

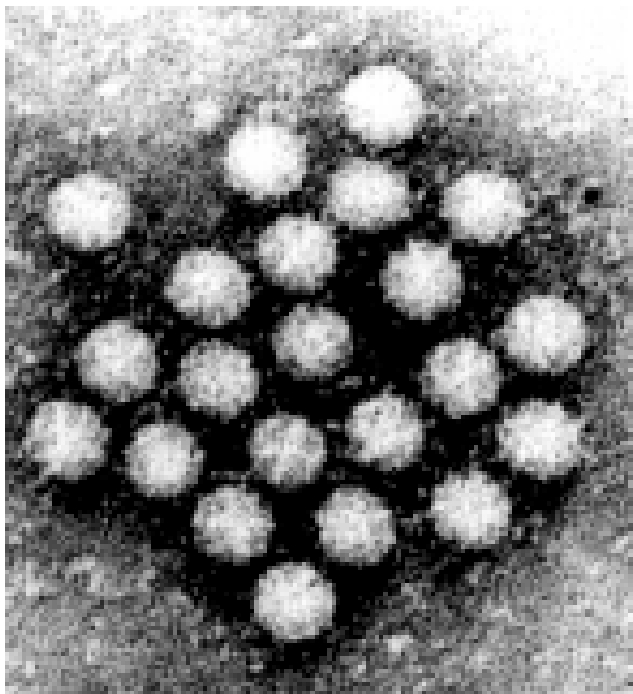


Challenges in the interpretation of classical and molecular epidemiology results: 2 *Calicivirus* outbreaks due to oysters, Denmark at New Year 2000

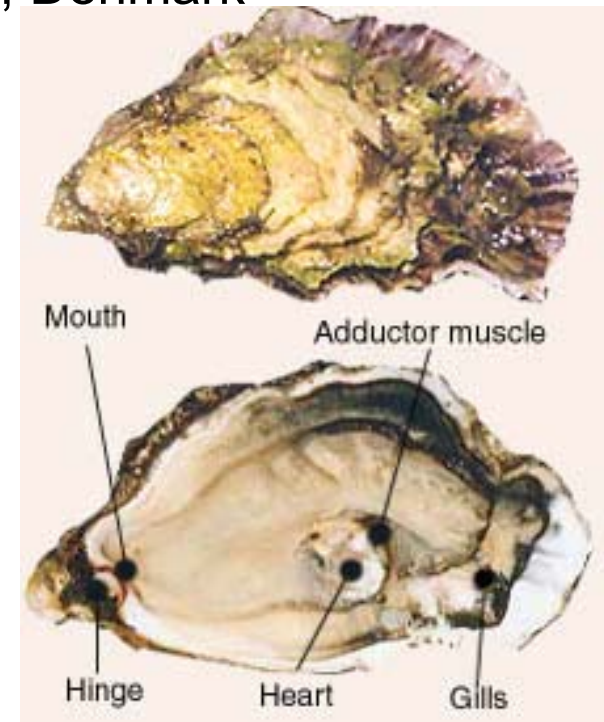
FX Hanon¹, S Corbet¹, B Böttiger¹, AC Schultz², P Saabye², A Perge²,
K Mølbak¹

¹Statens Serum Institut, Copenhagen, Denmark

²National Food Agency, Søborg, Denmark



FX. Hanon



Statens Serum Institut, DK



Gastroenteritis alert: 3rd Jan 2001

- 2 different meals on the 29th Dec 2000
 - Region 1: - 5 ate oysters and sick
 - 4 did not eat oysters and healthy
 - Region 2: - 2 ate oysters and sick
 - 3 did not eat oysters and healthy
- Kaplanís criteria
 - Stool culture negative for bacterial agent
 - Vomiting > 50% of cases
 - Mean duration of illness 12-60 hours
 - Incubation period 15-77 hours (24-48h usually)



Objectives and Methods

- Epidemiology: outbreak size, transmission route
 - Case definition: Kaplan + oyster consumption
 - Questionnaire if stools collected
- Testing: link patients and oysters
 - Stools:-Electronic microscopy
 - RT-PCR with JV12/JV13 primers (Vinje J et al)
 - Oysters: Nested RT-PCR with NI/E3 (Lees D et al)
 - Sequencing (oysters and patients)



Description of cases

- 297 cases reported from 3rd to 16th Jan 2001
 - Statens Serum Institut
 - Regional health officers
 - Regional food inspectors
 - Oyster importer
- Cases reported from all regions of Denmark
- 80% attack rate
- Clinical signs
 - Usual mild form
 - 1 person hospitalised (still ill after 1 month)
 - 2 children



One batch of French oysters: *Crassostrea gigas*

- Danish importer:
 - Divided in 3 sub-batches and repacked
 - No sick foodhandler
- Sold to:
 - Different supermarket chains
 - Restaurants
 - Fish handlers
- Withdrawal and press release on 4th Jan 2001



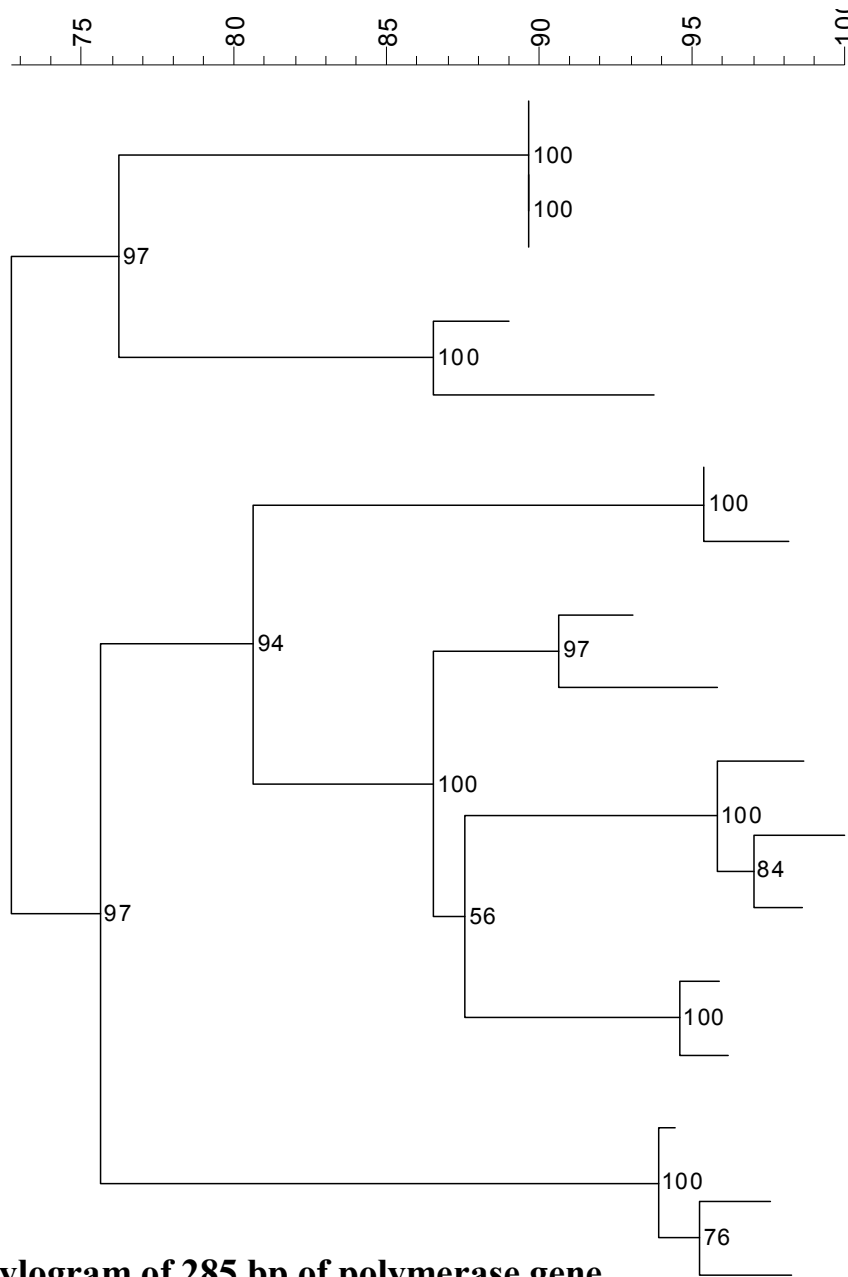
February outbreak

- Restaurant A 16/02/01
 - Oysters same importer and producer
 - 6 sick out of 7
 - 1 patient hospitalised for more than a month
- Restaurant B 21/02/01
 - Oysters same importer and producer
 - 3 sick out of 3
 - One patient hospitalised



Calicivirus tests results

Type of sample	Nb tested	RT-PCR positive	EM positive
Patients	17	13	9
Oysters	15	6	na
Environmental (importer)	18	1	na



Identification	Outbreak
<i>Malta</i>	Ref
Pat.1	New Year
Pat.A	February
<i>White Rose</i>	Ref
Pat.3	New Year
<i>Hillington</i>	Ref
Pat.2	New Year
<i>Wortley</i>	Ref
Pat.4	New Year
<i>Melksham</i>	Ref
Pat.5	New Year
Pat.6	New Year
<i>GG IIb</i>	Ref
Pat.A	February
<i>Alphontron</i>	Ref
Pat.B	February
Pat.C	February

Phylogram of 285 bp of polymerase gene of Calicivirus detected in patients

Using Neighbour Joining method with 1000 Bootstrap, obtained with BionumericsÆ by Applied MathsÆ



Oyster Data

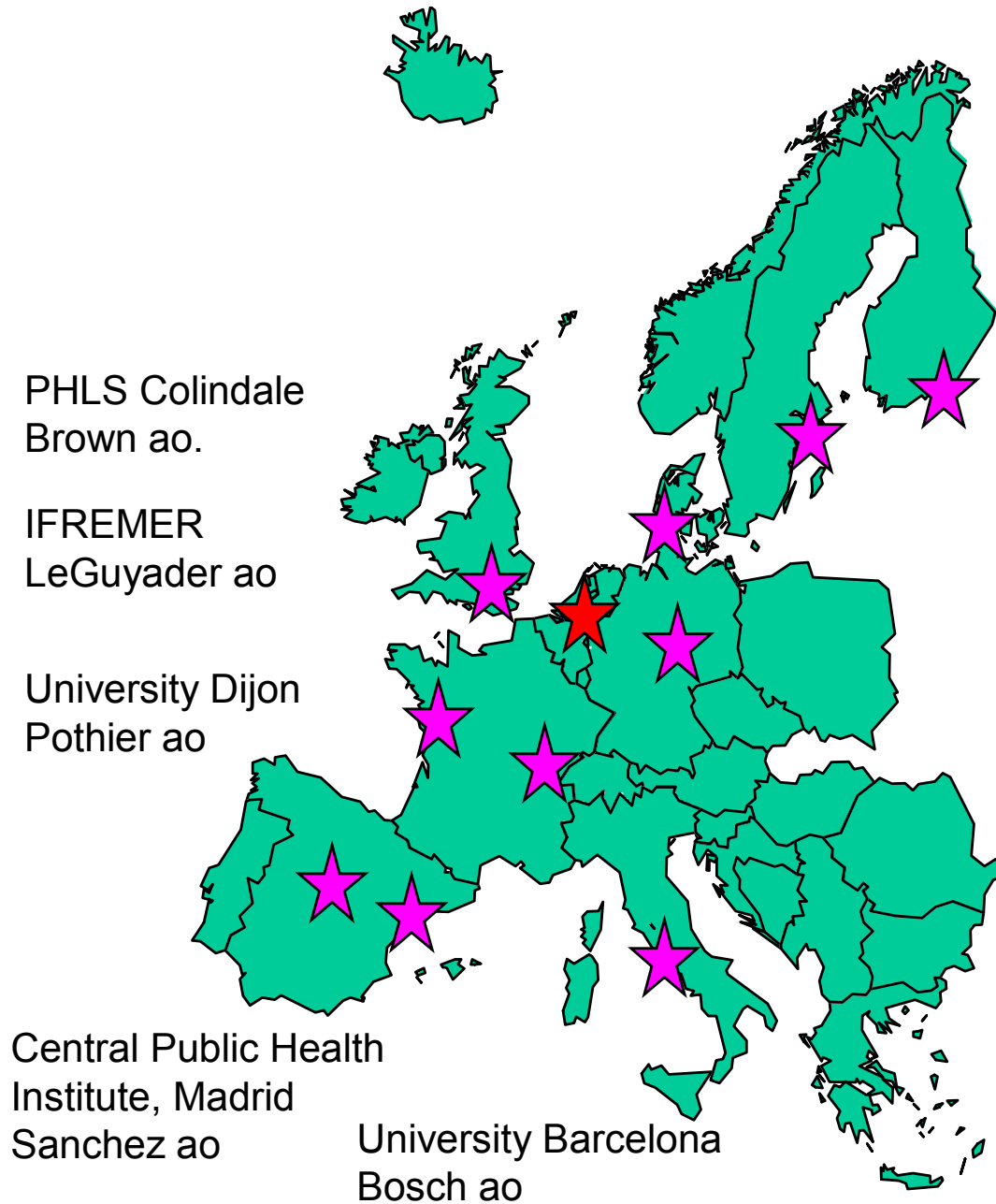
- **Calicivirus in Oysters**
 - Genogroup I and Genogroup II
 - For New Year and February outbreak
- **Cases due to oysters from the same producer**
 - Finland
 - Netherlands
 - Germany?



Conclusions

- Molecular typing insufficient to link
 - 2 patients to the same outbreak
 - Exposure (food) to patient
- Examine different strains from the same sample
 - Why do patients pick up preferentially a strain?
 - Why do patients harbour more than one strain?
 - How do Calicivirus mutate and recombine?

Foodborne viruses in Europe QLK1-1999-00594



- University of Helsinki
von Bonsdorff ao
- Swedish Institute Infectious
Disease Control; Svensson ao
- Statens serum institute
Bottiger ao
- Robert Koch Institute
Schreier ao
- Central Public Health Institute
Rome, Toti ao