tivity, 97.6% specificity and a positive predictive value of 25% for the detection of hemolysis in neonates.[3]

In addition to having very low predictive ability, the DAT is costly when used as a screening test. US studies of the costs of evaluating neonatal jaundice have reported the cost per test to be US$17-$47.[2,5,6]

Newman and colleagues concluded that the investigation of hyperbilirubinemia should be individualized, with more aggressive investigation of infants with early onset or severe hyperbilirubinemia.[6] Holtzman has also stressed the need for critical appraisal of strategies intended to identify infants with hyperbilirubinemia.[7]

In Calgary, routine DAT testing is being phased out in favour of a comprehensive hospital- and community-based transcutaneous bilirubinometry program. We believe that it provides a convenient, rapid, painless, cost-effective and accurate screening assessment for hyperbilirubinemia in the term and near-term neonate, particularly when incorporated into routine well-baby visits by public health nurses.[8]

We believe that the DAT should be reserved for diagnostic purposes in children with early or clinically significant hyperbilirubinemia.

Stephen Wainer
Assistant Clinical Professor
Jack Rabi
Assistant Professor
Department of Pediatrics
University of Calgary
Martha Lyon
Section Head
Pediatric & Neonatal Clinical Biochemistry
Calgary Laboratory Services
Calgary, Alta.

REFERENCES

1. Sgro M, Campbell D, Shah V. Incidence and causes of severe hyperbilirubinemia in Canada. *CMAJ* 2006;175(6):587-90.
2. Meberg A, Johansen KB. Screening for neonatal hyperbilirubinemia and ABO alloimunization at the time of testing for phenylketonuria and congenital hypothyreosis. *Acta Paediatr* 1998;87:1269-74.
3. Herschel M, Karrison T, Wen M, et al. Evaluation of the direct antiglobulin (Coombs') test for identifying newborns at risk for hemolysis as determined by end-tidal carbon monoxide concentration (ETCOc); and comparison of the Coombs' Test with ETCOc for detecting significant jaundice. *J Perinatol* 2002;22:341-7.
4. Dinesh D. Review of positive direct antiglobulin tests found on cord blood sampling. *J Paediatr Child Health* 2005;41(9-10):504-7.
5. Suresh GK, Clark RE. Cost-effectiveness of strategies that are intended to prevent kernicterus in newborn infants. *Pediatrics* 2004;114:917-24.
6. Newman TB, Easterling MJ, Goldman ES. Laboratory evaluation of jaundice in newborns: frequency, cost and yield. *Am J Dis Child* 1990;144:364-8.
7. Holtzman NA. Management of hyperbilirubinemia: quality of evidence and cost. *Pediatrics* 2004; 114:1086-8.
8. Engle WD, Jackson GL, Stehel EK, et al. Evaluation of a transcutaneous jaundice meter following hospital discharge in term and near-term neonates. *J Perinatol* 2005;25:486-90.

DOI:10.1503/cmaj.1060214

[The authors respond:]

We thank Stephen Wainer and colleagues for their comments on our recent article.[1] We agree that using any test in isolation, including the Coombs' test, is not the most effective way to identify infants at risk of neonatal hyperbilirubinemia. Our recommendation for Coombs' testing was not for all infants whose mothers had type O+ blood, only for those who had risk factors for hyperbilirubinemia or were already jaundiced at the time of discharge.

Despite existing guidelines from the American Academy of Pediatrics[2] and the Canadian Paediatric Society[3] recommending identification of newborns at risk and close follow-up of these infants, our data clearly demonstrate that severe neonatal hyperbilirubinemia continues to occur at an alarming rate in Canada. The most common cause in our population was ABO incompatibility; this needs to be emphasized to pediatricians and primary health care practitioners.

Many strategies have been postulated as being cost-effective in preventing severe neonatal hyperbilirubinemia. We welcome the use of strategies coupling clinical suspicion of risk of hyperbilirubinemia at the time of discharge with close outpatient monitoring. Transcutaneous bilirubinometers, although very useful within a clinical context, may not always serve as a substitute for a serum bilirubin measurement when the bilirubin concentration reaches levels at which phototherapy is required.[4,5] No reported strategies using transcutaneous bilirubinometers have yet been proven to be cost-effective,[6] largely because the prevalence of long-term neurological sequelae of severe hyperbilirubinemia is not yet known.

Michael Sgro
Douglas Campbell
Department of Pediatrics
St. Michael's Hospital
Vibhuti Shah
Department of Pediatrics
Mount Sinai Hospital
Toronto, Ont.

REFERENCES

1. Sgro M, Campbell D, Shah V. Incidence and causes of severe hyperbilirubinemia in Canada. *CMAJ* 2006;175(6):587-90.
2. American Academy of Pediatrics Subcommittee on Hyperbilirubinemia. Management of hyperbilirubinemia in the newborn infant 35 or more weeks of gestation. *Pediatrics* 2004;114:297-316.
3. Fetus and Newborn Committee, Canadian Paediatric Society. Approach to the management of hyperbilirubinemia in term newborn infants. *Paediatr Child Health* 1999;4(2):161-4.
4. Engle WD, Jackson GL, Stehel EK, et al. Evaluation of a transcutaneous jaundice meter following hospital discharge in term and near-term neonates. *J Perinatol* 2005;25:486-90.
5. Danayan KC, Sgro M, McGovern V, et al. Transcutaneous bilirubin measurement in jaundiced newborns. *Paediatr Child Health* 2006;11(Suppl B):26B.
6. Suresh GK, Clark RE. Cost-effectiveness of strategies that are intended to prevent kernicterus in newborn infants. *Pediatrics* 2004;114:917-24.

DOI:10.1503/cmaj.1060244

In their commentary[1] on our recent article,[2] Jeffrey Maisels and Thomas

Table 1: Use of the direct antibody test to predict the development of hyperbilirubinemia in newborns

Study	PPV (%)	NPV (%)	Sensitivity	Specificity
Meberg and Johansen[2]	12	96	64	65
Herschel et al[3]*	53	89	15	98
Dinesh[4]†	23	92	15	95

Note: PPV = positive predictive value, NPV = negative predictive value.
*Results for infants born to nonsmoking mothers.
†Calculated results from data based on need for phototherapy.