Right Care for Children: Top Five Do's and Don'ts

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Underuse and overuse of medical interventions, failure to use interventions known to be effective, and provision of tests or interventions in which benefits do not exceed harms are types of low-value care. The Lown Institute's Right Care Alliance Children's Health Council identified five "do" recommendations that highlight underuse and five "don't" recommendations that highlight overuse in children's health care. The five "do" recommendations include: do provide access to long-acting reversible contraception for adolescents, do use nonpharmacologic interventions first for treatment of attention-deficit/hyperactivity disorder, do discuss quality of life for children with complex medical conditions using a shared decision-making model and access resources such as palliative care subspecialists, do promote childhood literacy development by providing free, age-appropriate books in clinical settings, and do screen for socioeconomic status of the patient and family and provide access to community health and wellness resources. The five "don't" recommendations include: don't routinely prescribe antibiotics in children two to 12 years of age with a middle ear infection, don't perform computed tomography of the head for children with minor head trauma, don't use albuterol in children with bronchiolitis, don't routinely screen for hyperlipidemia in children and adolescents, and don't routinely perform preparticipation sports evaluations. These 10 examples of underuse and overuse were identified with the intent of improving health care value and promoting "Right Care." (*Am Fam Physician*. 2019;99(6):376-382. Copyright © 2019 American Academy of Family Physicians.)

Underuse and overuse of medical interventions, failure to use interventions known to be effective, and provision of tests or interventions in which benefits do not exceed harms are all types of low-value care.[1,2] *American Family Physician* has addressed overuse in health care in previous discussions of the Choosing Wisely campaign that highlights overuse in an effort to reduce nonbeneficial care.[3] In this article, the authors discuss recommendations for underuse and overuse from members of the Lown Institute.

The Lown Institute was founded in response to the epidemic of health care underuse and overuse[4] and subsequently created the Right Care Alliance, a network of clinicians, patients, and community leaders focused on care that benefits patients. In 2016, the Lown Institute challenged each of its Right Care Alliance councils to develop a list of 10 evidence-based recommendations highlighting opportunities to improve health care value, including five examples of underuse and five examples of overuse.

A subcommittee of the Right Care Alliance Children's Health Council formed a modified Delphi panel, which is a validated method for generating an expert consensus with minimal peer bias through several rounds of anonymous voting, and developed a list of the top 10 do's and don'ts for children's health care based on criteria listed in *Table 1*. A flowchart depicting the elements involved in the list creation is presented in *eFigure A*. The initial lists of 31 items are provided in *eTable A* and *eTable B*, and the final 10 recommendations are listed in *Table 2*.[5-43]

Additional content at https://www.aafp.org/afp/2019/0315/p376.html.

CME **This clinical content** conforms to AAFP criteria for continuing medical education (CME). See CME Quiz on page 359.

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Top Five Do's: Underused Interventions

DO: PROVIDE ACCESS TO LONG-ACTING REVERSIBLE CONTRACEPTION FOR ADOLESCENTS

Studies including participants 14 years and older have demonstrated that long-acting reversible contraception for adolescents, such as intrauterine devices and dermal implants, are safe, cost-effective, and often preferred by patients.[5] Long-acting reversible contraception lowers the rate of unintended pregnancy and the risk of treatment-related adverse events more than oral contraception or tubal ligation.[6] State-funded programs offering long-acting reversible contraception have reduced rates of unplanned

TABLE 1

Criteria for Selection and Development of Right Care Recommendations

Each recommendation should:
1. Matter to patients.
2. Be an egregious infraction of good care if not followed.
3. Have high potential to benefit or harm.
4. Be rare (underuse) or common (overuse) enough that avoiding or performing the item routinely would move the needle toward the right care.
5. Examine or illustrate how it ties to system failures.

pregnancy, abortion, and preterm birth, resulting in substantial cost savings.[44] Young women prefer reversible contraception because of convenience, duration of action, and reduced frequency and duration of menstrual bleeding.[7] Compared with patients who use short-acting contraception, those who use long-acting reversible contraception are much more likely to continue use three years later.[5] Long-acting reversible contraception use among all adolescent females in the United States ranges from 2% to 5%.[45] Barriers to the use of long-acting reversible contraception, including cost and insurance coverage, availability, parental concerns, and lack of health care professional knowledge, should be addressed to increase access to this effective intervention.[8]

DO: USE NONPHARMACOLOGIC INTERVENTIONS FIRST FOR THE TREATMENT OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

The prevalence of attention-deficit/hyperactivity disorder has significantly increased over the past 20 years.[9] Both pharmacologic and behavioral therapy are effective, but pharmacologic therapy is expensive (costing more than $900 per patient per year in medication alone[46]) and can be associated with decreased appetite, sleep problems, and delayed growth.[10,47]

Behavioral therapy includes cognitive behavior therapy, parent training, classroom behavioral management, peer interventions, and other therapies. For children four to five years of age, parent behavioral training results in better conduct when compared with stimulant medications alone.[11] Despite multiple studies recommending behavioral therapy as first-line treatment, almost one-half of U.S. children with attention-deficit/hyperactivity disorder are not receiving behavioral therapy.[12] Barriers including a lack of qualified therapists, inadequate insurance coverage for behavioral therapy, and insufficient coordination of care should be addressed to make these interventions more accessible.

DO: DISCUSS QUALITY OF LIFE FOR CHILDREN WITH COMPLEX MEDICAL CONDITIONS USING A SHARED DECISION-MAKING MODEL AND ACCESS RESOURCES SUCH AS PALLIATIVE CARE SUBSPECIALISTS

Children with complex medical conditions are at greater risk of adverse medical, developmental, psychosocial, and familial outcomes.[13] In 2011, children with medical complexity accounted for only 5.8% of childhood Medicaid enrollees, but 34% of Medicaid spending and 71% of 30-day unplanned readmissions.[14]

Patients and families report gaps in care that could be filled by comprehensive clinics with the expertise, time, and resources to create care plans.[15] Shared decision-making is the preferred model of care delivery for children with medical complexity and may improve clinical outcomes and relationships between the family and the health care professional.[48] Although studies on the impact of clinics that treat children with medical complexity have yielded mixed results, recent work is beginning to show decreased emergency department visits, hospital admissions, and costs.[49]

Children with complex medical conditions who receive early palliative care, both inpatient and outpatient, have high health care–related quality of life, decreased length of hospital stay, decreased invasive procedures, and decreased costs.[16,50] However, significant barriers lead to underutilization of appropriate palliative care; in one study, the most frequently mentioned issues included uncertain prognosis, families not ready to acknowledge incurable conditions, language barriers, and time constraints.[51]

DO: PROMOTE CHILDHOOD LITERACY DEVELOPMENT BY PROVIDING FREE, AGE-APPROPRIATE BOOKS IN CLINICAL SETTINGS

Programs encouraging childhood literacy[52] such as Reach Out and Read first gained significant support after several studies suggested that parents who received books were more likely to read to and with their children.[17] Literacy promotion efforts among Hispanic populations similarly demonstrate increased engagement.[18] The likelihood of reading increased significantly for non–English speaking families even when English language books were used.[53] Further research has shown that receptive and expressive language scores were higher among children 18 to 25 months of age who received literacy promotion during their well-child visits.[19] Despite this evidence, childhood literacy development programs only reach around 4.5 million children, less than one-third of the recent U.S. census estimate of 20.2 million children younger than five years living in the United States.[54,55]

TABLE 2

Right Care for Children: Final List of Do's and Don'ts Recommendations

Do's	Evidence summary statement	Evidence rating
Do provide access to long-acting reversible contraception for adolescents.	Long-acting reversible contraception is used by less than 5% of adolescents, yet it is preferred by patients, cost-effective, safe, and effectively prevents pregnancy.[5-8]	B
Do use nonpharmacologic interventions first for treatment of attention-deficit/hyperactivity disorder.	Diagnosis and medical treatment of attention-deficit/hyperactivity disorder continue to rise, particularly in young children, while proven behavioral strategies are rarely part of first-line management.[9-12]	B
Do discuss quality of life for children with complex medical conditions using a shared decision-making model and accessing resources such as palliative care subspecialists.	Children with complex medical conditions are a growing group of patients whose complex medical needs are often incompletely addressed. Shared decision-making and early palliative care involvement are two important strategies that can improve quality of life for these patients.[13-16]	C
Do promote childhood literacy development by providing free, age-appropriate books in clinical settings.	Child literacy promotion through programs such as Reach Out and Read have been shown to improve the likelihood of reading, language skills, and comprehension, but many children lack access to these programs.[17-19]	B
Do screen for socioeconomic status of the patient and family and provide access to community health and wellness resources.	Screening for food, clothing, housing, and energy insecurity is an effective way to improve child health without adding significant time and resources, but it is rarely done.[20-23]	C
Don'ts	**Evidence summary statement**	**Evidence rating**
Don't routinely prescribe antibiotics in children two to 12 years of age with a middle ear infection.	Despite American Academy of Pediatrics guidelines discouraging antibiotic use for acute otitis media because more cases resolve without treatment, antibiotic prescription rates remain high.[24-26]	A
Don't perform computed tomography of the head for children with minor head trauma.	The body of literature on minor trauma shows that computed tomography of the head is rarely useful. Despite improvement work to reduce unnecessary imaging, head computed tomography is still common.[27-31]	B
Don't use albuterol in children to treat bronchiolitis.	Bronchodilators have been shown to be ineffective for patients with bronchiolitis, yet their use is common.[32-34]	A
Don't routinely screen for hyperlipidemia in children and adolescents.	Recent guidelines recommend universal lipid screening in children; however, it is not known if the long-term benefits outweigh the harms.[35-38]	C
Don't routinely perform preparticipation sports evaluations.	Preparticipation sports evaluations are time consuming, costly, and have high false-positive and false-negative rates, preventing healthy children from playing sports despite weak evidence that they protect children from sudden cardiac death.[39-43]	B

A = consistent, good-quality patient-oriented evidence; **B** = inconsistent or limited-quality patient-oriented evidence; **C** = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to https://www.aafp.org/afpsort.

Information from references 5 through 43.

DO: SCREEN FOR SOCIOECONOMIC STATUS OF THE PATIENT AND FAMILY AND PROVIDE ACCESS TO COMMUNITY HEALTH AND WELLNESS RESOURCES

Social determinants of health such as poverty, housing insecurity, food insecurity (https://www.aafp.org/afp/2018/0801/p143.html), poor education, and barriers to employment can all be linked to poor health outcomes beginning in childhood and adolescence.[55,56] The American Academy of Pediatrics (AAP) and American Academy of Family Physicians (AAFP) support the promotion of health equity using clinical

encounters to identify and address social, financial, educational, and environmental needs of patients.[21,56] However, concerns about insufficient time, fear of offending parents, and inadequate knowledge about local resources lead to low rates of screening and referral.[22] Simple electronic tools may facilitate connecting families to community resources[22,57] without placing undue burden on health care professionals. Connecting families to community resources is associated with greater odds of employment and access to child care and fuel assistance, while decreasing the risk of homelessness.[23] The AAFP's EveryONE Project (https://www.aafp.org/patient-care/social-determinants-of-health/everyone-project.html) offers several online tools to connect patients to community resources. Resources that address energy, housing, income, and nutrition support can improve health outcomes and lower health care costs.[23] Studies in the clinic setting and in the hospital suggest that parental perceptions of health care professional–driven screening for social determinants of health are positive.[58,59]

Top Five Don'ts: Overused Interventions

DON'T: ROUTINELY PRESCRIBE ANTIBIOTICS IN CHILDREN TWO TO 12 YEARS OF AGE WITH A MIDDLE EAR INFECTION

Health care professionals often misdiagnose middle ear infections, and even for true infections, antibiotics only provide minimal benefit compared with placebo.[60] Although a Cochrane review found that the number needed to treat to reduce pain at 10 to 12 days was 7, there was no significant difference in pain reduction at 24 hours, and patients rarely have pain beyond two weeks.[24] Compared with expectant observation, immediate antibiotic treatment does not reduce abnormal tympanometry findings at four weeks, tympanic membrane perforation, or acute otitis media (AOM) recurrence. Compared with placebo, antibiotics decrease tympanic membrane perforations (number needed to treat = 33) and the risk of contralateral AOM, but they have a number needed to harm of 14 for any adverse event (e.g., vomiting, diarrhea, rash).[24] Antibiotics have not been proven to reduce the risk of serious pathology associated with AOM such as mastoiditis.[25] These findings led the AAP and AAFP to recommend against antibiotics for initial management of most children,[26] a strategy that has been shown to be cost-effective.[61]

DON'T: PERFORM COMPUTED TOMOGRAPHY (CT) OF THE HEAD FOR CHILDREN WITH MINOR HEAD TRAUMA

Head CT can be useful to guide interventions in children with severe traumatic brain injury. However, ionizing radiation exposure from CT use has been associated with an increased risk of the development of malignancies.[62] In children with minor head injuries, recent Centers for Disease Control and Prevention guidelines[27] recommend against CT because it rarely reveals intracranial bleeds or other serious findings but may detect incidental findings (4% in one large study[28]) and lead to overdiagnosis and overtreatment.[29]

There is some evidence that CT use for children with minor head injury has decreased during the past decade, likely driven by new clinical prediction rules for the detection of "clinically important traumatic brain injury."[30] This reduction in unnecessary imaging could reduce costs, radiation exposure, and the use of potentially harmful downstream interventions (e.g., repeat imaging, hospitalization, and in some cases, neurosurgery).[31]

DON'T: USE ALBUTEROL IN CHILDREN TO TREAT BRONCHIOLITIS

In 2014, the AAP revised its bronchiolitis practice guidelines, moving away from the option of trial doses of bronchodilators to recommending against the use of bronchodilators entirely.[32] These recommendations are supported by a Cochrane meta-analysis demonstrating that beta agonists do not improve meaningful outcomes such as hospital admission rates, length of stay, or duration of symptoms.[63] Quality improvement work has shown early success in decreasing overuse in inpatient settings, with one multicenter collaborative demonstrating decreased bronchodilator use by 29%, reduced steroid use, and reduced length of stay,[64] and a meta-analysis demonstrating substantial decreases in repeated bronchodilator dosing.[33] However, bronchodilator use, with other ineffective interventions in bronchiolitis such as steroids, is high and extremely variable.[34] Additionally, little is known about practice patterns in the outpatient and urgent care settings where most children with bronchiolitis receive care.

DON'T: ROUTINELY SCREEN FOR HYPERLIPIDEMIA IN CHILDREN AND ADOLESCENTS

Universal lipid screening for children was recommended by the National Heart, Lung, and Blood Institute and the AAP in 2011 to identify children with familial hypercholesterolemia missed by family history alone.[65,66] Although universal lipid screening does identify additional children with familial hypercholesterolemia, 10 children screen falsely positive by random lipid screen for every true case of hyperlipidemia confirmed by fasting lipids. False positives lead to additional fasting blood work.[67] Even after false-positive cases have been excluded, 85% of children who would be started on statin therapy for elevated low-density lipoprotein levels do not have familial hypercholesterolemia.[35] Although short-term safety data on statins in children

are reassuring, all published trials were exclusively done on children with familial hypercholesterolemia and were industry funded.[36] Furthermore, there are no long-term studies on the safety of starting statins in childhood and continuing for decades.[37] Although most trials in children demonstrate reductions in low-density lipoprotein and other surrogate markers with statins, evidence that statins decrease cardiovascular events in this population is lacking.[36] The U.S. Preventive Services Task Force and the AAFP agree that the current evidence is insufficient to assess the balance of benefits and harms of screening for lipid disorders in children and adolescents.[38]

DON'T: ROUTINELY PERFORM PREPARTICIPATION SPORTS EVALUATIONS

Preparticipation sports evaluations are often recommended or required by schools and athletic organizations in the United States and other developed countries; however, evidence does not support these recommendations and should inform future policy to emphasize recommendations proven to benefit adolescent health.[39,68] Sudden cardiac death in adolescents and young adults is a devastating but rare occurrence, affecting an estimated one in 150,000 sports participants per year, totaling fewer than 100 deaths per year in the United States.[40] When sudden cardiac death occurs, preparticipation sports evaluations often do not identify the athletes who were most at risk.[41] Typical testing involves a detailed family history and physical examination,[69,70] and in some places includes electrocardiography. These evaluations have a high false-positive rate for rhythm and structural abnormalities,[42,71] a high false-negative rate for hypertrophic cardiomyopathy,[71] and are expensive.[43] Children are often unnecessarily held out of a beneficial physical activity until these evaluations are completed.

Data Sources: A PubMed search for each recommendation was completed using key terms drawn from the wording specific to each recommendation. The search included meta-analyses, systematic reviews, Cochrane reviews, randomized controlled trials, review articles, and retrospective cohort studies. Search dates: January and February 2017, and December 21, 2018.

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Editor's Note: *AFP* has collaborated with the Lown Institute to create a new feature called "Lown Right Care: Reducing Overuse and Underuse." The goal is to promote a vision for delivering health care that is true to the evidence, balanced in its approach, and focused on the patient. See related editorial at https://www.aafp.org/afp/2018/1115/p560.html.

References

1. Saini V, Brownlee S, Elshaug AG, Glasziou P, Heath I. Addressing overuse and underuse around the world. *Lancet*. 2017;390(10090):105-107.
2. Glasziou P, Straus S, Brownlee S, et al. Evidence for underuse of effective medical services around the world. *Lancet*. 2017;390(10090):169-177.
3. Middleton JL. Putting Choosing Wisely into practice. *Am Fam Physician*. 2018;97(7):432-433.
4. Lown Institute. https://lowninstitute.org. Accessed March 15, 2018.
5. Diedrich JT, Zhao Q, Madden T, Secura GM, Peipert JF. Three-year continuation of reversible contraception. *Am J Obstet Gynecol*. 2015;213(5):662.e1-662.e8.
6. Trussell J. Contraceptive failure in the United States. *Contraception*. 2011;83(5):397-404.
7. Schmidt EO, James A, Curran KM, Peipert JF, Madden T. Adolescent experiences with intrauterine devices: a qualitative study. *J Adolesc Health*. 2015;57(4):381-386.
8. Forrest JD, Samara R. Impact of publicly funded contraceptive services on unintended pregnancies and implications for Medicaid expenditures. *Fam Plann Perspect*. 1996;28(5):188-195.
9. Akinbami LJ, Liu X, Pastor PN, Reuben CA. Attention deficit hyperactivity disorder among children aged 5-17 years in the United States, 1998-2009. *NCHS Data Brief*. 2011;(70):1-8.

10. The MTA Cooperative Group. Multimodal treatment study of children with ADHD. A 14-month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder. *Arch Gen Psychiatry*. 1999; 56(12):1073-1086.
11. Pelham WE Jr, Fabiano GA, Waxmonsky JG, et al. Treatment sequencing for childhood ADHD: a multiple-randomization study of adaptive medication and behavioral interventions. *J Clin Child Adolesc Psychol*. 2016;45(4):396-415.
12. Visser SN, Danielson ML, Wolraich ML, et al. Vital signs: national and state-specific patterns of attention deficit/hyperactivity disorder treatment among insured children aged 2-5 years - United States, 2008-2014. *MMWR Morb Mortal Wkly Rep*. 2016;65(17):443-450.
13. Bramlett MD, Read D, Bethell C, Blumberg SJ. Differentiating subgroups of children with special health care needs by health status and complexity of health care needs. *Matern Child Health J*. 2009;13(2):151-163.
14. Berry JG, Hall M, Neff J, et al. Children with medical complexity and Medicaid: spending and cost savings [published correction appears in *Health Aff (Millwood)*. 2015;34(1):189]. *Health Aff (Millwood)*. 2014; 33(12):2199-2206.
15. Adams RC, Levy SE; Council on Children with Disabilities. Shared decision-making and children with disabilities: pathways to consensus. *Pediatrics*. 2017;139(6):e20170956.
16. Goldhagen J, Fafard M, Komatz K, Eason T, Livingood WC. Community-based pediatric palliative care for health related quality of life, hospital utilization and costs lessons learned from a pilot study. *BMC Palliat Care*. 2016;15:73.
17. Jones VF, Franco SM, Metcalf SC, Popp R, Staggs S, Thomas AE. The value of book distribution in a clinic-based literacy intervention program. *Clin Pediatr (Phila)*. 2000;39(9):535-541.
18. Golova N, Alario AJ, Vivier PM, Rodriguez M, High PC. Literacy promotion for Hispanic families in a primary care setting: a randomized, controlled trial. *Pediatrics*. 1999;103(5 pt 1):993-997.
19. High PC, LaGasse L, Becker S, Ahlgren I, Gardner A. Literacy promotion in primary care pediatrics: can we make a difference? *Pediatrics*. 2000; 105(4 pt 2):927-934.
20. Baer TE, Gottlieb L, Sandel M. Addressing social determinants of health in the adolescent medical home. *Curr Opin Pediatr*. 2013;25(4):447-453.
21. American Academy of Family Physicians. Social Determinants of Health Policy. https://www.aafp.org/about/policies/all/social-determinants.html. Accessed August 11, 2018.
22. Garg A, Butz AM, Dworkin PH, Lewis RA, Thompson RE, Serwint JR. Improving the management of family psychosocial problems at low-income children's well-child care visits: the WE CARE Project. *Pediatrics*. 2007;120(3):547-558.
23. Taylor LA, Tan AX, Coyle CE, et al. Leveraging the social determinants of health: what works? *PLoS One*. 2016;11(8):e0160217.
24. Venekamp RP, Sanders SL, Glasziou PP, Del Mar CB, Rovers MM. Antibiotics for acute otitis media in children. *Cochrane Database Syst Rev*. 2015;(6):CD000219.
25. Grossman Z, Zehavi Y, Leibovitz E, et al. Severe acute mastoiditis admission is not related to delayed antibiotic treatment for antecedent acute otitis media. *Pediatr Infect Dis J*. 2016;35(2):162-165.
26. Lieberthal AS, Carroll AE, Chonmaitree T, et al. The diagnosis and management of acute otitis media [published correction appears in *Pediatrics*. 2014;133(2):346]. *Pediatrics*. 2013;131(3):e964-e999.
27. Lumba-Brown A, Yeates KO, Sarmiento K, et al. Centers for Disease Control and Prevention guideline on the diagnosis and management of mild traumatic brain injury among children. *JAMA Pediatr*. 2018;172(11): e182853.
28. Rogers AJ, Maher CO, Schunk JE, et al.; Pediatric Emergency Care Applied Research Network. Incidental findings in children with blunt head trauma evaluated with cranial CT scans. *Pediatrics*. 2013;132(2): e356-e363.
29. Schroeder AR, Redberg RF. The harm in looking. *JAMA Pediatr*. 2013; 167(8):693-695.
30. Kuppermann N, Holmes JF, Dayan PS, et al.; Pediatric Emergency Care Applied Research Network (PECARN). Identification of children at very low risk of clinically-important brain injuries after head trauma: a prospective cohort study [published correction appears in *Lancet*. 2014; 383(9914):308]. *Lancet*. 2009;374(9696):1160-1170.
31. Coon ER, Hall M, Bratton S, Wilkes J, Schroeder AR. Trends of head CT imaging, detection of intracranial bleeding and skull fractures in isolated pediatric head injury. Pediatric Academic Societies Annual Meeting, Baltimore, Md. April 30, 2016.
32. Ralston SL, Lieberthal AS, Meissner HC, et al.; American Academy of Pediatrics. Clinical practice guideline: the diagnosis, management, and prevention of bronchiolitis [published correction appears in *Pediatrics*. 2015;136(4):782]. *Pediatrics*. 2014;134(5):e1474-e1502.
33. Ralston S, Comick A, Nichols E, Parker D, Lanter P. Effectiveness of quality improvement in hospitalization for bronchiolitis: a systematic review. *Pediatrics*. 2014;134(3):571-581.
34. Parikh K, Hall M, Mittal V, et al. Establishing benchmarks for the hospitalized care of children with asthma, bronchiolitis, and pneumonia. *Pediatrics*. 2014;134(3):555-562.
35. Vuorio A, Kuoppala J, Kovanen PT, et al. Statins for children with familial hypercholesterolemia. *Cochrane Database Syst Rev*. 2017;(7): CD006401.
36. Kit BK, Carroll MD, Lacher DA, Sorlie PD, DeJesus JM, Ogden C. Trends in serum lipids among U.S. youths aged 6 to 19 years, 1988-2010. *JAMA*. 2012;308(6):591-600.
37. Schroeder AR, Redberg RF. Cholesterol screening and management in children and young adults should start early-NO! *Clin Cardiol*. 2012; 35(11):665-668.
38. American Academy of Family Physicians. Lipid Disorders - Clinical Preventive Service Recommendation. https://www.aafp.org/patient-care/clinical-recommendations/all/lipid-disorders.html. Accessed August 11, 2018.
39. Maron BJ, Doerer JJ, Haas TS, Tierney DM, Mueller FO. Sudden deaths in young competitive athletes: analysis of 1866 deaths in the United States, 1980-2006. *Circulation*. 2009;119(8):1085-1092.
40. Steinvil A, Chundadze T, Zeltser D, et al. Mandatory electrocardiographic screening of athletes to reduce their risk for sudden death: proven fact or wishful thinking? *J Am Coll Cardiol*. 2011;57(11):1291-1296.
41. Malhotra A, Dhutia H, Finocchiaro G, et al. Outcomes of cardiac screening in adolescent soccer players. *N Engl J Med*. 2018;379(6):524-534.
42. Rowin EJ, Maron BJ, Appelbaum E, et al. Significance of false negative electrocardiograms in preparticipation screening of athletes for hypertrophic cardiomyopathy. *Am J Cardiol*. 2012;110(7):1027-1032.
43. Menafoglio A, Di Valentino M, Segatto JM, et al. Costs and yield of a 15-month preparticipation cardiovascular examination with ECG in 1070 young athletes in Switzerland: implications for routine ECG screening. *Br J Sports Med*. 2014;48(15):1157-1161.
44. Jones RK, Jerman J. Abortion incidence and service availability In the United States, 2014. *Perspect Sex Reprod Health*. 2017;49(1):17-27.
45. Boulet SL, D'Angelo DV, Morrow B, et al. Contraceptive use among nonpregnant and postpartum women at risk for unintended pregnancy, and female high school students, in the context of zika preparedness - United States, 2011-2013 and 2015. *MMWR Morb Mortal Wkly Rep*. 2016; 65(30):780-787.
46. Gupte-Singh K, Singh RR, Lawson KA. Economic burden of attention-deficit/hyperactivity disorder among pediatric patients in the United States. *Value Health*. 2017;20(4):602-609.
47. Pelham WE, Burrows-MacLean L, Gnagy EM, et al. A dose-ranging study of behavioral and pharmacological treatment in social settings for children with ADHD. *J Abnorm Child Psychol*. 2014;42(6):1019-1031.
48. Adams S, Cohen E, Mahant S, Friedman JN, Macculloch R, Nicholas DB. Exploring the usefulness of comprehensive care plans for children with medical complexity (CMC): a qualitative study. *BMC Pediatr*. 2013;13:10.

49. Larson IA, Hoffman A, Artman M. Maximizing health outcomes in a medical home for children with medical complexity: the Beacon Program. *J Pediatr*. 2017;183:4-5.
50. Keele L, Keenan HT, Sheetz J, Bratton SL. Differences in characteristics of dying children who receive and do not receive palliative care. *Pediatrics*. 2013;132(1):72-78.
51. Davies B, Sehring SA, Partridge JC, et al. Barriers to palliative care for children: perceptions of pediatric health care providers. *Pediatrics*. 2008;121(2):282-288.
52. Reddy S, Reddy B. Encouraging children's literacy in your practice. *Fam Pract Manag*. 2016;23(3):20-22.
53. Silverstein M, Iverson L, Lozano P. An English-language clinic-based literacy program is effective for a multilingual population. *Pediatrics*. 2002;109(5):E76-E6.
54. Reach Out and Read. Annual Report: 2017-2018. http://reachoutandread.org/media/130094/reach_out_and_read__2017-18_online_annual_report.pdf. Accessed December 20, 2018.
55. U.S. Census Bureau. Age and Sex Composition: 2010. https://www.census.gov/content/dam/Census/library/publications/2011/dec/c2010br-03.pdf. Accessed March 3, 2018.
56. Council on Community Pediatrics and Committee on Native American Child Health. Policy statement--health equity and children's rights. *Pediatrics*. 2010;125(4):838-849.
57. Gottlieb L, Hessler D, Long D, Amaya A, Adler N. A randomized trial on screening for social determinants of health: the iScreen study. *Pediatrics*. 2014;134(6):e1611-e1618.
58. Colvin JD, Bettenhausen JL, Anderson-Carpenter KD, Collie-Akers V, Chung PJ. Caregiver opinion of in-hospital screening for unmet social needs by pediatric residents. *Acad Pediatr*. 2016;16(2):161-167.
59. Garg A, Butz AM, Dworkin PH, Lewis RA, Serwint JR. Screening for basic social needs at a medical home for low-income children. *Clin Pediatr (Phila)*. 2009;48(1):32-36.
60. Asher E, Leibovitz E, Press J, Greenberg D, Bilenko N, Reuveni H. Accuracy of acute otitis media diagnosis in community and hospital settings. *Acta Paediatr*. 2005;94(4):423-428.
61. Sun D, McCarthy TJ, Liberman DB. Cost-effectiveness of watchful waiting in acute otitis media. *Pediatrics*. 2017;139(4):e20163086.
62. Brenner DJ, Hall EJ. Computed tomography–an increasing source of radiation exposure. *N Engl J Med*. 2007;357(22):2277-2284.
63. Gadomski AM, Scribani MB. Bronchodilators for bronchiolitis. *Cochrane Database Syst Rev*. 2014;(6):CD001266.
64. Ralston SL, Garber MD, Rice-Conboy E, et al. A multicenter collaborative to reduce unnecessary care in inpatient bronchiolitis. *Pediatrics*. 2016;137(1):e20150851.
65. Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents; National Heart, Lung, and Blood Institute. Expert panel on integrated guidelines for cardiovascular health and risk reduction in children and adolescents: summary report. *Pediatrics*. 2011;128(suppl 5):S213-S256.
66. Committee on Practice and Ambulatory Medicine and Bright Futures Periodicity Schedule Workgroup. 2016 Recommendations for Preventive Pediatric Health Care. *Pediatrics*. 2016;137(1):25-27.
67. McCrindle BW, Kwiterovich PO, McBride PE, Daniels SR, Kavey RE. Guidelines for lipid screening in children and adolescents: bringing evidence to the debate. *Pediatrics*. 2012;130(2):353-356.
68. Maron BJ, Haas TS, Ahluwalia A, Rutten-Ramos SC. Incidence of cardiovascular sudden deaths in Minnesota high school athletes. *Heart Rhythm*. 2013;10(3):374-377.
69. Zeltser I, Cannon B, Silvana L, et al. Lessons learned from preparticipation cardiovascular screening in a state funded program. *Am J Cardiol*. 2012;110(6):902-908.
70. Asif IM, Rao AL, Drezner JA. Sudden cardiac death in young athletes: what is the role of screening? *Curr Opin Cardiol*. 2013;28(1):55-62.
71. Halkin A, Steinvil A, Rosso R, Adler A, Rozovski U, Viskin S. Preventing sudden death of athletes with electrocardiographic screening: what is the absolute benefit and how much will it cost? *J Am Coll Cardiol*. 2012;60(22):2271-2276.

eFIGURE A

Flowchart of modified Delphi panel process from formation to completion of the final list of recommendations.

eTABLE A

Initial List of Do Recommendations for Children and Adolescents

Perform mental health screening using a validated tool.
Provide access to long-acting reversible contraception for adolescents.
Use nonpharmacologic interventions as first-line treatment of neonatal abstinence syndrome.
Use nonpharmacologic interventions as first-line treatment of attention-deficit/hyperactivity disorder.
Discuss quality of life for children with complex medical conditions.
Obtain an Adverse Childhood Experience score for children on a yearly basis.
Screen for socioeconomic status of patient and family.
Follow recommended Centers for Disease Control and Prevention vaccination schedule (https://www.cdc.gov/vaccines/parents/downloads/parent-ver-sch-0-6yrs.pdf).
Assess quality of life and health status of children with complex medical conditions.
Promote childhood literacy development through programs such as Reach Out and Read.
Evaluate nutrition, weight, height, and body mass index (head circumference for infants) during every visit (inpatient and outpatient).
Provide a discharge summary including a detailed medication plan and follow-up appointments to every child discharged from a hospital.
Screen for mental health well-being at every child visit (inpatient and outpatient).
Adhere to the Centers for Disease Control and Prevention immunization schedule as recommended (outpatient care).
Measure and plot the patient's height, weight, head circumference, and body mass index, and actively review for abnormal trends.
Screen for community environment and access to health and wellness resources when screening for socioeconomic status of the patient and family.
Discuss quality of life and health care system navigation capacity for children with chronic medically complex conditions.

eTABLE B

Initial List of Don't Recommendations for Children and Adolescents

Don't routinely perform preoperative laboratory testing.
Don't refer for wisdom teeth removal unless medically indicated.
Don't routinely screen for hyperlipidemia in children and adolescents.
Don't routinely perform preparticipation sports evaluations.
Don't routinely monitor fetal heart rate.
Don't perform computed tomography of the head for a minor head injury.
Don't use acid suppression medications for gastroesophageal reflux in children.
Don't use antibiotics in children unless there is clear evidence of a bacterial infection.
Don't routinely perform computed tomography of children with minor head injuries (inpatient and outpatient).
Don't order chest radiography for children with uncomplicated asthma or bronchiolitis (inpatient and outpatient).
Don't routinely use bronchodilators in children to treat bronchiolitis (inpatient and outpatient).
Don't routinely prescribe antibiotics in children two to 12 years of age with acute otitis media.
Don't routinely treat gastroesophageal reflux disease with acid suppression therapy (inpatient and outpatient).
Don't perform liver biopsies for ultrasound-confirmed fatty liver in otherwise asymptomatic obese children unless liver chemistries are two standard deviations above normal for the age range.