

MarkVCID2 CRF Package: Postmortem Procedures

Patient ID: _ _ _ _ _

POSTMORTEM PROCEDURES

Collected? No Yes

Reason not collected: _____

Date of collection: ___ / ___ / _____ (MM/DD/YYYY)

Date of death: ___ / ___ / _____ (MM/DD/YYYY)

Was brain autopsy conducted per MarkVCID2 procedures? No Yes

Postmortem interval (PMI): time between death and brain removal: ___ . ___ hours

Fixative: Formalin Paraformaldehyde Other (specify): _____

GROSS FINDINGS

Whole brain weight (if half brain, multiply weight by two): ___ ___ grams Unknown

Does the brain weight above represent fresh or fixed weight? Fresh Fixed

Severity of gross findings	None	Mild	Moderate	Severe	Not assessed	Missing/ unknown
1. Cerebral cortex atrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Lobar atrophy (significant frontal and/or temporal atrophy)	<input type="checkbox"/>	<input type="checkbox"/> Yes			<input type="checkbox"/>	<input type="checkbox"/>
3. Hippocampus atrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Substantia nigra hypopigmentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. L. ceruleus hypopigmentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Atherosclerosis (of the circle of Willis)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

METHODS USED FOR SCORING CASE

Tau antibody	<input type="checkbox"/> Non-phospho specific <input type="checkbox"/> PHF1 <input type="checkbox"/> CP13 <input type="checkbox"/> AT8 <input type="checkbox"/> Other (specify): _____ <input type="checkbox"/> Not assessed
Amyloid beta antibody	<input type="checkbox"/> 4G8 <input type="checkbox"/> 10D5 <input type="checkbox"/> Other (specify): _____ <input type="checkbox"/> Not assessed
Alpha synuclein antibody	<input type="checkbox"/> Non-phospho specific (e.g., LB509) <input type="checkbox"/> Phospho-specific (e.g., pSYN#6) <input type="checkbox"/> Other (specify): _____ <input type="checkbox"/> Not assessed

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TDP-43 antibody	<input type="checkbox"/> Non-phospho specific <input type="checkbox"/> Phospho-specific <input type="checkbox"/> Other (specify): _____ <input type="checkbox"/> Not assessed
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Histochemical stains:	
Modified Bielschowsky	<input type="checkbox"/> No <input type="checkbox"/> Yes
Gallyas	<input type="checkbox"/> No <input type="checkbox"/> Yes
Other silver stain	<input type="checkbox"/> No <input type="checkbox"/> Yes
Thioflavin	<input type="checkbox"/> No <input type="checkbox"/> Yes
Other (specify): _____	<input type="checkbox"/> No <input type="checkbox"/> Yes

ALZHEIMER'S DISEASE

Thal phase for amyloid plaques by immunohistochemistry (IHC) <i>Use only standard blocks (as described in Montine et al., Acta Neuropathol (2012) 123:1-11) to assign phase (i.e., midfrontal, superior/middle temporal, inferior parietal, hippocampus, entorhinal, basal ganglia, midbrain, cerebellum).</i>	<input type="checkbox"/> Phase 0 (A0) <input type="checkbox"/> Phase 1 (A1) <input type="checkbox"/> Phase 2 (A1) <input type="checkbox"/> Phase 3 (A2) <input type="checkbox"/> Phase 4 (A3) <input type="checkbox"/> Phase 5 (A3) <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Braak stage for neurofibrillary degeneration <i>Use standard blocks (as described in Montine et al., Acta Neuropathol (2012) 123:1-11) to assign phase (i.e., mid-frontal, superior/middle temporal, inferior parietal, occipital, hippocampus, entorhinal).</i>	<input type="checkbox"/> Stage 0: AD-type neurofibrillary degeneration not present (B0) <input type="checkbox"/> Stage I (B1) <input type="checkbox"/> Stage II (B1) <input type="checkbox"/> Stage III (B2) <input type="checkbox"/> Stage IV (B2) <input type="checkbox"/> Stage V (B3) <input type="checkbox"/> Stage VI (B3) <input type="checkbox"/> The presence of a tauopathy (other than aging/AD) precludes Braak staging <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown

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<p>CERAD score for density of neocortical neuritic plaque (plaques with argyrophilic dystrophic neurites, with or without dense amyloid cores). Score without respect to age or diagnosis.</p> <p><i>Use only standard blocks (as described in Montine et al., Acta Neuropathol (2012) 123:1-11) to assign phase (i.e., midfrontal, superior/middle temporal, inferior parietal).</i></p>	<input type="checkbox"/> No neuritic plaques (C0) <input type="checkbox"/> Sparse neuritic plaques (C1) <input type="checkbox"/> Moderate neuritic plaques (C2) <input type="checkbox"/> Frequent neuritic plaques (C3) <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
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<p>NIA-AA Alzheimer's disease neuropathologic change (ADNC)</p>	<input type="checkbox"/> Not AD <input type="checkbox"/> Low ADNC <input type="checkbox"/> Intermediate ADNC <input type="checkbox"/> High ADNC <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
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Other pathologic changes associated with AD:

<p>CERAD semi-quantitative score for diffuse plaques (plaques with non-compact amyloid and no apparent dystrophic neurites). Score from the neocortical field with the highest plaque density and without respect to age or diagnosis.</p>	<input type="checkbox"/> No diffuse plaques <input type="checkbox"/> Sparse diffuse plaques <input type="checkbox"/> Moderate diffuse plaques <input type="checkbox"/> Frequent diffuse plaques <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
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<p>Cerebral amyloid angiopathy</p>	<input type="checkbox"/> None <input type="checkbox"/> Mild <input type="checkbox"/> Moderate <input type="checkbox"/> Severe <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
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CEREBROVASCULAR DISEASE (CVD)

Report all CVD, macroscopic vascular brain injury (VBI), and microinfarcts or microhemorrhages.

<p>Old infarcts observed grossly, including lacunes?</p>	<input type="checkbox"/> No <input type="checkbox"/> Not assessed	<input type="checkbox"/> Yes <input type="checkbox"/> Missing/unknown
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Location of old infarcts	Number	Size of largest (greatest dimension in cm)	Size of next (greatest dimension in cm)	Size of next (greatest dimension in cm)

NOTE: For large cortical infarcts that include underlying white or gray matter, indicate as cortical infarct. For subcortical infarcts that include both white matter and gray matter, indicate whichever region is primarily affected.

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Cerebral cortex	_ _ _	_ _ _ . _ _	_ _ _ . _ _	_ _ _ . _ _
Specify lobe:		<input type="checkbox"/> Frontal <input type="checkbox"/> Parietal <input type="checkbox"/> Occipital <input type="checkbox"/> Temporal	<input type="checkbox"/> Frontal <input type="checkbox"/> Parietal <input type="checkbox"/> Occipital <input type="checkbox"/> Temporal	<input type="checkbox"/> Frontal <input type="checkbox"/> Parietal <input type="checkbox"/> Occipital <input type="checkbox"/> Temporal
Subcortical cerebral white matter and peri- ventricular white matter	_ _ _	_ _ _ . _ _	_ _ _ . _ _	_ _ _ . _ _
Specify lobe:		<input type="checkbox"/> Frontal <input type="checkbox"/> Parietal <input type="checkbox"/> Occipital <input type="checkbox"/> Temporal	<input type="checkbox"/> Frontal <input type="checkbox"/> Parietal <input type="checkbox"/> Occipital <input type="checkbox"/> Temporal	<input type="checkbox"/> Frontal <input type="checkbox"/> Parietal <input type="checkbox"/> Occipital <input type="checkbox"/> Temporal
Deep cerebral gray matter or internal capsule	_ _ _	_ _ _ . _ _	_ _ _ . _ _	_ _ _ . _ _
Brainstem or cerebellum	_ _ _	_ _ _ . _ _	_ _ _ . _ _	_ _ _ . _ _
Were single or multiple old hemorrhages observed grossly?		<input type="checkbox"/> No <input type="checkbox"/> Not assessed	<input type="checkbox"/> Yes <input type="checkbox"/> Missing/unknown	
Location of old hemorrhages	Number			
Subdural or epidural hemorrhage	_ _ _			
Subarachnoid hemorrhage	_ _ _			
Location of old hemorrhages	Number	Size of largest (greatest dimension in cm)	Size of next (greatest dimension in cm)	Size of next (greatest dimension in cm)
Primary parenchymal hemorrhage <i>Include those >5mm. If ≤5mm, include as microbleed; see section below</i>	_ _ _	_ _ _ . _ _	_ _ _ . _ _	_ _ _ . _ _
Specify lobe:		<input type="checkbox"/> Frontal <input type="checkbox"/> Parietal <input type="checkbox"/> Occipital <input type="checkbox"/> Temporal	<input type="checkbox"/> Frontal <input type="checkbox"/> Parietal <input type="checkbox"/> Occipital <input type="checkbox"/> Temporal	<input type="checkbox"/> Frontal <input type="checkbox"/> Parietal <input type="checkbox"/> Occipital <input type="checkbox"/> Temporal

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Secondary parenchymal hemorrhage (e.g., tumor, vascular malformation)	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Old microinfarcts (not observed grossly)?	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Number in screening sections of cerebral cortex (gray matter of cerebral cortex)	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 or more <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Number in screening sections of subcortical white matter and periventricular white matter	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 or more <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Number in screening sections of subcortical gray matter	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 or more <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Number in brainstem and cerebellum	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 or more <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Old cerebral microbleeds? <i>Include old hemorrhages that are ≤5mm.</i>	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Number in screening sections of cerebral cortex	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 or more <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Number in screening sections of subcortical white matter and periventricular white matter	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 or more <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Number in screening sections of subcortical gray matter	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 or more <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Number in brainstem and cerebellum	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 or more <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Arteriolo sclerosis? <i>(Assessed in subcortical white or gray matter)</i>	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Anterior watershed white matter	<input type="checkbox"/> None <input type="checkbox"/> Mild <input type="checkbox"/> Moderate <input type="checkbox"/> Severe <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Posterior watershed cortex & underlying white matter	<input type="checkbox"/> None <input type="checkbox"/> Mild <input type="checkbox"/> Moderate <input type="checkbox"/> Severe <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Basal ganglia (caudate, putamen, internal capsule)	<input type="checkbox"/> None <input type="checkbox"/> Mild <input type="checkbox"/> Moderate <input type="checkbox"/> Severe <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown

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White matter rarefaction?(H&E or myelin stain may be used)

None

Mild

Moderate Severe

Not assessed

Missing/unknown

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Other pathologic changes related to ischemic or vascular disease not previously specified?	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Laminar necrosis	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Acute neuronal necrosis	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Acute/subacute gross infarcts	<input type="checkbox"/> No <input type="checkbox"/> Yes, location: _____ <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Acute/subacute microinfarcts	<input type="checkbox"/> No <input type="checkbox"/> Yes, location: _____ <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Acute/subacute gross hemorrhage	<input type="checkbox"/> No <input type="checkbox"/> Yes, location: _____ <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Acute/subacute microhemorrhage	<input type="checkbox"/> No <input type="checkbox"/> Yes, location: _____ <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Vascular malformation of any type	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Aneurysm of any type	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Vasculitis of any type	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
CADASIL	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Other (specify): _____	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Lewy Body Pathology <i>(as determined by alpha-synuclein IHC). This score is independent of the clinical presentation.</i>	<input type="checkbox"/> No <input type="checkbox"/> Brainstem predominant <input type="checkbox"/> Limbic (transitional) <input type="checkbox"/> Neocortical (diffuse) <input type="checkbox"/> Amygdala predominant <input type="checkbox"/> Olfactory bulb <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown

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Neuron loss in the substantia nigra	<input type="checkbox"/> None <input type="checkbox"/> Mild <input type="checkbox"/> Moderate <input type="checkbox"/> Severe <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Hippocampal sclerosis (CA1 and/or subiculum)	<input type="checkbox"/> None <input type="checkbox"/> Unilateral <input type="checkbox"/> Bilateral <input type="checkbox"/> Present but laterality not assessed <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown

DISTRIBUTION OF TDP-43 IMMUNOREACTIVE INCLUSIONS:

Spinal cord	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Amygdala	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Hippocampus	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Entorhinal/inferior temporal cortex	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Neocortex	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown

OTHER PATHOLOGIC DIAGNOSES

Pigment-spheroid degeneration/NBIA	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Multiple system atrophy	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Prion disease	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Trinucleotide disease (Huntington disease, SCA, other)	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown
Malformation of cortical development	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing/unknown

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Metabolic/storage disorder of any type	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
WM disease, leukodystrophy	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
WM disease, multiple sclerosis or other demyelinating disease	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
Contusion/traumatic brain injury of any type, acute	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
Contusion/traumatic brain injury of any type, chronic	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
Neoplasm, primary	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
Neoplasm, metastatic	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
Infectious process of any type (encephalitis, abscess, etc.)	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
Herniation, any site	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
Trisomy 21/Down syndrome	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
AD-related genes (dominantly inherited); do not include APOE or other polymorphisms or genetic risk factors	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
FTLD-related genes (dominantly inherited); do not include polymorphisms or genetic risk factors	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
FTLD with tau pathology (FTLD-tau) or other taopathy	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
FTLD with TDP-43 pathology (FTLD-TDP)	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
ALS/motor neuron disease (MND) present	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown
Other FTLD	<input type="checkbox"/> No	<input type="checkbox"/> Yes
	<input type="checkbox"/> Not assessed	<input type="checkbox"/> Missing/unknown

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BANKED BIOSPECIMENS			
Banked frozen brain or half brain	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Missing/unknown
Banked frozen wedge of cerebellum or other sample for future DNA prep	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Missing/unknown
Formalin- or paraformaldehyde-fixed brain	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Missing/unknown
Paraffin-embedded blocks of brain regions	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Missing/unknown
Banked postmortem CSF	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Missing/unknown
Banked postmortem blood or serum	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Missing/unknown
Banked DNA	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Missing/unknown