

- Suspected hypoxic ischemic injury (hypoxic ischemic encephalopathy).<sup>2-5,11-15</sup>
- Patients on hypothermia, extracorporeal membrane oxygenation, and other support machines.<sup>16</sup>
- Congenital malformations.<sup>2-5</sup>
- Signs or symptoms of a central nervous system disorder (eg, seizures, facial malformations, macrocephaly, microcephaly, and intrauterine growth restriction).<sup>2-5,17</sup>
- Congenital or acquired brain infection.<sup>2-5</sup>
- Suspected or known head trauma.<sup>2-5,18,19</sup>
- Craniosynostosis.<sup>20,21</sup>
- Follow-up or surveillance of previously documented abnormalities, including prenatal abnormalities.<sup>2-5</sup>
- Screening before surgery.

There are no contraindications to neurosonography.

## Qualifications and Responsibilities of Personnel

Physicians interpreting or performing this type of ultrasound examination should meet the specified AIUM Training Guidelines in accordance with AIUM accreditation policies.

Sonographers performing the ultrasound examination should be appropriately credentialed in the specialty area in accordance with AIUM accreditation policies.

Physicians not personally performing the examination must provide supervision, as defined by the Centers for Medicare and Medicaid Services Code of Federal Regulations 42 CFR §410.32.

## Request for the Examination

The written or electronic request for an ultrasound examination must originate from a physician or other appropriately licensed health care provider or under the provider's direction. The clinical information provided should allow for the performance and interpretation of the appropriate ultrasound examination and should be consistent with relevant legal and local health care facility requirements.

## Specification of the Examination

(See also section VII, "Equipment Specifications")

Standard Imaging Examination of the Neonate and Infant<sup>2-5,22</sup>

Any prior imaging should be reviewed before the ultrasound evaluation if available.

The coronal view, by convention, should have the patient's right side on the left side of the image.

Representative coronal views should be obtained by sweeping through the entire brain, from anterior to posterior, using the anterior fontanelle as a sonic window. Coronal views should include the following, sequentially:

- Frontal lobes anterior to the frontal horns of the lateral ventricles with orbits visualized deep to the skull base.
- Frontal horns or bodies of lateral ventricles and interhemispheric fissure.
- Include lateral ventricles at the level of the foramina of Monro (outlining the course of the choroid plexus from the lateral into the third ventricle), interhemispheric fissure, cingulate sulcus (if developed), corpus callosum, septum pellucidum or cavum septi pellucidi, caudate nuclei, putamina, globi pallidi, and Sylvian fissures.
- Lateral ventricles slightly posterior to the foramina of Monro, the point at which the lateral and third ventricles communicate. Include the pons and medulla, thalami, and choroid plexus in the roof of the third ventricle and in the caudothalamic grooves.
- Level of the quadrigeminal plate cistern and cerebellum. Include the cerebellar vermis and cisterna magna.
- Echogenic glomi of choroid plexuses at the posterior aspect of the lateral ventricles at level of trigones. Include the splenium of the corpus callosum at divergence of the lateral ventricle and periventricular white matter lateral to the posterior horns of lateral ventricles.
- Posterior to occipital horns. Include parietal and occipital lobes and the posterior interhemispheric fissure.
- Extra-axial fluid spaces: use high-frequency linear transducers to obtain a coronal magnification view