



National Prion Disease Pathology Surveillance Center

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To: Medical Staff and Clients

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Subject: Prion Infection Control Practices

Hundreds of individuals in the USA are diagnosed with prion disease every year, and undoubtedly, many specimens containing prions are unknowingly processed by clinical laboratories. In 2012, the EuroCJD Network published findings from a review of healthcare workers and the risk of sCJD over a 45-year period. The study found that there is no increased incidence of prion disease in healthcare professionals (<https://www.eurosurveillance.org/content/10.2807/ese.17.15.20144-en>).

In the routine **clinical care** of patients diagnosed with human prion disease, **Standard Precautions** are adequate. There is no evidence of contact or aerosol transmission of prions from one person to another and there is no increased risk of sporadic prion disease in family members or healthcare professionals who care for loved ones or patients affected by the illness. Healthcare professionals handling fluids and tissues from any patient, should wear gloves and avoid mucous membrane exposure. There are no additional requirements following occupational exposure to tissues of a patient with CJD or a patient in the high- or low-risk category.

Epidemiological evidence is more relevant and more persuasive than the experimental evidence, and strongly recommended that blood specimens from patients with CJD should not be regarded as infectious, and that no special precautions are needed for its handling in **clinical laboratories**. Similarly, except for CSF, other body fluids, secretions and excretions contain no infectivity, and need no special handling. CSF is considered a low infectivity and should be handled appropriately.

The exception to the above is highly infectious brain tissue. Specific procedures are recommended for decontaminating instrumentation exposed to prions in this high infectivity setting (e.g., neurosurgery). As a precaution screening for potential prion disease is recommended prior to neurosurgical procedures and a risk assessment tool can be found in Karasin M, AORN 2014 (<https://aornjournal.onlinelibrary.wiley.com/doi/epdf/10.1016/j.aorn.2014.06.018>).

The World Health Organization (WHO) has developed CJD infection control guidelines that can be a valuable guide to infection control personnel and other health care workers involved in the care of CJD patients.

<https://apps.who.int/iris/handle/10665/66707>

<https://www.cdc.gov/creutzfeldt-jakob/hcp/infection-control/index.html>

Recommendations for Handling Blood and Cerebrospinal Fluid Specimens from Suspected Prion Disease Patients in Clinical Laboratories

Clinical laboratory specimens (blood and CSF) from patients with suspected prion disease can be handled safely using **UNIVERSAL PRECAUTIONS**.

BY THE NUMBERS



Most Common

CJD (Creutzfeldt-Jakob Disease)



Worldwide incidence

1 to 2 per million per year



In the US

1 in 6,000 deaths annually

TYPES OF CJD



Sporadic
Idiopathic



Genetic/Familial
Autosomal dominant inheritance



Acquired
direct exposure to highly infectious central nervous system tissue

HUMAN PRION DISEASES ARE RARE

HUMAN-TO-HUMAN TRANSMISSION



TRANSMISSION OCCURS IN DISTINCT SCENARIOS

Variant CJD (vCJD)

Transmitted by consumption of consuming meat contaminated by bovine spongiform encephalopathy.

Iatrogenic CJD (iCJD)

Transmitted through medical procedures (contaminated neurosurgical instrumentation; cadaver derived tissue)



CSF Infectivity bioassay studies have not demonstrated infectivity or the presence of infectious prion protein.



There are no documented cases of prion disease transmission through routine clinical laboratory handling.



Healthcare workers have not been found to be at increased risk of developing prion disease.

