UKHCDO
UNITED KINGDOM HAEMOPHILIA CENTRE DOCTORS' ORGANISATION

Ref: UKHCDO/vCJD

Monday, 16 February 2009

Dear Colleagues,

Re: vCJD transmission in a UK patient treated with an implicated batch of factor VIII concentrate during the period 1980-2001

Unfortunately due to circumstances beyond our control this notification exercise has to go live on Monday February 16th 2009. It had been planned to make an announcement when the investigation into the incident has been completed. The matter was reported in The Telegraph on Sunday as news in brief and is also on their website. Other news agencies may pick this up. Clearly this is a less than ideal way of this news reaching you and the patients with bleeding disorders who have been treated with UK plasma products between 1980 and 2001. As a result of the 2004 notification you should have identified your patients who are at risk of vCJD for public health purposes and instituted public health precautions following national advice even if you have not provided your data to the NHD in Manchester.

What is now requested of you is set out in the attached letter to haemophilia doctors from UKHCDO and the HPA. All staff in your unit will need to be informed of this new information and it's implications for the patients. Again it is recommended by DoH that the letter for patients goes to all patients, not just those in the at risk group, and that this is done as quickly as possible even though no deadline has been set for this. We realise that next week is a difficult week for this to happen but there will be public announcements about this on Wednesday or Thursday. This will cause concern to some patients and they may start telephoning for advice so dispatch of letters as early as possible is important.

This case is still under investigation and when these investigations are completed and advice obtained from the CJD incident panel we will update you. Please look carefully at every thing that is provided to you in the tool kit to help you do this patient notification exercise. The information for patients will also appear on the UKHCDO website and the Haemophilia Society website. If you have any queries please contact one of us.

Yours sincerely,

GRO-C

Charles Hay
Chairman of UKHCDO

GRO-C

Frank Hill
Chairman of TTI Working Party

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Health Protection Agency

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February 2009

To: UK Haemophilia Centre Doctors

Dear Colleague,

Post mortem finding of asymptomatic variant Creutzfeldt-Jakob Disease abnormal prion protein in a person with haemophilia

A person with haemophilia has been found to have evidence of infection with the agent (abnormal prion protein) that causes variant Creutzfeldt-Jakob Disease (vCJD) only in his spleen at post mortem. Tissue from the post mortem was examined as part of a study jointly co-ordinated by the UK Haemophilia Centre Doctors Organisation and the National CJD Surveillance Unit.

This haemophilia patient had been treated in the 1990s with several batches of UK sourced clotting factors, including one batch of factor VIII that was manufactured using plasma from a donor who went on to develop vCJD. The plasma donor developed symptoms of vCJD 6 months after donating the plasma in 1996. The haemophilia patient was in his 70's when he died of a condition unrelated to vCJD, 11 years and one month after receiving the batch of implicated Factor VIII. He had no signs or symptoms of vCJD or other neurological disease when alive.

A final view as to how vCJD abnormal prion protein was transmitted to this haemophilia patient has yet to be reached because investigations are continuing to be sure of the source.

This is the first time that vCJD abnormal prion protein has been found in a patient with haemophilia, or any patient treated with plasma products.

This case does not change the public health vCJD 'at risk' status of any of your patients with bleeding disorders.

Please take these actions:

1. **Send the enclosed letter to <u>all</u> your patients with bleeding disorders (including those not at risk of vCJD).**

   Please do this as quickly as possible. It is planned that the letter to patients will be published on the HPA, the UKHCDO, and UK Haemophilia Society websites on Thursday February 19th 2009.

2. **Make arrangements for appointments with any concerned patients.**

   Some of your patients may wish to discuss this new information with you. In 2004 all patients at risk of vCJD should have been offered the option of finding out whether they had been treated with clotting factor batches that had been manufactured using plasma from donors who later developed vCJD. Please check their preference recorded at that time. Some patients may now wish for more information, and may wish to know about the batches of plasma product they received. Please try to ensure that patients have an opportunity to discuss this with you.

Information leaflets for patients and for healthcare staff are enclosed for prompt distribution. These are also available on the HPA website http://www.hpa.org.uk/CJD

Further information

If you would like further information about this letter, please contact:

- Professor Frank Hill (Chairman of UKHCDO Working Party on Transfusion Transmitted Infections) on GRO-C
- Dr Charles Hay Chairman of UKHCDO) on GRO-C
- The CJD Section at the Health Protection Agency's Centre for Infections by e-mail to cjd@hpa.org.uk or by phone on 020 8327 6074
- (Wales only) Dr Roland Salmon (Consultant Epidemiologist, National Public Health Service for Wales) on GRO-C

Yours sincerely

GRO-C

Dr Charles Hay
Chairman
UK Haemophilia Centre Doctors' Organisation

GRO-C

Dr Nicky Connor
Consultant Epidemiologist
Health Protection Agency (Colindale)

Enclosed documents

1. Letter for patients.
2. Four information leaflets:
    - Information for people who have an increased risk of CJD.
    - Who has an increased risk of CJD?
    - Patients at increased risk of Creutzfeldt-Jakob Disease: Actions for healthcare staff.
    - Patients at increased risk of Creutzfeldt-Jakob Disease. Background information.

Additional Information

Other information that patients may wish to know:

Your patients may want to know whether they have received clotting factors manufactured using plasma from the same donor who may have been the source of the vCJD abnormal prion protein in the person with haemophilia. Plasma from this donor was used to manufacture four batches of BPL clotting factors (Table 1).

Table 1: Specific batches of BPL blood products that included plasma from the vCJD donor linked to the infected person with haemophilia

Product	Batch number	Date of plasma donation
Factor VIII 8Y[1]	FHB4547	02/05/96
Factor VIII Replenate[2]	FHE4548	02/05/96
Factor VIII 8Y	FHC4237	11/01/93
Factor IX 9A	FJA4239B	11/01/93

1. The haemophilia patient with vCJD abnormal prion protein was treated with this batch.
2. This batch was made from the same plasma pool as FHB4547

The new finding does not necessarily mean that patients treated with these four batches have a greater risk than patients treated with other implicated batches, as a further 23 implicated batches were also assessed to be high risk by the CJD Incidents Panel.

Infection control precautions and other safety measures:

All patients with bleeding disorders[1] who have been treated with UK-sourced pooled factor concentrates or antithrombin[2] between 1980 and 2001[3] are classified as at risk of vCJD for

[1] Defined here as congenital and acquired haemophilia (Haemophilia A and Haemophilia B), Von Willebrand Disease, other congenital bleeding disorders and congenital antithrombin III deficiency.
[2] ie. clotting factors and antithrombin made from pooled plasma. These include factor VIII, factor IX, factor VII, factor XI, factor XIII and prothrombin complex concentrates as well as antithrombin.

public health purposes. Special infection control precautions and other safety measures apply to these patients – see below. This letter does not change the previous advice. There is no need at present for any additional infection control actions.

Once the investigations concerning the new finding are complete, the CJD Incidents Panel (CJDIP)[4] will consider the implications for the infection control management of plasma product recipients notified as at risk of vCJD for public health purposes. Any changes to existing infection control precautions will be communicated in due course, but it may be judged that no changes are required.

Background information on the 2004 notification:

In 2004 the HPA, the UKHCDO and colleagues notified patients who had received plasma products manufactured using plasma from donors who had subsequently developed vCJD. That notification dealt with plasma donations which had been used to manufacture factor VIII, factor IX, antithrombin, intravenous immunoglobulin G, albumin, intramuscular human normal immunoglobulin and anti-D.

Patients treated with these plasma products were to be managed according to an assessment of potential vCJD infectivity carried out by the Health Protection Agency with the CJDIP.

The UK Haemophilia Doctors and patient representatives, the CJDIP and UK Health Departments agreed that it was likely that many patients with bleeding disorders would have had a sufficient exposure to these implicated plasma products to put them 'at risk' of vCJD for public health purposes. It was also thought likely that further batches of UK-sourced plasma products would be implicated in the future as more cases of vCJD arose.

Therefore all patients with bleeding disorders who were treated with UK-sourced pooled factor concentrates or antithrombin between 1980 and 2001 have been designated as 'at risk of vCJD for public health purposes' and special precautions should be taken following national guidance. This risk is in addition to the general risk of vCJD that many people in Britain have through eating beef or beef products.

Information given to patients in 2004:

All patients with bleeding disorders were to be told if they had received UK-sourced pooled factor concentrate or antithrombin between 1980 and 2001. Patients who had were to be:

a) informed that they had an additional risk of vCJD because they could have been treated with plasma made from donations from individuals who later developed vCJD.

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[3] The start date of 1980 is when BSE is thought to have entered the human food chain. The end date of 2001 is the last possible expiry date of any product manufactured by the UK fractionators that was sourced from UK donors until 1998.

[4] The CJDIP is an expert committee set up on behalf of the UK Chief Medical Officers to advise on the management of 'incidents' of potential transmission of CJD between patients.

b) given the opportunity to find out whether they had been treated with an implicated batch. They were told that if any more implicated batches were reported, then their exposure assessment might change.

c) informed that they were 'at risk of vCJD for public health purposes', and that their 'at risk' status would be recorded in their hospital medical records and primary care notes. Their exposure to implicated batches, and whether they had asked to know if they have received implicated batches, was recorded in their hospital medical records on a Patient vCJD Exposure Assessment Form. Patients who had **NOT** received UK-sourced pooled factor concentrate or antithrombin between 1980 and 2001 had this fact clearly recorded on this form.

d) informed that special precautions needed to be taken to reduce the chance of any further spread of vCJD, and were given the following advice:

   - They should not donate blood, organs or tissues (many patients who have received plasma products may already be excluded from donation because of their underlying condition)
   - They should inform their doctors and other healthcare professionals of their 'at-risk' status, so that special infection control precautions could be taken before surgery and other invasive procedures should they require future medical care. They were advised to inform their families, in case they needed emergency surgery in the future.

e) reassured that their clinical care should not be compromised in any way.

Dear Patient

Variant Creutzfeldt-Jakob Disease (vCJD) and patients with bleeding disorders who have been treated with UK plasma products

We are writing to all our patients with bleeding disorders to tell them about a person with haemophilia who has been found to have evidence of the infection that causes variant Creutzfeldt-Jakob Disease (vCJD) in his spleen at post mortem. All Haemophilia Centres are contacting their patients throughout the UK to give them this information.

Tests carried out on a haemophilia patient who died last year have shown that he was infected with the abnormal prion protein that causes variant Creutzfeldt-Jakob Disease (vCJD). The patient did not die of vCJD, and never had any symptoms of this disease when he was alive. The patient was in his 70s when he died of a completely unrelated cause. The tests were carried out as part of a research study jointly co-ordinated by the UK Haemophilia Centre Doctors Organisation and the National CJD Surveillance Unit.

This patient had been treated in the 1990s with several batches of UK sourced clotting factors, including one batch of factor VIII that was manufactured using plasma from a donor who went on to develop vCJD.

A final view as to how this haemophilia patient became infected with the vCJD abnormal prion protein has yet to be reached and investigations are therefore continuing to establish this.

This is the first time that the vCJD abnormal prion protein has been found in a patient with haemophilia, or any patient treated with plasma products. This patient did not die of vCJD, and the only reason we know he was infected with the vCJD abnormal prion protein is because of the research tests carried out after he had died.

We are telling you about this case so that you have the latest information about vCJD and clotting factors made in the past from UK plasma.

This new information does not change the way you will be treated.

If you have a bleeding disorder or congenital antithrombin III deficiency[1] and you received clotting factors or antithrombin made from UK-sourced plasma[2] between 1980 and 2001, then you should have been told that you have an increased risk of vCJD, and you should follow public health advice (see box).

[1] Congenital and acquired haemophilia (Haemophilia A and Haemophilia B), Von Willebrand Disease, other congenital bleeding disorders and congenital antithrombin III deficiency.
[2] Factor VIII, factor IX, factor VII, factor XI, factor XIII and prothrombin complexes, as well as antithrombin.

Advice on how to reduce the risk of spreading CJD to other people

If you have been identified as being at increased risk of CJD, you can reduce the risk of spreading CJD to other people by following this advice.

- Don't donate blood. No-one who is at increased risk of CJD or who has received blood donated in the United Kingdom since 1980 should donate blood
- Don't donate organs or tissues, including bone marrow, sperm, eggs or breast milk
- If you are going to have any medical or surgical procedures, you should tell whoever is treating you beforehand about your at risk of vCJD so that they can make special arrangements for the instruments used to treat you
- You are advised to tell your family about your increased risk. Your family can tell the people who are treating you about your risk of CJD if you need medical or surgical procedures in the future and are unable to tell them yourself.

If you are unsure about this, and would like more information, please contact the haemophilia centre and make an appointment to come and see one of the clinical team.

Other patients (those who have not been treated with UK plasma factor concentrates) who do not have an increased risk of vCJD, do not need to take any action. Again, please contact the haemophilia centre if you are unsure about your past treatment and your vCJD at risk status.

The information from this case does not change the public health 'at risk' status of any patients with bleeding disorders.

Two patient information leaflets are enclosed:

'Information for people who have an increased risk of CJD', and

'Who has an increased risk of CJD?'

These are also available on the Health Protection Agency website http://www/hpa.org.uk/CJD.

We realise that you may find this new information worrying. Do contact the Haemophilia Centre if you wish to talk about this.

DRAFT

[Patient name]

[Address]

February 2009

Dear [insert name]

Variant Creutzfeldt-Jakob Disease (vCJD) and patients with bleeding disorders who have been treated with UK plasma products

We are writing to all our patients with bleeding disorders to tell them about a person with haemophilia who has been found to have evidence of the infection that causes variant Creutzfeldt-Jakob Disease (vCJD) in his spleen at post mortem. All Haemophilia Centres are contacting their patients throughout the UK to give them this information.

Tests carried out on a haemophilia patient who died last year have shown that he was infected with the abnormal prion protein that causes variant Creutzfeldt-Jakob Disease (vCJD). The patient did not die of vCJD, and never had any symptoms of this disease when he was alive. The patient was in his 70s when he died of a completely unrelated cause. The tests were carried out as part of a research study jointly co-ordinated by the UK Haemophilia Centre Doctors Organisation and the National CJD Surveillance Unit.

This patient had been treated in the 1990s with several batches of UK sourced clotting factors, including one batch of factor VIII that was manufactured using plasma from a donor who went on to develop vCJD.

A final view as to how this haemophilia patient became infected with the vCJD abnormal prion protein has yet to be reached and investigations are therefore continuing to establish this.

This is the first time that the vCJD abnormal prion protein has been found in a patient with haemophilia, or any patient treated with plasma products. This patient did not die of vCJD, and the only reason we know he was infected with the vCJD abnormal prion protein is because of the research tests carried out after he had died.

We are telling you about this case so that you have the latest information about vCJD and clotting factors made in the past from UK plasma.

This new information does not change the way you will be treated.

If you have a bleeding disorder or congenital antithrombin III deficiency[1] and you received clotting factors or antithrombin made from UK-sourced plasma[2] between 1980 and 2001, then you should have been told that you have an increased risk of vCJD, and you should follow public health advice (see box).

Advice on how to reduce the risk of spreading CJD to other people

If you have been identified as being at increased risk of CJD, you can reduce the risk of spreading CJD to other people by following this advice.

- Don't donate blood. No-one who is at increased risk of CJD or who has received blood donated in the United Kingdom since 1980 should donate blood
- Don't donate organs or tissues, including bone marrow, sperm, eggs or breast milk
- If you are going to have any medical or surgical procedures, you should tell whoever is treating you beforehand about your at risk of vCJD so that they can make special arrangements for the instruments used to treat you
- You are advised to tell your family about your increased risk. Your family can tell the people who are treating you about your risk of CJD if you need medical or surgical procedures in the future and are unable to tell them yourself.

If you are unsure about this, and would like more information, please contact the haemophilia centre and make an appointment to come and see one of the clinical team.

Other patients (those who have not been treated with UK plasma factor concentrates) who do not have an increased risk of vCJD, do not need to take any action. Again, please contact the haemophilia centre if you are unsure about your past treatment and your vCJD at risk status.

The information from this case does not change the public health 'at risk' status of any patients with bleeding disorders.

Two patient information leaflets are enclosed:

'Information for people who have an increased risk of CJD', and

'Who has an increased risk of CJD?'

These are also available on the Health Protection Agency website http://www/hpa.org.uk/CJD.

[1] Congenital and acquired haemophilia (Haemophilia A and Haemophilia B), Von Willebrand Disease, other congenital bleeding disorders and congenital antithrombin III deficiency.
[2] Factor VIII, factor IX, factor VII, factor XI, factor XIII and prothrombin complexes, as well as antithrombin.

We realise that you may find this new information worrying. Do contact the Haemophilia Centre if you wish to talk about this.

Yours sincerely

Health Protection Agency

Health Protection Scotland

Patients at increased risk of Creutzfeldt-Jakob Disease

Actions for healthcare staff

This leaflet is for healthcare staff caring for patients who are at increased risk of Creutzfeldt-Jakob Disease (CJD). There is also a 'Background information for healthcare staff' leaflet and two patient information leaflets 'Information for people who have an increased risk of CJD' and 'Who has an increased risk of CJD?'.

1 The CJD Incidents Panel and Incidents

1.1 The CJD Incidents Panel

The CJD Incidents Panel advises on how to manage the possible risk of CJD transmission between patients. The CJD Incidents Panel may advise that instruments used on a patient with or at risk of CJD should be quarantined immediately, be destroyed or sent for research. The Panel also advises whether or not patients should be contacted and informed about their possible exposure.

The CJD Section at the HPA Centre for Infections provides the secretariat for the Panel, and provides help to healthcare teams implementing Panel advice.

1.2 CJD healthcare incidents

CJD 'incidents' occur when there is a possibility that patients could have been exposed to CJD through:

- exposure to contaminated surgical instruments
- organ or tissue transplants
- blood transfusions
- treatment with plasma products such as clotting factors or albumin.

The CJD Incidents Panel advises how to manage these incidents, and how to manage patients who could have been exposed to CJD. Local infection control teams and health protection teams should seek advice from the CJD Incidents Panel on how to manage these incidents.

More information on the CJD Incidents Panel is available on the HPA website. This includes the CJD Incidents Panel framework document, which sets out the principles of managing CJD incidents and also describes the risk assessment models that underpin the risk management of surgical and blood incidents.

1.3 The Panel's recommendations

The Panel advises on the need to contact patients who could have a risk of at least 1% of being infected with CJD through medical procedures. These patients should be told they are at increased risk of CJD and that they should take certain safety measures as a precaution to prevent CJD being spread to other patients.

Much of the scientific data that underpins the CJD risk assessment models is uncertain. Where there has been doubt, the Panel has made cautious assumptions. The risk assessments and 1% threshold provide a guide for deciding when safety measures are needed to reduce the risk of CJD spreading from person to person. They should not be used as a precise guide for telling people their exact risk of developing CJD.

1.4 Health protection teams

Patients who are at increased risk of CJD may have had surgery since the time when they were exposed to CJD. Any instruments that have been used on tissues with medium-low, medium-high or high infectivity, could still transmit CJD to other patients (Table 1). This is because infectious prion proteins on the surgical instruments are not completely removed by the usual decontamination processes.

The estimated risk of transmitting CJD from one patient to another via surgical instruments decreases each time the instruments are used and decontaminated. After being used and decontaminated around 10 times (20 times for high risk tissue), the risk from those instruments is probably reduced.

Health protection teams should:

- Check whether patients have had surgery involving medium-low, medium-high, and high risk tissues during the last 12 months. This includes patients who are at increased risk who have died within the previous year.
- Health protection teams should report any surgery carried out on medium-low, medium-high, and high risk tissues involving instruments that may have been used and decontaminated fewer than 10 times (20 times for high risk tissues) since being used on patients at risk of CJD.
- Check whether patients have donated blood, organs or tissue since they were exposed to an increased risk of CJD.
- Complete a CJD Incidents Panel surgical incident reporting form if appropriate.

Surgical departments re-use instruments at different rates. Reviewing the medical history over the last 12 months for each patient who is at increased risk of CJD should reveal any instruments that could still transmit CJD to other patients.

There is no need to investigate or report other operations that have been done on patients at increased risk of CJD, as long as standard processes for decontaminating the surgical instruments have been used.

Table 2 Tissue infectivity levels for patients with, or at increased risk of, CJD

Infectivity level	Tissues of patients with, or at risk of CJD
High	Brain; spinal cord; dura mater; cranial nerves, specifically the entire optic nerve and only the intracranial components of the other cranial nerves; cranial nerve ganglia; posterior eye; pituitary gland
Medium-high	Olfactory epithelium Tonsil, spleen (only in variant CJD)
Medium–low	Anterior eye Fixed lymphoid tissue (only in variant CJD)

Once an incident has been reported to the CJD Incidents Panel, the health protection team should continue to work with the CJD Incidents Panel and local healthcare professionals to ensure that appropriate public health investigations and actions are carried out.

1.5 Infection control teams

If a patient at increased risk of CJD is due to undergo an invasive medical or surgical procedure, including endoscopy, infection control teams should follow guidance prepared by the ACDP TSE Working Group, 'Transmissible spongiform encephalopathy agents: safe working and the prevention of infection'.

This describes how to reduce the risk of CJD infection in hospitals when carrying out certain surgical and investigative procedures, and in community healthcare settings. Annex E of the guidance relates to the quarantining of instruments, and Annex F relates to endoscopy procedures.

1.6 Clinicians informing patients that they are at increased risk of CJD

The GP is usually best placed to inform patients that they are at increased risk of CJD. In some cases a specialist doctor who provides ongoing care may inform a patient. In these cases, the specialist should also inform the GP of the patient's increased risk status and that public health actions are required.

When discussing CJD risks with a patient, it is important to communicate two messages. First, that the risk of the patient being infected with CJD is uncertain, but is likely to be low. Second, that it is important that the patient should follow advice to reduce any risk of the infection spreading to other patients.

Two patient leaflets 'Information for people who have an increased risk of CJD' and 'Who has an increased risk of CJD?' should be given to patients during these consultations.

Patients may find the news that they are at increased risk of CJD both distressing and difficult to understand. They may want an absolute guarantee that they will not develop CJD. This is clearly not possible.

Many patients are likely to need more than one opportunity to discuss what this means for them if they are to come to terms with what they have been told. It may be helpful to consult a trained counsellor for advice on managing this process.

The healthcare professional informing a patient of their increased CJD risk status may wish to arrange follow up visits to give the patient opportunities to discuss these complex issues with appropriate staff.

1.7 General Practitioners

The patient's GP should:

- Record in the patient's primary care records that the patient is at increased risk of CJD, the reason for this, and that special infection control measures may be needed for medical and surgical procedures, including endoscopy.
- Include this information in any referral letters if the patient needs surgery, including specialist dental surgery, or other invasive procedure.
- Pass this information to any specialist doctors providing ongoing care to the patient.
- Check if the patient has had surgery in the past. If this is the case, the GP should tell the local Health Protection Team, who will take action if necessary.

1.8 Surgical and other hospital staff

Healthcare staff should ensure that patients who are at increased risk of CJD are not subjected to any delays or postponement of treatment as a result of uncertainty regarding the public health actions required.

1.9 Dentists

Patients who are at increased risk of CJD require the same standards of infection control as any other patients.

The only difference in the care of a patient at increased risk of CJD is that dentists should include their increased CJD risk status in referral letters to specialists such as maxillofacial surgeons. This is why patients at increased risk of CJD are asked to inform their dentist.

Dentists should be aware of the guidance prepared by the ACDP TSE Working Group, 'Transmissible spongiform encephalopathy agents: safe working and the prevention of infection'. This guidance states that the risks of transmission of infection from dental instruments are thought to be very low, provided optimal standards of infection control and decontamination are maintained.

In February 2005, the Chief Dental Officer sent a letter to all dentists in England to give information and advice about treating patients with or who are at increased risk of CJD[1]. The CJD Incidents Panel and HPA have prepared an advice note on the dental care of individuals who are at increased risk of CJD[2].

[1] http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Dearcolleaguelett ers/DH_4102752

[2] www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1211788871050

2. People who are at increased risk of CJD (see Figure 1)

2.1 Patient groups

Several groups of people are at increased risk of CJD. Everyone in these groups should follow advice to reduce the risk of the infection spreading to other patients.

Table 1 People at increased risk of CJD

The following groups of people are at increased risk of CJD:
Related to blood transfusions
People who have received blood from someone who went on to develop variant CJD
People who have given blood to someone who went on to develop variant CJD
People who have received blood from someone who has also given blood to a patient who went on to develop variant CJD
Related to surgery
People who have had surgery using instruments that had been used on someone who developed CJD
People who have had a neurosurgical procedure, or an operation for a tumour or cyst of the spine, before August 1992
People who have received an organ or tissue from a donor infected with CJD or at increased risk of CJD
Related to other medical care
People who have been treated with UK sourced plasma products between 1980 and 2001
People who have been treated with growth hormone sourced from humans (before 1985)
People who have been treated with gonadotrophin sourced from humans (before 1973)
People who have been told by a specialist that they have a risk of developing the genetic form of CJD

2.2 Actions for people at increased risk of CJD

All people who are at increased risk of CJD are asked to help prevent any further possible transmission to other patients by following this advice:

- Don't donate blood. No-one who is at increased risk of CJD or who has received blood donated in the United Kingdom since 1980 should donate blood.
- Don't donate organs or tissues, including bone marrow, sperm, eggs or breast milk.
- If you are going to have any medical, dental or surgical procedures, tell whoever is treating you beforehand so they can make special arrangements for the instruments used to treat you if you need certain types of surgery or investigation.
- You are advised to tell your family about your increased risk. Your family can tell the people who are treating you about your increased risk of CJD if you need medical or surgical procedures in the future and you are unable to tell them yourself.

Medical care abroad for people at increased risk of CJD

If a patient at increased risk of CJD needs an operation or endoscopy while abroad, they should:

- Tell the medical staff that, in the UK, doctors may take special infection control measures during surgery and endoscopy to reduce the risk of infecting other patients with CJD. Guidance on these infection control precautions is available on the HPA website www.hpa.org.uk/CJD
- Tell the medical staff to contact their own national organisation for advice on controlling infections, who can then contact the Health Protection Agency (HPA) duty doctor on 0044 208 200 6868 to get advice about the safety measures recommended for the medical procedure they plan to do, or have already done.

The HPA duty doctors are available 24 hours a day every day. They have information about where to find the relevant guidelines for controlling infection and contact numbers for experts who can help interpret the guidelines if necessary.

If it is not possible to tell medical staff before they undertake the procedure, the patient should tell them as soon as possible afterwards. This may happen in the UK as well as abroad, for example, if the patient was unconscious and needed immediate treatment. Procedures for controlling infection can still be effective, even after the medical procedure.

3 Types of incidents

3.1 Surgical CJD incidents

Surgical (or other) instruments may be contaminated with prion protein when they come into contact with infectious tissues of a patient with CJD. Prion proteins are not completely destroyed in normal decontamination processes, and the instruments may spread CJD to other patients when used again.

The amount of material on an instrument after surgery depends on the type of instrument, the tissues it was used on, and the decontamination processes the instrument has been through. Usually, there are two stages for decontaminating surgical instruments. First, they are cleaned, for example in a mechanical washer and drier. Then, infectious material is inactivated, for example, by high-pressure steam autoclaving.

Studies show that the first cycle of decontamination may reduce the amount of protein on instruments with flat surfaces by a thousand-fold. However, instruments with serrated edges and hinges or with narrow lumens (for example, flexible endoscopes) are much more difficult to clean. Cleaning the instruments again is not likely to be as effective, as any material that has survived the first cleaning stage may have been baked on during autoclaving or, in the case of flexible endoscopes, fixed to the equipment by the chemicals used in processing. It is possible that even after using and decontaminating the instruments a great many times, some infectious prion proteins could remain on the instruments.

The Department of Health has modelled the infection risk to patients coming into contact with surgical instruments that were used on a patient with CJD[3]. The risk assessments show that the risk to patients is highest when surgical instruments have only been used and decontaminated a small number of times after being used on a patient with, or at increased risk of, CJD.

The Panel's advice on whether to contact patients following a CJD incident is based on these models. The Panel assesses the risk of patients coming into contact with CJD by reviewing the information collected by the local incident team. In each case the Panel considers a range of factors including:

- the clinical condition of the patient with, or at increased risk of, CJD
- the infectivity levels of the tissues on which the instruments have been used
- the type of instruments used
- the processes in place for decontaminating the surgical instruments
- whether the instruments can be traced.

The Panel currently advises that, in general, there is no need to contact patients who have been exposed to instruments or blood, tissues or organs if the index patient is at increased risk of CJD. There are exceptions to this e.g. if the index patient has received variant CJD implicated blood components, or is at risk of genetic CJD.

[3] Assessing the risk of vCJD transmission via surgery: an interim review, Department of Health, 15th June 2005

3.2 Blood related CJD incidents

3.2.1. Blood components

Four people have been infected with variant CJD following a blood transfusion. Three of these people developed symptoms of variant CJD and died from clinical variant CJD. All four cases had received transfusions of non-leucodepleted red blood cells between 1996 and 1999.

Patients who receive blood transfusions from donors who later developed variant CJD may have a risk of variant CJD infection. Certain public health precautions are recommended for these recipients, and they are traced and notified that they have an increased risk of variant CJD.

Some variant CJD cases are found to have received blood donations in the past (Figure 1). If the people who donated blood to these cases were incubating variant CJD at the time of donation, then they could have been the source of the recipients' variant CJD infection. This possibility has been investigated in a risk assessment carried out by the Department of Health's Standards and Quality Analytical Team[4] . In 2005 the CJD Incidents Panel considered this risk assessment, and recommended that these blood donors should be informed of their risk of variant CJD infection and considered to be at increased risk of variant CJD.

Some of these blood donors have given blood to other patients (Figure 1). In September 2005, the CJD Incidents Panel considered the risk to patients who had received blood from donors to variant CJD cases. The risk of variant CJD infection in this group is very uncertain. However, some of these recipients may have a risk of variant CJD infection and could pose a risk to others. The CJD Incidents Panel has recommended such recipients have an increased risk of variant CJD, if the probability of being infected with variant CJD is estimated to be greater than 1%.

Neither the threshold, nor the exact risk estimate value for any individual recipient should be used as an indicator of an individual's risk of developing variant CJD. This risk is unknown.

3.2.2 Patients with bleeding disorders

A person with haemophilia has been found to have evidence of infection with the vCJD abnormal prion protein only in his spleen at post mortem. The post mortem was carried out as part of a study jointly co-ordinated by the UK Haemophilia Centre Doctors Organisation and the National CJD Surveillance Unit.

This haemophilia patient had been treated in the 1990s with several batches of UK-sourced clotting factors, including one batch of factor VIII that was manufactured using plasma from a donor who went on to develop vCJD. The plasma donor developed symptoms of vCJD 6 months after donating the plasma in 1996. The haemophilia patient was in his 70s when he died of a condition unrelated to vCJD, 11 years and one month after receiving the batch of implicated

[4] Assessing the implications for blood donors if recipients are infected with vCJD. Department of Health. July 2005.

factor VIII. He had no signs or symptoms of vCJD or other neurological disease when alive.

A final view as to how vCJD abnormal prion protein was transmitted to this haemophilia patient has yet to be reached because investigations are continuing to be sure of the source.

This is the first time that vCJD abnormal prion protein has been found in a patient with haemophilia, or any patient treated with plasma products

This finding does not change existing public health vCJD 'at risk' status for patients with bleeding disorders.

Patients who had received plasma products manufactured from plasma donated by individuals who later developed variant CJD were notified of this in 2004 and 2006. Plasma from these donors had been used to manufacture factor VIII, factor IX, antithrombin, intravenous immunoglobulin G, albumin, intramuscular human normal immunoglobulin and anti-D.

Patients treated with these plasma products are managed according to an assessment of potential variant CJD infectivity carried out by the Health Protection Agency with the Panel. Plasma product infectivity data are combined with batch manufacturing data to calculate the likely infectivity of each batch of the implicated plasma products.

Three groups of patients are involved: patients with bleeding disorders, patients with primary immunodeficiency disease, and patients with other disorders who had been treated with sufficient quantities of plasma products to result in a greater than 1% risk of variant CJD infection.

The UK Haemophilia Doctors and patient representatives, the Panel and UK Health Departments agreed that it was likely that many patients with bleeding disorders would have had a sufficient exposure to these implicated plasma products to put them at increased risk of variant CJD. It was also thought likely that further batches of UK-sourced plasma products would be implicated in the future as more cases of variant CJD arose.

Therefore all patients with bleeding disorders[5] who were treated with UK-sourced pooled factor concentrates or antithrombin[6] between 1980 and 2001[7] were informed that they were at increased risk of variant CJD and that special precautions should be taken. This included many patients who had not received plasma products sourced from known variant CJD patients.

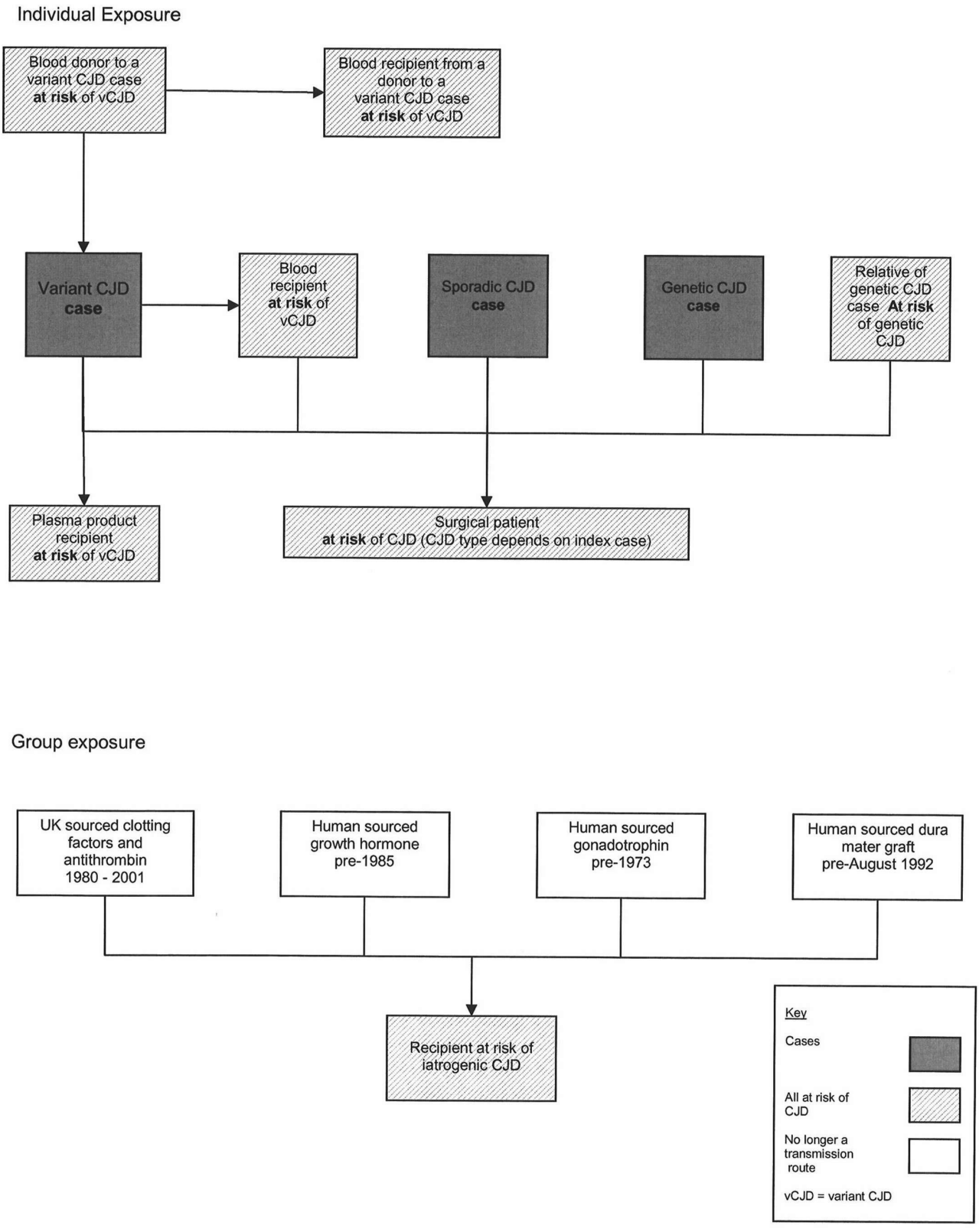
[5] Defined here as congenital and acquired haemophilia (Haemophilia A and Haemophilia B), Von Willebrand Disease, other congenital bleeding disorders and congenital antithrombin III deficiency.

[6] ie. clotting factors and antithrombin made from pooled plasma. These include factor VIII, factor IX, factor VII, factor XI, factor XIII and prothrombin complex concentrates as well as antithrombin.

[7] The start date of 1980 is when BSE is thought to have entered the human food chain. The end date of 2001 is the last possible expiry date of any product manufactured by the UK fractionators that was sourced from UK donors until 1998.

Patients who have been treated with other types of plasma products were assessed on an individual basis, to see if they had an increased risk of developing variant CJD.

Figure 1: Relationships between patient groups at risk of CJD



4 Useful websites

You can get more information about CJD from the following websites:

CJD Incidents Panel
http://www.hpa.org.uk/CJDIncidentsPanel

Infection control guidance
http://www.advisorybodies.doh.gov.uk/acdp/tseguidance/

Department of Health information for dentists
http:www.dh.gov.uk/PublicationsAndStatistics/LettersAndCirculars/DearColleagueLetters/DearColleagueLettersArticle/fs/en?CONTENT_ID=4102752&chk=7HspA

National CJD Surveillance Unit
http://www.cjd.ed.ac.uk/index.htm
Phone: 0131 537 2128

National Prion Clinic
http://www.nationalprionclinic.org
Phone: 020 7837 3611

CJD Support Network
http://www.cjdsupport.net/
Phone: 01630 673973

Institute of Child Health: 30 Guilford Street, London WC1N 1EH
Leah Davidson coordinates care for people affected by growth hormone related iatrogenic CJD
Tel: GRO-C Email: L.Davidson@ GRO-C

CJD Therapy Advisory Group guidance:
http://www.dh.gov.uk/en/Policyandguidance/Healthandsocialcaretopics/CJD/CJDgeneralinformation/DH_4031039

Department of Health
http://www.dh.gov.uk/en/Policyandguidance/Healthandsocialcaretopics/CJD/CJDgeneralinformation/index.htm

Spongiform Encephalopathy Advisory Committee
www.seac.gov.uk/
Department for Environment, Food and Rural Affairs BSE home page
http://www.defra.gov.uk/animalh/bse/index.html

We last revised this leaflet in February 2009. To check for any updates to this information, please see the current version of this leaflet at www.hpa.org.uk/CJD
We welcome your comments on this leaflet. Please send them to cjd@hpa.org.uk

Patients at increased risk of Creutzfeldt-Jakob Disease
Background Information

1 General information on CJD

Creutzfeldt-Jakob disease (CJD) is one of a rare group of diseases, known as 'transmissible spongiform encephalopathies' (TSEs), which affect the structure of the brain. TSEs cause dementia and a range of neurological symptoms, including ataxia, myoclonus, chorea or dystonia.

A number of TSEs are recognised in both humans and animals. In animals, the best-known TSE is bovine spongiform encephalopathy (BSE or mad cow disease). In humans, there are four main types of CJD:

- Sporadic CJD, which accounts for 85% of cases
- Variant CJD
- Inherited/genetic CJD and other prion diseases
- Iatrogenic CJD (through medical procedures).

At the moment, a CJD diagnosis can be confirmed only by histological examination of the brain following a brain biopsy, or after a post-mortem. If someone has symptoms suggestive of variant CJD, a full neurological examination would be conducted by a specialist. There is no proven treatment or cure for CJD, and the disease leads to death. Research is being carried out on the causes, tests and possible treatments for the disease.

The National CJD Surveillance Unit carries out surveillance of CJD throughout the UK and provides further information on CJD for clinicians and members of the public on its website. This includes information on diagnostic criteria, the number of cases, epidemiology, research and the latest short-term incidence projections.

2 Sporadic CJD

The most frequent form of CJD, sporadic CJD is most common in people over 50, and affects about one in a million people in the world. It is thought to arise spontaneously. Early symptoms are usually of behavioural disturbance or mental deterioration. A rapidly progressive dementia with obvious multifocal neurological involvement soon develops. Within weeks the patient may become unsteady on their feet, lack co-ordination and become very clumsy. In some people these are the first symptoms. Later symptoms may include blurred vision or even blindness, rigidity in the limbs, sudden jerky movements, and incontinence. Death usually occurs within months of the symptoms starting.

3 Variant CJD

Variant CJD was first recognised in 1996 and is thought to be caused by eating beef and beef products from cattle infected with BSE. It usually affects younger people, with a median age of onset in the late 20s. The clinical picture is different from sporadic CJD in that it often starts with psychiatric symptoms, such as anxiety and depression. There may be persistent pain, with odd sensations in the face and limbs. These symptoms are followed by more obvious neurological symptoms and progressive dementia. Variant CJD is also different from other human TSEs because

infectious prion proteins are found outside the nervous system as well as within it, especially in the lymphoid tissues throughout the body. People with variant CJD tend to live longer than people with most other forms of CJD, with an average of 14 months between symptoms starting and death.

Over 160 people have died from variant CJD in the UK and a small number have died in other countries. The number of cases in the UK is now declining and only one death was reported in the UK in 2008. The latest estimates are lower than some of the pessimistic forecasts that were made in the mid-1990s. However, nobody knows how many people will get this disease in the future.

4 Inherited/genetic CJD and other prion diseases

Genetic CJD has an autosomal dominant inheritance. The patients are often younger and live longer than people who develop sporadic CJD. There are between six and 10 new cases each year in the UK. The clinical features of genetic CJD vary from person to person, even within one family. Some patients have signs and symptoms similar to those seen in sporadic CJD, while others develop ataxia and other movement disorders before dementia starts. Close blood relatives of people with genetic CJD have a one in two chance of carrying the gene and developing the disease.

More details including information on current research, are available from the National Prion Clinic.

5 Iatrogenic transmission of CJD through medical treatment

People may develop iatrogenic CJD after infectious tissue enters their body through:

- receiving infectious material such as blood components or dura mater grafts;
- treatment with human-derived hormones derived from the pituitary gland such as human growth hormone or gonadotrophin;
- surgery and other invasive medical procedures using contaminated instruments.

The clinical features of iatrogenic CJD partly depend on the route of infection. Over 190 people have been infected after having received dura mater grafts contaminated with sporadic CJD before 1992[1] A similar number have been infected through treatment with contaminated human growth hormone before 1985.

More information on human growth hormone and CJD is available from the Institute of Child Health.

Worldwide, there have been only four cases of people developing CJD after being operated on with instruments used before for neurosurgery on patients with sporadic CJD[10]. These people developed CJD between 12 and 28 months after being infected. Two cases have been linked to using infected electrodes on the brain and another two cases linked to corneal transplants. As far as we know, variant CJD has never been spread through surgery.

[1] Brown P et al. Iatrogenic CJD. The waning of an era. Neurology, August 2006, 67:389-93.

6 Iatrogenic transmission of vCJD through blood

Infection with variant CJD has probably been transmitted to four patients through blood transfusions in the UK[2] from three donors who were diagnosed with variant CJD after donating the blood. One of these patients had not developed clinical disease before dying from another cause[3]. All four cases had received transfusions of non-leucodepleted red blood cells between 1996 and 1999.

The first person to develop variant CJD disease following a blood transfusion was identified in December 2003[4]. This person developed variant CJD six and a half years after receiving a transfusion of red cells. The donor of the red cells developed symptoms of variant CJD three and a half years after giving blood.

Another case of variant CJD 'infection' in a blood recipient was identified a few months later[13]. This individual had been given red cells from a donor who developed symptoms of variant CJD 18 months after giving blood. This second case died from causes unrelated to variant CJD five years after receiving the transfusion. At post-mortem abnormal prion protein was found in the spleen and a cervical lymph node, but not in the brain.

A third case developed symptoms of variant CJD 6 years after receiving a transfusion of red blood cells, and died 8 years and 8 months after receiving the blood[5]. The blood donor developed variant CJD about 20 months after giving blood.

The fourth case developed symptoms of variant CJD 8 and a half years after receiving a transfusion of red blood cells[12]. The donor developed variant CJD about 17 months after giving blood. This donor had also donated blood to the 3rd case.

Other routes of exposure, including most notably dietary exposure to BSE, cannot be excluded as the source of these patients' variant CJD infections. However, it is highly probable that they were infected by their blood transfusion: each new case (amongst the relatively small group of individuals exposed to variant CJD-implicated blood transfusions) has made this more probable.

Sporadic CJD has been monitored for many years in many countries. To date, no other forms of human prion disease, including sporadic CJD, have been transmitted by blood transfusions.

7 Iatrogenic transmission of vCJD through plasma products

In 2008 a person with haemophilia has been found to have evidence of the prion that causes variant Creutzfeldt-Jakob Disease (vCJD) in his spleen at post mortem. Tissue taken at post mortem was examined as part of a study jointly co-ordinated by the UK Haemophilia Centre Doctors Organisation and the National CJD Surveillance Unit.

This haemophilia patient had been treated with several batches of UK-sourced clotting factors, including one batch of factor VIII that was manufactured using

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[2] 4th case of transfusion-associated vCJD infection. Health Protection Report 2007; 1;3,

[3] Peden AH et al. Preclinical vCJD after blood transfusion in a PRNP codon 129 heterozygous patients. The Lancet, 2004; 364:527-9.

[4] Llewellyn CA et al. Possible transmission of vCJD by blood transfusion. The Lancet, 2004; 363:417-21

[5] Wroe SJ et al. Clinical presentation and pre-mortem diagnosis of variant Creutzfeldt-Jakob disease associated with blood transfusion: a case report. The Lancet, 2006; 368: 2061-67

plasma from a donor who went on to develop vCJD. The plasma donor developed symptoms of vCJD 6 months after donating the plasma in 1996. The haemophilia patient was in his 70s when he died of a condition unrelated to vCJD, 11 years and one month after receiving the batch of implicated factor VIII. He had no signs or symptoms of vCJD or other neurological disease when alive.

A final view as to how vCJD abnormal prion protein was transmitted to this haemophilia patient has yet to be reached because investigations are continuing to be sure of the source.

This is the first time that vCJD abnormal prion protein has been found in a patient with haemophilia, or any patient treated with plasma products.

8 How might prions cause CJD?

The cause of CJD is thought to be an abnormal form of the naturally occurring prion protein. The normal form of this protein is found in the brain and other parts of the body, in humans and many animal species, but we know little about its function. The abnormal infectious prion protein is chemically identical to the normal form, but its physical shape is different, and it resists normal cell degradation. It is thought to build up by inducing the normal prion protein to mis-fold, but it is not known how this change happens. The abnormal prion protein then accumulates in various tissues, particularly in the central nervous system, where tissue damage is most severe. As the disease progresses, neuronal tissue is lost, and the brain becomes 'spongiform'. The immune system does not seem to respond to CJD infection.

The abnormal prion protein that starts these changes may arise:

- spontaneously (a possible explanation for sporadic CJD)
- acquired through eating meat or meat products from cattle infected with BSE (for variant CJD only)
- associated with an inherited abnormality of the prion protein gene (genetic CJD)
- acquired in a medical setting through inoculation with contaminated tissue from someone with CJD (iatrogenic CJD).

9 The effect of genotype on CJD infection

Of those who have been tested, most people with sporadic CJD, and everyone with variant CJD, have a particular form of the prion protein gene (methionine homozygous) found in 40% of people in the UK. This genotype probably makes the host prion protein more vulnerable to conversion into the abnormal form.

In a post-mortem carried out in July 2004, variant CJD infection was detected in the spleen and one cervical lymph node of someone who had a different form of the prion protein gene (MV heterozygous). This patient had received a blood transfusion from a donor who later developed variant CJD. The patient had received a blood transfusion from a donor who later developed variant CJD. The patient had had no

symptoms of variant CJD, and had died from an unrelated cause some years after receiving the transfusion.

10 How CJD spreads

Eating beef or beef products from BSE infected cattle is the most likely cause of variant CJD, and most of the people in the UK would have been exposed in this way. Other potential sources of CJD infection include contaminated medical equipment or infected transplant material.

Prion diseases like CJD can spread from one person to another only in certain circumstances through healthcare. They are not infectious in usual ways, e.g., they are not spread by coughing or sneezing, touching or by having sex, nor is there evidence that the disease can spread from a mother to her unborn baby or spread through breastfeeding.

Abnormal prion proteins resist most of the usual methods to inactivate bacteria and viruses. Prions are not totally inactivated by heat, ultraviolet light or other standard sterilisation procedures such as immersion with sodium hypochlorite at normal concentrations. This is why autoclaving cannot be relied on to denature abnormal prion proteins contaminating surgical instruments following use on a patient with CJD.

11 Measures to prevent CJD from spreading through healthcare between patients

The following public health measures aim to reduce as far as possible the chances of spreading CJD between people:

- Improving the standards and processes for decontaminating instruments.
- Taking special infection control measures in relation to instruments when operating on patients with, or at increased risk of, CJD.
- Measures to protect the blood supply (see below).
- Excluding transfused donors from the living bone donation programme.

12 Measures to protect the blood supply

We do not know the exact risk of variant CJD spreading through blood. The Department of Health in England arranged for Det Norske Veritas Consulting to assess this risk[6]. The Spongiform Encephalopathy Advisory Committee (SEAC) accepted the risk assessment in early 1999 and issued a position statement on TSE infectivity in blood in July 2006[7].

[6] Risk of Infection from variant CJD in Blood. DNV Consulting.

[7] http://www.seac.gov.uk/statements/statement0806.htm

As a result, the blood and transplant services have taken the following safety measures to reduce any possible risk of spreading variant CJD through blood:

- Withdrawal and recall of any blood components, plasma products or tissues donated by anyone who later develops variant CJD (since December 1997).
- Importing plasma from the USA for fractionation to make plasma products (since July 1998).
- Removing white blood cells (which may carry the highest risk of spreading variant CJD) from all blood used for transfusions (leucodepletion) (since November 1999).
- Importing fresh frozen plasma from the United States for patients born on or after 1st January 1996 (since August 2002) later extended to patients under the age of 16 years (July 2005).
- Not accepting (since April 2004) donations from people who have received a blood transfusion in the UK since 1980. In August 2004 this was extended to include people who are not sure if they have had a blood transfusion, and apheresis donors. The exclusion criteria were later extended to the recipients of blood transfusion anywhere in the world.
- Promoting the appropriate use of blood, tissues and alternatives throughout the NHS. This has led to a reduction in the amount of blood transfused during and following surgery.
- Exclusion of blood donors whose blood has been transfused to recipients who later developed vCJD, where blood transfusion cannot be excluded as a source of the vCJD infection and where no infected donor has been identified (July 2005).

In addition, individuals who have been informed that they are at increased risk of CJD/vCJD for public health purposes because they have been exposed to a possible risk through blood transfusion, surgery, or tissue transplantation, are all informed that they should not donate blood, tissues or organs.

We last revised this leaflet in February 2009. To check for any updates to this information, please see the current version of this leaflet at www.hpa.org.uk/cjd
We welcome your comments on this leaflet. Please send them to cjd@hpa.org.uk

Health Protection Agency

Health Protection Scotland

Information for people who have an increased risk of CJD

CJD stands for Creutzfeldt-Jakob Disease. There are several types of CJD. In this leaflet the term CJD covers all types unless a particular type of CJD is specified.

Contents

Who has an increased risk of CJD?

You are one of over 5,000 people in the United Kingdom who have an increased risk of CJD because of an operation, blood transfusion or other medical treatment in the past. The leaflet 'Who has an increased risk of CJD?' explains these risks in detail.

Am I going to get CJD?

We do not have enough information at present to answer this question. Everyone in the UK has a small risk of developing CJD. We believe that the chance that you could develop CJD is very small, but it is greater than for other people. You may never develop CJD even if you are infected. But you and those looking after you can take some safety measures to reduce the chance that you could pass it to others.

What is CJD?

CJD is a very rare disease in humans. It affects the structure of the brain and leads to death. CJD is one of a group of diseases called transmissible spongiform encephalopathies (TSEs) that affect animals as well as humans. BSE (bovine spongiform encephalopathy), sometimes referred to as 'mad cow disease' is a type of TSE that affects cattle. These diseases are caused by an abnormal form of a prion protein which accumulates in the brain. There are four types of CJD.

Types of CJD

Sporadic CJD occurs spontaneously. No one knows what causes it and it is found throughout the world. It is the most common type of CJD. In the United Kingdom, 73 people died of sporadic CJD in 2008.

Variant CJD is the human form of BSE. Many people in the United Kingdom were exposed to BSE because they ate beef and beef products from cattle that were infected with BSE. There have been under 170 cases of variant CJD in the United Kingdom since 1995 and a few cases in other countries. One person died of variant CJD in the United Kingdom in 2008.

Genetic or **inherited CJD** is caused by a faulty gene which parents may pass on to their children. In the United Kingdom, two people died from genetic forms of human prion disease in 2008.

Iatrogenic CJD is CJD (sporadic, variant or genetic) that is spread through medical treatment such as blood transfusion, surgery or treatment with contaminated human hormones. Five people died from iatrogenic CJD in the United Kingdom in 2008. Sporadic CJD has occasionally been spread through brain surgery and eye surgery. It has also been transmitted by treatment with growth hormone and gonadotrophin prepared from infected humans. Variant CJD is not known to have spread through surgery. Four people in the United Kingdom have been infected with variant CJD following blood transfusions. One haemophilia patient has been found to have evidence of infection with the variant CJD abnormal prion protein, only in his spleen, when tested at post mortem. This patient did not have any symptoms of variant CJD, and died of an unrelated cause. The source of this patient's infection is currently being investigated. No other types of CJD are known to have spread through blood.

What should I do if I think I may have CJD?

It is very unlikely that any new symptoms that you notice will be the start of CJD. CJD can cause many different symptoms, including psychiatric, neurological and physical symptoms. If you develop an illness which could be CJD, your GP can arrange for a specialist doctor to carry out a full neurological examination.

Can I have a blood test to see if I am infected with CJD?

There is no blood test available yet which could show if you have CJD. Scientists are working very hard to develop tests, and if a suitable test does become available, we will send you information about it through your GP.

How can you treat CJD?

Unfortunately, there is no treatment or cure for CJD at present. Scientists are researching the causes and possible tests and treatments for the disease. If suitable treatment becomes available, information will be sent to you through your GP.

What about my medical and dental care?

You do not need extra medical checks because you have an increased risk of CJD. Your doctor will, however, always be willing to see you if you have any worries about your health.

The only difference in your treatment is that special safety measures may be needed for the instruments that are used if you need certain types of surgery or investigations. Your doctors will include this information in your hospital medical records and your GP records.

You should tell your dentist that you have been informed that you have an increased risk of CJD. Your routine dental care, including root canal treatment, should not be affected. If you need more complicated surgery on your head or neck, special safety measures may be needed for the surgical instruments that are used on you .Your dentist should include this information in their letter if they refer you for surgery.

What about life insurance?

Companies registered with the Association of British Insurers do not refuse life assurance because someone is at added risk of CJD. Your current life assurance policy (if you have one) should not be affected. If you take out a new policy, you must answer all questions truthfully, or your policy may not be valid.

What if I travel abroad?

You are able to obtain travel insurance in the usual way. If you take out a new policy, you must answer all questions truthfully, or your policy may not be valid.

If you need an operation or endoscopy while abroad, you should tell the medical staff beforehand that

- Doctors in the United Kingdom must take special infection control measures during some surgical procedures and investigations to reduce the risk of passing on CJD
- They should contact their own national organisation for advice on controlling infections. They can then call the Health Protection Agency duty doctor on 0044 208 200 6868 to obtain advice about the recommended safety measures.

If you cannot tell medical staff beforehand, tell them as soon as possible afterwards.

Will this affect my family and friends or my work?

- You can carry on living your life as usual. There is no evidence that CJD can be passed from one person to another by sneezing or coughing, sharing cups, knives, forks and so on, by touching, kissing or having sex. There is no evidence that CJD can be passed from a woman to her unborn baby, or by breastfeeding.
- You can continue to treat cuts and minor injuries as usual, and you do not have to take any special precautions.
- If you are a man you should not donate sperm, and if you are a woman you should not donate eggs or breast milk. This is an extra precaution even though there is no evidence that these can spread CJD.
- There is no evidence that CJD has spread between people through work and there is no need to tell your employer. If you are a doctor, nurse or other healthcare worker, there is no evidence that you could infect your patients or that your patients could infect you.

Advice on how to reduce the risk of spreading CJD to other people

You have been identified as being at increased risk of CJD. You can reduce the risk of spreading CJD to other people by following this advice.

- Don't donate blood. No-one who is at increased risk of CJD or who has received blood donated in the United Kingdom since 1980 should donate blood
- Don't donate organs or tissues, including bone marrow, sperm, eggs or breast milk
- If you are going to have any medical or surgical procedures, you should tell whoever is treating you beforehand so that they can make special arrangements for the instruments used to treat you
- You are advised to tell your family about your increased risk. Your family can tell the people who are treating you about your risk of CJD if you need medical or surgical procedures in the future and are unable to tell them yourself.

How could surgery spread CJD?

The surgical instruments used to treat you could spread CJD to other patients who have surgery after you. This is because the abnormal prion proteins that cause CJD are very hard to remove or destroy. Surgical instruments that have been properly washed and disinfected may still have prion protein on them and could spread CJD to other patients.

How could blood, tissue or organ donations spread CJD?

If a blood donor or organ donor is infected with CJD but has no signs of the disease, their blood, tissues and organs may still spread CJD to other people. This is because the abnormal prion proteins are present in different parts of the body in CJD before symptoms develop. Blood transfusions have spread variant CJD, but they have not spread sporadic or genetic types of CJD.

There is no test at present that can detect blood that is infected with CJD, and no method that can completely remove abnormal prion protein from blood. The blood transfusion and transplant services ask anyone with an increased risk of any type of CJD not to donate blood, tissues or organs. This is to reduce the risk of passing CJD to others.

Who decided that I am at risk of CJD?

In 2000, the Department of Health set up a committee of experts (the CJD Incidents Panel) to give advice on the risk that CJD could pass from patient to patient. The Panel assesses the risk to patients, and gives advice to doctors about contacting people and informing them about their increased risk of CJD.

What else is being done to reduce the risk of variant CJD?

From food

The risk of getting variant CJD through eating meat and meat products from cattle that may be infected with BSE has been reduced by measures including banning the feeding of animal protein to other animals, and banning the use of certain parts of animals (e.g. the brain and nerves in the spine) from the food we eat.

From surgical instruments

The abnormal prion protein that causes CJD is very hard to destroy. The risk of spreading CJD can be reduced by using surgical instruments only once, or by destroying instruments that have been used on patients diagnosed with CJD. Much research has gone into improving decontamination of all surgical instruments in recent years. New methods will remove and destroy more of the abnormal prion protein on instruments.

From blood

The following precautionary measures have already been taken by the United Kingdom blood services

- Withdrawal and recall of any blood components, plasma products or tissues obtained from any individual who later developed variant CJD (December 1997)
- Importing plasma from the US to manufacture plasma products (1998)
- Removal of white blood cells (leucodepletion) from all blood components (Autumn 1999)
- Importing fresh frozen plasma from the US for patients born on or after 1st January 1996 (March 2004), extended to all children under 16 years of age (Summer 2005)
- Not accepting donations from people who have received a blood transfusion since 1980 (April 2004). This was later extended to include two new groups: donors who are unsure if they have previously had a blood transfusion and apheresis donors (August 2004)
- Promoting appropriate use of blood and tissues and alternatives throughout the NHS.

In addition, the United Kingdom blood services ask you, and others who have an increased risk of CJD, not to give blood, organs and tissues and to tell your healthcare providers about your increased risk. This further reduces the risk of spreading variant CJD through blood transfusion, organ and tissue transplantation or surgical instruments.

What happens now?

Ask your GP or specialist doctor for support if you have any worries about CJD. They will answer your questions and help provide any further support you may need. The Health Protection Agency in England; the National Public Health Service for Wales; the Department of Health, Social Services and Public Safety (DHSSPS) in Northern Ireland; and Health Protection Scotland in Scotland, can provide more information for healthcare staff. The Health Protection Agency will contact you through your GP or specialist doctor if there is any new information for people with an increased risk of CJD.

If you do not have a GP, and are not under the care of a specialist, the Health Protection Agency or Health Protection Scotland will contact you directly.

More information about CJD is available from the following websites:

CJD Support Network:
www.cjdsupport.net Helpline: 01630 673973
Health Protection Agency:
www.hpa.org.uk/cjd
National CJD Surveillance Unit:
www.cjd.ed.ac.uk
National Prion Clinic:
www.nationalprionclinic.org/
Department of Health:
www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/CJD/fs/en
Information for dentists at:
http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Dearcolleagueletters/DH_074001 and
http://www.hpa.org.uk/infections/topics_az/cjd/guidance.htm

We last updated this leaflet in February 2009. To check for any new information, please see the latest version at www.hpa.org.uk/cjd
We welcome feedback on this leaflet – please send your comments to:
cjd@hpa.org.uk

Who has an increased risk of CJD?

This leaflet explains why different groups of people have an increased risk of CJD. Please read this together with the leaflet '**Information for people with an increased risk of CJD**'.

Several groups of people have an increased risk of CJD. Everyone in these groups should follow advice to reduce the risk of spreading the infection to other people through their medical care. CJD stands for Creutzfeldt-Jakob Disease. There are several types of CJD In this leaflet the term CJD includes all types, unless a particular type of CJD is specified.

The following groups of people have an increased risk of CJD

Related to blood transfusions

People who have received blood from a donor who went on to develop variant CJD

People who have given blood to someone who went on to develop variant CJD

People who have received blood from a donor who has given blood to another person who went on to develop variant CJD

Related to surgery

People who have had surgery using instruments that had been used on someone who went on to develop CJD

People who have had a neurosurgical procedure or an operation for a tumour or cyst of the spine before August 1992

People who have received an organ or tissue from a donor infected with CJD or at increased risk of CJD

Related to other medical care

People who have been treated with certain plasma products produced in the UK between 1980 and 2001

People who have been treated with growth hormone sourced from humans before 1985

People who have been treated with gonadotrophin sourced from humans before 1973

People who have been told by a specialist that they have a risk of developing an inherited (genetic) form of CJD that runs in families.

If you have been infected with CJD, then you could spread CJD to other patients if you donate blood, organs and tissue or have an operation.

If you are going to have an operation, special precautions should be taken with the surgical instruments that are used on you if you need certain types of surgery or investigation. This should reduce the risk of CJD (including variant CJD) being passed to others in operations. Please follow our advice to help reduce the risk of spreading the infection to other people.

Advice on how to stop CJD spreading to other people

You have been identified as being at increased risk of CJD. You can reduce the risk of spreading CJD to other people by following this advice

- Don't donate blood, No-one who is at increased risk of CJD or who has received blood donated in the United Kingdom since 1980 should donate blood
- Don't donate organs or tissues, including bone marrow, sperm, eggs or breast milk
- If you are going to have any medical or surgical procedures, tell whoever is treating you beforehand so they can make special arrangements for the instruments used to treat you
- You are advised to tell your family about your increased risk. Your family can tell the people who are treating you about your risk of CJD if you need any medical or surgical procedures in the future and are unable to tell them yourself.

Related to blood transfusions

People who have received blood from a donor who went on to develop variant CJD

Your medical records show that you have received blood from a donor who later developed variant CJD.

We know that variant CJD can be spread by blood transfusions. Four people in the United Kingdom have been infected in this way. This was first reported in 2003. The HPA has contacted you and everyone else who received blood from donors who went on to develop variant CJD and has informed you that you may have been exposed to variant CJD.

It is impossible to put an exact figure on your increased risk of variant CJD because you were given blood from a donor who later developed variant CJD. There are no tests at present that can identify a person who is infected with variant CJD before they become ill, or that can detect blood that is infected with variant CJD.

Everyone in the United Kingdom who has received a blood transfusion since 1980 is asked not to give blood themselves, to reduce the chance of passing on variant CJD. You are already in this group.

If you have been infected with CJD, then you could spread CJD to other patients if you donate organs and tissue or have an operation. Please follow our advice to help reduce the risk of spreading the infection to other people.

People who have given blood to someone who went on to develop variant CJD

Your medical records show that your blood was given to a patient who later developed variant CJD.

We cannot tell how this patient became infected with variant CJD. Most people who have variant CJD acquired it through eating beef and beef products from cattle that were infected with bovine spongiform encephalitis (BSE). Four people in the United Kingdom have been infected with variant CJD from blood transfusions. It is possible that this patient's variant CJD infection came from your blood and that you could be infected with variant CJD, even though you feel healthy. People who are infected with CJD may remain well for many years, and it is possible that some may never become ill.

It is impossible to put an exact figure on your increased risk of variant CJD. The chance that you are infected with variant CJD is very small, but there are no tests at present that can identify a person who is infected with variant CJD before they become ill, or that can detect blood that is infected with variant CJD.

If you have been infected with CJD, then you could spread CJD to other patients if you donate blood, organs and tissue or have an operation. Please follow our advice to help reduce the risk of spreading the infection to other people.

People who have received blood from a donor who has also given blood to someone who went on to develop variant CJD

Your medical records show that you have received blood from a donor who has also given blood to someone who later developed variant CJD.

We do not know how that person became infected with variant CJD. Most people who have variant CJD have acquired it through eating beef or beef products from cattle that were infected with BSE. Four people in the United Kingdom have been infected with variant CJD from blood from a donor who later developed variant CJD. It is possible that the blood donor was the source of that patient's variant CJD infection. It is also possible that you too may be infected with variant CJD from the same blood donor.

The blood donor has no signs of CJD, and no longer donates blood. There are no tests at present that can identify a person who is infected with variant CJD before they become ill, or that can detect blood that is infected with variant CJD. People who are infected with CJD may remain well for many years, and it is possible that some may never become ill.

The chance that you are infected with variant CJD is very small but it is impossible to put an exact figure on your increased risk.

Everyone in the UK who has received a blood transfusion since 1980 is asked not to give blood themselves because they may have become infected with variant CJD. This reduces the chances of passing on variant CJD. You are already in this group.

If you have been infected with CJD, then you could spread CJD to other patients if you donate organs and tissue or have an operation. Please follow our advice to help reduce the risk of spreading the infection to other people

Related to surgery

People who have had an operation using instruments that had been used on someone who went on to develop CJD

Your medical records show that you have had an operation using surgical instruments that had been used previously on a patient who went on to develop CJD.

Surgical instruments used on patients who are infected with CJD could spread infection to other patients having surgery. This is because the abnormal prion proteins that cause CJD are very hard to destroy. Surgical instruments that have been properly washed and disinfected may still have infected prion proteins on them and could then spread CJD to other patients.

We do not know what the chance is of getting CJD after having surgery, but it seems to be very small. We do not know of any people infected with variant CJD as a result of surgery. There have been only four reports worldwide of people infected with sporadic CJD from instruments used during neurosurgery (operations on the brain and spinal cord), and these cases happened many years ago.

If you have been infected with CJD, then you could spread CJD to other patients if you donate blood, organs and tissue or have an operation. Please follow our advice to help reduce the risk of spreading the infection to other people.

People who have had a neurosurgical procedure, or an operation for a tumour or cyst of the spine before August 1992, and who may have received a graft of dura mater tissue in this procedure

Your medical records show that you had a neurosurgical procedure before 1992 in which you may have received a graft of dura mater tissue from humans. Dura mater is a tough lining round the brain and spinal cord. Dura mater grafts obtained from humans were used in many neurosurgical procedures and operations on tumours or cysts of the spine. These grafts were banned in the United Kingdom in 1992.

Everyone who received a dura mater graft obtained from humans has an increased risk of CJD. Many thousands of people have been treated with

these grafts throughout the world. Over 190 of these patients worldwide have developed CJD and the grafts that they received must have been made from people who had been infected with CJD, even if they did not show any signs of the disease. There is no test that can detect a graft which is infected with CJD.

If you have been infected with CJD, then you could spread CJD to other patients if you donate blood, organs and tissue or have an operation.

If your operation took place some years ago, the hospital may no longer have a record of whether you received a graft of dura mater tissue from humans, and you should follow the same advice as someone who knows that they were given a graft of human tissue. Please follow our advice to help reduce the risk of spreading the infection to other people.

People who have received an organ or tissue from a donor infected with CJD or at increased risk of CJD

Your medical records show that you have received an organ or tissue donated by someone who is at increased risk of CJD.

We do not know what your chance is of getting CJD after receiving an organ or tissue transplant. But it is very likely that the benefits of your transplant are much greater than the risk of being infected with CJD. You may wish to discuss this with your surgeon.

We do not know of anyone who has been infected with variant CJD from an organ or tissue donation. Two people might have been infected with CJD by corneal grafts donated by people who had sporadic CJD. These donations took place in the 1960s and 1970s.

Four people in the United Kingdom have been infected with variant CJD through blood transfusions.

If you have been infected with CJD, then you could spread CJD to other patients if you donate blood, organs and tissue or have an operation. Please follow our advice to help reduce the risk of spreading the infection to other people.

Related to other medical care

People who have been treated with certain plasma products produced in the United Kingdom between 1980 and 2001

Clotting factors and antithrombin

Your medical records show that you have a bleeding disorder or congenital antithrombin III deficiency[1] and you been given clotting factors or

[1] Congenital and acquired haemophilia (Haemophilia A and Haemophilia B), Von Willebrand Disease, other congenital bleeding disorders and congenital antithrombin III deficiency.

antithrombin prepared from plasma (part of blood) sourced and produced in the United Kingdom[2] between 1980 and 2001.

You have an increased risk of variant CJD because you are one of many patients who have been treated with clotting factors prepared from the plasma of many donors. The larger the number of people that have donated plasma that was used to prepare these clotting factors, the greater the chance that one of them was infected with variant CJD, even though they appeared to be healthy. The chance that you are infected with variant CJD is thought to be very small.

We do not know your increased risk of variant CJD from treatment with clotting factors or antithrombin. Four people in the United Kingdom have been infected with variant CJD following blood transfusions from blood donors who later developed variant CJD. One haemophilia patient has been found to have evidence of infection with the variant CJD abnormal pron protein, only in the spleen, when tested at post mortem. This patient did not have any symptoms of variant CJD, and died of an unrelated cause. A final view as to how this haemophilia patient became infected with the vCJD abnormal prion protein has yet to be reached and investigations are therefore continuing to establish this. Most people who have variant CJD have acquired it through eating beef or beef products from cattle that were infected with bovine spongiform encephalitis (BSE), but we do not know what the chance is that you could have been infected with variant CJD in this way either.

If you are infected with variant CJD, then you could spread variant CJD to other patients if you donate organs and tissue or have an operation.

Please follow our advice to help reduce the risk of spreading variant CJD to other people.

Albumin and Factor IX

Your medical records show that you have been treated with albumin or Factor IX made from plasma (part of blood) that was donated by someone who went on to develop variant CJD.

We do not know what the chance is that you have been infected with variant CJD from treatment with albumin or Factor IX but it is likely to be very small. Four people in the United Kingdom have been infected with variant CJD following blood transfusions from blood donors who later developed variant CJD. Most people who have variant CJD have acquired it through eating beef or beef products from cattle that were infected with bovine spongiform encephalitis (BSE), but we do not know what the chance is that you could have been infected with variant CJD in this way either.

If you are infected with variant CJD then you could spread variant CJD to other patients if you donate blood, organs and tissue or have an operation.

[2] Factor VIII, factor IX, factor VII, factor XI, factor XIII and prothrombin complexes, as well as antithrombin.

Please follow our advice to help reduce the risk of spreading variant CJD to other people.

People who have been treated with growth hormone from humans before 1985

Your medical records show that you were treated with growth hormone prepared from human pituitary glands between 1958 and 1985. Many thousands of children were given this treatment, and over 190 are known to have developed CJD worldwide.

This is because the hormone was prepared from pituitary glands from people some of whom must have been infected with CJD, even if they had shown no signs of the disease while they were alive. The use of growth hormone prepared from humans was banned in the United Kingdom in 1985.

If you are infected then you could spread CJD to other patients if you donate blood, organs and tissue or have an operation. Please follow our advice to help reduce the risk of spreading the infection to other people.

The Institute of Child Health supports people who have received human derived pituitary growth hormone. Contact: L.Davidson@ GRO-C Tel: GRO-C GRO-C

People who have been treated with gonadotrophin hormones sourced from humans before 1973

Your medical records show that you were treated with gonadotrophin prepared from human pituitary glands before 1973. Many women were given this treatment, and four are known to have developed CJD worldwide.

This is because the gonadotrophin was prepared from pituitary glands from people some of whom must have been infected with CJD, even if they had shown no signs of the disease while they were alive. The use of gonadotrophin prepared from humans was banned in the United Kingdom in 1973.

If you are infected then you could spread CJD to other patients if you donate blood, organs and tissue or have an operation. Please follow our advice to help reduce the risk of spreading the infection to other people.

People who have been told by a specialist that they have a risk of developing an inherited (genetic) form of CJD that runs in families

Someone in your family has an inherited (genetic) form of CJD that runs in families. Inherited CJD is rare, and accounts for 15 out of every 100 cases of CJD in the United Kingdom. Eight people died of inherited forms of CJD and other prion diseases in the United Kingdom in 2007.

A faulty gene causes inherited CJD disease, and this faulty gene can be inherited (passed) from parent to child. You should discuss your risk with a genetic specialist.

If you are carrying the faulty gene, then you could spread CJD to other patients if you donate blood, organs and tissue or have an operation. No cases have been reported of inherited CJD being spread to others in this way but it is possible that this form of CJD could infect other people.

Please follow our advice to help reduce the risk of spreading the infection to other people.

The National Prion Clinic offers help and support to people at risk of genetic CJD: www.nationalprionclinic.org/.

Where can I find out more?

More information on CJD and what to do is contained in the leaflet 'Information for people who have an increased risk of CJD'.

The following organisations offer further information and support.

- CJD Support Network website: www.cjdsupport.net Helpline: 01630 673973
- Health Protection Agency website: www.hpa.org.uk/infections/topics az/cjd/menu.htm
- National CJD Surveillance Unit website: www.cjd.ed.ac.uk
- National Prion Clinic website: www.nationalprionclinic.org/
  Institute of Child Health: 30 Guilford Street, London WC1N 1EH
  Leah Davidson coordinates care for people affected by growth hormone related iatrogenic CJD
  Tel: GRO-C Email: L.Davidson@ GRO-C

We last updated this leaflet in February 2009.
To check for any new information, please see the latest version at www.hpa.org.uk/CJD
We welcome feedback on this leaflet – please send your comments to: cjd@hpa.org.uk