

VIRAL HEPATITIS PREVENTION BOARD

Technical
Viral Hepatitis Prevention Board
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Long-term immunogenicity of hepatitis B vaccination and policy for booster: an Italian policy

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Long-term immunogenicity and policy for booster - 1

- How long does immunity last?
- Will vaccinated babies maintain immunity until adolescence and adulthood when the risk behaviour may be expected?
- Is there a need for booster vaccination(s) to sustain immunity?

Long-term immunogenicity and policy for booster - 2

Is long-term immunity influenced by:

- the age at which subjects are vaccinated?
- the schedule of primary vaccination?
- the amount of HBsAg included in the vaccine used for immunisation?

Long-term immunogenicity and policy for booster

Study 1

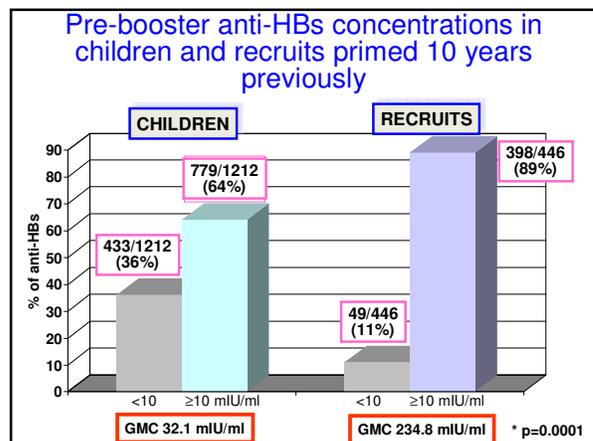
Aim: to study the persistence of immunological memory and need for booster

Long-term immunogenicity of hepatitis B vaccination and policy for booster: an Italian multicentre study

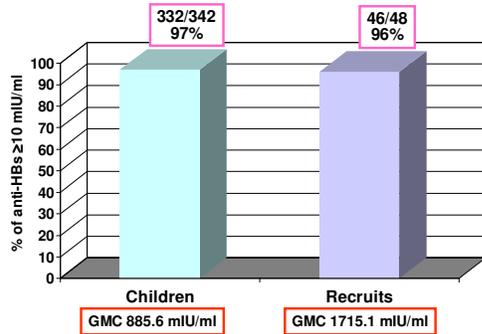
Alessandro Remo Zanetti, Andrea Mariani, Luisa Romanò, Raffaele D'Amelio, Maria Chironna, Rosa Cristina Coppola, Mario Cuccia, Rossana Mangione, Fosca Marrone, Francesco Saverio Negroni, Antonino Parfata, Emanuela Zamparo, Carla Zotti, Tommaso Straffolini, Alfonso Mele, and the Study Group*

Lancet 2005; 366:1379-84

1212 healthy children	446 healthy Italian Air Force recruits
Vaccinated as infants	Vaccinated as adolescents (12 years old)
3 doses Engerix B (10 µg) at 3, 5 and 11m of age	3 doses Engerix B (20 µg) at time 0, 1 and 6m



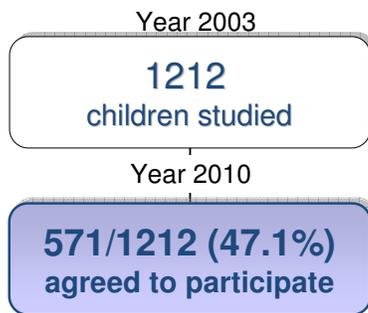
Post-booster anti-HBs concentrations in children and recruits primed 10 years previously



Conclusions

- The use of routine booster doses of hepatitis B vaccine was not required to maintain long-term protection in immunocompetent individuals primed as infants or teenagers 10 years earlier.

Subjects enrolled in 2010



Demographic characteristics of 571 individuals enrolled in 2010

Gender:	
Female	296 (51.9%)
Male	275 (48.1%)
Mean age at enrollment (years; SD)	17 (0.7)
Mean time from primary vaccination (years; SD)	16.7 (0.7)

Long-term immunogenicity and policy for booster

Study 2

297 healthy children	409 blood donors
Vaccinated as infants 17-18 years earlier	Vaccinated as adolescents 17-18 years earlier
3 doses of Engerix B (10 µg) at 3, 5 and 11m of age	3 doses of Engerix B (20 µg) at time 0, 1 and 6m

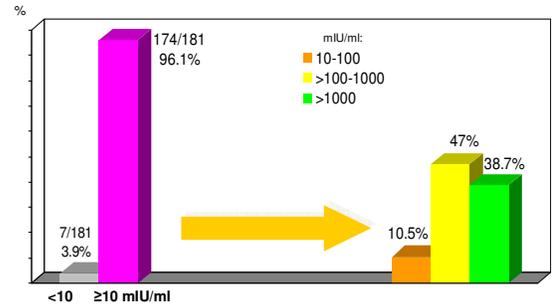
Preliminary conclusions – 1

- Approx 50% of teenagers and nearly 90% of young adults retained protective levels of antibody 17-18 years after primary vaccination.
- Both antibody concentrations and proportion of individuals with protective antibody levels were higher in young adults than in teenagers.

Preliminary conclusions – 2

- Difference could be attributed to:
 - different response to the primary course of vaccination due to the different age at which immunization was given;
 - different vaccine dose (paediatric i.e. 10 µg vs adult i.e. 20 µg)
 - different degree of exposure to natural booster

Post-booster response in 181 teenagers (94 Study 1 + 87 Study 2)



Conclusions

- 17-18 years after immunisation with hepatitis B vaccine, immunological memory still persists in teenagers with anti-HBs lower than 10 mIU/ml, suggesting that booster dose(s) are not needed at this time.
- Anamnestic response to boosting of donors vaccinated as adolescents and who lost antibody over time, will help to clarify this issue even further.