

Author(s)	Title	Summary	Journal	Year	Vol: Pages
Jaundice Management Guidelines					
American Academy of Pediatrics, Subcommittee on Hyperbilirubinemia	<i>Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation</i>	These 2004 clinical practice guidelines by the AAP Subcommittee on Hyperbilirubinemia provide a framework for the prevention and management of hyperbilirubinemia in newborn infants 35 or more weeks of gestation.	Pediatrics	2004	114:297-316
Bhutani VK and the Committee on Fetus and Newborn	<i>Phototherapy to Prevent Severe Neonatal Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation</i>	This technical report reviewed relevant literature and assessed current phototherapy devices to standardize the use of phototherapy consistent with the American Academy of Pediatrics clinical practice guideline for the management of hyperbilirubinemia in the newborn infant 35 or more weeks of gestation.	Pediatrics	2011	2011-1494
Maisels MJ, Watchko JF, Bhutani VK, Stevenson DK	<i>An approach to the management of hyperbilirubinemia in the preterm infant less than 35 weeks of gestation</i>	These are consensus-based recommendations for the use of phototherapy and exchange transfusion in the management of hyperbilirubinemia in preterm infants of <35 weeks of gestation; presented from a group of experts at the request of the AAP Committee on Fetus and Newborn.	Journal of Perinatology	2012	32: 660-664
National Institute for Health and Care Excellence (NICE)	<i>Jaundice in newborn babies under 28 days – Clinical Guideline</i>	This clinical guideline covers diagnosing and treating jaundice, which is caused by increased levels of bilirubin in the blood, in newborn babies (neonates). It aims to help direct or prevent very high levels of bilirubin, which can be harmful if not treated. These guidelines were published in 2010, but updated in 2016 with new recommendations added on measuring and monitoring bilirubin levels and the type of phototherapy to use.	nice.org.uk/guidance/cg98	2010 (2016)	1-25
American Academy of Pediatrics, Subcommittee on Neonatal Hyperbilirubinemia	<i>Neonatal jaundice and kernicterus</i>	Due to the increase in reported cases of kernicterus and the April 2001 JCAHO Sentinel Event Alert, the Subcommittee states they are revising the 1994 practice parameter on neonatal hyperbilirubinemia and provides interim guidelines to clinicians.	Pediatrics	2001	108(3):763-765
Bhutani VK, Johnson L, Silvieri EM	<i>Predictive ability of a pre-discharge hour-specific serum bilirubin for subsequent hyperbilirubinemia in healthy term and near-term newborns</i>	A study conducted at Pennsylvania Hospital assessed the predictability of serum bilirubin in the direct Coombs' negative newborn population. The resulting data is presented as a nomogram that attempts to anticipate risk for the development of hyperbilirubinemia.	Pediatrics	1999	103(1):6-14
Bratlid D	<i>Criteria for treatment of neonatal jaundice</i>	A comprehensive review of treatment criteria for neonatal hyperbilirubinemia.	Journal of Perinatology	1996	16(3):S83-S88
Denney P, Seidman DS, Stevenson DK	<i>Neonatal hyperbilirubinemia</i>	The authors appraise the most recent advances in neonatal hyperbilirubinemia, including its pathophysiology, causes, prediction, prevention and treatment.	New England Journal of Medicine	2001	344(8):581-90
Gagon AJ, Waghorn K, Jones MA, Yang H	<i>Indicators nurses employ in deciding to test for hyperbilirubinemia</i>	This study (secondary analysis of available data) suggests that nurses over-test newborns for bilirubin levels, based on incomplete use of existing practice guidelines for testing.	JOGNN	2001	30:626-633
Johnson L, Bhutani VK	<i>Guideline for management of the jaundiced term and near-term infant.</i>	The re-emergence of kernicterus in otherwise healthy term and near-term newborns prompts this commentary on the appropriate tools to assess jaundice.	Clinics in Perinatology	1998	25(3):555-574
Moyer V, Ahn C, Sneed S	<i>Accuracy of clinical judgment in neonatal jaundice.</i>	The study evaluated the importance of clinical observation in neonatal jaundice, concluding that visual assessment for jaundice is neither reliable nor accurate.	Archives of Pediatric and Adolescent Medicine	2000	154(5):391-394

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Palmer HR, Clanton M, Ezhuthachan S, Newman C, Maisels J, Plsek P, Salem-Schatz S	<i>Applying the "10 simple rules" of the Institute of Medicine to management of hyperbilirubinemia in newborns</i>	The authors discuss how the Institute of Medicine's 10 Rules to Redesign and Improve Care may be applied to the evaluation and treatment of newborn hyperbilirubinemia.	Pediatrics	2003	112(6):1388-1393
Reiser D	<i>Hyperbilirubinemia: exploring neonatal conditions related to bilirubin production.</i>	The author describes neonatal jaundice by reviewing common risk factors that lead to the condition, including hemolysis, ABO incompatibility and G-6-PD.	AWHONN Lifelines	2001	5(3):55-61
Vreman HJ, Wong RJ, Stevenson DK	<i>Phototherapy: Current Methods and Future Directions</i>	This article reviews the parameters that determine the efficacy of phototherapy, briefly discusses current devices and methods used to deliver phototherapy and speculates on future directions and studies that are still needed to complement our presently incomplete knowledge of the facets of this common mode of therapy.	Seminars in Perinatology	2004	28(5): 326-333
LED Phototherapy					
Vandborg PK, Hansen BM, Greisen G, Ebbesen F	<i>Dose-Response Relationship of Phototherapy for Hyperbilirubinemia</i>	This study (151 infants) conducted in Denmark, using LED (neoBLUE) lights at various heights, found a linear relation between light irradiance in the range of 20 to 55 $\mu\text{W}/\text{cm}^2/\text{nm}$ and a decrease in TsB after 24 hours of therapy, with no evidence of a saturation point.	Pediatrics	2012	130:e352-e357
Maisels, M J, Kring, E A, DeRidder, J	<i>Randomized controlled trial of light-emitting diode phototherapy</i>	Authors compared the efficacy of light-emitting diode (LED) phototherapy with special blue fluorescent (BB) tube phototherapy in the treatment of neonatal hyperbilirubinemia. This study of 66 infants concluded that LED phototherapy is as effective as BB in lowering serum bilirubin levels in term and near-term newborns.	Journal of Perinatology	2007	27, 565–567; doi:10.1038/sj.jp.7211789
Bertini G, Perugi S, Elia S, Pratesi S, Dani C, Rubaltelli FF	<i>Transepidermal water loss and cerebral hemodynamics in preterm infants: conventional versus LED phototherapy</i>	This study shows that LED phototherapy does not induce significant changes in TEWL; while conventional phototherapy is associated with a significant increase in TEWL.	European Journal of Pediatrics	2008	167(1):37-42
Lund CH, Kuller JM, Durand DJ, Gayle G, D'Harlingue AE	<i>The effect of light-emitting diode (LED) phototherapy on transepidermal water loss (TEWL) in premature and term infants</i>	This study of 17 infants showed LED phototherapy does not increase TEWL in premature and term infants.	Journal of Perinatology	2004	24:571-609
Grünhagen D, Boer M, Beaufort A, Walther F	<i>Transepidermal water loss during halogen spotlight phototherapy in preterm infants</i>	The study was designed to assess whether halogen spotlight phototherapy without significant heat stress increased TEWL. Results of the study show that TEWL increases by approximately 20% during phototherapy despite constant skin temperature and relative humidity.	Pediatric Research	2002	51(3):402-405
Hansen TWR	<i>Phototherapy for neonatal jaundice – still in need of fine tuning</i>	This commentary concludes on the basis of a number of cited studies (Norway) that conventional phototherapy treatment methods are not consistent and leaves much room for improvement before a standard of care can be reached.	Acta Paediatrica	2000	89:770-2
Maisels MJ	<i>Phototherapy — traditional and nontraditional</i>	This is an excellent, short and comprehensive overview of phototherapy history, which describes fully the dose-response effects of light and discusses future delivery methods (fiber-optic and LED).	Journal of Perinatology	2001	21:593-97
McDonagh AF	<i>Phototherapy: from ancient Egypt to the new millennium</i>	This is a general history and overview of phototherapy: how it works, why blue-green light is best and how LEDs are a promising future technology.	Journal of Perinatology	2001	21:57-512
Seidman DS, Moise J, Ergaz Z, Laor A, Vreman HJ, Stevenson DK, Gale R	<i>A new blue light-emitting phototherapy device: a prospective randomized controlled study</i>	A controlled study (61 healthy term infants) conducted in Israel demonstrating that a blue light LED device is as effective as conventional phototherapy (halogen) and was readily accepted by the nursing staff.	Journal of Pediatrics	2000	136(6):771-4

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Tan KL, Lim GC, Boey KW	<i>Efficacy of "high-intensity" blue-light and "standard" daylight phototherapy for non-hemolytic hyperbilirubinemia</i>	For full-term infants exposed to high-intensity blue light, the 24-hour decrease in bilirubin concentration was twice that of infants exposed to daylight-lamp phototherapy. High-intensity blue light should be considered the treatment of choice for infants with rapidly increasing or very high bilirubin levels.	Acta Paediatrica	1992	81:870-4
Vreman HJ, Wong RJ, Stevenson DK, Route RK, Reader SD, et al.	<i>Light-emitting diodes: a novel light source for phototherapy</i>	This study is an in vitro examination using blue-light LEDs as a possible light source for phototherapy. (Precursor study to Seidman, et al, 2000)	Pediatric Research	1998	44(5):804-809
Szucs KA, Rosenman MB	<i>Family-Centered, Evidence-Based Phototherapy Delivery</i>	This article is a report on one hospital's technique developed for providing phototherapy while maintaining evidence-based practices such as rooming-in, skin-to-skin contact and breastfeeding.	Pediatrics	2013	131:e1982-e1985

Fiberoptic Phototherapy

Foreland AM, Rosenburg L, Johannessen B	<i>Nurses' experiences using conventional overhead phototherapy versus fiberoptic blankets for the treatment of neonatal hyperbilirubinemia</i>	This study consisted of six qualitative in-depth interviews with nurses at three different NICUs with experience in both conventional overhead and fiberoptic phototherapy; perceived advantages and disadvantages and perceived differences between the methods.	Journal of Neonatal Nursing	2016	22:108-114
Pezzati M, Biagiotti R, Vangi V, Lombardi E, Wiechmann L, Rubaltelli F	<i>Changes in mesenteric blood flow response to feeding: conventional versus fiberoptic phototherapy</i>	A small study (39 preterm infants) conducted in Italy demonstrated that fiberoptic phototherapy does not disrupt mesenteric blood flow after feeding, as much as, conventional phototherapy.	Pediatrics	2000	105(2):350-3
Tan KL	<i>Comparison of the efficacy of fiberoptic and conventional phototherapy for neonatal hyperbilirubinemia</i>	This large study (270 term and preterm neonates) conducted in Singapore compared fiberoptic phototherapy to conventional phototherapy and a combination of the two types. Different results were found for preterm vs. term infants and the combination of therapies proved most effective in preterms.	Journal of Pediatrics	1994	125:607-12
Sarici SU, Alpay F, Unay B, Ozcan O, Gokay E	<i>Comparison of the efficacy of conventional special blue light phototherapy and fiberoptic phototherapy in the management of neonatal hyperbilirubinemia</i>	This large study (108 healthy newborns) conducted in Turkey demonstrates that special blue fluorescent light, using two-fold higher irradiance and a favorable emission spectrum (wavelength) is preferable to halogen fiberoptic therapy with blue-green spectrum light. Nurses preferred the fiberoptic device.	Acta Paediatrica	1999	88:1249-53

Early Discharge & Readmission

Brown AK, Damus K, Kim MH, King K, Harper R, et al.	<i>Factors relating to readmission of term and near-term neonates in the first two weeks of life</i>	A retrospective analysis of all readmissions within 14 days of life of term or near-term newborns at 9 New York City area hospitals reports infection and hyperbilirubinemia as the most common diagnoses.	Journal of Perinatal Medicine	1999	27(1999):263-275
Catz C, Hanson JW, Simpson L, Yaffe SJ	<i>Summary of workshop: early discharge and neonatal hyperbilirubinemia</i>	Due to early discharge of newborns, identification of hyperbilirubinemia may be undetected, increasing infant readmissions and morbidity.	Pediatrics	1995	96(4):743-745
Gale R, Seidman DS, Stevenson DK	<i>Hyperbilirubinemia and early discharge</i>	As an increase in cases of kernicterus is reported, discharge policies and follow-up are the focus of reconsideration.	Journal of Perinatology	2001	21:40-43
Seidman DS, Stevenson DK, Ergaz Z, Gale R	<i>Hospital readmission due to neonatal hyperbilirubinemia</i>	Severe hyperbilirubinemia develops in three to four of every 1000 healthy full-term neonates with mild hyperbilirubinemia on the third day of life.	Pediatrics	1995	96(4):727-729

Kernicterus

Centers for Disease Control	<i>Kernicterus in full-term infants – United States, 1994-1998</i>	Four case reports illustrate that hyperbilirubinemia in full-term, otherwise healthy infants can lead to kernicterus. The CDC plans to initiate surveillance and evaluation of trends to target prevention activities.	MMWR	2001	50:491-494
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Ebbesen F	<i>Recurrence of kernicterus in term and near-term infants in Denmark</i>	A retrospective study of 6 infants with kernicterus determines that measures are needed in both the primary and secondary healthcare sectors to prevent future cases.	Acta Paediatrica	2000	89(2000): 1213-7
Joint Commission on Accreditation of Healthcare Organizations	<i>Kernicterus threatens healthy newborns</i>	In this short public health alert, prominent physicians are interviewed about the dangers of kernicterus and the AAP Practice Guidelines are reviewed. JCAHO recommends organizations take steps to raise awareness, review current patient care processes and identify strategies to enhance these processes.	Sentinel Event Alert	2001	April Issue 18
Maisels MJ, Newman TB	<i>Kernicterus in otherwise healthy, breast-fed term newborns</i>	The reported cases indicate that very severe hyperbilirubinemia and kernicterus can occur in term, or near term breast fed newborns who do not have hemolytic disease or any other discernible cause for jaundice.	Pediatrics	1995	96(4):730-733
Wheeler BJ	<i>Kernicterus: ancient History or ongoing threat?</i>	This article reviews neonatal jaundice, the pathology of kernicterus and possible strategies and treatments to prevent this condition from resurgence in the US.	Mother Baby	2000	5(2):21-29

List of Abbreviations

LED: Light emitting diode

TSB: Total serum bilirubin

TEWL: Transepidermal water loss

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