



Summary

The commonest mode of HIV transmission in the UK, heterosexual contact, is primarily associated with non-B subtypes introduced by immigration from sub-Saharan Africa.

Analyzing *pol* sequences from over 11,000 non-B subtype viruses we identified 296 cases in clusters of 3 or more UK-based individuals (Fig. 1). Of these 143 were in 8 clusters of 10 or more individuals (Fig. 2), much lower than the 25% seen for MSM¹. From phylogenetic analysis, the median transmission interval was double that found earlier in MSM at 27 months vs 14 months¹ (Fig 3).

Data & Methods

Partial *pol* gene sequences 1544bp in length obtained during routine clinical care from 25631 patients and submitted to the UK HIV Drug Resistance database (www.hivrd.org) were analyzed. Subtype was assigned using Rega² and *ad hoc* NJ trees. Phylogenetic analysis was performed on all sequences of the same subtype using MrBayes³. All clusters >10 individuals were re-analyzed against the closest 100 non-UK sequences from the LANL database. For all strongly supported (≥ 0.95) clusters that remained monophyletic, time-resolved phylogenies were obtained using BEAST⁴ to estimate maximum inter-transmission intervals¹.

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Funded in part by the Medical Research Council and the Department of Health

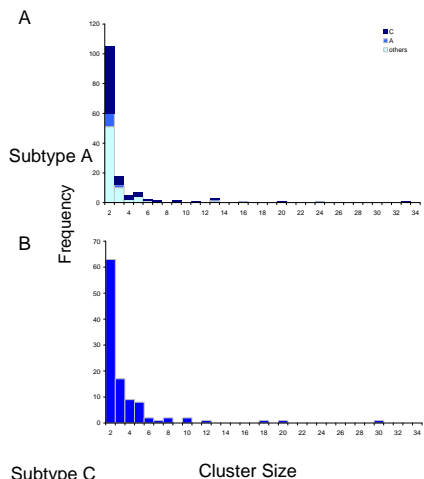


Fig 1. Distribution of cluster size
A) Non-B subtypes B) 402 Subtype B cases¹
C) Cumulative plot of cluster size for B and non-B subtypes

References

- Lewis F, et al. PLoS Med 2008 Mar 18; 5(3): e50
- De Oliveira T, et al. Bioinformatics 2005; 21: 3797
- Huelsenbeck JP, Ronquist F. Bioinformatics 2001; 17: 754
- Drummond AJ, Rambaut A. BMC Evol Biol 2007; 7: 214

Results

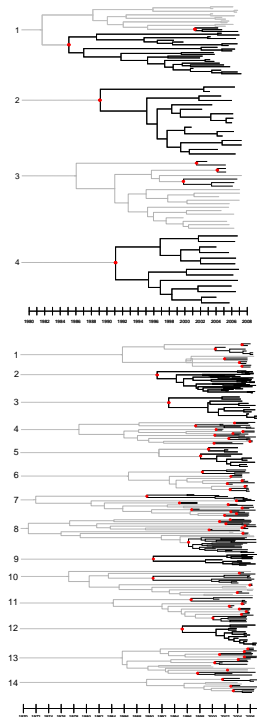
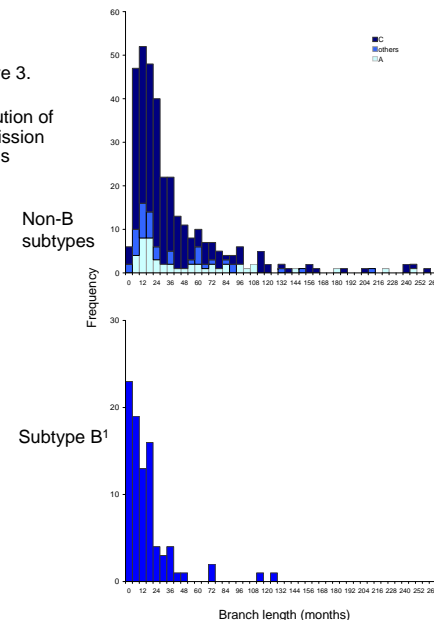


Fig 2. Time-resolved phylogenies of clusters of ≥ 10 patients
Red nodes indicate UK transmission clusters as defined against analysis with global diversity. The scale bar is in calendar years.

Figure 3.
Distribution of transmission intervals



Conclusion

Heterosexual transmission of HIV occurs in smaller clusters and with slower dynamics than transmission among MSM
Acute infection is not a driver of transmission in this risk group.