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National Institute
for Public Health
and the Environment

Dutch Centre for Infectious Disease Control

**Netherlands:**

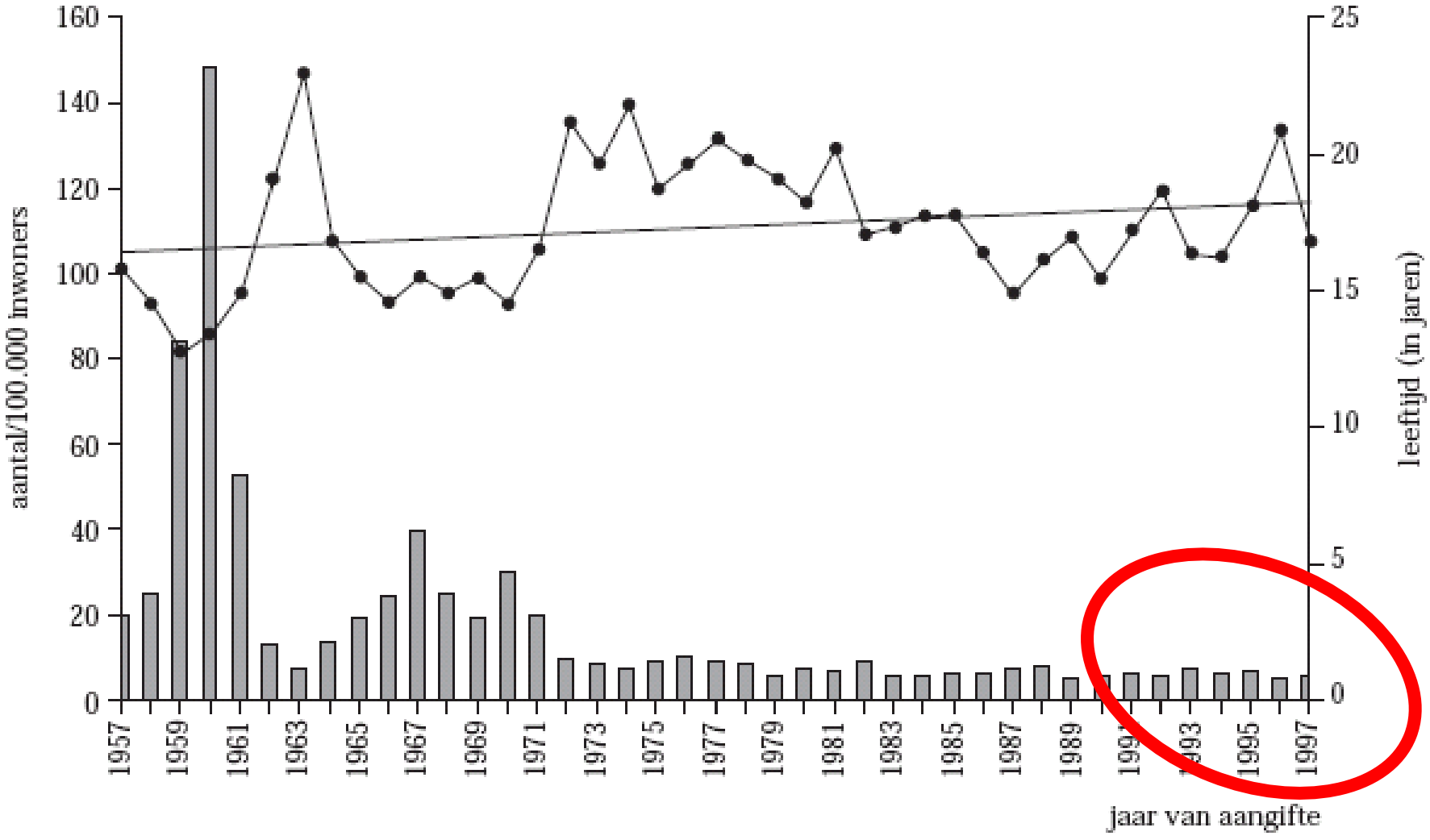
**- Two distinct transmission patterns**

**- Room for improvement of surveillance**

Session 9 (01-12-07) 10:55 hrs

**Reported HA 1957-97**
**Netherlands: Hepatitis A is NOT a serious public health problem**
**<1 death/year, <**

Termorshuizen et al. Ned Tijdschr Geneeskd 1998

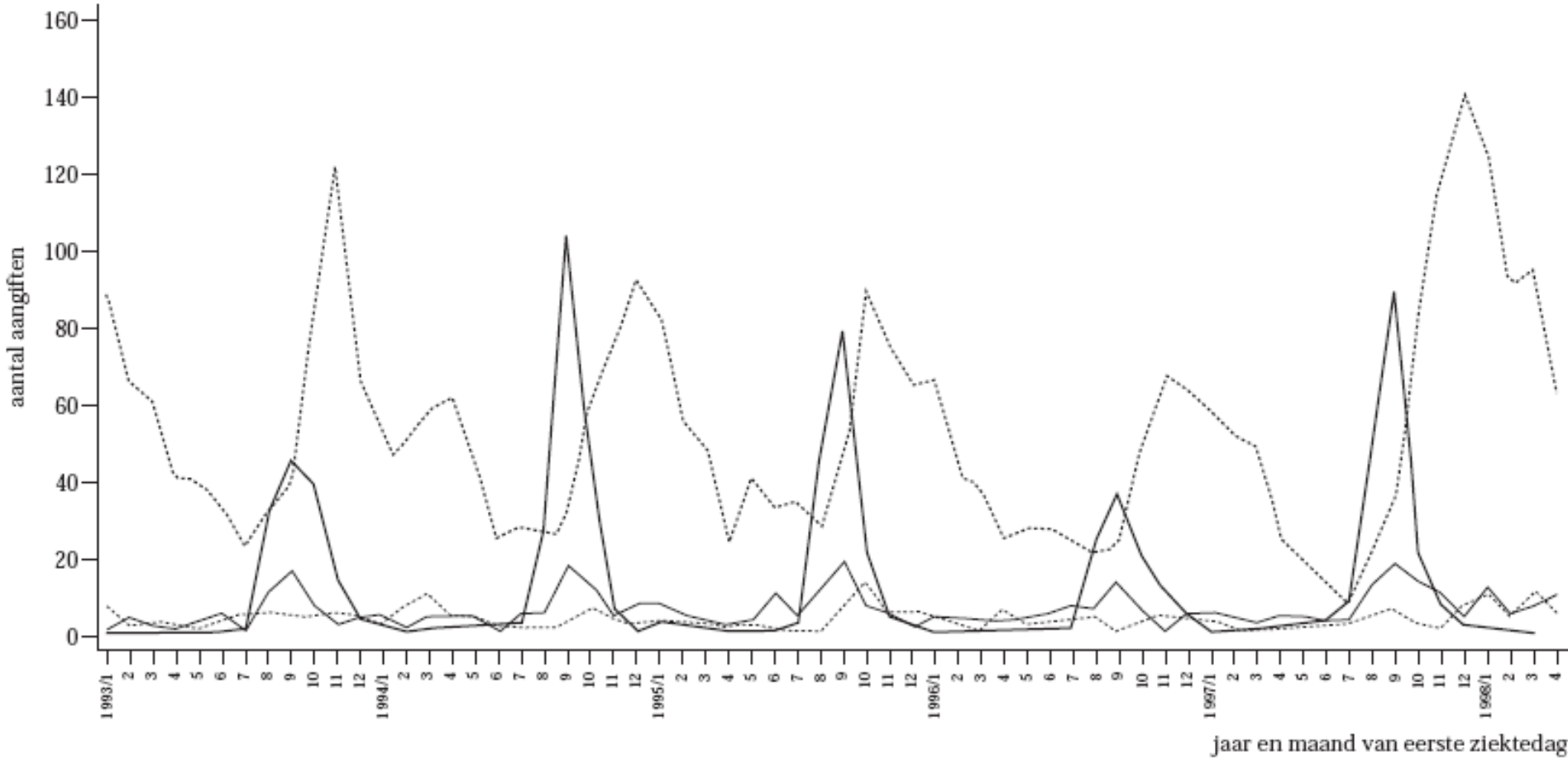


# HAV notifications/month 1993- 1998 Netherlands

## Probable geographical source country.

| | | | |
|---|---|---|---|
| ……Netherlands | | ..... | unknown |
| ———Turkey Morocco | | ———— | other |



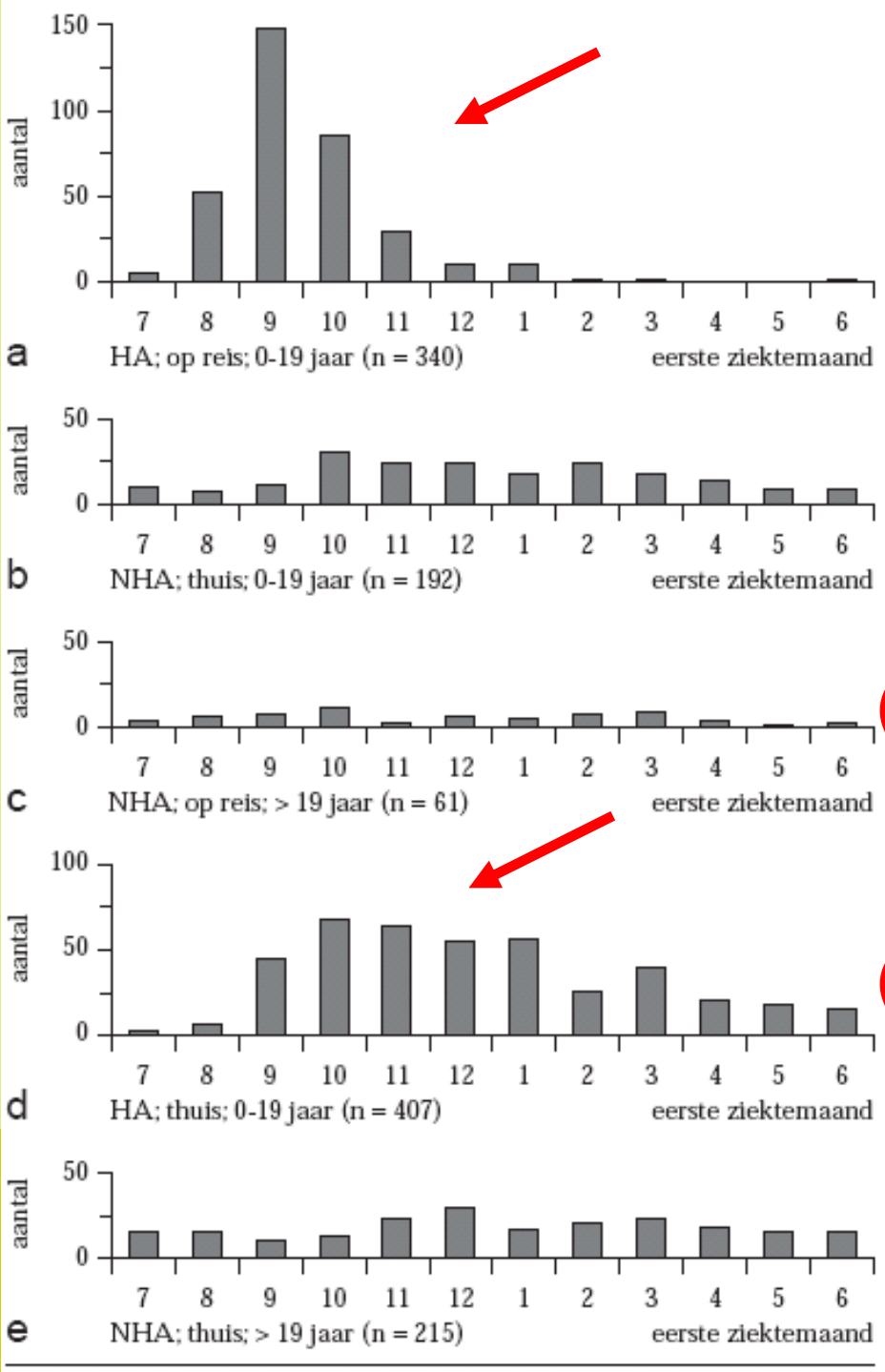



# Travel to

# Morocco / Turkey

# once every three years

© Dijkshoorn et al. NTvG 2003; 147(14):658-62.




# 1992-95 registered cases HA

## Origin and travel history

### Largest cities (4) NL

129 MSM/DU

761 origin high endemic region

502+ origin low endemic region

1392

a. Youth HE travel +

b. Youth LE travel -

c. Adults LE travel +

d. Youth HE travel -

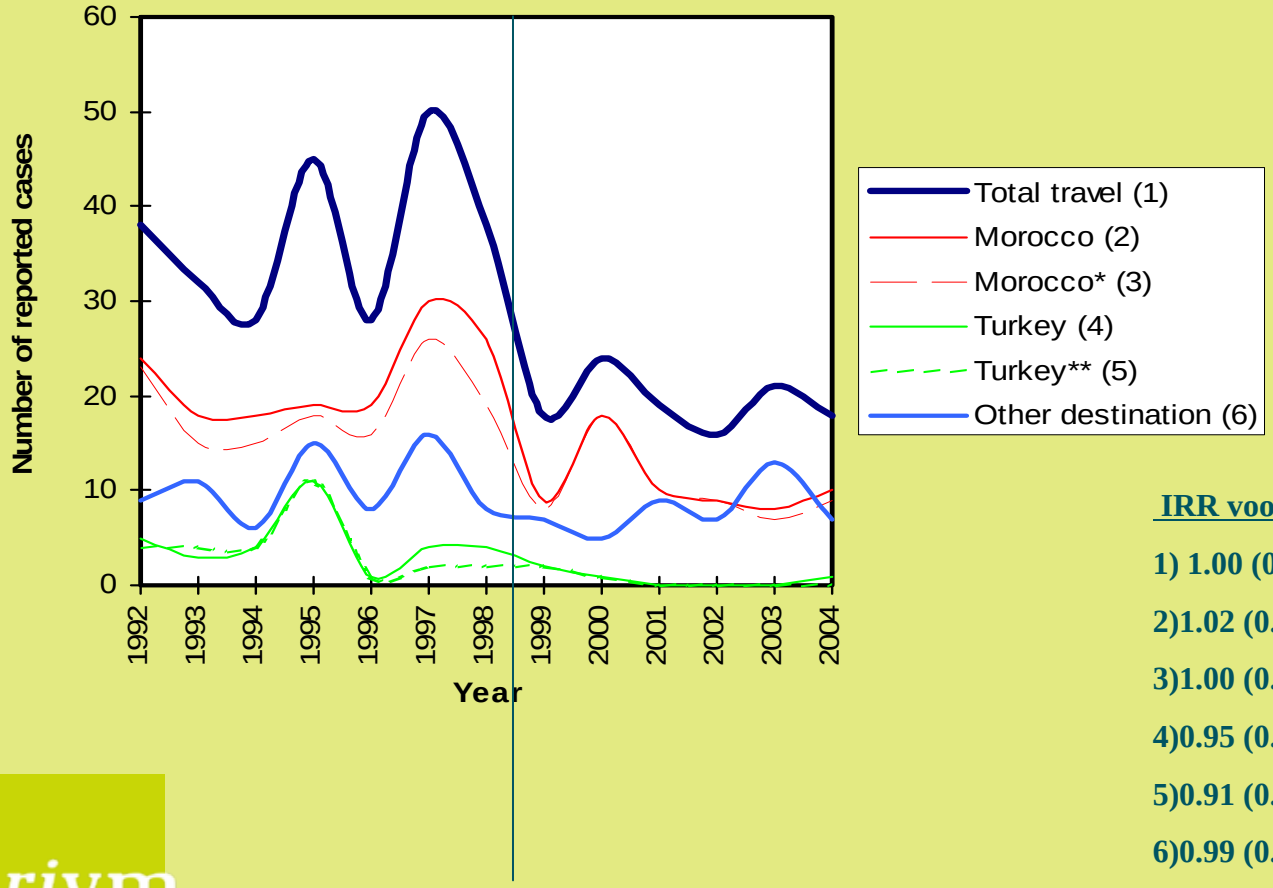
e. Adults LE travel -

© Gorkom et al. NTvG 1998

# Decrease ⇒ vaccination?
# hygiene?

## MHS Amsterdam HA reported cases

**probable source: TRAVEL**




| | IRR voor 98 | IRR na 98 | p-value |
|---|---|---|---|
| 1) | 1.00 (0.94-1.05) | 0.87 (0.81-0.93) | 0.014 |
| 2) | 1.02 (0.94-1.09) | 0.83 (0.75-0.91) | 0.006 |
| 3) | 1.00 (0.92-1.08) | 0.86 (0.78-0.94) | 0.052 |
| 4) | 0.95 (0.80-1.12) | 0.56 (0.37-0.86) | 0.046 |
| 5) | 0.91 (0.76-1.09) | 0.44 (0.22-0.88) | 0.065 |
| 6) | 0.99 (0.89-1.09) | 0.98 (0.88-1.09) | 0.909 |

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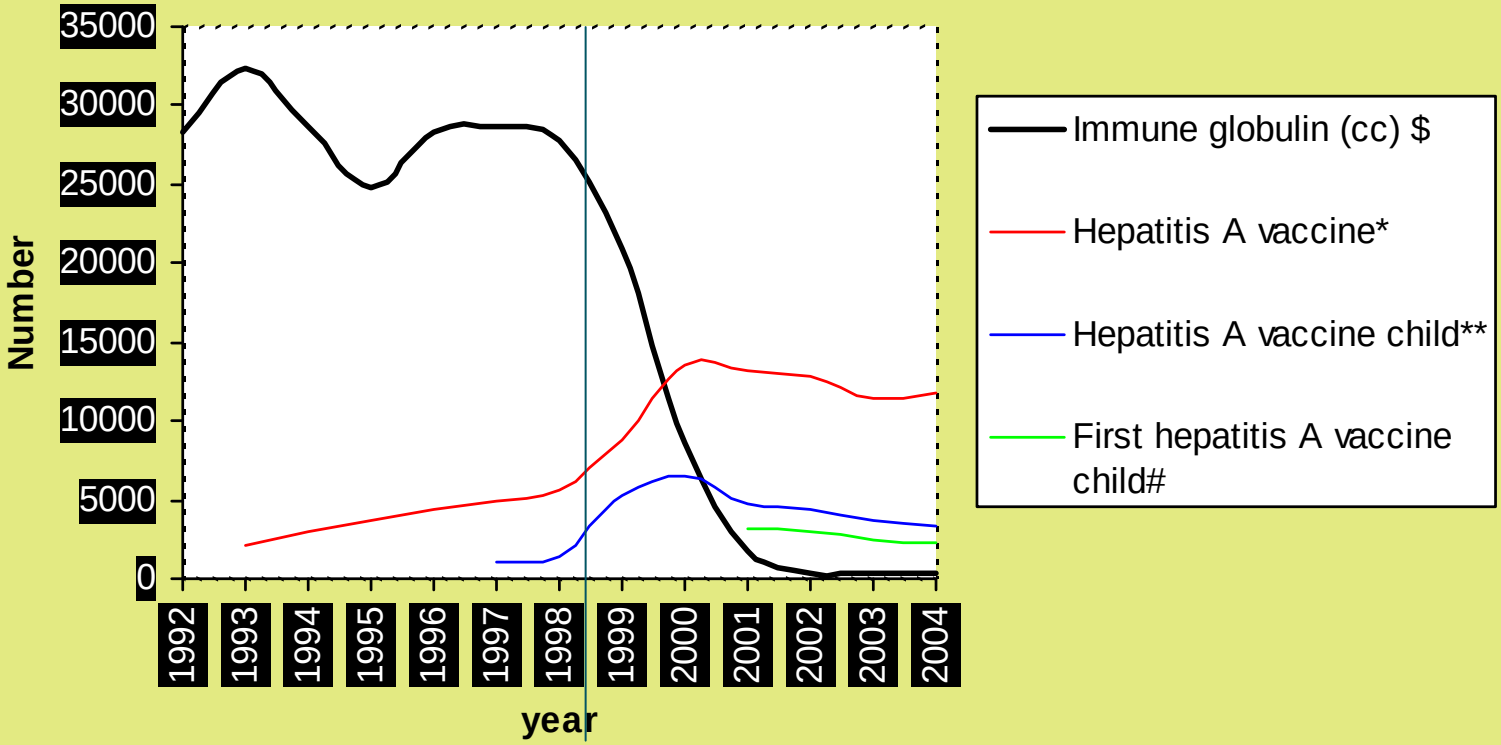
© Sonder et al.Vaccine 2006; 24(23):4962-8

# Amsterdam immunisations 1992-2004




**“Circumstantial evidence”**

**Vaccination coverage travelling youth < 40% (Dijkshoorn NTvG 2003)**

**Epidemiological transition in source countries**

# Seroprevalence total anti-HAV Rotterdam 2001

© Richardus et al. J Med Virol 2004;72(2):197-202

| Age | Turkey %+ (n) | Morocco %+ (n) | Dutch %+ (n) |
|---|---|---|---|
| 5-7 yrs | 2.2 (137) | 10.2 (137) | 0.8 (120) |
| 8-10 yrs | 10.0 (110) | 24.6 (122) | |
| 11-13 yrs | 17.8 (45) | 31.8 (44) | |
| 14-16 yrs | 22.2 (27) | 57.7 (26) | 3.1 (128) |

**Seroprevalence <10% born after 1960, 77% born before 1945**

Termorshuizen, Epidemiol Infect 2000;124:459-66

# Seroprevalence total antiHAV (infection/vaccination)

| | Turkey 1st g. %+ (n) | Morocco 1st g %+ (n) | T&M 2nd gen. %+ (n) | Dutch %+ (n) |
|---|---|---|---|---|
| antiHAV+ | 98.6 (306) | 97.1 (265) | 37.4 (57) | 45.6 (509) |
| | RRR (95%CI) | RRR (95%CI) | RRR (95%CI) | Ref |
| MulVar | 2.4 (1.8-3.3) | 2.3 (1.6-3.2) | 0.9 (0.5-1.7) | 1 |

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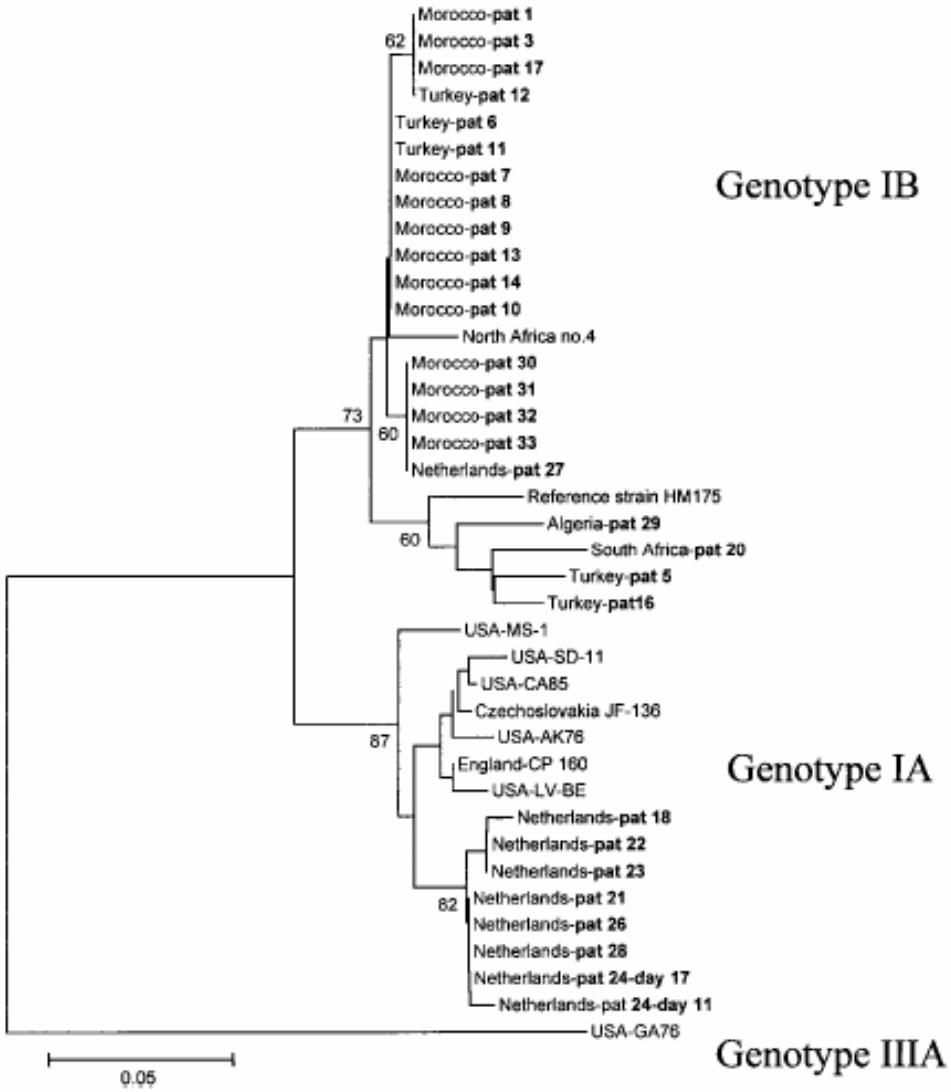
# Feasibility study (pilot 1997/1998)
# 33 stool samples

**© Bruisten et al. J Med Virol 2001;63:88-95**




- Collection stool samples feasible
- Positive samples (despite delay)
- Excretion HAV-RNA 33 days

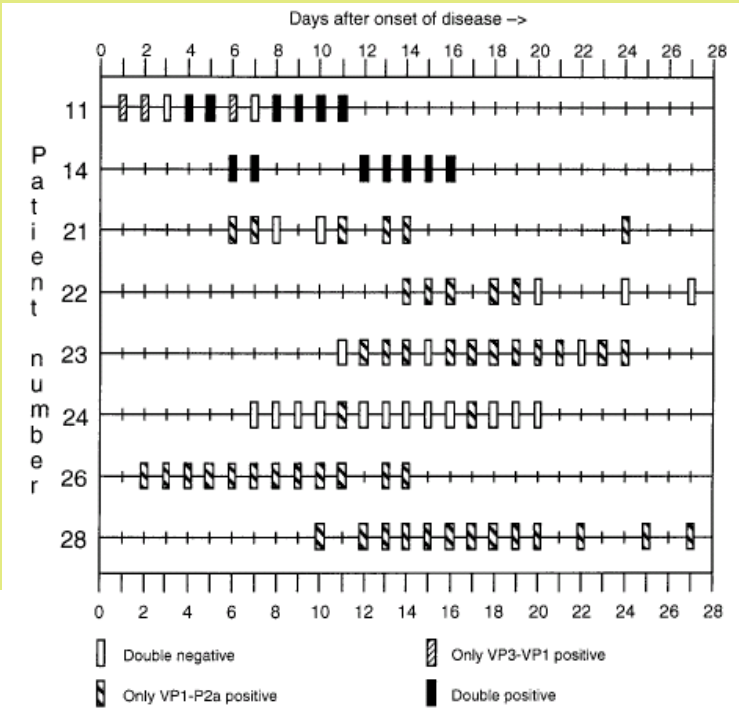
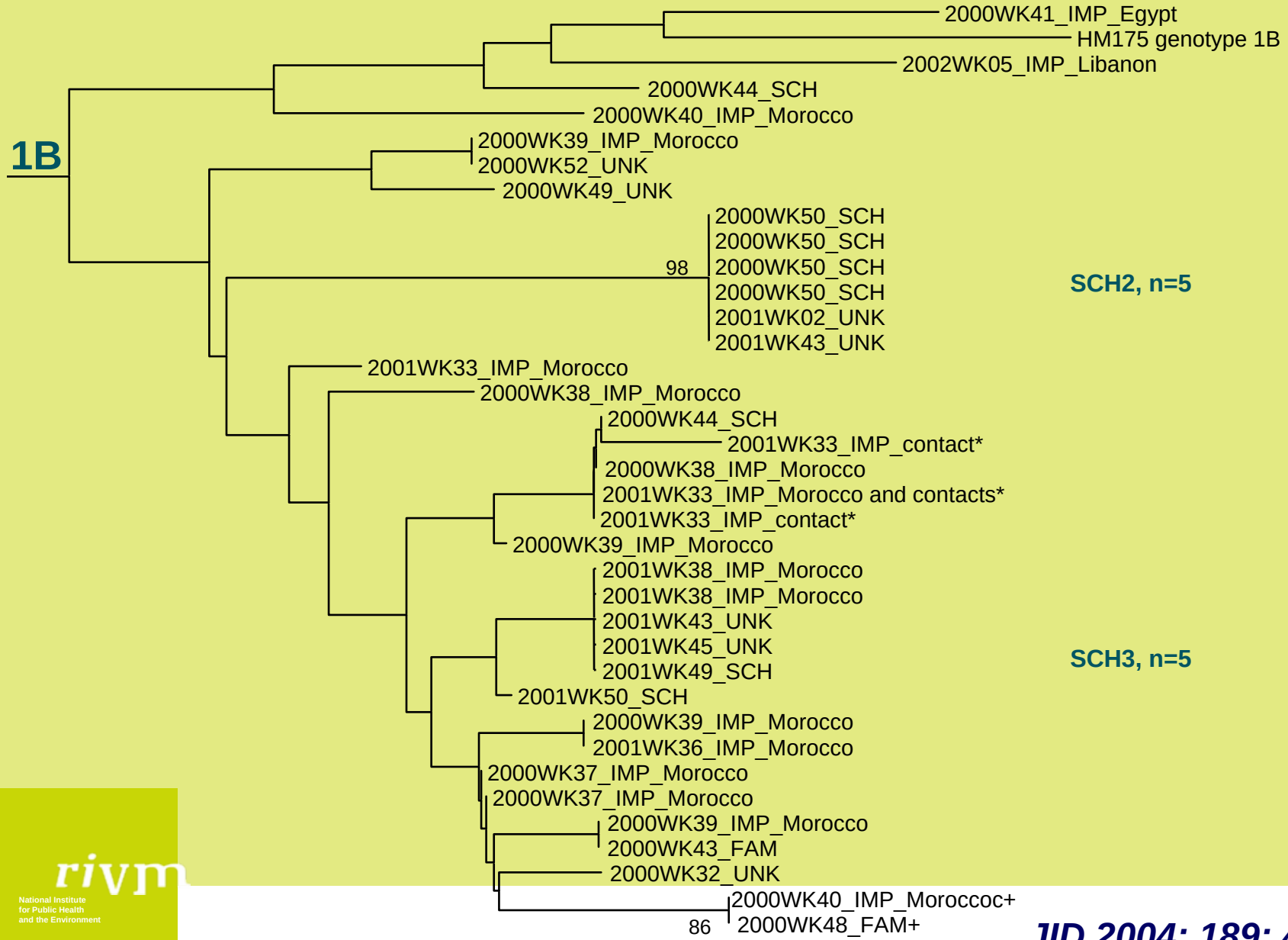


Figure 2b

# Genotype1B, VP1-P2a 2000-2002 A'dam

## 103 isolates

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*JID 2004; 189: 471-82*

# 1). Frequent import of HAV
# - limited transmission to siblings/ school

- Case based source and contact tracing MHS
  no tertiary cases **(© Sonder et al. AJPH 2004; 94 (9): 1620-6)**

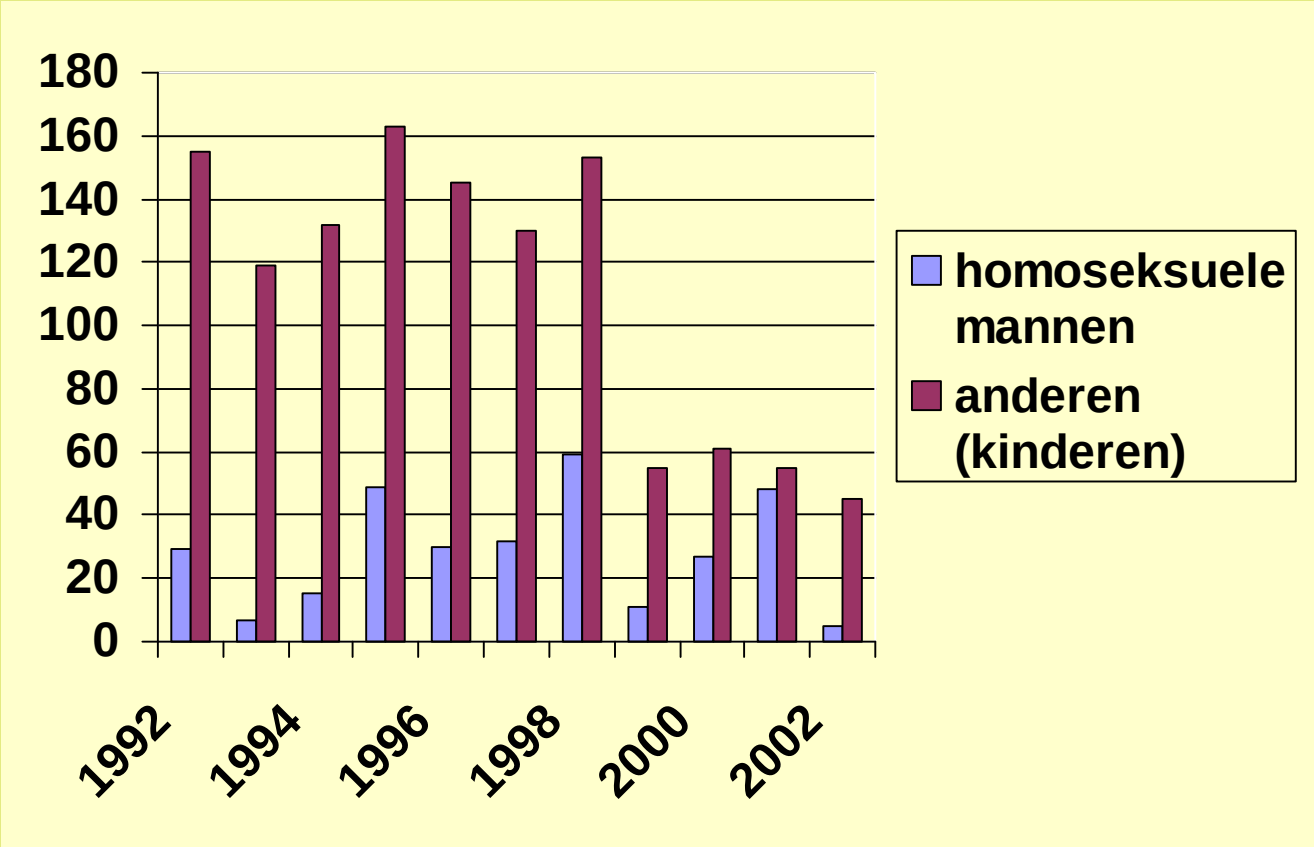
- Pre travel vaccination program
  uptake <40% **(© Dijkshoorn et al. NTvG 2003;147(14):658-62)**

- Targeted HB vaccination program
  all new born children with one or both parents originating from HBV endemic countries HBvaccine

- Combined HBV/ HAV vaccine
  Not cost saving, “may have favourable cost-effectiveness”
  **(© Postma et al. Vaccine. 2004;22(15-16):1862-7)**

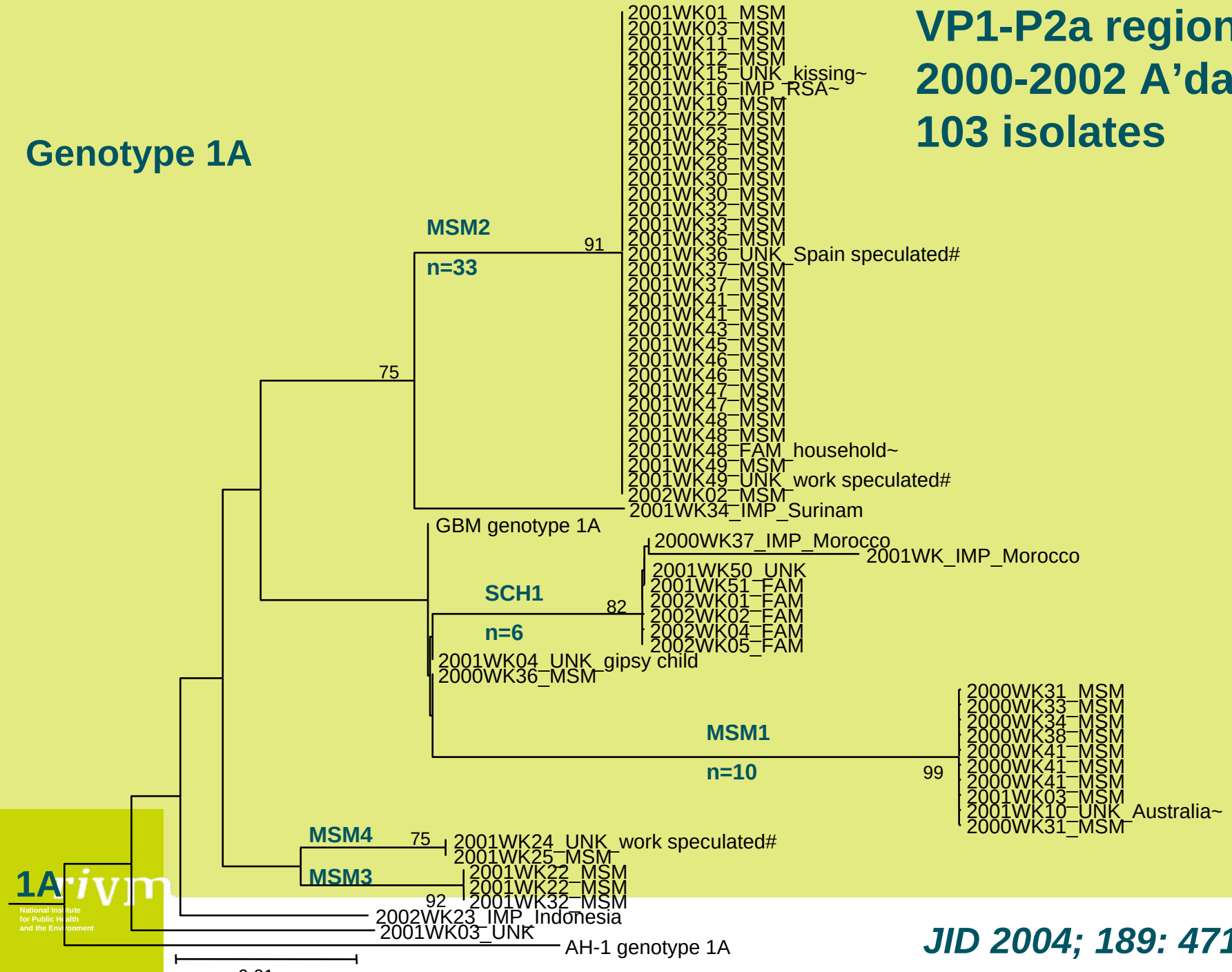
- **Vaccinate children in Morocco/ Turkey!**

# Reported cases HA Municipal Health Service GGD Amsterdam 1992 - 2002



# VP1-P2a region 2000-2002 A'dam 103 isolates

## Genotype 1A




1A

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*JID 2004; 189: 471-82*

# Seroprevalence total antiHAV (infection/vaccination)

**over all 2004 Amsterdam 57%  NL 34%**
**Dutch >15 yrs A'dam  45%  NL 47%**

| | MSM %+ (n) | WSM %+ (n) | WSW %+ (n) | MSW %+ (n) |
|---|---|---|---|---|
| antiHAV+ | 48.1 (47) | 58.4 (639) | 79.5 (19) | 55.0 (561) |
| | RRR (95%CI) | RRR (95%CI) | RRR (95%CI) | Ref |
| MulVar | 0.9 (0.6-1.3) | 1.1 (0.9-1.2) | 1.4 (1.1-2.0) | 1 |

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# 2). Continuous transmission HAV among MSM

- Source and contact tracing ineffective anonymous contacts **(JID 2004;189:471-82)**
- Separate clusters MSM – travellers **(Tjon et al. JMV 2007;79(5):488-94)**
- Free HBV vaccination programme MSM
- Additional HAV in HBV programme at 2x € 15,- no data uptake
- No cost-effectiveness study available

# 3). Food borne HA?

- European collaboration DIVINE/EVENT

- Netherlands notified cases: 20% “unknown source”

  **(Eerden NTvG 2004,148(28):1390-4)**

- Molecular analysis Amsterdam: no unexpected clusters

  **(JID 2004;189(3):471-82)**

- 2008
  Nation wide collection of specimens, isolation, sequencing, phylogenetic analysis, clustering ⇒ extensive food history

# Summery hepatitis A in The Netherlands

1. Decreased import through travel (Turkey, Morocco)
   limited transmission, effective source contact tracing
   pre-travel vaccination, transition in source countries,
   vaccination programme(?)

2. MSM ongoing transmission
   no source and contact tracing possible
   vaccination programme HBV/HAV, free of charge (?)

3. Food borne HA
   unknown $\Rightarrow$ enhanced surveillance in European
   collaboration (NL 2008)