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, <

HAV notifications/month 1993-1998 Netherlands

Probable geographical source country.

Netherlands
Turkey Morocco
unknown
other

©Termorshuizen et al. NTvG 1998;142(43):2364-8
Travel to Morocco / Turkey once every three years

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of reported cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>40</td>
</tr>
<tr>
<td>1993</td>
<td>50</td>
</tr>
<tr>
<td>1994</td>
<td>60</td>
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<td>2002</td>
<td>140</td>
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<tr>
<td>2003</td>
<td>150</td>
</tr>
<tr>
<td>2004</td>
<td>160</td>
</tr>
</tbody>
</table>

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

© 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

© Sonder et al Vaccine. 2006 Jun 5;24(23):4962-8
Seroprevalence total anti-HAV Rotterdam 2001

<table>
<thead>
<tr>
<th>Age</th>
<th>Turkey %+ (n)</th>
<th>Morocco %+ (n)</th>
<th>Dutch %+ (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-7 yrs</td>
<td>2.2 (137)</td>
<td>10.2 (137)</td>
<td>0.8 (120)</td>
</tr>
<tr>
<td>8-10 yrs</td>
<td>10.0 (110)</td>
<td>24.6 (122)</td>
<td></td>
</tr>
<tr>
<td>11-13 yrs</td>
<td>17.8 (45)</td>
<td>31.8 (44)</td>
<td></td>
</tr>
<tr>
<td>14-16 yrs</td>
<td>22.2 (27)</td>
<td>57.7 (26)</td>
<td>3.1 (128)</td>
</tr>
</tbody>
</table>

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

Termorshuizen, Epidemiol Infect 2000;124:459-66
Seroprevalence total antiHAV (infection/vaccination)

<table>
<thead>
<tr>
<th></th>
<th>Turkey 1st g.</th>
<th>Morocco 1st g</th>
<th>T&amp;M 2nd gen.</th>
<th>Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td>%+</td>
<td>98.6 (306)</td>
<td>97.1 (265)</td>
<td>37.4 (57)</td>
<td>45.6  (509)</td>
</tr>
<tr>
<td>(n)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>antiHAV+</td>
<td>RRR (95%CI)</td>
<td>RRR (95%CI)</td>
<td>RRR (95%CI)</td>
<td>Ref</td>
</tr>
<tr>
<td>MulVar</td>
<td>2.4 (1.8-3.3)</td>
<td>2.3 (1.6-3.2)</td>
<td>0.9 (0.5-1.7)</td>
<td>1</td>
</tr>
</tbody>
</table>
Feasibility study (pilot 1997/1998)
33 stool samples

- Collection stool samples feasible
- Positive samples (despite delay)
- Excretion HAV-RNA 33 days
Figure 2b

Genotype 1B, VP1-P2a 2000-2002 A’dam
103 isolates

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

© Annual Reports GGD Amsterdam
Genotype 1A

VP1-P2a region
2000-2002 A’dam
103 isolates

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%

<table>
<thead>
<tr>
<th></th>
<th>MSM %+ (n)</th>
<th>WSM %+ (n)</th>
<th>WSW %+ (n)</th>
<th>MSW %+ (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>antiHAV+</td>
<td>48.1 (47)</td>
<td>58.4 (639)</td>
<td>79.5 (19)</td>
<td>55.0 (561)</td>
</tr>
<tr>
<td>MulVar</td>
<td>0.9 (0.6-1.3)</td>
<td>1.1 (0.9-1.2)</td>
<td>1.4 (1.1-2.0)</td>
<td>1</td>
</tr>
</tbody>
</table>

© Baaten et al. JMV 2007 Dec;79(12):1802-10
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 ⇒ enhanced surveillance in European collaboration (NL 2008)