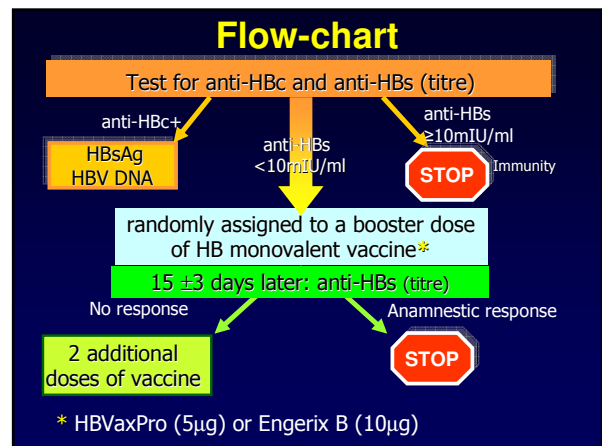
Hepatitis B immune memory in children primed with hexavalent vaccines and given monovalent booster vaccines: an open-label, randomised, controlled, multicentre study

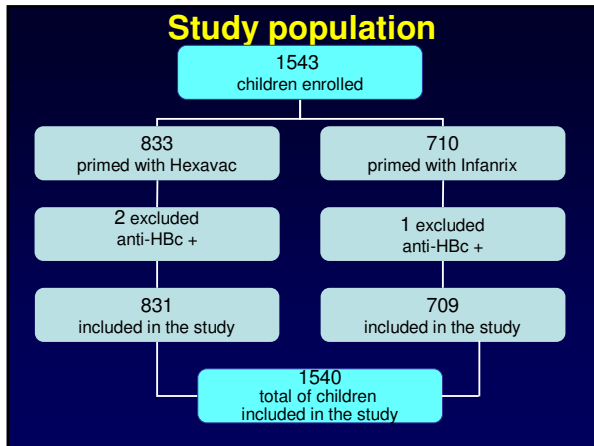
Alessandro Remo Zanetti, Loris Romanò, Cristina Giombi, Anna Favari, Vito Carnelli, Guglielmino Battelli, Giancarlo Malchiodi, Edgardo Valerio, Antonella Barile, Maria Anna Marchisio, Domenico Monti, Alberto Eugenio Tazzi, Fortunato D'Ancona, for the study group*

AIM:
To assess duration of immunity and need for booster in children primed 5 years previously with hexavalent vaccines during their first year of life.

Study design

- Healthy children born to HBsAg negative mothers who received 3 doses of hexavalent vaccines at 3, 5 and 11 m of age.
- Setting: 6 Local Health Units located in northern Italy and at Hospital "Bambino Gesù" – Vatican, Rome.
- Written informed consent.
- Approval by Ethics Committee of the University of Milan.





Demographic features of children included in the study

Total: 1540 children

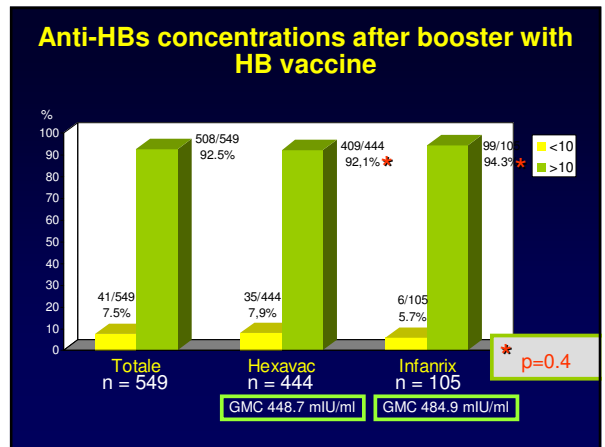
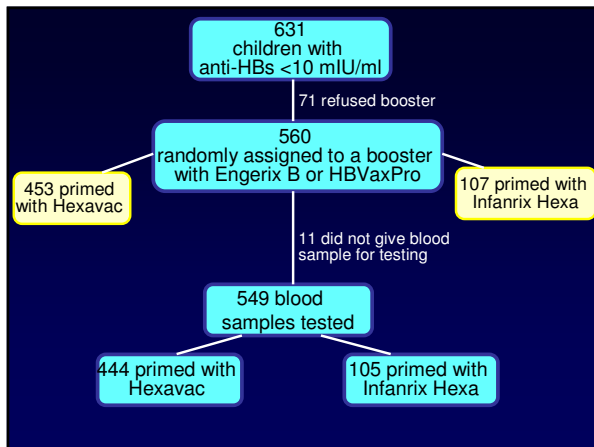
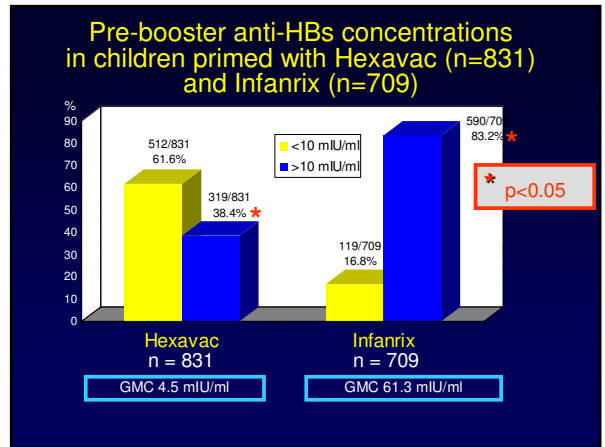
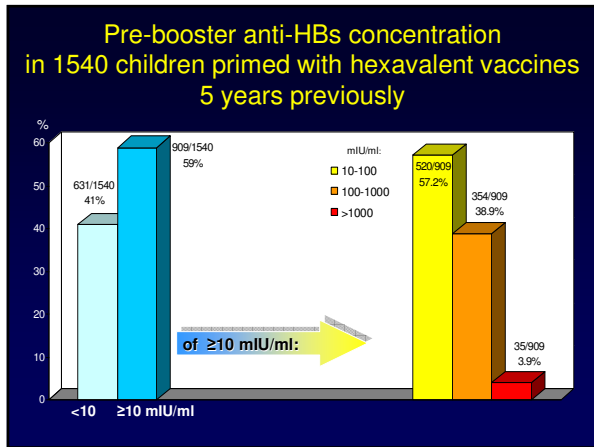
Gender: 47.9%F; 52.1%M

Year of birth: 2001-2003

Mean age at enrollment: 5.6 years (range 4.3-7.5 years)

Mean time from the completion of primary course of vaccination: 4.7 years (range 3-6.4 years)

Demographic and baseline characteristics between the two groups (those primed with Hexavac and those with Infanrix) were comparable.



Side effects of a booster dose of monovalent HB vaccine

- Diary records were returned by 535/560 children.
- 55 children (10.3%) had transient mild reactions confined to the side of injection.
- No serious adverse events were reported.
- No difference between the two booster vaccine groups.

Anti-HBs response to an additional complete course of HB vaccination in 35/41 children with anti-HBs <10 mIU/ml after booster

Vaccinees primed with	N	>100 mIU/ml	10 – 100 mIU/ml	GMC
Hexavac	31	31 (100%)	-	584.5 mIU/ml
Infanrix	4	1 (25%)	3 (75%)	2756.8 mIU/ml
Total	35	32 (91.4%)	3 (8.6%)	

Conclusions - 1

- Five years after primary immunisation, the proportion of children with protective levels of anti-HBs is significantly lower in those vaccinated with Hexavac compared with those vaccinated with Infanrix Hexa.
- Responses to a booster dose of monovalent HB vaccine are consistent with the induction of immune memory against future HB infection regardless of pre-booster anti-HBs concentration.

Conclusions - 2

- No need for booster injections of vaccine to sustain immunity in children vaccinated in infancy with hexavalent vaccines.
- This observation is specific to the 5-year checkpoint. Additional follow-up is needed.