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 of time. 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 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. If an exposure to low or high infectivity CJD fluids or tissues occurs, contaminated skin can be disinfected by applying 4% sodium hydroxide for 5 to 10 min, or 40 % dilution of household bleach for 5 min followed by extensive washing with water.

All neurosurgical-related cases occurred before the routine implementation of sterilization procedures currently used in health care facilities. No such cases have been reported since 1976, and no iatrogenic CJD cases associated with exposure to prions from surfaces such as floors, walls, or countertops have been identified. This suggests that although specific procedures are necessary to remove 100% prion infectivity, typical sterilization methods provide a substantial amount of decontamination.

Specific procedures are recommended for decontaminating instrumentation exposed to prions. 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). In cases where prion disease is suspected, single-use (i.e., disposable) instruments should be used when possible. If prion disease is suspected but the diagnosis remains unclear, non-disposable instruments can be quarantined until the diagnosis is clarified. Steam autoclaving at 132° C for 1 h or immersion in sodium hydroxide 1 N (normal) or 10% sodium hypochlorite solution for 1 h is recommended for materials that come in contact with tissues of patients with suspected or confirmed CJD. Standard methods of sterilization (e.g., exposure to formalin) are ineffective at completely decontaminating instrumentation exposed to prions.

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. One of the three chemical and autoclave sterilization methods outlined in Annex III of the WHO guidelines should be used to reprocess heat-resistant instruments that come in contact with high infectivity tissues (brain, spinal cord, and eyes) and low infectivity tissues (cerebrospinal fluid, kidneys, liver, lungs, lymph nodes, spleen, olfactory epithelium, and placenta) of patients with suspected or confirmed CJD. In addition, instruments should be kept moist and not allowed to air dry throughout the surgical procedure by immersing them in water or disinfectant solution.

https://www.who.int/csr/resources/publications/bse/WHO_CDS_CSR_APH_2000_3/en/

https://www.cdc.gov/prions/cjd/infection-control.html