



Public Health
England

NHS

Blood and Transplant

Pandemic Flu, MERS-CoV, Ebola!

What's next?

What are we doing about emerging infections?

BBTS 2014

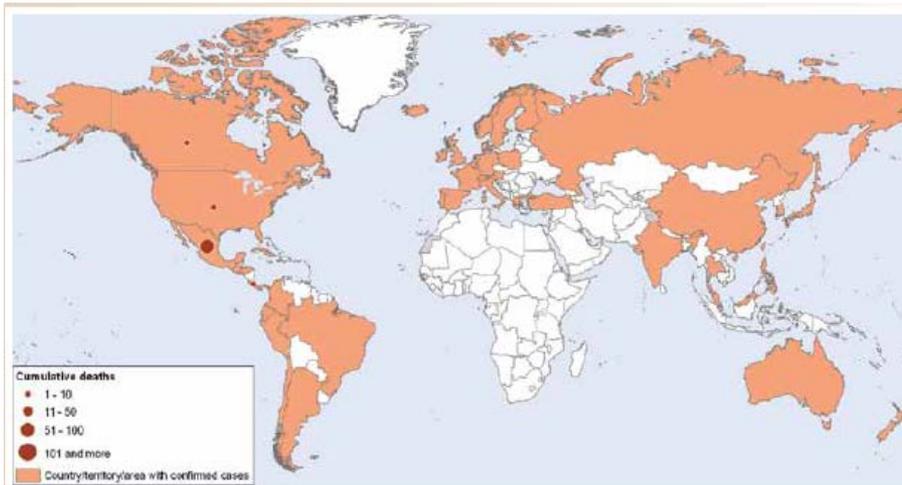
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Pandemic Flu!

2009 WHO declared H1N1 swine flu outbreak a PHEIC, >15,000 deaths by Feb 2010



“The only thing certain about influenza viruses is that nothing is certain.”





MERS-CoV!



- 2012 to present**
- Respiratory syndrome:
asymptomatic
Starts with fever, cough
can lead to
severe pneumonia with ARDS,
septic shock, multi-organ
failure & death.**
- Over 850 cases in over 20
countries: 40% CFR**
- In Europe, 6 countries have
reported confirmed cases, all
with a connection with the
Middle East.**



Ebola!

2014

Haemorrhagic virus: fever,
D&V, bleeding, death.

- 4,388 cases (2,226 deaths)
1st outbreak West Africa
Largest outbreak, affecting
densely populated urban areas.
- 8 August 2014, WHO declared
a PHEIC.
- Currently rapidly increasing.



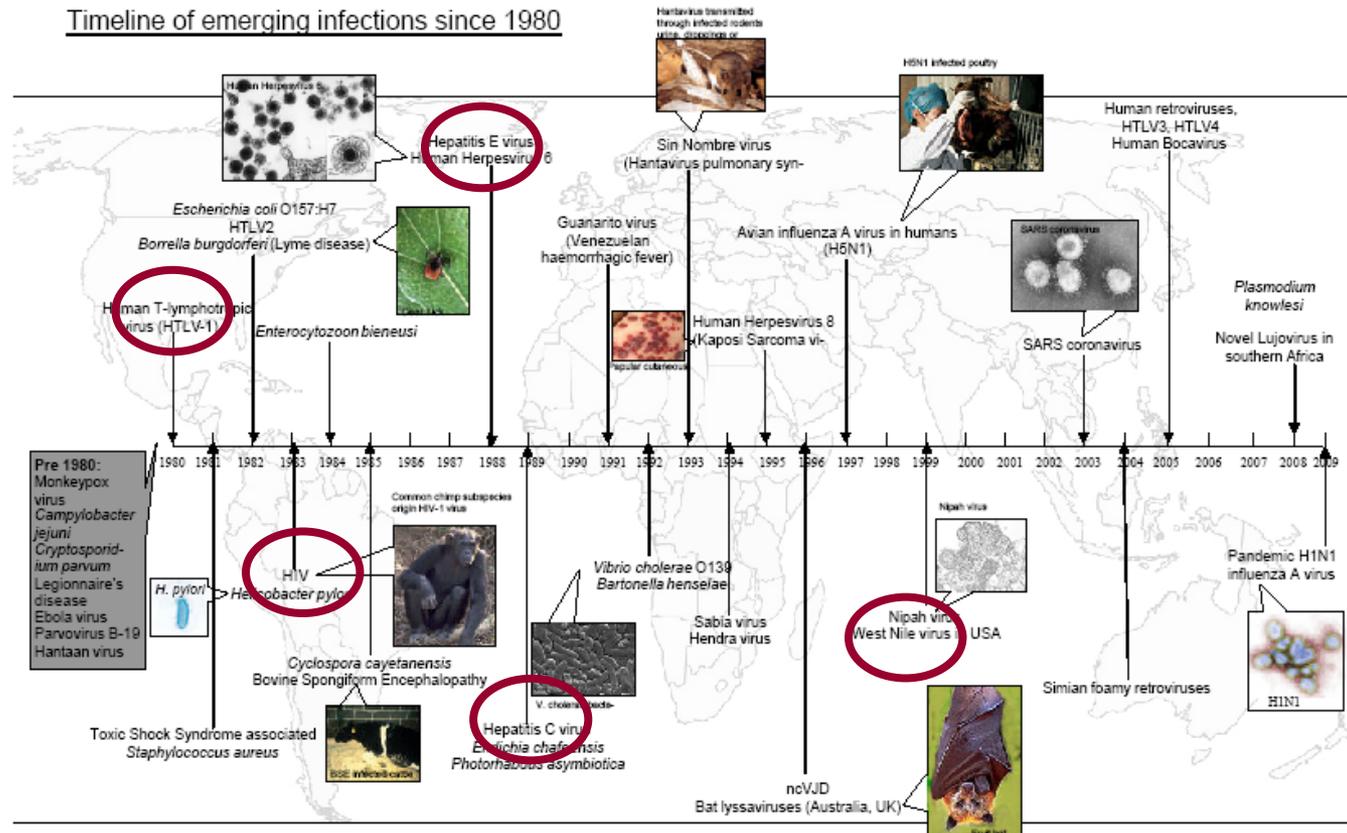
Fruit bats are seen for sale at a food market in Brazzaville, Republic of Congo, December 15, 2005. Credit: Reuters/Jiro Ose.



What's next?

Emerging infections appearing at an average rate of one per year

Timeline of emerging infections since 1980





What's next?

A recognised infection spreading to new areas or populations	WNV, chikungunya dengue
The result of discovering that a known disease is caused by infection	XMRV (or not), Cycloviruses?
A previously unrecognised infection (eg habitat change due to deforestation)	<i>P. knowlesi</i> ? MERS CoV?
A new infection resulting from change(s) in existing microorganisms	Swine flu, Avian flu
An "old" infection re-emerging because it has become resistant to treatment, or as a result of a breakdown in public health initiatives.	Malaria, syphilis, ebola



What are we doing about it?



www.transfusionguidelines.org.uk/document-library/position-statements/emerging-infections



What are we doing about it?

The monthly NHSBT/PHE emerging infection list:
Infection issues that may be of relevance to patient safety and/or blood and tissue availability in the UK.

Sources:

PHE Emerging Summary; NaTHNaC; ECDC Weekly Disease Threats; CDC; WHO; Promed; AABB news; Pubmed search; Transfusion, Transfusion medicine, Emerging infectious disease, Epidemiology and Infection, Vox Sang, NEJM, Eurosurveillance, PHE HPR, Clinical Infectious Diseases, Plos Pathogens, Plos neglected tropical diseases, Plos Outbreaks; CBBS website





What are we doing about it?

Sample
from the
list of
August
items

Month	Year	Source	Infectious agent/disease	Country	new/ update	type of incident	Comment
8	2014	Promed	Babesiosis	Slovenia	new	Human case	First proven human case of babesia in Slovenia in a 55-year-old woman. Babesia in animals have been found all over Europe including Slovenia.
8	2014	NaTHNaC	Dengue	France	new	Traveller Advice	A confirmed case of locally acquired dengue fever in Southern France, Toulon, department of the Var. This is an isolated case and surveillance and vector control are underway. Aedes albopictus, is established in many parts of southern Europe including the south-eastern departments of France. The risk of travellers acquiring dengue fever in France is extremely low.
8	2014	ECDC CDTR Wk 37	Chikungunya (CHIKV)	Americas	Update	Outbreak	The number of reported cases of chikungunya infections is continuing to rise, in particular in Puerto Rico (USA). Colombia have reported the first four autochthonous cases. The outbreak has spread to North, Central and South America. There have been more than 660 000 probable and confirmed cases in the region, including 46 fatalities so far. Several EU countries are reporting imported cases from the affected areas.
8	2014	ECDC CDTR Wk 37	Ebola Virus Disease (EVD)	West Africa	Update	Risk assessment	The risk of infection is considered very low if precautions are strictly followed however the likelihood of visitors and travellers coming into contact with ill persons is increasing due to the increase in the number of new EVD cases in recent weeks, the urban transmission, and the fact that not all chains of transmission are known. Risk assessment 3 Sept.
8	2014	ECDC CDTR Wk 37	Flu, avian A(H7N9)	China	Update	Surveillance	No new cases of A(H7N9) have been reported since 4 September. 453 cases (175 deaths) have been reported since March 2013. No autochthonous cases have been reported from outside of China. Most cases have been unlinked, and sporadic zoonotic transmission from poultry to humans is the most likely explanation for the outbreak which peaked during the winter of 2013-2014. Imported cases of influenza A(H7N9) may be detected in Europe. However, the risk of the disease spreading among humans following an importation to Europe is considered to be very low.
8	2014	NaTHNaC	MERS-CoV (Middle East respiratory syndrome coronavirus)	Kingdom of Saudi Arabia (KSA)	Update	Traveller Advice	The 1435 Hajj season is estimated to fall in early October 2014. The Ministry of Health KSA recommends that elderly people, pregnant women, children, and those with chronic diseases postpone their Hajj and Umrah rituals for this year for their own safety. As well as MERS Co-V other infections could be present eg hepatitis B and rabies. Malaria is not present in Medina or Makkah [Mecca], but malaria is a risk in the south-western provinces of Saudi Arabia if onward travel is planned.
8	2014	ECDC CDTR Wk 37	WNV	Europe	Update	Surveillance	As of 11 September 2014, 37 human cases of West Nile fever have been reported in the EU: Greece (13), Italy (8), Romania (13), Hungary (2) and Austria (1). 77 cases have been reported in neighbouring countries: Bosnia and Herzegovina (13), Serbia (38) Russia (24 cases in the following oblasts: Saratovskaya (9), Samarskaya (6), Volgogradskaya (3), Astrakhanskaya (3), Belgorodskaya (1), Altayskiy Kray (1) and Chelyabinskaya (1). Israel (2). Spain and Turkey have both reported 1 case of WNV in a horse. [Not all regions in Russia covered by the GDRI]



What are we doing about it?

Risk Assessments by SACTTI

- blood-borne agent?
- prevalence in the donor population?
- asymptomatic stage?
- survive processing/ storage?
- known to be transmitted by blood/ tissues/ organs?
- outcome of infection: immunosuppression?
- screening tests available? is testing warranted?
- other safety measures? e.g., deferral



What are we doing about it?

What are other countries finding/considering?

Lieshout-Krikke et al. **Travel behavior and deferral of Dutch blood donors: consequences for donor availability.** *Transfusion*. 2014 Jul 22.

Offergeld et al. **Sexual risk behaviour and donor deferral in Europe.** *Vox Sang*. 2014 Jul 17.

Petersen & Epstein. **Chikungunya virus: new risk to transfusion safety in the Americas** *TRANSFUSION* 2014;54:1911-1915.

Hogema et al. **Past and present of hepatitis E in the Netherlands.** *Transfusion*



What are we doing about it?

EUFRAT European Up Front Risk Assessment Tool

Useful in
outbreak
situation...

European Up-Front Risk Assessment Tool - Windows Internet Explorer

http://euftratool.ecdc.europa.eu/

File Edit View Favorites Tools

Star Home Stop Page Back Forward Print

ADDITIONAL SETTINGS/FUNCTIONS/DOCUMENTATION

Show help (PDF file)

Quantify the risk of transfusion transmission in an outbreak-affected region OR from a donor who has visited that region.

Please indicate if you have information listed below:

Select disease for which recipient risk will be calculated: Not specified

1. Do you want to estimate the risk of transfusion transmission from a donor who has visited an outbreak-affected region?	no
2. Is the number of infected donors known?	no
3. Is information on various donation types and frequencies available?	no
4. Are there questions in the donor health questionnaire that potentially screen out the infected donors before donation?	no
5. Is the donated blood screened for the infection using a diagnostic test?	no
6. Is pathogen removal/inactivation or blood processing implemented to minimize the risk of contamination?	no

Calculate Automatically recalculate results on input value change Last model run time: 47 ms Always show results

(Donor) population infectivity [Expand](#)

Donation infectivity [Expand](#)

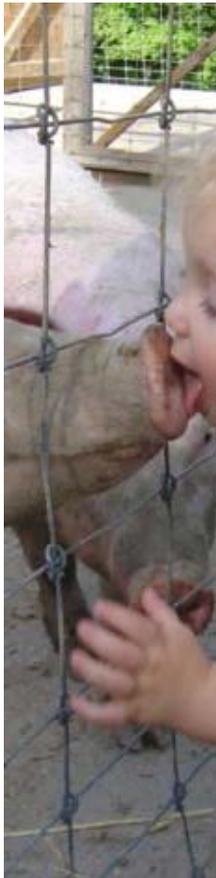
Released component infectivity [Expand](#)

End product infectivity [Expand](#)

Risk of infection in recipient [Expand](#)



What are we doing about Flu?



- Monitor (pathogenicity, transmissability, young people!)
- Risk Assessment
- Pandemic planning
- National PH initiatives
Wash your hands!
Get the flu jab!





What are we doing about Ebola?



Monitor: huge influx of info and anxiety

21 day incubation, present as fever and D&V

Gets more infectious as symptoms progress

Bushmeat, direct H2H

NOT airborne

Risk assessment: LOW RISK with ongoing monitoring, discussions and advice for H+S, labs (current donor selection guidelines (fever, malaria))

http://nhsbtweb/userfiles/Ebola%20virus%20outbreak_advice%20for%20NHSBT_August2014_.pdf



What are we doing about Ebola?



The UK government is closely monitoring the spread of the Ebola virus in West Africa.

- Should I be worried about this outbreak? (NHS Choices)
- Advice for health professionals in the UK
- What are the arrangements at the UK border?
- Travel advice
- Government actions to help affected countries
- Play your part in the UK's fight against Ebola



What are we doing about MERS-CoV?



- Monitor

Risk Assessment: period of asymptomatic viraemia? intermediate host? deferral period post infection?

keep international situation under close observation.

- Evidence, UK Blood Donor Survey: travel Q



What are we doing about Chikungunya?

Chikungunya outbreak in the Caribbean

1st documented locally acquired transmission of
chikungunya virus in the Americas

Popular travel destination for EU residents

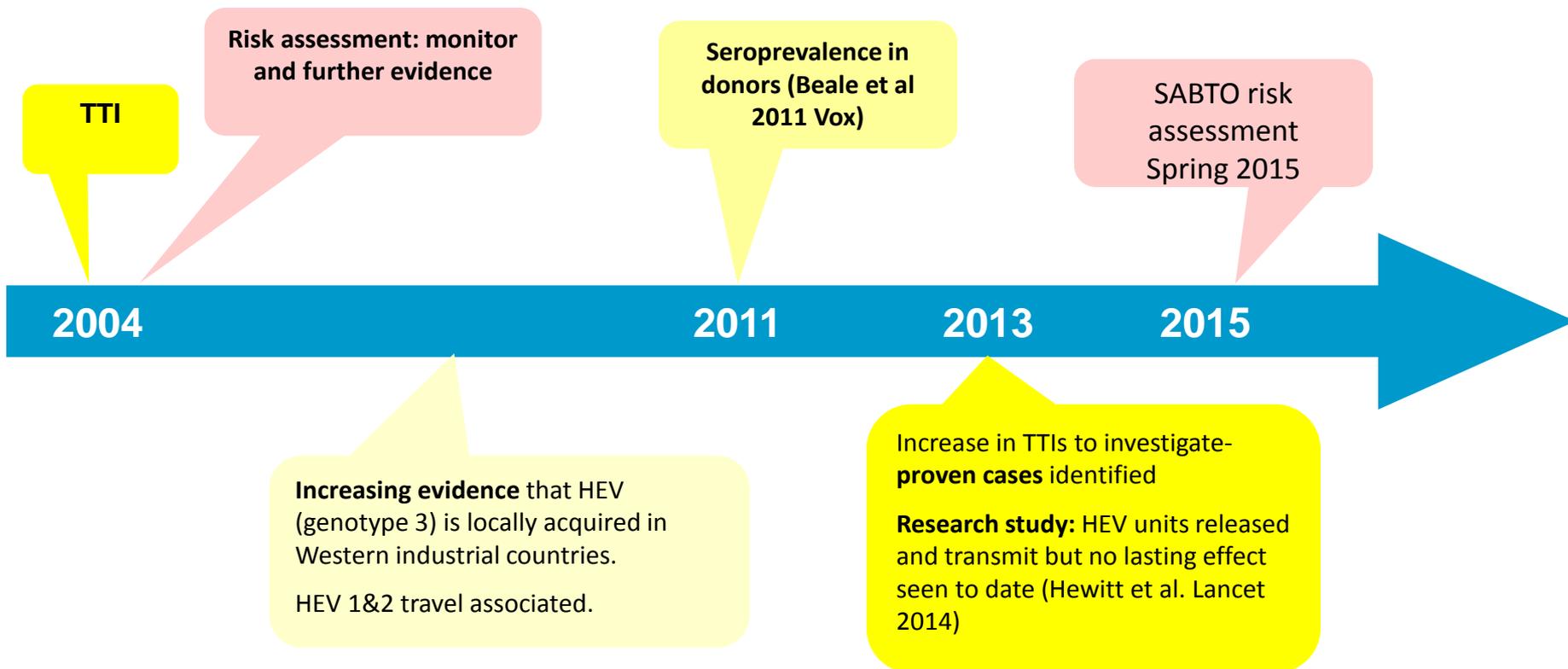
Viraemic asymptomatic returning travellers could *in theory* transmit via blood donation
15 travel-associated cases of chikungunya reported in England, Wales and NI in 2012

Up to 10% of cases experience arthritis, chronic joint pain and fatigue

MONITOR and Risk assess. Impact on deferrals?

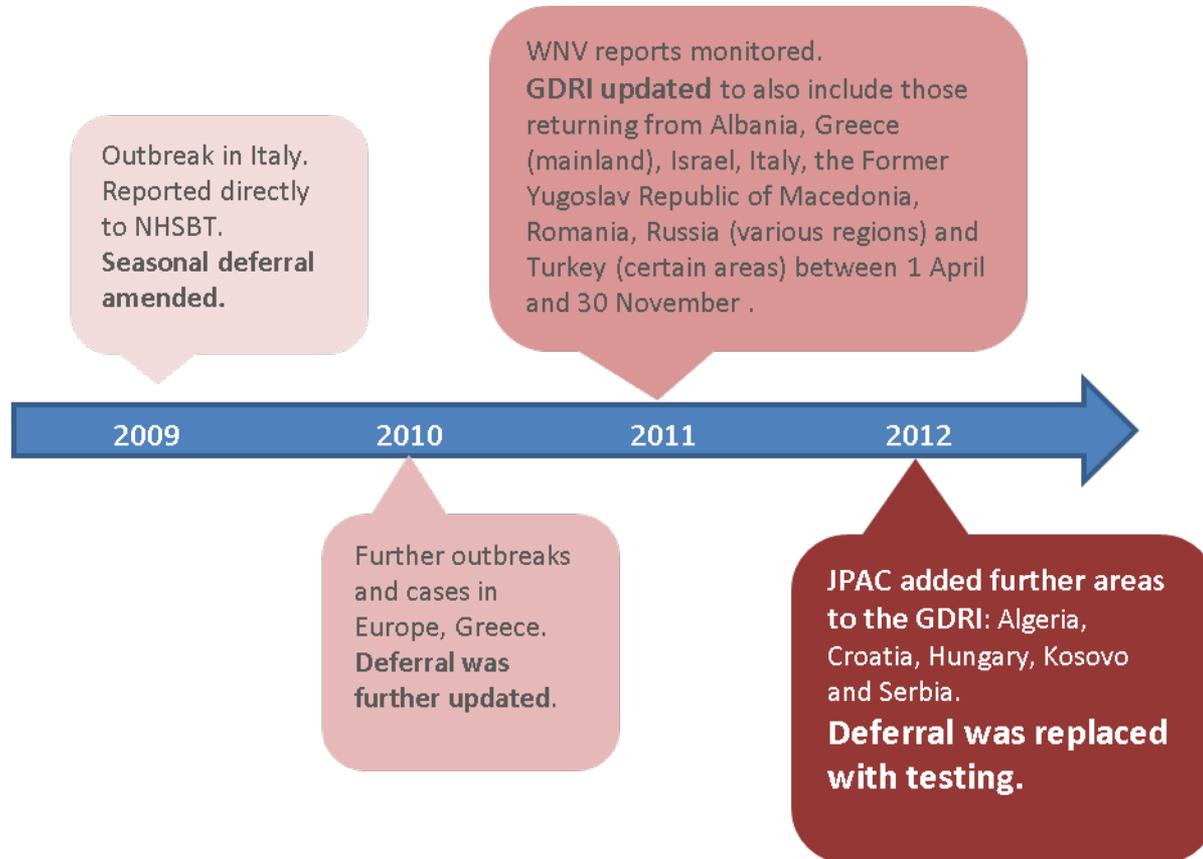


What are we doing about HEV?





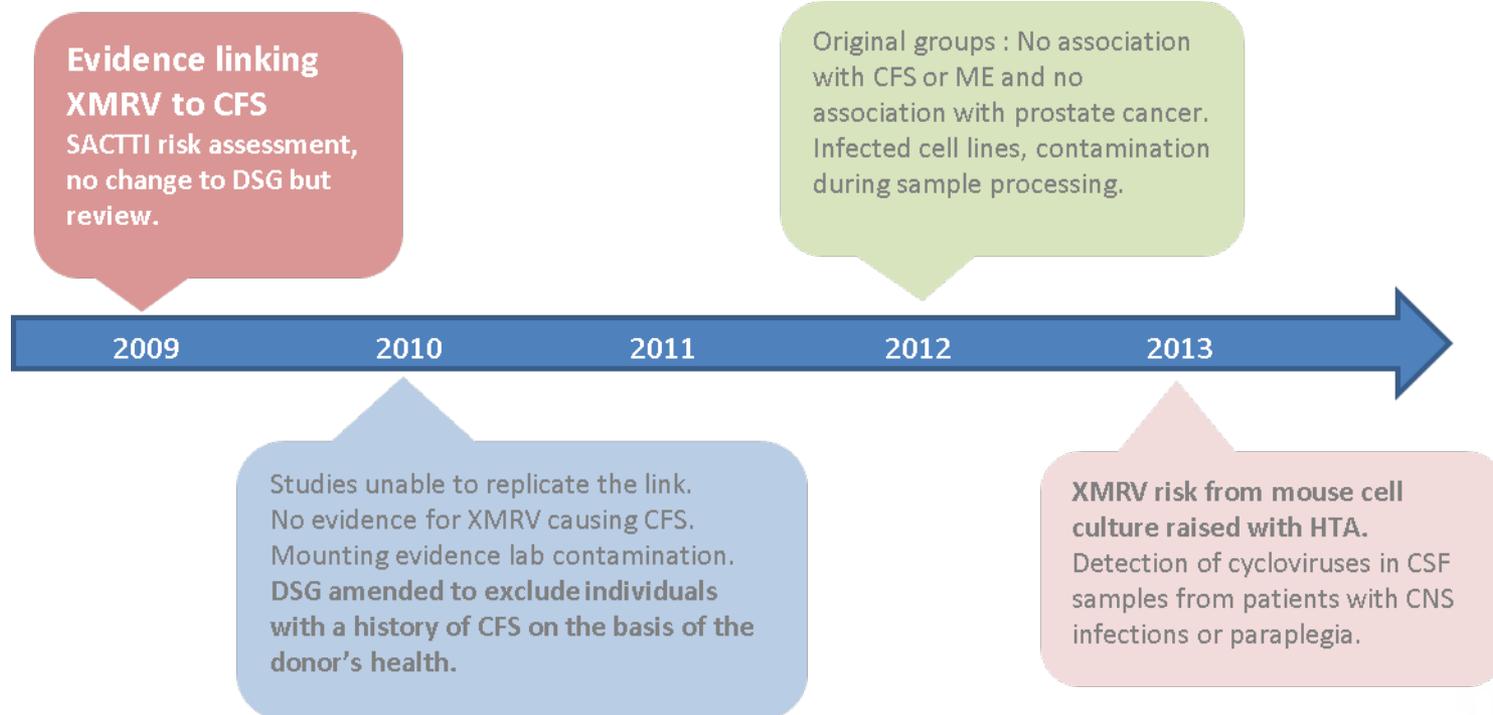
What are we doing about WNV?



www.transfusionguidelines.org.uk/document-library/position-statements/west-nile-virus-wnv



False alarm!





What are we doing about emerging infections?

CONCLUSION

The UK Blood Services are constantly:

scanning for emerging infectious threats

reacting to outbreaks

(even if no action required)

(re)**assessing** risk

producing new evidence

(research, surveillance)

planning future strategies

(deferrals- 4 wk?, “tropical”?

testing, PI?)

