

Childhood Obesity and State Intervention: An Examination of the Health Risks of Pediatric Obesity and When They Justify State Involvement

MELISSA MITGANG*

During the past three decades, the incidence of childhood and adolescent obesity has more than doubled in the United States, coupled with increases in the severity of pediatric obesity and the prevalence of illnesses associated with obesity among the pediatric population. As a result, courts and legislatures have been increasingly faced with the question of whether and when state intervention in the case of pediatric obesity is appropriate under medical neglect statutes. After examining relevant judicial opinions and commentary from the legal and medical communities, this Note takes the position that intervention is only warranted when it is necessary to prevent short-term loss of life or to address a current risk of serious harm. In order to determine whether this standard is met, a case-by-case method is proposed, focusing on four factors: the severity of the child's illnesses associated with obesity; the degree to which medical treatment can mitigate the resulting adverse health effects; an assessment of the child's complete physical and mental health picture; and when the just answer remains unclear, the child's risk of remaining obese as an adult.

* Staff member, COLUM. J.L. & SOC. PROBS., 2009–2010. J.D. Candidate 2011, Columbia Law School. The author would like to thank Professor Elizabeth S. Scott for her invaluable advice and guidance, Joshua T. Mitgang, M.D., for his generous assistance, Barry J. Reiner, M.D., and the entire staff and editorial board of the *Journal*.

I. INTRODUCTION

During the past three decades, the incidence of childhood and adolescent obesity has more than doubled in the United States.¹ As of 2004, in the United States, 13.9% of children ages two to five were obese, 18.8% of children ages six to eleven were obese, and 17.4% of teenagers ages twelve to nineteen were obese; in all, 17.1% of children and adolescents ages two to nineteen were obese.² Childhood and adolescent obesity “currently affects at least 10–25% of the [pediatric] population in most developed countries.”³ The prevalence of childhood obesity has been described as an “explosion,”⁴ a “worldwide epidemic,”⁵ and “the most common disorder of childhood in the developed world.”⁶

This increase in the prevalence of obesity has been accompanied by an increase in the severity of obesity. Medical literature defines overweight children as those with a Body Mass Index (“BMI”) above the eighty-fifth percentile; obese children as those with BMI above the ninety-fifth percentile; and morbidly obese children as those with BMI above the ninety-ninth percentile.⁷ “The distribution of body-mass index . . . has shifted in a skewed fashion, such that the heaviest children, at greatest risk of complications, have become even heavier.”⁸ In a study comparing

1. Anna M.G. Cali & Sonia Caprio, *Obesity in Children and Adolescents*, 93 J. CLINICAL ENDOCRINOLOGY & METABOLISM S31, S31 (2008); see also Kevin R. Short et al., *Vascular Health in Children and Adolescents: Effects of Obesity and Diabetes*, 5 VASCULAR HEALTH & RISK MGMT. 973, 973 (2009) (“The incidence of obesity in US children has increased almost threefold within the last three decades.” (citing Kenneth C. Copeland et al., *Type 2 Diabetes in Children: Oxymoron or Medical Metamorphosis?*, 34 PEDIATRIC ANNALS 686 (2005))).

2. Cynthia L. Ogden et al., *Prevalence of Overweight and Obesity in the United States, 1999–2004*, 295 J. AM. MED. ASS’N 1549, 1551 tbl.2 (2006).

3. John J. Reilly, *Descriptive Epidemiology and Health Consequences of Childhood Obesity*, 19 BEST PRAC. & RES. CLINICAL ENDOCRINOLOGY & METABOLISM 327, 337 (2005).

4. Shireen Arani, Case Comment, *State Intervention in Cases of Obesity-Related Medical Neglect*, 82 B.U. L. REV. 875, 878 (2002).

5. Ebe D’Adamo et al., *Metabolic Syndrome in Pediatrics: Old Concepts Revised, New Concepts Discussed*, 38 ENDOCRINOLOGY & METABOLISM CLINICS N. AM. 549, 549 (2009).

6. Reilly, *supra* note 3, at 327.

7. *E.g.*, Todd Varness et al., *Childhood Obesity and Medical Neglect*, 123 PEDIATRICS 399, 399 (2009).

8. Cara B. Ebbeling et al., *Childhood Obesity: Public-Health Crisis, Common Sense Cure*, 360 LANCET 473, 473 (2002) (citing K.M. Flegal & R.P. Troiano, *Changes in the Distribution of Body Mass Index of Adults and Children in the US Population*, 24 INT’L J. OBESITY 807 (2000)).

students from 1973–1975 to students from 1989–1990, researchers found that “differences in BMI between the cohorts were minimal at the lower end of the BMI distributions, began at approximately the 40th percentile, and increased with increasing BMI, demonstrating that equivalent percentiles were indicative of a higher BMI in the 1989–1990 cohort than in the 1973–1975 cohort.”⁹ This increase in childhood and adolescent obesity and its severity has been accompanied by an increase in the prevalence of comorbidities¹⁰ of obesity — some of which were seen previously only in adulthood¹¹ — including type two diabetes, obstructive sleep apnea, asthma, nonalcoholic fatty liver disease, cardiovascular conditions such as hypertension and atherosclerosis, and psychological problems such as depression.¹²

Because of the increased prevalence and severity of pediatric obesity throughout the country, courts and legislatures have been increasingly faced with the question of whether and when state intervention is appropriate.¹³ As a small but growing number of courts answer that certain situations warrant state involvement,¹⁴ defining the limits of appropriate involvement has become a more pressing inquiry. When is the state justified in ordering treatment, which can require temporary removal from the family home, for a child’s obesity over the wishes of his or her parents?

9. John A. Morrison et al., *Sex and Race Differences in Cardiovascular Disease Risk Factor Changes in Schoolchildren, 1975–1990: The Princeton School Study*, 89 AM. J. PUB. HEALTH 1708, 1709 (1999).

10. A comorbid condition is one that “relat[es] or denote[s] a medical condition that co-occurs with another.” OXFORD DICTIONARY OF ENGLISH (Angus Stevenson ed., 3d ed. 2010), available at <http://www.oxfordreference.com/views/ENTRY.html?subview=Main&entry=t140.e0971997>.

11. Malcolm S. Schwartz & Anila Chadha, *Type 2 Diabetes Mellitus in Childhood: Obesity and Insulin Resistance*, 108 J. AM. OSTEOPATHIC ASS’N 518, 518 (2008) (citing Brandon M. Nathan & Antoinette Moran, *Metabolic Complications of Obesity in Childhood and Adolescence: More than Just Diabetes*, 15 CURRENT OPINION ENDOCRINOLOGY, DIABETES & OBESITY 21 (2008)) (noting that atherosclerosis, dyslipidemia [high cholesterol], and type two diabetes were previously only adult conditions); see also Stephen R. Daniels, *Obesity in the Pediatric Patient: Cardiovascular Complications*, 12 PROGRESS PEDIATRIC CARDIOLOGY 161, 161–62 (2001).

12. Riva Tauman & David Gozal, *Obesity and Obstructive Sleep Apnea in Children*, 7 PAEDIATRIC RESPIRATORY REVS. 247, 247–48 (2006); see also Lisa K. Sharp et al., *The Influence of Caregiver’s Psychosocial Status on Childhood Asthma and Obesity*, 103 ANNALS ALLERGY, ASTHMA & IMMUNOLOGY 386, 386 (2009) (noting increase in prevalence of both asthma and obesity).

13. See *infra* Part II.A.

14. See generally *infra* Part II.A. and *infra* note 43 and accompanying text.

In Part II, this Note will consider the general standard for medical neglect and will then turn to the judicial application of this standard, and scholarly commentary, in the context of obesity. In Part III, this Note will adopt a standard for state intervention, arguing that intervention is only warranted when it is necessary to prevent loss of life or to address a current risk of serious harm, and will propose a case-by-case method of assessing whether a given case of obesity meets this standard. This Note will propose four factors to aid in this analysis: (1) the severity of the child's illnesses associated with obesity, discussion of which includes an examination of the medical effects of obesity; (2) the degree to which medical treatment can mitigate the resulting adverse health effects; (3) an assessment of the child's complete physical and mental health picture; and (4) when the just answer remains unclear, the child's risk of remaining obese as an adult.

II. WHEN DOES A PARENT'S FAILURE TO ADDRESS OBESITY AMOUNT TO MEDICAL NEGLIGENCE? THE CURRENT (NON)CONSENSUS ABOUT MEDICAL NEGLIGENCE

Family law “largely permit[s] parents to raise their children as they see fit, generally free from state interference. Parents share significant authority — a constitutionally protected fundamental ‘right’ — over their children.”¹⁵ The strength of this parental right is justified by the parental duty to care for one's children and the notion that parents, in most circumstances, will act in the best interests of their children.¹⁶

However, parental rights are weakened “as soon as the fitness of the parent(s) becomes questionable”¹⁷ and they “fail to provide ‘necessary’ care.”¹⁸ This is true throughout the country; “[i]n every state, child abuse [and neglect] statutes provide that custo-

15. Vivian Hamilton, *Principles of U.S. Family Law*, 75 *FORDHAM L. REV.* 31, 42–43 (2006) (citing *Santosky v. Kramer*, 455 U.S. 745, 758–59 (1982)); see also *Pierce v. Soc’y of the Sisters of the Holy Names of Jesus and Mary*, 268 U.S. 510, 534–35 (1925); *Meyer v. Nebraska*, 262 U.S. 390, 399–400 (1923) (supporting the proposition that the liberty prong of the Fourteenth Amendment protects parental rights).

16. Naomi Cahn, *State Representation of Children's Interests*, 40 *FAM. L.Q.* 109, 114 (2006); Marsha Garrison, *Child Welfare Decisionmaking: In Search of the Least Drastic Alternative*, 75 *GEO. L.J.* 1745, 1770 (1987).

17. Cahn, *supra* note 16, at 111.

18. Arani, *supra* note 4, at 882.

dy may be taken away from parents if they are endangering the welfare of their children”¹⁹ Furthermore, it is also uniform that “refusal to provide necessary medical care may be grounds for loss of custody.”²⁰

Child neglect statutes generally exempt parents who fail to provide medical treatment based upon religious convictions.²¹ In these cases, courts perform a balancing test to determine whether or not a state may order medical treatment without parental consent, weighing fundamental parental rights against the state’s interest in protecting minors²² and balancing the prognosis without treatment with the efficacy and risks of treatment itself.²³ When parents fail to procure treatment due to neglect, rather than a principled opposition to treatment, courts are far less deferential.²⁴

State statutes allowing intervention in cases of neglect leave the issue of the application of statutory standards for intervention far from clear. “[F]amily law principles . . . will often fail to yield precise directive. . . . [T]he notion of ‘serious harm’ does not specify what harms are indeed serious”²⁵ While specific state statutes differ, it is clear that the state may intervene as *parens patriae*²⁶ to order medical treatment for a minor against the wishes of his or her parents when the treatment is “essential to save [the] child’s life”²⁷ and the child “is neither permanently comatose

19. Michael MacDonald et al., *Consent to Medical Treatment*, in HEALTH CARE LAW: A PRACTICAL GUIDE § 19.06 (2d ed. 2010).

20. *Id.*

21. IRA MARK ELLMAN ET AL., FAMILY LAW: CASES, TEXT, PROBLEMS 1146 (4th ed. 2004).

22. Lindsey Murtagh, Recent Developments, *Judicial Interventions for Morbidly Obese Children*, 35 J.L. MED. & ETHICS 497, 498 (2007).

23. See MacDonald et al., *supra* note 19 (“The factors that are usually critical to the court’s decision include: (1) the benefits and risks of the proposed treatment, (2) the child’s prognosis, (3) the reasons for the parents’ objections, (4) the wishes of the child if the child is sufficiently mature, and (5) the extent to which the parent’s decision is supported by some medical opinion.”).

24. ELLMAN, *supra* note 21, at 1146.

25. Garrison, *supra* note 16, at 1774.

26. *Parens patriae* refers to “the state in its capacity as provider of protection to those unable to care for themselves” and to “a doctrine by which a government has standing to prosecute a lawsuit on behalf of a citizen.” BLACK’S LAW DICTIONARY 1221 (9th ed. 2009).

27. 3 AM. JUR. 2D *Proof of Facts* § 12 (1974).

nor terminally ill [treatment notwithstanding],²⁸ and when intervention is necessary to avoid serious harm.²⁹

When the condition does not pose an immediate or current risk of serious harm or loss of a child's life, case law is in conflict.³⁰ Some courts "rejec[t] the argument that there must be an immediate threat to the child's life before intervention is justified, and have stated that a court may compel medical treatment which is reasonably necessary in the best interests of the child."³¹ For example, in *In re Sampson*, the Family Court of Ulster County, New York, ordered surgery to correct a minor's physical deformity against the wishes of his mother.³² In doing so, the court held "[i]t is not necessary . . . that a child's life be in danger before this court may act to safeguard his health or general welfare," despite the fact that the operation, which carried significant risks, could have been postponed until the minor reached the age of majority.³³ The court focused on the lasting developmental effects of the minor's gross facial and neck deformities, including "a most negative effect upon his personality development, his opportunity for education and later employment and upon every phase of his relationship with his peers and others."³⁴ In contrast, other courts have held that "nonessential" treatment cannot be compelled on the basis of medical neglect.³⁵

Even when intervention is authorized, state statutes generally permit removal from the home only when extenuating circum-

28. MacDonald et al., *supra* note 19; see also Elizabeth J. Sher, Note, *Choosing for Children: Adjudicating Medical Care Disputes Between Parents and the State*, 58 N.Y.U. L. REV. 157, 162 (1983) ("[W]hen presented with a life-or-death situation, courts consistently allow intervention to save a child's life.").

29. Murtagh, *supra* note 22, at 497 (citing Sher, *supra* note 28, at 161); see also Garrison, *supra* note 16, at 1775.

30. See Arani, *supra* note 4, at 883-84; 3 AM. JUR. 2D *Proof of Facts* § 11 (1974) ("[T]he decisions are in conflict with respect to the right of the state to interfere in situations where neither the condition for which treatment is sought nor the recommended treatment presents a substantial risk to the child's life, such as cases where the child suffers from a physical disfigurement which could easily be corrected by an operation.").

31. 3 AM. JUR. 2D *Proof of Facts* § 13 (1974).

32. 317 N.Y.S.2d 641, 643-44 (Fam. Ct. 1970), *aff'd*, 323 N.Y.S.2d 253 (App. Div. 1971) (mem.).

33. *Id.* at 653.

34. *Id.* at 644. The court added, "[T]he marked facial disfigurement from which this boy suffers constitutes such an overriding limiting factor militating against his future development that unless some constructive steps are taken to alleviate his condition, his chances for a normal, useful life are virtually nil." *Id.*

35. See 3 AM. JUR. 2D *Proof of Facts* § 13 (1974).

tances exist or home-based interventions have failed.³⁶ This is largely due to the Adoption Assistance and Child Welfare Act of 1980,³⁷ which ties receipt of federal foster care and adoption funds to the creation of state legislation mandating that “reasonable efforts shall be made to preserve and reunify families.”³⁸ The Act includes exceptions to the reasonable efforts requirement when the parent has “subjected the child to aggravated circumstances,” including “abandonment, torture, chronic abuse, and sexual abuse,”³⁹ the parent has committed a serious criminal offense,⁴⁰ or “the parental rights of the parent to a sibling have been terminated involuntarily.”⁴¹ Because the excepted circumstances are generally uncorrelated with obesity, it is reasonable to conjecture that in almost all cases involving childhood and adolescent obesity, the state’s initial intervention will focus on educating and assisting the child and his or her parents and will not involve removal. For example, a court may mandate a plan, coordinated by a children’s social service agency, requiring a certain number of gym visits per week, weekly weigh-ins, the parents’ attendance at a nutrition and education program, and involvement of home health nurses, social workers, or school nurses.⁴²

A. JUDICIAL DECISIONS EXTENDING NEGLECT STATUTES TO OBESITY

Courts in California, Indiana, Iowa, New Mexico, Pennsylvania, Texas, Michigan, and New York have “recognized morbid

36. See, e.g., MINN. STAT. § 260.012(a) (McKinney 2010) (“[T]he court shall ensure that reasonable efforts, including culturally appropriate services, by the social services agency are made to prevent placement or to eliminate the need for removal”); N.Y. FAM. CT. ACT § 1027(b)(iv) (McKinney 2010) (stipulating that when a petition is filed for the removal of a child from his or her home, “[i]f the court determines that reasonable efforts to prevent or eliminate the need for removal of the child from the home were not made but that such efforts were appropriate under the circumstances, the court shall order the child protective agency to provide or arrange for the provision of appropriate services” rather than order removal).

37. See generally Coyla J. O’Connor, *Childhood Obesity and State Intervention: A Call to Order!*, 38 STETSON L. REV. 131, 144 (2008).

38. 42 U.S.C. § 671(a)(15)(B) (2010).

39. *Id.* § 671(a)(15)(D)(i).

40. *Id.* § 671(a)(15)(D)(ii).

41. *Id.* § 671(a)(15)(D)(iii).

42. See Varness et al., *supra* note 7, at 403; see also *In re Brittany T.*, 835 N.Y.S.2d 829, 831–34 (Fam. Ct. 2007), *rev’d on other grounds*, 852 N.Y.S.2d 475 (App. Div. 2008).

obesity as an issue warranting state intervention into the family unit.⁴³ While many of the relevant opinions are sealed, making it prohibitively difficult to compare the standards applied in each jurisdiction, an examination of the available cases is a useful way to ascertain the actual and normative standards applied by courts in obesity cases.⁴⁴

1. *Consideration Given to the Long-Term Health Effects of Obesity*

In *In re D.K.*, the Pennsylvania Court of Common Pleas placed continued legal and physical custody of a morbidly obese sixteen year old with the county's Children and Youth Services, above both his and his mother's objections.⁴⁵ Standing five feet and three inches tall, D.K. weighed approximately four hundred pounds.⁴⁶ His medical complications attributable to obesity included an enlarged liver, a precursor to cirrhosis of the liver; hypertension; respiratory problems to the extent that he required oxygen at night; sleep apnea; and knee pain.⁴⁷

43. Murtagh, *supra* note 22, at 497 (citing Deena Patel, Note, *Super-Sized Kids: Using the Law to Combat Morbid Obesity in Children*, 43 FAM. CT. REV. 164, 169–71 (2005)).

44. Many family court opinions are sealed. See Breighanne Aileen Fisher, Note and Comment, *Community-Based Efforts at Reducing America's Childhood-Obesity Epidemic: Federal Lawmakers Must Weigh In*, 55 DEPAUL L. REV. 711, 733 n.188 (2006). Relevant case studies (with sealed records) include that of Anamarie Martinez-Regino and Cory Andis. Anamarie, a three year old weighing 131 pounds and residing in New Mexico, was temporarily removed from her parents' home when her parents did not respond to her burgeoning weight. *Id.* at 721. Cory Andis, who weighed 111 pounds at age four, was temporarily removed from his parents' Indiana home when they failed to address the problem; Cory's mother also pled guilty to a child neglect charge. See Patel, *supra* note 43, at 170. In the case of Christina Ann Corrigan, there were no court proceedings until after her death. When Christina, a California thirteen year old weighing over 680 pounds, passed away due to her morbid obesity, her mother was subsequently found guilty of misdemeanor child abuse. *Id.* An analysis of these cases is not included in this Note because, without an opinion to analyze, it is difficult to ascertain a court's interpretation and application of the relevant neglect statute. In Anamarie's case, the family court went so far as to impose a gag order, limiting the media's ability to shed light on the proceedings. See Patrick Armijo, *Obese Girl May Go Home*, ALBUQUERQUE J., Oct. 21, 2000, at A1.

45. 58 Pa. D. & C.4th 353 (Ct. Com. Pl. 2002).

46. See *id.* at 354.

47. *Id.* at 355. The court also noted that the adolescent had a depressive disorder, *id.*, but did not appear to rely on that disorder in making its decision (instead finding the other conditions "life threatening," *id.* at 358).

Pennsylvania law defines a dependent child, whose welfare the court is authorized to protect,⁴⁸ as one who “is without proper parental care or control, subsistence, education as required by law, or other care or control necessary for his physical, mental, or emotional health, or morals.”⁴⁹ The court noted that in order to justify intervention in cases of obesity, “the obesity must be of a severe nature reaching the life threatening or morbid state,⁵⁰ which has also manifested itself in physical problems, such as those present here, or mental problems.”⁵¹ Although the court did not explicitly identify whether it found D.K.’s condition to be “life threatening” or of a “morbid state,” the opinion notes that D.K. was morbidly obese⁵² and that he was hospitalized when his physician determined that his life was at risk.⁵³ Interestingly, the court emphasized that without continued intervention the minor would have “a ‘guarantee’ of a short life span of only reaching his 30s,”⁵⁴ indicating that the court looked beyond the immediate threat to D.K.’s life and considered his significantly reduced life expectancy in ascertaining that intervention was warranted.

In New York, the Family Court of Chemung County recognized the applicability of a neglect statute to a parent’s failure to treat pediatric obesity in *In re Brittany T.*⁵⁵ A morbidly obese twelve-year-old girl weighing two hundred and sixty-six pounds,⁵⁶

48. See 42 PA. CONS. STAT. § 6351(a) (2010) (stipulating that “[i]f the child is found to be a dependent child the court may make any of the following orders of disposition best suited to the safety, protection and physical, mental, and moral welfare of the child,” including permitting the child to remain with his or her parents or legal guardians, *id.* § 6351(a)(1), or transferring temporary legal custody to others, *id.* § 6351(2)).

49. 42 PA. CONST. STAT. § 6302 (2010).

50. The equal treatment of morbid obesity and life-threatening obesity, by which intervention is justified whenever a child diagnosed with a comorbidity is found to be merely morbidly obese, is incorrect and misplaced according to medical literature. See Varness et al., *supra* note 7, at 401.

51. *In re D.K.*, 58 Pa. D. & C.4th at 358.

52. *Id.* at 355.

53. *Id.* Of the medical conditions listed, D.K.’s respiratory problems appear to be the most serious.

54. *Id.* at 356.

55. 835 N.Y.S.2d 829 (Fam. Ct. 2007), *rev’d on other grounds*, 852 N.Y.S.2d 475 (App. Div. 2008). The lower court’s conclusion — that the statutory requirements for a finding of neglect were satisfied — remains good law, insofar as the Supreme Court, Appellate Division, did not hold that Brittany was not neglected but rather that Brittany’s parents had not willfully and without just cause disobeyed the lower court’s order of supervision. *In re Brittany T.*, 852 N.Y.S.2d at 478.

56. *In re Brittany T.*, 835 N.Y.S.2d at 831 n.3.

Brittany T.'s comorbidities included "gallstones, . . . fatty liver disease [a precursor to cirrhosis], sleep apnea, intermittent high blood pressure, pain in her knee joints, insulin resistance (indicating an increased risk of developing diabetes) . . . [and] depression."⁵⁷ At issue was whether Brittany's parents had failed "willfully and without just cause" to follow the court's earlier order of supervision mandating participation in programs aimed at remedying her obesity.⁵⁸ This order was in place due to the court's determination that Brittany T. was a neglected child under the New York Family Court Act, which defines a neglected child as one "whose physical, mental, or emotional condition has been impaired or is in imminent danger of becoming impaired as a result of the failure of his parent . . . to exercise a minimum degree of care."⁵⁹ New York courts have held that physical impairment "involves a lower threshold of resultant harm than the serious physical injury required in abuse cases."⁶⁰

Based on the court's description of Brittany T.'s comorbidities, it does not appear that her life was in immediate danger.⁶¹ Her physician, describing her medical condition as "life limiting," testified that without appropriate medical care, "she would . . . have continued weight increase and her health would deteriorate further."⁶² While cautioning that the state cannot intervene merely because a child is overweight, the court referred to Brittany T.'s condition as severe and "life limiting," echoing her physician, while adding that intervention is only warranted when the obesity is also "of a severe nature reaching the life threatening or morbid state, which has also manifested itself in physical prob-

57. *Id.* at 833–34.

58. N.Y. FAM. CT. ACT § 1072 (McKinney 2010).

59. N.Y. FAM. CT. ACT § 1012(f)(i) (McKinney 2010).

60. *In re Janiyah T.*, 906 N.Y.S.2d 780, at *2 (Fam. Ct. 2010) (citing *In re Joshua R.*, 849 N.Y.S.2d 246 (App. Div. 2008) (where conduct rose to the level of neglect but not the level of abuse)), *aff'd*, Nos. 2010-01700, N-616-08, N-617-08, 2011 WL 1087755 (N.Y. App. Div. Mar. 22, 2011).

61. These conditions include depression, "gallstones, excessive fat in her liver with resultant fatty liver disease (which . . . could eventually develop into non-alcoholic cirrhosis of the liver), sleep apnea, intermittent high blood pressure, pain in her knee joints, insulin resistance." *In re Brittany T.*, 835 N.Y.S.2d at 833. With the exception of depression, these comorbidities, while serious, are relatively early in the progression of the comorbidities that accompany obesity and do not present a serious threat to the patient's life. See *infra* Part III.A.1, sections a, b.ii, c, d, e, and f.

62. *In re Brittany T.*, 835 N.Y.S.2d at 834 (internal quotation marks omitted).

lems.”⁶³ Like the court in *In re D.K.*, this court sent mixed messages. In judicially recognizing the concerns of Brittany’s physician, who was focused on the future health effects of her obesity, the court suggests that state intervention is warranted when continued obesity will shorten a minor’s lifespan.⁶⁴ However, in requiring that the obesity be “life threatening” or of a “morbid state,” the court seems to equate morbid obesity with the seriousness of a life-threatening condition, thereby focusing on current harm.⁶⁵

In *In re L.T.*, the Court of Appeals of Iowa upheld a finding that Liza, a ten-year-old obese and depressed child also suffering from infantile personality disorder and weighing 290 pounds, was in need of state assistance and could be removed from her mother’s home in order to receive treatment.⁶⁶ The court based its decision on the fact that Liza’s obesity was “a *potentially* life-threatening condition which will likely result in a significantly increased risk of hypertension and a decreased life expectancy,” in combination with the consideration that “Liza’s severe obesity already interferes with her participation in the socialization a child requires to develop physically, mentally, and emotionally.”⁶⁷

The court, then, considered the long-term physical effects of Liza’s obesity — not just the current or short-term effects of her condition. However, in this case Liza’s serious psychological problems, which were linked to her obesity⁶⁸ and which were interfering with her development, heavily influenced the court’s determination.⁶⁹ Furthermore, in ordering the removal of Liza from her home, the district court applied a definitional section of

63. *Id.* at 839 (quoting *In re D.K.*, 58 Pa. D. & C.4th 353, 358 (Ct. Com. Pl. 2002)).

64. *Id.*; see also Murtagh, *supra* note 22, at 497 (“[T]he family court essentially extended ‘serious harm’ to include the *chronic* condition of obesity.”).

65. See *supra* note 50.

66. 494 N.W.2d 450 (Iowa Ct. App. 1992).

67. *Id.* at 452 (emphasis added).

68. *Id.* (“Her child psychiatrist testified Liza’s obesity is a symptom of her chronic depression, and he stated Liza overeats to relieve her depression.”).

69. The appellate court, referring to the juvenile court’s unreported decision, noted, “The court determined Liza required immediate treatment to cure or alleviate her serious mental illness or emotional damage as evidenced by her depression and withdrawal.” *Id.* In upholding the juvenile court’s decision, the appellate court asserted that Liza requires “residential treatment designed to minister to Liza’s psychological problems and the resulting eating disorder and morbid obesity.” *Id.* at 453. The court, then, took Liza’s obesity into account in upholding the juvenile court’s decision but emphasized her psychological problems.

the Iowa Code referring to “serious mental illness or disorder”⁷⁰ rather than the provision referring to “need of medical treatment to cure, alleviate, or prevent serious physical injury or illness,”⁷¹ suggesting that Liza’s obesity was not the court’s primary motivation in allowing state intervention. Despite this, the Court of Appeals of Iowa put at least some emphasis on Liza’s obesity and its future effects on her health by taking judicial notice of her obesity, noting that her weight would lead to medical problems and a decreased life expectancy, and linking her obesity to her serious mental problems.⁷²

2. Consideration Given to Short-Term Risk of Death

In *In re G.C.*,⁷³ the Court of Appeals of Texas upheld a lower court decision terminating parental rights on the sole ground of medical neglect due to pediatric obesity.⁷⁴ The minor, a five-year-old child who weighed 136 pounds, had respiratory problems and “a mildly enlarged heart and mild congestive heart failure.”⁷⁵

Because mild congestive heart failure is a serious life threatening condition,⁷⁶ the original decision to allow state intervention comports with the most stringent standard for removal — an imminent threat to the minor’s life — and does not involve the application of a lowered harm threshold in response to pediatric obesity.

70. IOWA CODE § 232.2(6)(f) (2010) (referring to the necessity of treatment “to cure or alleviate serious mental illness or disorder, or emotional damage as evidenced by severe anxiety, depression, withdrawal, or untoward aggressive behavior”).

71. *Id.* § 232.2(6)(e).

72. *In re L.T.*, 494 N.W.2d at 452–53.

73. 66 S.W.3d 517 (Tex. Ct. App. 2002).

74. *Id.*; see also *In re Ostrander*, Nos. 247661, 247665, 249288, 2004 WL 515561 (Mich. Ct. App. Mar. 16, 2004) (upholding the termination of a mother’s parental rights based upon her son’s continuing obesity despite home-based intervention). However, in upholding the termination, the *Ostrander* court noted that when the child was admitted to state care, he “had head lice, was dirty, his diaper had not been changed recently and there was dried feces from his mid-thigh up onto his back.” *Id.* at *1. The court added, “The foster parents discovered that Jered had scabies, ear infections, and an infection around his penis apparently from improper cleaning. In addition, Jered had ten cavities in his teeth, was not toilet trained, and his physical and verbal skills were delayed.” *Id.* Obesity does not, therefore, appear to be the sole factor relied upon by the court in upholding the termination of parental rights.

75. *In re G.C.*, 66 S.W.3d at 520.

76. See *infra* Part III.A.1.d (note that “heart failure” is a type of heart disease).

B. COMMENTARY ON THE MEDICAL NEGLIGENCE STANDARD IN
OBESITY CASES

In examining the line between justifiable state intervention and state violation of parental rights in cases of potential medical neglect due to obesity, commentators have considered the useful distinction between life-saving, life-prolonging, and life-enhancing treatment. In *State Interventions in Cases of Obesity-Related Medical Neglect*, Shireen Arani notes that courts generally allow state intervention when the medical treatment involved “is considered ‘life-saving.’”⁷⁷ On the other hand, “[w]hile some courts have refused to permit intervention unless the condition is life-threatening, others have permitted state intervention where the treatment at issue is life-prolonging,”⁷⁸ and “courts have at times allowed intervention where medical treatment will neither save nor prolong life, but instead will improve the child’s ‘quality-of-life.’”⁷⁹ Arani ultimately concludes that intervention is justified “where the condition has become so severe that the child’s life is in imminent danger”⁸⁰ or when the child experiences a very low quality of life “due to either her inability to lead a ‘normal’ life or the psychological damage that results from living with obesity.”⁸¹ Arani, then, would not consider the medical effects of obesity to justify state intervention in the absence of a threat to a child’s life or a serious impact on his or her quality of life.⁸²

In *Childhood Obesity and Medical Neglect*, Todd Varness, M.D., M.P.H.; David B. Allen, M.D.; Aaron L. Carrel, M.D.; and Norman Fost, M.D., M.P.H, concentrate on the remedy of removal from the home, focusing on the presence or absence of serious comorbidities and the reversibility of the harm caused by these medical issues.⁸³ They argue that

77. Arani, *supra* note 4, at 882.

78. *Id.* at 883.

79. *Id.* at 885.

80. *Id.* at 892.

81. *Id.*

82. In contrast with Arani’s position, this Note argues that intervention is also appropriate when the medical consequences of obesity cause serious harm, short of imminent death and unrestricted to quality-of-life concerns. Despite this disagreement, this Note develops Arani’s work by focusing on the medical consequences of obesity and considering when these effects are sufficient to justify state intervention.

83. See Varness et al., *supra* note 7, at 401.

removal of a child from the home is justified when all 3 of the following conditions are present: (1) a high likelihood that serious imminent harm will occur; (2) a reasonable likelihood that coercive state intervention will result in effective treatment; and (3) the absence of alternative options for addressing the problem.⁸⁴

In addressing the first prong of their analysis, which shares the focus of this Note, Varness et al. categorize obese children into four categories: those who do not have comorbid conditions, for whom intervention would be inappropriate; those who have “comorbid conditions that predict serious harm but are reversible after the child reaches adulthood,” for whom intervention is likely not warranted; those who “have comorbid conditions that predict serious harm and are not reversible in adulthood,” for whom intervention may be justified; and those who “have comorbid conditions that constitute serious imminent harm in childhood,” for whom intervention is appropriate.⁸⁵

This Note attempts to extend the work of Varness et al. by examining the specific comorbidities that accompany obesity and considering their effects both before and after adulthood. Identifying the point at which obesity progresses from a condition of extra weight, carrying an uncertain future risk, to a condition accompanied by serious current risk is essential in constructing a standard for state intervention in cases of pediatric obesity, because obesity itself does not indicate a serious current medical risk, nor does a specific BMI or degree of obesity.⁸⁶ Instead, “it is the presence of serious comorbid conditions (at any obesity classi-

84. *Id.*

85. *Id.* at 403.

86. *Id.* at 401 (“There is no clear threshold level of childhood obesity (overweight, obese, or severely obese) that automatically predicts serious imminent harm.”). There is, however, a link between degree of obesity and the risk of adverse health consequences. For example, the Bogalusa Heart Study, an influential childhood study focused on understanding the progression of coronary artery disease and hypertension, found a correlation between high BMI and risk factors for cardiac and metabolic diseases. See Stavra A. Xanthakos & Thomas H. Inge, *Extreme Pediatric Obesity: Weighing the Health Dangers*, 150 J. PEDIATRICS 3, 3 (2007) (citing David S. Freedman et al., *Cardiovascular Risk Factors and Excess Adiposity Among Overweight Children and Adolescents: The Bogalusa Heart Study*, 150 J. PEDIATRICS 12 (2007)). Thirty-nine percent of children with BMI above the ninety-fifth percentile had two risk factors for these diseases, while fifty-nine percent of children with BMI of ninety-ninth percentile or above had two risk factors. *Id.*

fiction) that is relevant for assessment of the criteria of serious [current or] imminent harm.”⁸⁷

Identifying when obesity causes serious medical harm is a difficult challenge because “the point at which excess fat becomes pathologic and requires intervention is still a subject of [medical] debate.”⁸⁸ These issues are complicated by the fact that the effects of childhood obesity are not as well understood as those of adult obesity, largely because until recently childhood obesity was much less common than it is today.⁸⁹ However, there is an abundance of medical literature detailing the effects of childhood obesity with which to form a working standard for appropriate state intervention.⁹⁰

A second challenge to formulating a legal standard for state intervention is that many of the negative health consequences of childhood obesity lay the groundwork for adult problems, rather than manifesting in concrete childhood health consequences.⁹¹ For example, obese children and adolescents may develop atherosclerosis,⁹² which generally does not advance to a stage that poses a risk of stroke or heart attack until adulthood.⁹³ The difficult question then becomes whether childhood medical manifestations of obesity can reach a point at which intervention is warranted regardless of when their effects will be felt; this question is tied to the question of whether these health consequences can be reversed through weight loss in adulthood.

87. Varness et al., *supra* note 7, at 401.

88. Daniels, *supra* note 11, at 161.

89. See *supra* text accompanying note 1.

90. See generally Cali & Caprio, *supra* note 1; D'Adamo et al., *supra* note 5; Stephen R. Daniels, *The Consequences of Childhood Overweight and Obesity*, FUTURE CHILD., Spring 2006, at 47; Reilly, *supra* note 3; Short et al., *supra* note 1.

91. See Reilly, *supra* note 3, at 334 (“Health consequences of [pediatric] obesity can be categorized into short-term effects (adverse consequences for the child or adolescent) and long-term effects (adverse consequences for the adult who was obese as a child).”); see also Daniels, *supra* note 90, at 48 (“Many health conditions once thought applicable only to adults are now being seen in children and with increasing frequency. Even if the conditions do not appear as symptoms until adulthood, they may appear earlier than usual in a person’s lifetime if the person had weight problems in childhood.”).

92. David S. Freedman et al., *Cardiovascular Risk Factors and Excess Adiposity Among Overweight Children and Adolescents: The Bogalusa Heart Study*, 150 J. PEDIATRICS 12, 15 (2007).

93. See Daniels, *supra* note 90, at 51 (“Doctors know that the processes that lead to a heart attack or stroke often take decades to progress to overt disease.”).

Varness et al. suggest viewing the individual health consequences of childhood obesity along a continuum, ranging from a child experiencing no abnormality in a given area, to a child experiencing premature death from a condition.⁹⁴ Focusing on the progression of a comorbidity is an especially useful mode of analysis here because many conditions caused by childhood obesity progress through multiple stages before posing a serious threat to an individual's health and justifying state intervention.⁹⁵

III. PROPOSED METHOD OF EVALUATING SUFFICIENCY OF HARM

The recent alarming increase in pediatric and adolescent obesity makes it likely that our country's courts will see a greater number of cases in which parents and states clash over the question of when ignoring, facilitating, or being unable to control a child's weight gain translates into parental negligence. In defining the boundaries between the broad realm of legally adequate parenting and the small zone of state intervention, it is important to remember that obesity and its comorbidities cannot be categorized with a bright-line rule. There is no single BMI over which state intervention must be allowed; conversely there is no single BMI under which intervention should never be allowed. While there are many comorbidities experienced during childhood that will suggest intervention, there are very few comorbidities that will, on their own, clearly and unequivocally demand intervention. Because there are very few certainties in the calculus of when state intervention is justified, the overriding consideration must be the specific context and facts of each case.⁹⁶ The fact that "minority children and adolescents in the US suffer overweight and obesity disproportionately at all ages" is a reason to be especially cautious when balancing the need for intervention against

94. Varness et al., *supra* note 7, at 401, 401 tbl.1.

95. *See id.* at 401, 401 fig.2 (noting that diabetes, sleep apnea, and fatty liver disease progress from a low risk of harm to a very high risk of harm as the comorbidities develop). For example, before a child is afflicted with type two diabetes, he or she will experience hyperinsulinism, followed by impaired glucose tolerance. *See id.*

96. Arani, *supra* note 4, at 888 ("[A]lthough the degree of obesity is commonly measured by standardizing an appropriate weight for a particular height and body shape, the resulting health ailments may differ among individuals, even those with the same degree of obesity." (footnote omitted)).

the strength of parental rights; a bias in favor of intervention will result in a disproportionate impact upon minority families.⁹⁷

In order to adequately protect obese children without unjustly and detrimentally infringing on their family lives and on the rights of their parents, this Note proposes that state intervention is justified when it is necessary to prevent loss of life or to address a current risk of serious harm⁹⁸ and rejects judicial approaches finding morbid obesity to justify intervention⁹⁹ or allowing intervention when it is “reasonably necessary in the best interests of the child.”¹⁰⁰ The latter standards would unconstitutionally sanction the breach of parental rights and would potentially inflict more harm than benefit upon children who may be removed from their homes. This Note suggests the consideration of four factors to aid in the analysis of whether the former standard is met, with the actual medical harm caused by obesity remaining the central query: the severity of the child’s illnesses associated with obesity; the degree to which medical treatment can mitigate the resulting adverse health effects; the child’s complete physical and mental health picture; and when the just answer remains unclear, the child’s risk of remaining obese as an adult.¹⁰¹ These factors will help decisionmakers ground their rul-

97. EVELYN P. WHITLOCK ET AL., CTR. FOR HEALTH RES., KAISER PERMANENTE, EFFECTIVENESS OF PRIMARY CARE INTERVENTIONS FOR WEIGHT MANAGEMENT IN CHILDREN AND ADOLESCENTS: AN UPDATED, TARGETED SYSTEMATIC REVIEW FOR THE U.S. DEP’T OF HEALTH AND HUMAN SERVICES 4 (2010) (“[M]inority children and adolescents in the US suffer obese and overweight disproportionately at all ages. A recent, large, nationally representative study . . . found that 23 percent of Mexican-American boys aged 2 to 19 years were obese, which was significantly higher than nonHispanic [sic] White (16 percent) and nonHispanic [sic] Black (17 percent) boys in the same age range. Native American boys were also more likely to be obese Among girls . . . prevalence of obesity in 2- to 19-year-olds was highest among nonHispanic [sic] Black girls (24 percent), followed by Mexican American (18 percent) and then nonHispanic [sic] White girls (14 percent).”).

98. See *supra* Part II.A.2.

99. See *In re Brittany T.*, 835 N.Y.S.2d 829, 833–34 (Fam. Ct. 2007), *rev’d on other grounds*, 852 N.Y.S.2d 475 (App. Div. 2008); *In re D.K.*, 58 Pa. D. & C.4th 353 (Ct. Com. Pl. 2002).

100. JIMMIE E. TINSLEY, 3 AM. JUR. PROOF OF FACTS 2D 265 § 13 (2010).

101. A child’s genetic makeup is a potential factor that has been intentionally omitted from this list because, in the vast majority of cases, it should not be considered. There are two broad types of obesity: monogenic and polygenic. Monogenic is defined as “[d]iseases or disorders involving a single gene variant or abnormality. . . . [E]xpression of the disease phenotype may involve interactions with diet or other environmental factors.” DAVID A. BENDER, A DICTIONARY OF FOOD AND NUTRITION 364 (3d ed. 2009). Polygenic is defined as “[d]iseases or disorders involving the simultaneous action of many variant genes, each of individually small effect, which may also require interaction with diet and or other

ings in the statutory rationale for state intervention — actual medical harm caused by the child’s obesity — and will leave little room for decisions based on bias and mere conjecture about potential harm.

In analyzing these factors, courts will have to rely upon expert medical testimony to judge the severity of the comorbidities and to ultimately ascertain whether or not the threshold for state intervention has been met. The most important component of physicians’ testimony, however, will be the objective physical findings of the presence and current progression of the relevant illnesses; it will be the courts’ duty to ensure that the subjective component of such testimony — i.e. the physician’s analysis of how dangerous these conditions have become — is closely tied to the objective evidence.

A. SEVERITY OF THE CHILD’S ILLNESSES ASSOCIATED WITH OBESITY

In deciding when state intervention is justified, the first and most important factor is how far the comorbidity has progressed, which is necessary to ascertain the current risk that it poses to the child. The number of illnesses that accompany childhood ob-

environmental factors for expression of the disease phenotype.” *Id.* at 430. In the rare case that a monogenic form of obesity is experienced, a strong argument can be made that intervention is either never warranted or that a higher standard of imminent harm must be proved to justify intervention. See Mark I. McCarthy, *Genomics, Type 2 Diabetes, and Obesity*, 363 *NEW ENG. J. MED.* 2339, 2342 (2010) (“[K]nowing whether a family member has inherited a given causal allele generally allows for the confident prediction of disease status.”). Although treatments for all forms of identified monogenic obesity have not yet been identified, treatment will differ for monogenic forms of obesity; in fact, leptin deficiency, a rare type of monogenic obesity, has been cured by the administration of leptin. R.J.F. Loos & C. Bouchard, *Obesity — is it a genetic disorder?*, 254 *J. OF INTERNAL MED.* 401, 407 (2003). However, all forms of monogenic obesity are rare, and polygenic obesity, which accounts for most cases of obesity, simply increases the risk that an individual will become obese. See Varness et al., *supra* note 7, at 400. While medical research has made great strides in identifying polygenic forms of obesity, additional research is necessary to determine the causal mechanisms through which these genes operate and to determine whether treatment and treatment expectations should depend on an individual’s genetic makeup. See, e.g., McCarthy, *supra*, at 2348 (“As yet, there are insufficient genetic data to support management decisions for [polygenic] forms of type 2 diabetes and obesity.”). As Varness et al. persuasively argue, “Whatever the cause of obesity in a child, the parents are not absolved of their responsibility to address it. Cystic fibrosis, diabetes mellitus, and cancer are childhood conditions whose cause is genetic or otherwise beyond the control of the family, and failure to care adequately for children with these conditions can be considered neglect.” Varness et al., *supra* note 7, at 404.

esity is astounding, and their effects can be devastating.¹⁰² Before considering when a comorbidity begins to pose a serious risk, it will be useful to survey the illnesses associated with obesity.

1. *Comorbidities of Obesity*

a. Endocrine Effects

Type two diabetes, “once virtually unrecognized in adolescence”¹⁰³ and considered a disease of adulthood, is now diagnosed in children as young as age eight.¹⁰⁴ Up to forty-five percent of children recently diagnosed with diabetes have type two diabetes.¹⁰⁵ This change in prevalence is, for the most part, attributable to the rapid increase in the occurrence and severity of pediatric obesity.¹⁰⁶ Endocrine complications progress from insulin resistance and hyperinsulinism to impaired glucose tolerance and type two diabetes, which will eventually require treatment with insulin.¹⁰⁷ While “the progression of obese children with insulin resistance to [type two diabetes] seems to be faster than in adults,”¹⁰⁸ some children are especially insulin sensitive and are less likely to develop diabetes regardless of obesity.¹⁰⁹

If untreated, type two diabetes can result in heart disease, stroke, limb amputation, kidney failure, and blindness.¹¹⁰ Adult patients diagnosed with type two diabetes have a similar risk for “adverse cardiovascular event[s]” as patients who have already suffered from a heart attack or a stroke.¹¹¹ While research has

102. See, e.g., Ebbeling et al., *supra* note 8, at 473 (“Childhood obesity is a multisystem disease with potentially devastating consequences.” (citation omitted)); see generally Daniels, *supra* note 11 (explaining the comorbidities of obesity, including cardiovascular, metabolic, and pulmonary conditions).

103. Ebbeling et al., *supra* note 8, at 473.

104. Daniels, *supra* note 90, at 51–52 (“Insulin resistance . . . is a relatively new concern in the pediatric age range.” *Id.* at 52.); Schwartz & Chadha, *supra* note 11, at 518 (“As rates of childhood obesity climb, type 2 diabetes mellitus has increasingly been diagnosed in children and adolescents . . .”).

105. Schwartz & Chadha, *supra* note 11, at 518.

106. *Id.*; see also Ebbeling, *supra* note 8, at 473 (“[Type two diabetes] is almost entirely attributable to the paediatric obesity epidemic, though heredity and lifestyle factors affect individual risk.”).

107. Varness et al., *supra* note 7, at 401 fig.2.

108. D’Adamo et al., *supra* note 5, at 555.

109. Cali & Caprio, *supra* note 1, at S32.

110. Ebbeling et al., *supra* note 8, at 473.

111. Daniels, *supra* note 90, at 53.

not yet proven a similar strength in the link between type two diabetes and cardiovascular risk in children and adolescents,¹¹² the existence of such a link would render type two diabetes even more dangerous for obese children and adolescents, who are already at increased risk of future heart attacks and strokes.¹¹³

There is no cure for type two diabetes.¹¹⁴ However, the condition may be controlled through diet, exercise, and medication. It is possible that for some children, medication or insulin will effectively manage the disease and delay further progression.

b. Pulmonary Effects

i. Asthma

Being at risk of becoming obese, defined as having a BMI between the eighty-fifth and ninety-fourth percentile or higher,¹¹⁵ or being obese places children and adolescents at an increased risk of asthma “independent of age, sex, ethnicity, socioeconomic status, and exposure to tobacco smoke.”¹¹⁶ In particular, one study found that “overweight boys and girls were 3.1 and 1.8 times more likely to have asthma than their peers of normal weights.”¹¹⁷ Obesity is also independently correlated with the severity of the condition.¹¹⁸ While asthma cannot be cured,¹¹⁹ the condition’s

112. *Id.*

113. *Id.* at 48–51 (finding that childhood obesity poses an increased risk of hypertension, left ventricular hypertrophy, and atherosclerosis); Daniels, *supra* note 11, at 161–62 (discussing the cardiovascular consequences of adulthood obesity and noting that many are also consequences of childhood obesity); Reilly, *supra* note 3, at 335.

114. *Type 2 Diabetes: Definition*, MAYO CLINIC, <http://www.mayoclinic.com/health/type-2-diabetes/DS00585> (last visited Mar. 10, 2011); *see also* HARRISON’S PRINCIPLES OF INTERNAL MEDICINE 2299 (Anthony S. Fauci et al. eds., 17th ed. 2008) (noting that type two diabetes is a “progressive disorder and ultimately requires multiple therapeutic agents and often insulin”).

115. *Healthy Weight: About BMI for Children and Teens*, CTRS. FOR DISEASE CONTROL & PREVENTION, http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html (last visited Mar. 10, 2011).

116. Daniels, *supra* note 90, at 53.

117. Naveed Ahmad et al., *Association Between Obesity and Asthma in US Children and Adolescents*, 46 *J. Asthma* 642, 642 (2009).

118. Peter H. Michelson et al., *Obesity, Inflammation, and Asthma Severity in Childhood: Data from the National Health and Nutrition Examination Survey 2001–2004*, 103 *ANNALS ALLERGY, ASTHMA & IMMUNOLOGY* 381, 383 (2009) (“Asthma severity is associated with an elevated BMI . . .”).

symptoms — including “[s]hortness of breath[;] [c]hest tightness or pain[;] [t]rouble sleeping caused by shortness of breath, coughing or wheezing[;] [a]n audible whistling or wheezing sound when exhaling . . . [;] [and] [b]outs of coughing or wheezing that are worsened by a respiratory virus”¹²⁰ — can be controlled when effectively managed.¹²¹ The limits asthma may place on physical activity are especially troubling, because restricted physical activity can render it more difficult to address the underlying obesity and lead to additional weight gain.¹²²

ii. Sleep Apnea

Sleep apnea is a condition in which breathing frequently starts and stops during sleep.¹²³ The condition progresses from issues with snoring to obstructive sleep apnea, and finally to pulmonary hypertension and cor pulmonale, which “in extreme cases [leads to] sudden unexpected death.”¹²⁴ Obstructive sleep apnea (“OSA”), which occurs when one’s airway collapses during sleep, causes “snoring, irregular breathing, and disrupted sleep patterns,”¹²⁵ and is linked to hyperactivity and adverse cardiovascular effects.¹²⁶

119. *Asthma: Definition*, MAYO CLINIC, <http://www.mayoclinic.com/health/asthma/DS00021> (last visited Mar. 10, 2011); see also HARRISON’S, *supra* note 114, at 1603 (noting that “the most effective controllers for asthma” do not cure the condition).

120. *Asthma: Symptoms*, MAYO CLINIC, <http://www.mayoclinic.com/health/asthma/DS00021/DSECTION=symptoms> (last visited Mar. 10, 2011). See also HARRISON’S, *supra* note 114, at 1601–02.

121. *Asthma: Definition*, *supra* note 119; see also HARRISON’S, *supra* note 114, at 1602 (“The treatment of asthma is straightforward and the majority of patients are now managed by internists with effective and safe therapies.”); *id.* at 1605 (“ . . . most patients with asthma are easily controlled with appropriate medication . . .”).

122. Ebbeling et al., *supra* note 8, at 473–74.

123. *Sleep Apnea: Definition*, MAYO CLINIC, <http://www.mayoclinic.com/health/sleep-apnea/DS00148> (last visited Feb. 28, 2011); see also HARRISON’S, *supra* note 114, at 1665.

124. Tauman & Gozal, *supra* note 12, at 248. See also *Pulmonary Hypertension: Complications*, MAYO CLINIC, <http://www.mayoclinic.com/health/pulmonary-hypertension/DS00430/DSECTION=complications> (last visited Feb. 28, 2011); HARRISON’S, *supra* note 114, at 1576, 1453–54.

125. Daniels, *supra* note 90, at 54.

126. Tauman & Gozal, *supra* note 12, at 249. In fact, “daytime sleepiness, hyperactivity, and aggressive behaviors have all been documented in children who snore, even in the absence of [OSA].” *Id.*

OSA is also “associated with learning disabilities and memory defects,”¹²⁷ and can affect one’s ability to absorb and retain new information — thus negatively impacting academic performance — because of the pattern of disrupted sleep it fosters.¹²⁸ Childhood obesity, independent of OSA, is associated with “significantly lower math and reading scores compared to non-overweight children,”¹²⁹ and obesity at age fourteen is associated with lower school performance at age sixteen and “a lower level of education persisting until at least age 31.”¹³⁰ OSA appears to widen this achievement gap; a small study showed that obese children with OSA had “substantial deficits in learning, memory, and vocabulary” as compared to their obese, non-apneic peers.¹³¹ Furthermore, the number of apneic episodes inversely correlated with memory and learning performance among the entire population studied.¹³² In addition, daytime sleepiness may decrease physical activity, putting obese children and adolescents at heightened risk for further obesity.¹³³ OSA’s cardiovascular effects include short-term temporary increases in blood pressure and decreased blood flow to the heart and long-term elevated blood pressure and complications related to the heart’s left ventricle.¹³⁴

Obese children are at a higher risk for developing OSA than their peers,¹³⁵ “and the degree of [OSA] is proportional to the degree of obesity.”¹³⁶ Furthermore, every increment in BMI beyond the specified mean BMI increases the risk of OSA by twelve percent.¹³⁷ Forty-six percent of obese children and adolescents evidence abnormal sleep during sleep studies, and twenty-seven percent have “moderate to severe” sleep abnormalities.¹³⁸

127. Daniels, *supra* note 90, at 54.

128. *Id.* See also Tauman & Gozal, *supra* note 12, at 249 (“Schooling problems have been repeatedly reported in case series of children with OSAS . . .”).

129. Tauman & Gozal, *supra* note 12, at 250.

130. *Id.*

131. *Id.*

132. *Id.*

133. Daniels, *supra* note 90, at 54.

134. *Id.*

135. Tauman & Gozal, *supra* note 12, at 248 (noting a four-to-five fold increased risk amongst obese children).

136. *Id.*

137. *Id.*

138. *Id.* at 249.

If OSA is untreated or, possibly, if its treatment is delayed,¹³⁹ “sustained elevations of pulmonary artery pressure”¹⁴⁰ caused by the condition can result in pulmonary hypertension.¹⁴¹ Pulmonary hypertension in turn causes cor pulmonale,¹⁴² and “eventually, the right ventricle fails from the extra strain.”¹⁴³ Pulmonary hypertension and cor pulmonale are not curable,¹⁴⁴ but there are numerous treatments for pulmonary hypertension.¹⁴⁵ Cor pulmonale is generally treated by treating the underlying cause.¹⁴⁶

c. Gastrointestinal Effects

Non-alcoholic fatty liver disease (“NAFLD”), which refers to fatty deposits in the liver,¹⁴⁷ progresses from steatosis to steatohepatitis (“NASH”) to cirrhosis¹⁴⁸ and ultimately to end-stage liver disease and failure.¹⁴⁹ Cirrhosis involves the scarring of liver tissue; the advance of cirrhosis seriously interferes with the functioning of the liver.¹⁵⁰

NAFLD is linked to obesity: “Children who have NAFLD usually are overweight or obese by age- and gender-normative reference data,”¹⁵¹ and “[m]ore severe obesity seems associated with more severe liver disease.”¹⁵² One study found that “changes in the liver of fatty infiltration . . . could be seen even in cases of

139. It is unclear if delayed treatment puts a child at risk for cor pulmonale, but a study performed on rats indicates that delayed treatment does have vascular consequences. Tauman & Gozal, *supra* note 12, at 250–51.

140. *Id.* at 251.

141. See *Pulmonary Hypertension: Definition*, MAYO CLINIC, <http://www.mayoclinic.com/health/pulmonary-hypertension/DS00430> (last visited Feb. 28, 2011); see also HARRISON’S, *supra* note 114, at 1666 (noting that OSA raises blood pressure).

142. *Pulmonary Hypertension: Complications*, *supra* note 124; see also Adil Shujaat et al., *Pulmonary Hypertension and Chronic Cor Pulmonale in COPD*, 2 INT’L J. COPD 273, 275 (2007).

143. *Pulmonary Hypertension: Complications*, *supra* note 124.

144. *Pulmonary Hypertension: Definition*, *supra* note 141.

145. Shujaat et al., *supra* note 142, at 277–80.

146. HARRISON’S, *supra* note 114, at 1454.

147. Daniels, *supra* note 90, at 54.

148. See Varness et al., *supra* note 7, at 401 fig.2.

149. Daniels, *supra* note 90, at 55.

150. *Cirrhosis: Definition*, MAYO CLINIC, <http://www.mayoclinic.com/health/cirrhosis/DS00373> (last visited Feb. 28, 2011).

151. Eve A. Roberts, *Non-Alcoholic Steatohepatitis in Children*, 11 CLINICS LIVER DISEASE 155, 161 (2007).

152. *Id.* at 163.

simple obesity in childhood.”¹⁵³ The study further concluded that there existed a correlation between the extent of liver abnormalities and the duration of obesity but not the degree of obesity.¹⁵⁴ Because NAFLD is often asymptomatic¹⁵⁵ and can only be identified by a liver biopsy, its prevalence is unknown.¹⁵⁶ However, it may also occur in very young children. Liver biopsies performed on morbidly obese teenagers undergoing bariatric surgery demonstrated that eighty percent were suffering from NAFLD, a minority of the group was suffering from NASH, and none had cirrhosis.¹⁵⁷ Nevertheless, cirrhosis has been identified in children¹⁵⁸ and adolescents.¹⁵⁹ A study attempting to estimate the prevalence of NAFLD found that “as many as 50 percent of obese children may have fat deposits in their livers, while some 3 percent of obese children have . . . steatohepatitis.”¹⁶⁰ In some children, progression to cirrhosis may occur rapidly.¹⁶¹ Importantly, “[w]eight loss is the only effective treatment of childhood NASH currently known,”¹⁶² though two studies found that vitamin E treatment has positive effects on both NASH and NAFLD, even without weight loss.¹⁶³

d. Cardiac Effects

The cardiac effects of childhood obesity are perhaps the most challenging comorbidities of the condition to address through state intervention. While obesity causes concrete physical car-

153. Akihiko Kinugasa et al., *Fatty Liver and Its Fibrous Changes Found in Simple Obesity of Children*, 3 J. PEDIATRIC GASTROENTEROLOGY & NUTRITION 408, 411 (1984).

154. *Id.* at 411–14.

155. Roberts, *supra* note 151, at 156.

156. Daniels, *supra* note 90, at 55.

157. Roberts, *supra* note 151, at 157–58.

158. *Id.* at 156 (discussing a study that identified a nine-year-old girl with cirrhosis). Roberts notes that a toddler with NASH and approximately twenty cases of cirrhotic children have been identified but suggests that children with cirrhosis “are being identified more frequently than before, but they are not being reported in the medical literature.” *Id.* at 161.

159. *Id.* at 156 (noting that researchers encountered a fifteen year old suffering from cirrhosis).

160. Daniels, *supra* note 90, at 55.

161. Roberts, *supra* note 151, at 161.

162. *Id.* at 164; *see also id.* at 165 (“The best treatment of childhood NAFLD is to avoid this disorder entirely.”); *see generally id.* at 164–65 (advocating for public health intervention to prevent childhood obesity).

163. *Id.* at 164.

diac changes in childhood and adolescence, the risks indicated by these changes, while serious and potentially life threatening, generally manifest in negative health consequences later in life and often do not pose immediate harm to minors.¹⁶⁴

Obese children and adolescents are at increased risk of hypertension (high blood pressure), dyslipidemia (high cholesterol), atherosclerosis (hardening of the arterial walls), and left ventricular hypertrophy (the enlarging of the left ventricle). These conditions can ultimately lead to heart disease (a heart attack or a stroke).¹⁶⁵

To address the first condition, the relationship between childhood and adolescent obesity and high blood pressure is well documented: “Studies in children and adolescents have consistently shown a relationship between body size and blood pressure.”¹⁶⁶ Furthermore, “longitudinal studies . . . have confirmed the relationship” identifying a correlation between adult blood pressure and childhood blood pressure, in addition to a correlation between adult blood pressure and weight gain from childhood to adulthood.¹⁶⁷

Second, dyslipidemia, or “[a]bnormal blood lipids,” “occur[s] frequently among obese children and adolescents.”¹⁶⁸ Furthermore, a correlation has been found between high cholesterol during childhood and high cholesterol during adulthood.¹⁶⁹

Third, left ventricular hypertrophy, characterized by the stretching of the left ventricle of the heart as an “adaptive response to chronically increased workload,”¹⁷⁰ is “an independent risk factor for cardiovascular disease morbidity and mortality.”¹⁷¹ A study of hypertensive children and adolescents found that fourteen percent had severe left ventricular hypertrophy, which the author notes, “suggest[s] that the presence of obesity in addition to other

164. There are, however, exceptions to this general rule. Danny Hickey, a morbidly obese seven-year-old child, passed away due to heart failure. Patel, *supra* note 43, at 166.

165. Daniels, *supra* note 90, at 48–51; Reilly, *supra* note 3, at 335.

166. Daniels, *supra* note 11, at 162.

167. *Id.*

168. *Id.* at 163.

169. *Id.* (referring to a longitudinal study in which subjects were examined between the ages of eight and eighteen, and again between the ages of twenty and twenty-five or twenty-six and thirty).

170. Luis M. Ruilope & Roland E. Schmieder, *Left Ventricular Hypertrophy and Clinical Outcomes in Hypertensive Patients*, 21 AM. J. HYPERTENSION 500, 500 (2008).

171. Daniels, *supra* note 11, at 164 (citation omitted).

risk factors for cardiovascular disease presents a particularly adverse risk of intermediate cardiovascular outcomes.¹⁷² Clinical studies have found that maladaptive ventricular changes can be reduced by treatment for hypertension, resulting in a reduction of the risk of heart attack and stroke; however, this does not entirely eliminate the risk presented by the condition.¹⁷³

Fourth, atherosclerosis, “[u]ltimately the most important process for developing cardiovascular disease,”¹⁷⁴ manifests as a fatty streak on arterial lining and develops “into a fibrous plaque.”¹⁷⁵ There is less known about the correlation between atherosclerosis and both adulthood and childhood obesity than other comorbidities of obesity because atherosclerosis and its degree of progression can only be identified by invasive procedures.¹⁷⁶ A sub-study of the Bogalusa Heart Study, an ongoing longitudinal study focused on the development of cardiovascular disease, circumvented this issue by studying deceased subjects.¹⁷⁷ The study linked childhood obesity to atherosclerosis, finding “the presence of multiple risk factors¹⁷⁸ among children is associated with [coronary artery disease],”¹⁷⁹ while identifying a connection between high BMI and the presence of risk factors.¹⁸⁰

Furthermore, childhood obesity is a risk factor for metabolic syndrome, which is itself a “constellation of risk factors”¹⁸¹ for cardiovascular disease. The prevalence of metabolic syndrome, which a recent study found “is far more common than previously reported,”¹⁸² increases directly with degree of obesity.¹⁸³ Medical

172. *Id.* at 165.

173. Ruilope & Schmieder, *supra* note 170, at 502 (“LVH regression was associated with a 59% reduction in the risk of [cardiovascular] events when compared with a persistence or new development of LVH.”).

174. Daniels, *supra* note 90, at 50.

175. *Id.*

176. *Id.* at 51.

177. *Id.* The study’s subjects died due to trauma and accidental causes. *Id.*

178. Risk factors included “triglycerides, low-density lipoprotein (LDL) cholesterol, high-density lipoprotein (HDL) cholesterol, fasting insulin, systolic blood pressure (SBP), and diastolic blood pressure (DBP).” Freedman et al., *supra* note 92, at 13.

179. *Id.* at 15; Cali & Caprio, *supra* note 1, at S32.

180. Freedman et al., *supra* note 92, at 15.

181. Daniels, *supra* note 90, at 52; *see also* Cali & Caprio, *supra* note 1, at S32. These risk factors include occurrence of three or more of severe obesity, dyslipidemia, hypertension and alterations of glucose metabolism, and type two diabetes. D’Adamo et al., *supra* note 5, at 550.

182. Cali & Caprio, *supra* note 1, at S32.

researchers note that “it is reasonable to think that the metabolic derangement observed in obese children will have dramatic repercussions on their health earlier than that observed in adults, with a consequent worsening of the prognosis in terms of morbidity and mortality when they are still youth.”¹⁸⁴

e. Orthopedic Effects

Obesity is linked to Blount’s disease and slipped capital femoral epiphysis.¹⁸⁵ Blount’s disease is characterized by the “bowing of the tibia, a bowed appearance of the lower leg, and an abnormal gait.”¹⁸⁶ While this condition is uncommon among children and adolescents, “it most often affects boys older than age nine who are overweight.”¹⁸⁷ Blount’s disease was linked to obesity by studies “show[ing] a prevalence of obesity in 50% to 80% of children with Blount disease.”¹⁸⁸

Slipped capital femoral epiphysis (“SCFE”) occurs when the femur “is rotated externally from under the growth plate;” the condition causes pain, often renders the patient unable to walk, and requires surgery.¹⁸⁹ Obese children are at heightened risk for SCFE — fifty to seventy percent of children diagnosed with SCFE are obese.¹⁹⁰

f. Psychological Effects

Obese children and adolescents are more likely to experience depression and low self-esteem than their non-obese peers.¹⁹¹ Pediatric obesity increases the risk of poor psychological health: “In general, girls are at greater risk than boys, and risk increases

183. Daniels, *supra* note 90, at 52 (noting that an increase in half of a standard deviation in BMI results in a fifty percent increase in risk of metabolic syndrome).

184. D’Adamo et al., *supra* note 5, at 557; *but see id.* (“Given the relatively recent occurrence of [metabolic syndrome] in childhood, long-term follow-up studies are not available yet.”).

185. Dennis M. Styne, *Childhood and Adolescent Obesity: Prevalence and Significance*, 48 PEDIATRIC CLINICS N. AM. 823, 841–42 (2001).

186. Daniels, *supra* note 90, at 55–56.

187. *Id.* at 56.

188. Styne, *supra* note 185, at 841.

189. Daniels, *supra* note 90, at 56.

190. Styne, *supra* note 185, at 842.

191. *See Ebbeling et al., supra* note 8, at 474.

with age.”¹⁹² The causal relationship may run in both directions, as “[d]epression itself is often associated with abnormal patterns of eating and physical activity that could result in future obesity.”¹⁹³ Obese children have trouble maintaining friendships, “report significantly lower health-related quality of life than their normal-weight counterparts,” and “are five times more likely to have impaired quality of life.”¹⁹⁴ Negative self-images can be developed as young as age five, and teenagers “show declining degrees of self esteem associated with sadness, loneliness, nervousness, and high-risk behaviors.”¹⁹⁵

2. *When Does a Comorbidity Justify State Intervention?*

At the outer limits, decisions regarding whether the presence of an illness associated with obesity warrants state intervention are fairly simple.¹⁹⁶ If there is no comorbidity, or if the comorbidity has manifested in the first stage of a condition and hence poses no real risk of harm to the child without a significant worsening of the condition, most would agree that intervention is not warranted.¹⁹⁷ Included in this category is the initial stage of most of the illnesses described in Part III.A.1, including insulin resistance (a precursor to type two diabetes), moderate asthma, snoring (a precursor to obstructive sleep apnea and cor pulmonale), steatosis (a precursor to cirrhosis and liver failure), and moderate, medically controlled hypertension and high cholesterol (precursors to heart disease).

192. Reilly, *supra* note 3, at 335.

193. Daniels, *supra* note 90, at 57.

194. *Id.*

195. Ebbeling et al., *supra* note 8, at 474.

196. See Varness et al., *supra* note 7, at 403.

197. See, e.g., *id.* at 401 (opining that intervention is not justified in the case of obese children who have comorbid conditions that predict serious harm but have not yet progressed to the point of causing serious harm, when the conditions are reversible in adulthood); see also Arani, *supra* note 4, at 892 (“[A] state’s claim that treatment may prolong life does not justify the intrusion into any family’s autonomy where the child suffers from only a moderate or minor degree of obesity. Such a rule would justify state intervention in almost every case. A better rule is for courts to allow intervention only where the condition has become so severe that the child’s life is in imminent danger. At the same time, when the child’s quality-of-life is so poor, due to either her inability to lead a ‘normal’ life or the psychological damage that results from living with obesity, intervention is also justified.”).

On the other hand, if death or serious injury is imminent due to the progression of a comorbid condition, it is clear that intervention is warranted. For example, uncontrolled type two diabetes requiring insulin and threatening to cause irreversible degeneration, cor pulmonale, liver failure, severe atherosclerosis or left ventricular hypertrophy such that a heart attack or stroke is virtually unavoidable, and grave depression would all fall into this camp. Because most of these illnesses are progressive, it is unlikely that many obese children will experience these conditions as minors.¹⁹⁸ For those who do, the state should be permitted to step in and guide the minor and the minor's parents to a healthier resolution. When it is impossible to determine through medical evaluation whether a child is suffering from a comorbidity or a specific stage of a comorbidity, the statistics concerning the number of children suffering from such comorbidity should not be considered.¹⁹⁹

The difficult questions, of course, are found in cases in between these two extremes. The closer a serious condition moves towards its most grave outcome, the more likely it is that intervention will be warranted. When contemplating the severity of a condition, it is useful to ask whether the condition's current effects can be reversed.²⁰⁰ For example, once one has progressed beyond ventricular hypertrophy, one's heart will never return to its former size and health, although it is possible to partially reverse the physical changes and diminish the heightened risk of heart attack and stroke accompanying the condition.²⁰¹ The degree to which the condition's damage cannot be reversed should be a consideration when determining whether state intervention is warranted.

B. TO WHAT DEGREE CAN MEDICAL TREATMENT MITIGATE THE DAMAGE?

Second, the degree to which medical treatment alone, without lifestyle modification, can mitigate the adverse health conse-

198. See *supra* notes 91–93 and accompanying text; see also *supra* note 114.

199. For example, NAFLD is, in some cases, undetectable. See *supra* notes 155–156 and accompanying text.

200. Varness et al., *supra* note 7, at 401.

201. Ruilope & Schmieder, *supra* note 170, at 502–03.

quences of a comorbid condition should be included in the calculus of whether or not intervention is warranted. It is essential to consider both the possibility of mitigation — whether mitigation through medical treatment alone is possible — and the specific child’s response to treatment when analyzing this factor. The latter is important because two children experiencing the same medical condition can have significantly different short- and long-term outcomes as a result of their reactions to medical treatment.²⁰² For example, some children with type two diabetes respond well to medication, delaying the progression of the disease to type two diabetes mellitus, for which insulin is required.²⁰³ On the other hand, some children do not respond well to the same medication and will require insulin quickly, at which point further disease progression is likely.²⁰⁴ Similar considerations are appropriate in regard to hypertension²⁰⁵ and high cholesterol.²⁰⁶

In the best-case scenario, when a court decides whether intervention is warranted, it will have evidence of the effect of medical treatment upon the child’s comorbidities. However, in some instances, a child’s response to medical treatment may be uncertain due to an absence of prior treatment. In such cases, the court should not consider the ability of medical treatment to improve the child’s health — given the child’s lack of previous medical care, there is no reason to believe that the child will receive this necessary treatment without state intervention.

202. See, e.g., Cali & Caprio, *supra* note 1, at S32.

203. See *id.* (“[S]ome obese youth may be relatively insulin sensitive and thus be at reduced risk for the development of the adverse cardiovascular and metabolic outcomes driven by insulin resistance.”); HARRISON’S, *supra* note 114, at 2285 (“[D]espite long-standing [diabetes mellitus], some individuals never develop nephropathy or retinopathy. Many of these patients have glycemic control that is indistinguishable from those who develop microvascular complications, suggesting that there is a genetic susceptibility for developing particular complications.”).

204. See Cali & Caprio, *supra* note 1, at S32.

205. See, e.g., HARRISON’S, *supra* note 114, at 1559 (“There is considerable variation in individual responses to different classes of antihypertensive agents.”).

206. See, e.g., *High Cholesterol: Treatment & Drugs*, MAYO CLINIC (“Most cholesterol medications are well tolerated, but effectiveness varies from person to person.”), <http://www.mayoclinic.com/health/high-blood-cholesterol/DS00178/DSECTION=treatments-and-drugs> (last visited Feb. 28, 2011); HARRISON’S, *supra* note 114, at 1505–1507.

C. THE CHILD'S TOTAL PHYSICAL AND MENTAL HEALTH PICTURE

Third, a consideration of the totality of the child's physical and mental health picture is necessary. If, for example, a child has every single comorbidity possible, but none have progressed into the clear danger zone, weight should be given to the number of afflictions burdening the child (to varying degrees, depending upon the severity of the conditions) and their cumulative effect upon his or her health. This consideration is especially important when the comorbidities burden the same system or pose risks for the same organ, thereby making the worst-case outcome more likely. On the other hand, if a child has a very small number of conditions stemming from obesity and none of these conditions are currently causing harm, the cumulative effect of the conditions militates in the opposite direction. While the psychological effects of obesity are properly considered under the first factor of this analysis, the consequences of psychological illness, insofar as the manner in which the illness affects overall quality of life and social development, are also relevant here, when considered in conjunction with the child's other comorbidities.

D. THE CHILD'S RISK OF BECOMING AN OBESE ADULT

Fourth, in cases where the medical evidence is in equipoise and the just answer is truly unclear, consideration of the child's risk of remaining obese as an adult, coupled with the specific risks posed by the progression of the child's current medical conditions, should be evaluated. This risk is relevant because continued obesity into adulthood virtually guarantees the progression of the serious illnesses that accompany obesity.²⁰⁷ Current symptoms, when indicative of serious and highly likely future

207. See Xanthakos & Inge, *supra* note 86 ("Duration of obesity is an independent risk factor for development of type II diabetes mellitus, and elevated childhood BMI has repeatedly been associated with increased risks of cardiovascular disease, left ventricular hypertrophy, and mortality in early adulthood." *Id.* at 3); Daniels, *supra* note 90, at 51 ("All these studies provide important evidence that obesity is detrimental to the heart and blood vessels even in very young children. Doctors know that the processes that lead to a heart attack or stroke often take decades to progress to overt disease. It now appears, however, that these processes may be starting earlier than once thought and that becoming obese in childhood, adolescence, and young adulthood may accelerate them.").

risk, can be considered current impairments, and in appropriate cases this future risk should be included in the intervention calculus.

However, future risk of remaining obese should not be relevant in most cases because weighing this future risk, especially in regard to children who are most likely to remain obese and who are therefore the children this factor would best “protect,” would virtually guarantee the permissibility of state intervention in regard to every child above a certain BMI. Considering this factor in all cases would impermissibly broaden the state’s ability to intervene at the expense of a child’s stability and in disregard of a parent’s constitutional rights.

While the likelihood of an obese child becoming a non-obese adult depends on numerous factors,²⁰⁸ all of the literature suggests “[c]hildhood obesity frequently persists into adulthood.”²⁰⁹ “Seven high quality studies . . . reported a significant tendency for obesity to persist from childhood and adolescence into adulthood;”²¹⁰ up to eighty percent of obese children become obese adults.²¹¹ Factors predictive of whether obesity will continue into adulthood include the age at which the child becomes obese,²¹² the degree of the child’s obesity,²¹³ and whether the child has obese parents.²¹⁴ For instance, the probability of being obese at age thirty-five for children with BMI above the ninety-fifth percentile ranges from fifteen to ninety-nine percent, with the probability of adulthood obesity increasing with the age at which a child became obese and the child’s degree of obesity.²¹⁵ In addition, “The probability that an obese child aged three to five would remain

208. Factors that increase the likelihood of obesity continuing into adulthood include parental obesity, severity and duration of obesity, and the presence of obesity in both childhood and adolescence. Reilly, *supra* note 3, at 337.

209. Cali & Caprio, *supra* note 1, at S32.

210. Reilly, *supra* note 3, at 337.

211. Cali & Caprio, *supra* note 1, at S32.

212. Daniels, *supra* note 90, at 59 (“Obese children . . . are more likely to become obese adults the older they are obese as children.”).

213. *Id.* at 59 (“[T]he odds of becoming an obese adult . . . increased the higher [the obese child’s] BMI was . . .”).

214. *Id.* at 59–60; *but see* Claude Bouchard, *Childhood Obesity: Are Genetic Differences Involved?*, 89 AM. J. CLINICAL NUTRITION 1494S, 1495S (2009) (“[W]ith increasing age, the weight status of the child becomes a strong predictor of adulthood obesity regardless of parental obesity.”).

215. Daniels, *supra* note 90, at 59.

obese as a young adult was 24 percent if neither parent was obese at the time, but it rose to 62 percent if one parent was obese.²¹⁶

E. WHEN STATE INTERVENTION IS WARRANTED, HOW SHOULD A COURT DETERMINE THE APPROPRIATE REMEDY?

After examining the relevant factors, courts will be tasked with determining whether or not any intervention is justified, and, if so, whether removal from the home or a less invasive first response is warranted. In deciding what type of state intervention to order, courts should adhere to the guidelines applicable in other negligence cases, which, due to the Adoption Assistance and Child Welfare Act of 1980,²¹⁷ largely call for removal from the home only when home-based interventions have failed, unless there are aggravating circumstances justifying removal before other options are tried.²¹⁸ There will be severe cases in which immediate hospitalization and/or temporary removal to a foster home is warranted. In most cases, however, home-based intervention will be the first step toward a healthier resolution.²¹⁹

216. *Id.* at 59–60.

217. *See supra* notes 37–41 and accompanying text.

218. 42 U.S.C. § 671(a)(15)(D)(i) (2010). When aggravating circumstances are present, removal from the home may precede less invasive modes of intervention.

219. In determining the proper intervention (or whether or not an intervention is justified in the first instance), this Note takes the position that it will generally be inappropriate for a court to consider positive parental efforts to encourage weight loss or the age of the child or teenager. The former should be inapplicable because “charges of medical neglect should not be moral judgments but rather are a means to protect children from harm.” Varness, *supra* note 7, at 404. It should, therefore, be irrelevant whether a parent has attempted unsuccessfully to change the habits of a child or whether the parent has failed to notice or address the problem. Intervention may be justified despite sincere parental efforts to mitigate the problem, and, as in all other cases, the initial intervention should be home based so long as aggravating factors are not present. In considering this issue, it is noteworthy that a parent who recognizes the severity of his or her child’s condition is less likely to resist treatment (and, to some degree, state intervention) in the first place, and that “[m]ost parents of overweight children fail to recognize that their child has a weight problem, which presents a major barrier to effective management.” Shirley Alexander & Louise A. Baur, *Childhood Obesity: Who’s to Blame and Who Should Pay?*, 7 EXPERT REV. PHARMACOECONOMICS OUTCOMES RES. 95, 96 (2007) (citation omitted).

That is not to say that parents of overweight children are unable to recognize poor eating habits or appreciate the dangers presented by obesity; a study performed by Debra Etelson et al., indicated that “parents, in general, do appreciate the health risks of childhood obesity.” *See* Debra Etelson et al., *Childhood Obesity: Do Parents Recognize This Health Risk?*, 11 OBESITY RES. 1362, 1366 (2003). The study also suggests that most parents have some understanding of healthy eating habits. *Id.* at 1365. In contrast, only half of surveyed parents accurately judged their child’s weight (within thirty percentile points).

This type of intervention, which can be coordinated by a children's social service agency and mandated by court order, may consist of requiring a certain number of gym visits per week, weekly weigh-ins, attendance by the child's parents in a nutrition and education program, and involvement of home health nurses, social workers, and school nurses.²²⁰

Overcoming obesity will frequently require a global change for the child's entire family; in order to create a healthy environment for the child, many things will need to be altered in the household, including the food made available both in and out of the home and the way the family spends at least some of its free time. Because not every family will be able to make these changes at the speed required (or perhaps at all), subsequent removal from the home is likely to be ordered in at least some of the cases, so that the affected child can shed vital pounds and learn healthy habits before returning home. This does not lessen the importance of trying home-based remedies before removing the child from his or her home, especially because even if removal is necessary, incremental changes made by the family will have long-term benefits for the affected child.

Id. Importantly, "[w]hereas parents of overweight children did not differ from other parents in their responses to questions about excess weight as a health risk or questions about healthy eating patterns, parents of overweight children differed markedly in the accuracy of their judgment about their child's weight." *Id.* at 1367.

Likewise, the fact that an older teenager resists treatment should not militate against state intervention when it is otherwise justified. Although adolescents are accorded the ability to make health care decisions in limited circumstances (for example, minors have a qualified constitutional right to abortion, *see Bellotti v. Baird*, 443 U.S. 622 (1979) (plurality opinion)), this autonomy would be inappropriately extended to the decision to refuse medical help with obesity. Varness et al., analogize obesity to substance abuse, arguing:

If an adolescent is engaging in substantial substance abuse . . . and the parents cannot or will not improve the situation, then intervention . . . may be justified. . . . In other instances in which adolescents are allowed to make autonomous health care decisions (eg, contraception and treatment of sexually transmitted infections), there is wide agreement that such policies promote the interest of the adolescents as well as important public health concerns; neither would be true in the case of adolescents [with comorbid conditions that constitute serious imminent harm]. Therefore, there is not a compelling reason to overcome the presumption that adolescents require some degree of protection from their immaturity.

Varness, *supra* note 7, at 403. Although a comparison between substance abusers and obese children and adolescents is an imperfect one, Varness et al., make a powerful argument for state intervention even in the case of older minors who would otherwise choose to refuse treatment.

220. *See* Varness et al., *supra* note 7, at 403; *see also In re Brittany T.*, 835 N.Y.S.2d 829, 831–34 (Fam. Ct. 2007), *rev'd on other grounds*, 852 N.Y.S.2d 475 (App. Div. 2008).

IV. CONCLUSION

State intervention is a tool necessary to protect children from the serious adverse health effects of obesity. However, it is a drastic remedy that should be utilized only when obesity poses a current threat to a child's life or a current risk of serious harm. Because childhood and adolescent obesity can pose serious health risks at any degree of obesity, state intervention should be justified by a case-specific analysis of the adverse health consequences of comorbid conditions, with primary consideration given to the severity of the condition, and further weight given to the child's response to treatment, the child's overall physical and mental health picture, and in some cases, the child's risk of remaining obese coupled with the future risks posed by his or her current condition.

Applying a lower standard of harm or an analysis less focused upon the actual effects of obesity upon a child's health in considering whether intervention is warranted would unjustifiably impinge upon parental autonomy and would potentially inflict more harm than benefit upon the affected child. Applying a more stringent standard, such as allowing intervention only when death is imminent, would prevent the state from protecting children seriously in need of help whose best interests, both short- and long-term, would be well-served by intervention.