Waste management

Document: waste management at country level

- Count at all levels the waste
- Report from aggregated from local, district to national level
- Multidose versus monodose vial has implications on waste amount
- Multidose increases the amount of managerial work
- Multidose management only valid for non-lyophilized vaccines
Waste management

- If vaccine doses and waste amount remains stable: improve waste management
- If vaccine doses decrease and waste increase: problem with cold chain
- If both increase: better outreach and therefore waste augments
Vaccine preparations

Available on DR-ROM in Russian & English

- Thiomersal - ETAGE 2004
- Thermo-stability - freezing (avoid!!) versus heating to a certain extent
- Purchase - be careful with manufacturer provided information
  - All vaccines are safe and efficacious
  - Vaccines are interchangeable
Vaccine preparations

- Diversity of schedules!
  - 3rd dose at least 2 months after 2nd dose
  - 3rd dose at least at 6 months of age
  - Make it fit into the national/EPI program - scheme is flexible

- Dosage: vaccine not a generic product - but protection same

- Perinatal transmission
  - 1st dose within 12-24 hours - decreased efficacy if given later
  - HBlg adds 2-3% increase in protective efficacy - not available everywhere - added value rather small
Vaccine preparations

- BCG & hepatitis B vaccine given together: OK
- Simultaneous administration with other vaccine: OK
- WHO: most important - prevent perinatal transmission (feasibility)
- Monovalent vaccines to be used at birth - do not use combined vaccines at birth
- 22 out of 43 countries have a newborn program
Duration of protection

- Protection with >10 IU/l anti-HBs

- Decrease of anti-HBs titres after 3rd dose is low/flat after 18-24 months
  - Kinetics similar in individuals irrespective of peak antibody levels (standard vaccination)
  - Half-life is a function of time
  - Influenced by disorders of immune system
  - After 10 years: 50-85% of individuals still positive
Duration of protection

- Risk of infection inversely related to maximal antibody response

- Negative individuals are again susceptible to infection
  - breakthrough infections possible - 0-14%
  - no acute disease, no clinical signs - protection against clinically apparent disease

- Presence of immunologic memory
  - memory cells lead to rapid anamnestic response
  - prevents disease and chronic infection
Duration of protection

- How long does memory last?
  - > 95% of vaccinees after 10 years
  - Presence of HBsAg specific T- and B-cells last for at least 15 years
  - Correlates with primary response
  - Depends on antigen dose
  - More than 15 years: wait for more studies
Current experience in Italy

- Hepatitis B and D widespread in the 1980s
- Italy introduced a double cohort approach in infants and adolescents (age 12) 1991
- Double cohort stopped in 2003 (catch-up). Only infant immunisation since 2004
- High coverage at 24 months
- Incidence (Tuscany data 1994-2001) decreased from
  - 14.3 to 3.7 /100'000 in 20-24 age group
  - 7.3 to 1.3/100'000 in the 15-19 age group
Current experience in Italy

- Anti-HBc present in 0.3% of vaccinated vs. in 6.6% of non-vaccinated

- Persistence of anti-HBs after 11 years
  - 64% positive in children
    - 98.5% responded to booster
  - 87% positive in recruits
    - 100% responded to booster
  - Only 0.3% remain negative after booster overall (infants + adolescents)

- No public health problem with HBsAg mutants as of 2004

- Very limited number of asymptomatic infections in infants born to HBsAg positive mothers

- Deep impact in the population of national HB vaccine campaign
Many studies have shown that infants, children and adults who have responded to a three-dose hepatitis B immunization series are protected from the disease for as long as 15 years, even if they lose protective antibodies over time.

Long-term protection relies on immunological memory, which allows a protective anamnestic response after exposure to HBV.

Booster doses of vaccine are not, therefore, recommended.
hepatitis B vaccine booster

WHO priorities remain

- infant immunization
- prevention of perinatal transmission through neonatal programmes
- catch up programmes
- of consideration /no recommendations/ for specific groups like HCW, patient groups,
- booster may be used for reasons of reassurance
- booster may be used for immunocompromised patients
Pre-vaccination testing

- HB vaccine can even be administered to HBsAg positive individuals
- Pre-vaccination screening is NOT recommended routinely
  - Identifies infected or immune individuals
  - Refer for counselling
  - Defer immunization
- Only considered for cost effectiveness
  - Cost of vaccine
  - Cost of testing
  - Prevalence of infection
  - Compliance of individuals - always administer first dose at time of testing
Post-vaccination testing

- Post-vaccination testing NOT routinely recommended
  - >95% seroconvert
  - Test 1-2 months after 3rd dose
  - Use quantitative test if possible

- Infants of HBsAg positive mothers: test at 9 months
Management of adult non-responders

- re-administer additional vaccine doses
- % 30 responders after 1st dose
- 50% responders after 3rd dose
- If exposed, administer HBIG
- Conclusions: Little benefit of these programs from public health perspective
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