and should be monitored closely. Lab tests are needed to determine the presence of hemolysis or another pathologic condition (e.g., ABO incompatibility, G6PD).

Recognize that visual estimation of the degree of jaundice can lead to errors, particularly in darkly pigmented infants. Providers can underestimate the degree of jaundice and the rate at which it is rising, delaying the initiation of treatment. It is safer to use TcB or TSB to accurately assess the severity of the jaundice.

Interpret all bilirubin levels according to the infant’s age in hours. This takes into account that a level of 12 mg/dL in an infant who is younger than 24 hours of age is different and more serious than in a newborn who is 45 hours of age. A nomogram that plots bilirubin levels versus the age in hours is a useful tool to determine an infant’s risk for severe hyperbilirubinemia (Figure 2).

Recognize that infants born at less than 38 weeks’ gestation, particularly those who are breastfed, are at higher risk for developing hyperbilirubinemia and require closer surveillance and monitoring. Studies of the use and implementation of the first AAP guidelines revealed that near-term newborns (35 to 37 weeks) were treated the same as term newborns, and that the higher risk for severe newborn jaundice was often ignored.

Perform a systematic assessment of risk for severe hyperbilirubinemia on all infants before discharge. The AAP identifies two ways to do this, either individually or together. First, take a bilirubin level (TcB or TSB) and plot it against age in hours on the nomogram for TcB or TSB (Figure 3). Recheck the bilirubin level at 6 to 12 hours if the first level is above the levels indicated after intensive phototherapy for 6 hours. The AAP does not mandate the use of a nomogram that plots bilirubin levels, these should be scheduled prior to discharge.

When indicated, treat newborns with phototherapy or exchange transfusion. The AAP suggests the use of a nomogram that plots TSB vs. age in hours for guidelines on the initiation of phototherapy and exchange transfusion (Figures 3 and 4).

For more detailed information about the recommendations and definitions of intensive phototherapy, see the published AAP guidelines. They are also posted online at http://aappolicy.aappublications.org/cgi/content/full/pediatrics;114/1/297.

**Implementation**

The AAP guidelines place a heavy burden on hospitals to assess each newborn prior to discharge and determine a risk category to direct the treatment plan for each infant. Hospitals should have a detailed policy and plans for training of all well-baby nursery and NICU personnel. The training should also include emergency department staff and detail appropriate emergency response to readmission for severe hyperbilirubinemia and acute kernicterus. Hospitals should inform staff of new policies and educate them about the potential dangers of severe hyperbilirubinemia, the importance of individual risk assessment, and recognition of the acute signs of bilirubin encephalopathy (Table 2).

Establishing uniform management protocols for discharged newborns is a significant challenge. The reality is that providers of newborn care include pediatricians, family practice physicians, nurse practitioners, midwives, vis-

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**Table 2: Acute Signs of Bilirubin Encephalopathy**

<table>
<thead>
<tr>
<th>EARLY PHASE</th>
<th>INTERMEDIATE PHASE</th>
<th>ADVANCED PHASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lethargic, sleepy</td>
<td>Moderate stupor, irritable</td>
<td>Stupor progressing to coma</td>
</tr>
<tr>
<td>Slight hypotonia</td>
<td>Variable tone – hypertonic, reticollis, opisthotonus</td>
<td>Increased tone, pronounced reticollis and opisthotonus</td>
</tr>
<tr>
<td>Poor sucking</td>
<td>Poor feeding</td>
<td>No feeding</td>
</tr>
<tr>
<td>Slight, high-pitched cry</td>
<td>High-pitched cry</td>
<td>Shri1l cry</td>
</tr>
</tbody>
</table>

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*Note that these suggested levels represent a consensus but are based on limited evidence. The levels shown are approximations. During birth hospitalization, exchange transfusion is recommended if infant shows signs of acute bilirubin encephalopathy (hypertonia, arching, reticollis, opisthotonus, fever, high-pitched cry) or if TSB is >5 mg/dL (85 mcg/mol/L) above these lines.

*Risk factors = isimmune hemolytic disease, G6PD deficiency, asphyxia, significant lethargy, temperature instability, sepsis, acidosis.

*Measure serum albumin and calculate B/A ratio (see legend).

*Use total bilirubin. Do not subtract direct reacting or conjugated bilirubin.

*If infant is well, 35-37 weeks’ gestation and 6-7 weeks old (median risk), can individualize TSB levels for exchange based on actual gestational age.

When indicated, treat newborns with phototherapy or exchange transfusion. The AAP suggests the use of a nomogram that plots TSB vs. age in hours for guidelines on the initiation of phototherapy and exchange transfusion (Figures 3 and 4).