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CONTROLLING THE BLOOD-BORNE SPREAD OF HUMAN PRION DISEASE

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There is now hard evidence that vCJD can be transmitted from person-to-person by blood transfusion. Fortunately the vCJD outbreak in the UK appears to be in decline although there remain concerns about the extent of sub-clinical infection. As with any transfusion-associated disease there are a number of ways whereby spread of disease can be controlled:

- Removing the source of infection
- Deferring at risk donors
- Removal of infectivity from donations
- Testing of donations
- Implementing measures to reduce secondary spread

For vCJD in the UK and elsewhere all these steps have been used. Thus removal of high risk tissues from the food chain has reduced the numbers of BSE and hence vCJD primary infections. Many countries have put in place deferral of donors from the UK, and in some cases other European, countries. For those of us in the UK the equivalent is to import donations from low-risk sites and to some extent this has been done, particularly for fractionation plasma. Leucodepletion as a route to reducing individual donation infectivity was introduced soon after the discovery of vCJD in a number of countries, but recent animal data suggests that this may be of limited value. Two companies have been developing filters to remove soluble infectivity that is not removed by leucofilters. The development of tests for donation screening has challenged the available technologies for large scale screening, but it now seems likely that a number of companies are approaching the market with usable technologies. The setting of acceptable specifications and validation approaches for TSE screening tests and prion removal filters should be a priority area for international groups, along with associated ethical issues. One area of ignorance that requires elucidation is the biochemical nature of the form of TSE infectivity that is found in infected blood.

Lastly a number of measures have been introduced to prevent secondary spread in some countries, including implementing measures such that transfusions are only given when necessary, deferral of previously transfused donors and the identification of at risk individuals as part of look back exercises.