

Recommended infection control practices during CCHF outbreaks in high technology settings

Example of recently imported VHF cases in France and Germany

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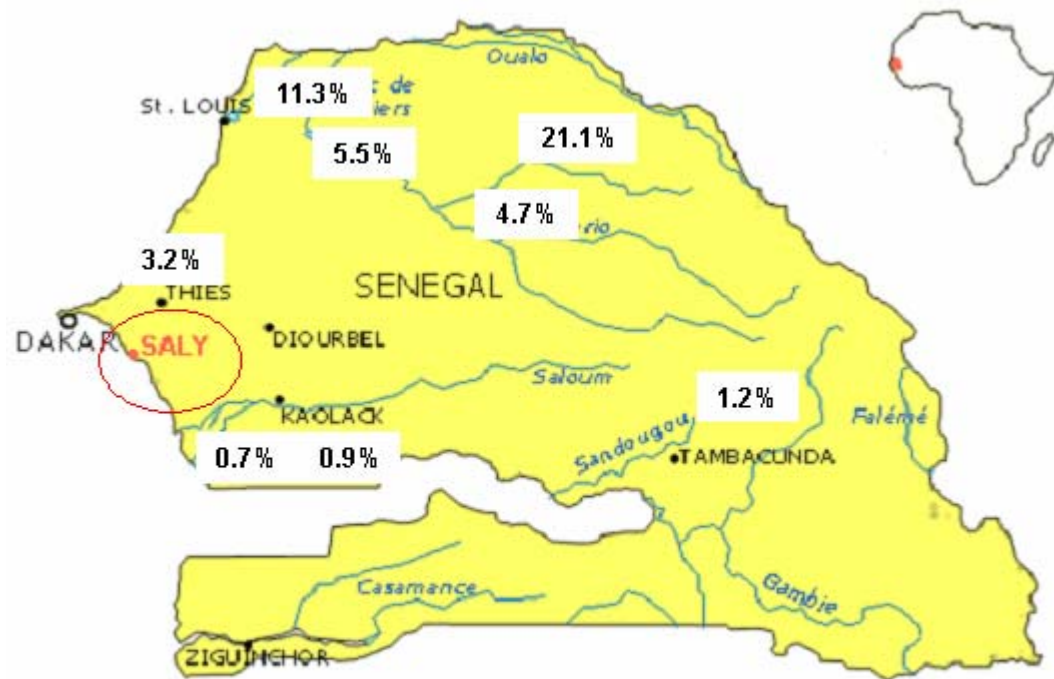
Index case

- 61-yr old female, resided in Saly and Dakar (Senegal)
- Symptoms on D_0 (fatigue, fever, malaise)
- Successively admitted in two Dakar hospitals for suspected malaria
- Clinical presentation compatible with VHF (bleeding on D3)
- Sanitary transport plane (German company)
- ICU at Rennes University Hospital (admitted at D_0+10).
- Favorable outcome, without antiviral therapy
- Diagnosis at D_0+18 by NRC by the NRC on a sample dated D_0+11 :
 - anti-CCHF IgM without IgG
 - Nested PCR positive for CCHF viral genome



CCHF in Senegal

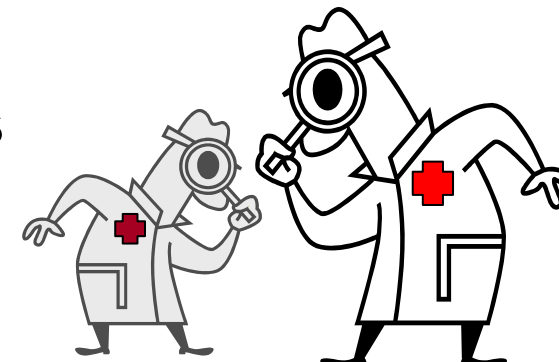
- The virus circulates in the country – known since seroprevalence studies in 1980s.
- North-South gradient
- First symptomatic CCHF case identified in 2003.
- 1 other suspect case died recently.



*IgG seroprevalence in humans (1986-1988),
Wilson ML et al. Am J Trop Med Hyg 1990; 43(5):90-123*

Investigation in France

- Standard precautions+ (masks and gowns), single room
- No ABE identified by occupational health dept.
- 108 contacts identified within 48h (incl. 97 HCW at Rennes University Hospital):
 - 44 HCW in 2 healthcare wards
 - 50 personnel in 10 labs of 2 hospitals
 - 3 personnel in transportation or radiology services
 - 2 private ambulance personnel
 - 9 parents/close ones
- 50 samples or aliquots in 10 labs of 2 hospitals
- No symptomatic secondary case identified



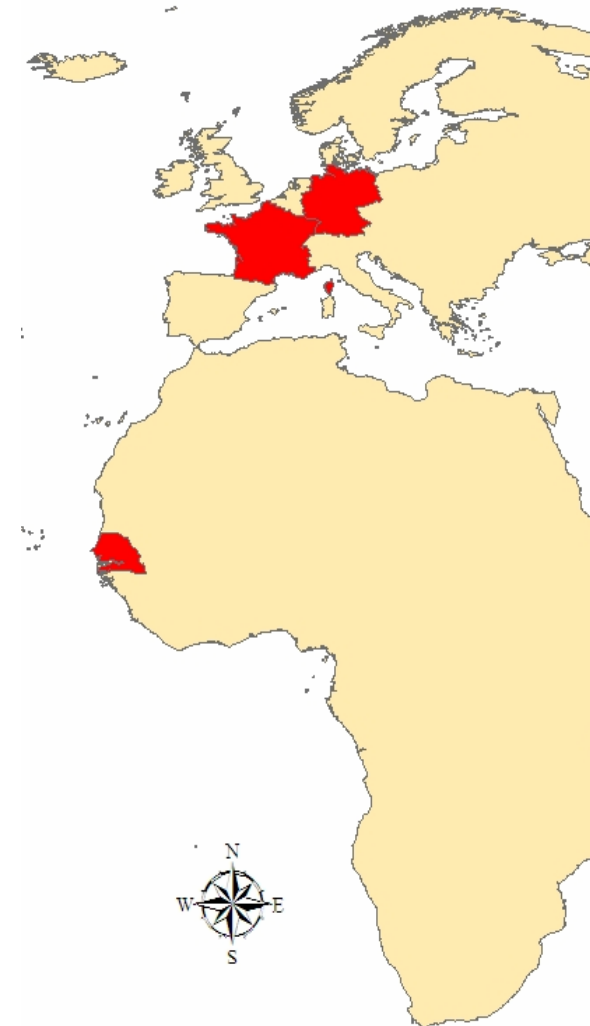
Investigation abroad

•Close ones (Senegal)	15
•Other HCW (Saly + dakar, Senegal)	3
•Hospital A (Senegal)	20
•Ambulance personnel A (Senegal)	2
•Patients Hospital A (Senegal)	4
•Hospital B (Senegal)	25
•Ambulance personnel B (Senegal)	2
•Sanitary transport plane team (Germany)	2
• Total	73

**In 2 hospitals in Senegal
During high viraemia**

Results

- 181 persons identified, traced and contacted in 3 countries
- 50 samples
- No symptomatic secondary case identified



Discussion/Conclusion

- 1st case of imported VHF in France
- It wasn't Lassa VHF
- It didn't arrive where it was expected
- Things went well

- Standard precautions, traceability, infection control committee
- Need to remind HCW of notification procedures

- Multiple procedures and actors: increase in risk of exposure
- Investigation = multidisciplinary effort

- Accumulation in past decade of data on imported VHF
- **Re-evaluation of adequacy of recommendations**

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Recommendations

- **CDC**
 - 1988: simplification of 1983 recommendations
 - 1995: reassuring data; yet procedures more complex
- **In Europe**
 - Very heterogeneous
 - ENIVD: difference between « risk / high risk »
- **In France:**
 - BEH 1st may 1989: clinical management
 - 2002: High Committee for Public Health
 - Based on CDC recommendations
 - Hiatus between reassuring data and increased precautions
 - « Level 1 and 2 structures »
 - Transfer from one to the other ?
- **Issue:**
 - Of numerous suspect cases...
 - Of complexity of procedures. Which are not respected



Issues

- Most cases of infections by VHF viruses in the world are pauci-/asymptomatic.
- In symptomatic cases, the first differential diagnosis is **malaria**.
- Many other differential diagnoses resembling the early VHF
- On average 10 days before diagnosis is confirmed
- Respiratory transmission:
 - Mode suggested in 1969 during a Lassa epidemic in Nigeria
 - Never any case of proven interhuman respiratory transmission
- Standard precautions:
 - Patient safety: Loss of chance if precautions hinder quality of care
 - HCW safety: Transmission of all bloodborne pathogens are prevented
 - Suffice to interrupt hospital transmission during outbreaks

Lassa from Sierra Leone to Germany

- Early July 2006
- Boards plane (with fever and neurological signs) with care from spouse and fellow passenger.
- In Germany: admitted in Münster in double room
- Complications after 6 days, intubation and single ICU room.
- Diagnosis confirmation after 10 days (virus in blood, urines and sputum).
- 220 HCW exposed in 4 wards (incl. 30 very close contacts): no clinical transmission.

Imported lassa and estimated transmission risks

Imported cases with N documented contacts:

Year	Country	Primary cases	HCW ^o Contacts	2ary/3ary HCW cases	Infection
1976	USA	1	552	0	NA
1982	United Kingdom	1	159	0	0
1989	USA	1	102	0	NA
2000	Netherlands	1	123	0	NA
2003	Germany	1	64	1	asymptomatic
2003	UK	1	90	0	NA
2004	USA	1	188	0	NA
2006	Germany	1	220	0	NA
Total		8	1498	1	

Estimated global risk of (clinical) transmission of Lassa = 1/1498 or 0.07%
95% confidence interval: 0.0 – 0.4%

Conclusion

- Dangerous pathogens: no complacency
- However: must not hinder operationality
- Data over the past decade = reassuring
- Standard precautions, hygiene and traceability
- Health care workers with:
 - Training
 - Uninterrupted supply of PPE
 - Procedures / recommendations



VHF update (in French)

- Special issue of *BEH* on VHF risks and management
- Case management in Africa
- Risk management in Europe
- <http://www.invs.sante.fr/beh/>



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