

# Children's Health

## Top Do's and Don'ts for Right Care

### Do's

#### ***1. Provide access to long acting reversible contraception (LARC) for teenagers***

Studies over the past decade have demonstrated LARCs such as intrauterine devices (IUDs) and dermal implants to be safe, cost-effective, and importantly preferred by patients<sup>8</sup>. The evidence for the effectiveness of LARCs is well-established with a lower rate of unintended pregnancy than oral contraceptives or even tubal ligation.<sup>9</sup> The risk of adverse events such as pelvic inflammatory disease or device migration are low. Despite higher upfront costs for LARCs than oral contraceptive pills or abstinence, they are ultimately cost-effective. State funded programs offering family planning including LARCs have demonstrated decreased rates of unplanned pregnancy, intentional abortion<sup>10</sup>, and a decreased rate of preterm birth resulting in a return on investment of \$7 for every \$1 spent.<sup>11</sup>

Qualitative studies have shown that young women prefer LARCs because of their convenience, duration of action, and changes in bleeding pattern.<sup>12</sup> Compared to short-acting contraceptives, women who use LARCs are much more likely to continue using them two and three years later.<sup>8</sup> Survey data suggest that LARC usage among adolescents in the US ranges from 2-5%.<sup>13</sup> Significant barriers leading to the underutilization of LARCs including cost and insurance coverage, availability, parental concerns, and lack of provider knowledge need to be addressed to increase access to an intervention that patients want and improves health equity.<sup>14</sup>

#### ***2. Use non-pharmacological interventions as first line in treatment of attention deficit hyperactivity disorder***

The prevalence of Attention Deficit Hyperactivity Disorder (ADHD) has significantly increased over the past 20 years. A diagnosis of ADHD is associated with an additional \$950 per patient per year in healthcare costs, 97% of which come from medication costs.<sup>15,16</sup> Treatment approaches target specific age ranges in order to reduce core symptoms of ADHD as well as improve functionality. Evidence remains clear that both pharmacologic and behavior therapy strategies are effective.<sup>17</sup>

Behavior therapy represents a broad set of specific interventions including parent training, classroom behavior management, peer interventions, and combinations of behavior treatment – all with the aim of altering behavior by modifying the individual's social and physical environment. As a treatment modality, behavior therapy alone offers the advantage of avoiding adverse side effects (including decreased appetite, sleep problems, and delayed growth) associated with pharmacologic intervention.<sup>18</sup> Additionally, behavior therapy may reduce the required dosage of medication when adjunctive pharmacotherapy is used.<sup>19</sup>

When initiated prior to medication, behavior therapy may produce better initial school outcomes such as reduced classroom rule violation when compared to initiating treatment with medication.<sup>20</sup> For children 4-5 years of age, the evidence is particularly convincing that parent behavior training results in better

conduct when compared to stimulant medication alone.<sup>19</sup> Studies addressing first-line treatment for ADHD conclude that behavior therapy remains a recommended priority for all children and adolescents.<sup>19-21</sup> Despite this, recent surveillance reflects that behavioral therapy in children diagnosed with ADHD remains underused.<sup>21</sup>

### ***3. Discuss quality of life for children with complex medical conditions using a shared decision-making model and accessing resources such as palliative care specialists***

Advances in clinical care have improved the lifespan of children including those with complex chronic conditions. These children with medical complexity (CMC) comprise a growing, heterogeneous subpopulation of children with special healthcare needs. They are typically characterized as ‘children with substantial family-identified needs, characteristic chronic and severe conditions, functional limitations, and high health-care use.’<sup>22</sup> With an increased lifespan, CMC are at greater risk for adverse medical, developmental, psychosocial, and familial outcomes.<sup>23</sup>

Consequently, families of CMC value quality of life (QOL) by seeking effective and timely medical care, care coordination between providers, reduced duplicative services, unnecessary travel, navigation through the health care system, support for multiple community-based therapists and specialized community services.<sup>24,25</sup> Through tools such as a shared plan of care, groups such as the American Academy of Pediatrics (AAP) Council on Children with Disabilities strongly endorse shared decision-making as the preferred model of care delivery to improve both clinical outcomes and family and clinician relationships.<sup>26</sup> However, neither the use of shared care plans nor addressing QOL has been uniformly adopted in the management of CMC.

Integrating palliative care services offers an opportunity to maximize quality of life while making medical decisions based on the goals and values of the patient and family.<sup>27</sup> Barriers lead to underutilization of palliative care resources for children who may benefit<sup>28-30</sup> despite positive responses from families when such services are integrated into routine care.<sup>31</sup>

An ideal care system for CMC requires addressing myriad activities including care coordination, management of medical conditions, and payment of services.<sup>32</sup> Proactive and preventative care planning for CMC presents challenges. However, both providers and caregivers agree that structured clinical programs focused on CMC are better able to meet their unique needs through specialized care including shared care plans.<sup>25,33</sup> Hence, discussing quality of life using a shared decision-making model for CMC to address resources including palliative care must be a priority in caring for this population.<sup>34</sup>

### ***4. Promote child literacy development through books***

Reach Out and Read (ROR) first gained significant support and momentum after several studies suggested that parents who had received books were more likely than those who did not to look at books with their children and were 4-times more likely to report that looking at books was their favorite activity.<sup>35,36</sup> Literacy promotion efforts among Hispanic populations similarly demonstrated 10-fold odds of families in the intervention group reading to their children at least 3 days per week.<sup>37</sup> Changes in likelihood of reading increased significantly for non-English speaking families even when English books were used.<sup>38</sup> Further research has shown that receptive and expressive language scores were higher among children 18-25 months who received literacy promotion during their well child visits.<sup>39</sup> More recently, functional MRI has been used to show that home reading exposure activates areas of the brain

associated with mental imagery and narrative comprehension.<sup>40</sup> Despite this strong evidence of benefit, ROR is still only able to reach ~ 4.5 million children<sup>41</sup>, well under the recent US Census estimate of 19.1 million children under 5 in the U.S.<sup>42</sup>

## ***5. Screen for socioeconomic status of the patient and family and provide access to community health and wellness resources***

The connection between social inequity and poor health outcomes is well established. Social determinants of health such as poverty, housing insecurity, food insecurity, poor education, and barriers to employment can all be linked to poor health outcomes beginning during childhood and adolescence.<sup>43,44</sup> The AAP recommends that pediatricians promote health equity by using clinical encounters as an opportunity to screen for and address social, economic, educational, environmental, and personal-capital needs of the children and families.<sup>45</sup> Clinicians commonly have concerns about insufficient time for screening and referral, fear of offending parents, and inadequate knowledge about local resources<sup>46</sup> leading to low rates of screening and referral.<sup>47</sup> Examples of effective screening and referral efforts exist in the literature<sup>48</sup> and include elegant/simple electronic tools.<sup>49</sup>

These programs demonstrate how to connect families to appropriate community resources without placing undue burden on providers and are associated with greater odds of employment, obtaining child care, and fuel assistance while decreasing the risk of homelessness.<sup>50</sup> Providers can facilitate evidence-based interventions such as provision of community resources addressing home energy assistance, housing support, nutrition support, income support, and care coordination, all of which have been shown to improve health outcomes and lower healthcare costs.<sup>50,51</sup> Both in the clinic and in the hospital, parental perceptions of provider-driven screening for social determinants of health are positive.<sup>52,53</sup>

# Don'ts

## ***1. Don't routinely prescribe antibiotics in children 2-12 years old with middle ear infection***

Acute otitis media (AOM) is the second leading cause of antibiotic prescriptions in the U.S. behind only sinusitis.<sup>54</sup> Studies have demonstrated that clinicians often misdiagnose middle ear infections.<sup>55,56</sup> Although a Cochrane review revealed that the number needed to treat (NNT) to reduce pain at 10-12 days was 7, there was no significant difference in pain reduction at 24 hours, and the NNT to decrease pain at 2-3 days and 4-7 days was 20 and 16, respectively.<sup>57</sup> In a review that included 5 studies from high income countries evaluating antibiotics versus expectant observation, there was no difference in abnormal tympanometry findings at 4 weeks, tympanic membrane perforation, and AOM recurrence. Antibiotics do decrease tympanic membrane perforations (NNT 33) and the risk of contralateral AOM, but one must weigh this against the number needed to harm (number-needed-to-harm 14) for an adverse event (vomiting, diarrhea, rash).<sup>57</sup> Antibiotics have not been proven to reduce the risk of serious pathology associated with AOM such as mastoiditis.<sup>58</sup> Most cases of AOM self-resolve without need for antibiotics leading the AAP to recommend against antibiotics for initial management of most children.<sup>59</sup> Despite the AAP's 2004 recommendation discouraging routine antibiotic use in children >2 years old<sup>59</sup>, the

percentage of antibiotic prescriptions written during outpatient AOM visits remains unchanged and high.<sup>60</sup>

## ***2. Don't obtain head CT for minor head trauma***

Minor head injuries are a common source of emergency department visits and hospitalizations in children. Head CTs are frequently performed to evaluate for intracranial bleeds and skull fractures, and can be extremely useful to guide interventions in children with severe traumatic brain injury (TBI). However, CT scans are a source of ionizing radiation, which has been associated with the development of malignancies.<sup>61</sup> Additionally, CTs for minor head injuries may detect incidental findings (4% in one large study<sup>62</sup>) and may lead to overdiagnosis and overtreatment of abnormal findings.<sup>63</sup>

There is some evidence that CT use has decreased over the last decade, likely driven by new clinical prediction rules for the detection of “clinically important TBI”<sup>64</sup> (as opposed to any radiographic abnormality) and various advocacy and education campaigns. There is preliminary evidence that this reduction in unnecessary scanning is welcome news on several fronts: one, avoidance of the radiation and cost associated with the CT itself, and two, avoidance of some of the downstream interventions (repeat imaging, hospitalization, and in some cases, neurosurgery) that follow when an abnormality is detected in a well-appearing child.<sup>65</sup> However, despite this welcome news, the reduction in CT scanning has not been seen outside of children's hospitals,<sup>66</sup> and even in children's hospitals, considerable variability persists.<sup>65</sup> Therefore, increased awareness of the harms of an unnecessary CT scan is warranted.

## ***3. Don't routinely use albuterol in children with bronchiolitis regardless of care setting***

Bronchiolitis, a viral infection of the lower respiratory tract primarily affecting infants, is one of the leading causes of Emergency Department visits and subsequent hospitalizations for the infant and toddler populations. In 2014, the AAP revised its 2006 practice guidelines for bronchiolitis, moving away from the allowance of trial doses of bronchodilators to a recommendation against the use of bronchodilators entirely.<sup>67,68</sup> These recommendations are supported by a comprehensive Cochrane meta-analysis demonstrating that beta-agonists do not improve meaningful outcomes such as hospital admission rates, length-of-stay, or duration of symptoms.<sup>69</sup>

While there have not been large studies on the impact of the revised guidelines on current practice, studies examining the impact of the 2006 practice guidelines revealed mixed results.<sup>70,71</sup> More recently, published quality improvement work, most prominently through the Value-In-Pediatrics (VIP) network<sup>72</sup>, has demonstrated early success in decreasing overuse. This multicenter collaborative work has not only led to decreased bronchodilator use by 29%, but also reduced steroid use and length of stay.<sup>73</sup> Additional evidence from quality improvement work has demonstrated substantial decreases in repeated bronchodilator dosing.<sup>74</sup> However, bronchodilator use along with other futile diagnostic and therapeutic interventions in bronchiolitis remains high and extremely variable.<sup>75</sup> Additionally, little is known about practice patterns in the outpatient and urgent care settings where the majority of bronchiolitis patients are cared for.

#### **4. Don't routinely screen for lipids in children and adolescents**

Universal lipid screening (ULS) for children was recommended by the National Heart, Lung, and Blood Institute in 2011.<sup>76</sup> The stated goal of ULS was to identify children with familial hypercholesterolemia (FH) missed by family history alone. While ULS is successful in identifying additional children with FH, ten children screen falsely positive for every true case of hyperlipidemia. False positives lead to additional fasting blood work creating unnecessary harm and cost.<sup>77</sup> Even after false positive cases have been excluded, 85% of children that would be started on statin therapy for elevated LDL do not have FH. There are insufficient data to support this aggressive management.

While short term safety data on statins are reassuring, there are no long-term studies in children who will inevitably end up on statins for decades.<sup>78</sup> All published pediatric statin trials were exclusively done on children with FH and were industry funded.<sup>79</sup> These studies showed successful reduction in LDL, but the connection to long-term benefits such as decreasing stroke or myocardial infarction are lacking. Some argue that the alarming and increasing prevalence of childhood obesity merits such an aggressive response. Yet, total cholesterol in children and adolescents is declining<sup>80</sup> prior to expanded screening or treatment, suggesting that messages around healthy diet and exercise are beginning to have an impact and should be further emphasized over expanded screening and medical management.

#### **5. Don't perform routine pre-sport physicals**

Sports pre-participation exams have become routine and required in the US and other developed countries based upon recommendations from the AAP<sup>81</sup> and other organizations.<sup>82</sup> Sudden cardiac death in teens and young adults is a devastating but thankfully rare occurrence with estimates of 1 in 150,000 sports participants per year<sup>83</sup> totaling less than 100 deaths per year in the U.S.<sup>84</sup> Unfortunately, there is no evidence to suggest that our current efforts prevent sudden cardiac death<sup>85,86</sup>. Current testing which includes a detailed family history, physical exam, and electrocardiogram in some places has a high false positive rate<sup>87,88</sup>, a high false negative rate for hypertrophic cardiomyopathy<sup>89</sup>, and high cost associated with mandatory screening.<sup>90</sup> Children are often held out of physical activity until these low value evaluations are completed despite a lack of compelling evidence to support such actions.<sup>86</sup>

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