The Epidemic of Children’s Dental Diseases: Putting Teeth into the Law

Jacqueline Fox

INTRODUCTION ........................................................................................................225
I. THE COSTS OF POOR DENTAL HEALTH IN CHILDREN ................................229
   A. DEFINING GOOD DENTAL HEALTH AND PROPER PEDIATRIC PREVENTIVE CARE ........................................................................................................229
   B. PROBLEMS CAUSED BY POOR DENTAL HEALTH IN CHILDREN ........230
      1. DEATH FROM INFECTION AND INCREASED RISK OF OTHER SERIOUS MEDICAL CONDITIONS .................................................................230
      2. PAIN AND ITS KNOWN COSTS ..............................................................231
      3. POOR GENERAL HEALTH INTO ADULTHOOD ..................................233
   C. PREVALENCE OF DENTAL DISEASE INCREASES AMONG VULNERABLE POPULATIONS OF CHILDREN .........................................................234
      1. FAMILY INCOME ..................................................................................235
      2. ETHNICITY ..........................................................................................236
   D. THE MEASURABLE EFFECTS OF UNTREATED DENTAL PAIN ON VULNERABLE CHILDREN: EDUCATIONAL DEFICITS ................................237
II. THE INFRASTRUCTURE OF THE PEDIATRIC DENTAL CARE SYSTEM ......238
   A. FLUORIDATION OF PUBLIC WATER SUPPLIES ....................................238
   B. PROVIDERS ..............................................................................................239
   C. PAYMENT SYSTEMS ................................................................................241
   D. PRIVATE PRACTICE AND MEDICAID ..................................................242

* Georgetown Law Center, JD, LLM. Jacqueline R. Fox was a post-doctoral Greenwall fellow in health policy and bioethics at Johns Hopkins University, and a Yale University Donaghue Visiting Scholar of Research Ethics. The author would like to thank Langley Perry for his excellent work as a research assistant on this project. This Article is dedicated to the author’s late grandfather, Herbert Robert Fox, DDS.
1. LOW REIMBURSEMENT RATES .................................................. 243
2. BUREAUCRATIC BURDENS .................................................. 245
3. MISSED APPOINTMENTS .................................................. 245
4. POOR PARENTAL EDUCATION .................................................. 246

III. CURRENT REFORM ACTIVITY .................................................. 246
A. MEDICAID REFORM .................................................. 247
B. INCREASING THE NUMBER OF PEDIATRIC DENTAL CARE PROVIDERS .... 249
C. DENTAL SEALANTS IN SCHOOLS .................................................. 252
D. DENTAL SCREENINGS AS A CONDITION OF SCHOOL ATTENDANCE .... 253

IV. A PROPOSAL FOR SCHOOL-BASED DENTAL CARE: TOWARD UNIVERSAL
PEDIATRIC PREVENTIVE CARE .................................................. 254
A. SCHOOL-BASED CARE .................................................. 255
B. INCREASED USE OF DENTAL THERAPISTS .................................................. 258
C. THE NEW ZEALAND MODEL .................................................. 259
D. CERTIFICATES OF PREVENTIVE CARE COMPLIANCE .................................................. 260

V. IMPEDIMENTS TO CHANGE .................................................. 261
A. COST OF NEW INFRASTRUCTURE .................................................. 261
B. THE DENTAL PROFESSION’S OPPOSITION .................................................. 262
C. PARENTAL CONCERNS .................................................. 263

CONCLUSION .................................................. 264
THE EPIDEMIC OF CHILDREN'S DENTAL DISEASES

INTRODUCTION

Children in the United States suffer from an epidemic of poor dental health. The Surgeon General issued a detailed report on dental health in 2000, explaining the epidemic of pediatric tooth decay and cavities. Unfortunately, such problems persist. This epidemic is almost entirely preventable, costly to society, and cost-effective to remedy. Dental disease is a problem ripe for the use of societal resources. While some progress in controlling this health crisis has occurred since the Surgeon General issued his report, many remaining problems appear intractable in the current healthcare system. Addressing them requires substantive changes. Because these changes are partly legal in nature, this dental epidemic cries out for action and requires altering the legal framework of pediatric dental care by implementing the following changes: (1) expanding licensing for alternative caregivers; (2) simplifying reimbursement procedures for Medicaid; and (3) creating regulatory structures that educate and encourage parents to provide the necessary preventive care. Furthermore, U.S. policymakers need to consider providing dental care in schools, especially for children who live in poverty. This policy would make it easier for families to obtain access to care and has been adopted in New Zealand with great success in outcomes and cost-effectiveness, receiving noteworthy attention worldwide.

Children's dental health is critically important to their overall health and successful development into high-functioning adults. Protecting it is straightforward and cost effective. When left untreated, dental disease undermines a child's well-being. Diseases such as tooth decay and cavities are debilitating in themselves and can lead to other problems such as constant pain, malnourishment, loss of teeth, and in adulthood, increased risk of cardiac problems and diabetes. If severe enough, dental decay and cavities cause

4. See Benjamin, supra note 2, at 158 (stating that carried and periodontal disease, left untreated, "may cause pain, dysfunction, poor appearance, loss of self-esteem, absence from school or work, and difficulty concentrating on daily tasks").
5. Id. (calling dental carries and periodontal disease "largely preventable").
7. See discussion accompanying infra notes 40-52.

225
infections that can even result in death. Pain itself may overshadow childhood, making it difficult to learn, attend school, and develop socially.

A consensus exists regarding the proper steps for adequate preventive care, and there is very little risk to children from receiving this care. These steps are simply not taken for many children. The problems caused by inadequate pediatric preventive dental care are well-known in public health spheres. The federal government, numerous state governments, and the American Dental Association (ADA) have funded research and pilot programs at federal, state, and local levels. This work has continued for some time, sustained by the promulgation of the Surgeon General's report in 2000, the issuance of the Oral Health Initiative 2010, and a child's widely reported death from tooth decay in 2007. The prospective oral health objectives for Healthy People 2020, under development by the Department of Health and Human Services (HHS), will further increase public awareness. Yet, even as a multitude of interested stakeholders attempt to ameliorate these problems, the statistics remain poor. The dental health infrastructure in the United States is still not getting dental care to children in a consistent and timely manner.

From a legal perspective, this epidemic makes little sense, which may explain why it is so rarely discussed in the legal literature. When one thinks of dental care for children, certain simple steps come to mind, such as brushing, flossing, and seeing a dentist twice a year. The problems associated with acquiring regular tooth cleanings can seem minor, uninteresting, and not difficult to overcome. Most affluent children are raised with adequate access to preventive care, and the families of such children certainly have the resources to access necessary treatment if preventive care is not provided and a problem arises. Moreover, for children living in poverty, the federal laws and regulations that

---

10. See PEW CTR. ON THE STATES, supra note 8, at 2.
11. See discussion infra Part I.
12. See, e.g., REPORT FROM THE SURGEON GENERAL, supra note 1, at 63-67 (describing the prevalence of periodontal diseases, tooth loss, and racial and socioeconomic disparities).
13. See id. at 249.
16. See REPORT FROM THE SURGEON GENERAL, supra note 1, at 63-64. This is not meant to deny that improvements have occurred in the last twenty years, as will be discussed below, but rather that the problem is still quite large even in light of these improvements.
THE EPIDEMIC OF CHILDREN’S DENTAL DISEASES

govern the Medicaid program require states to provide coverage for all necessary preventive dental care. On the surface, this would seem to solve the problem of inadequate dental care for children.

Unfortunately, the challenges of maintaining dental health in many children’s lives are significant, and the current legal framework for the provision of pediatric dental care is insufficient to ensure adequate delivery. There is a serious shortage of dentists qualified to treat children. Public and private dental insurance do not function well, and the federal government has committed significant financial resources to addressing the problem of poor parental understanding of the importance of adequate preventive care for children. These problems explain the persistence of the epidemic and also hint at the laws that may be supporting the continuation of this inadequate system. It is unlikely that the United States will achieve the ideal of universal treatment without significant legal changes, and this Article delineates areas where these changes need to occur.

Data indicate that there is a greater incidence of pain from decay and cavities in children from families who are financially disadvantaged or of certain racial or ethnic backgrounds. Furthermore, for these vulnerable children, the twin diseases of dental decay and cavities can cause or compound other problems. For example, children whose families earn less than $10,000 a year have twelve times more “restricted activity days” (including days missed from school) due to dental pain than children from wealthier families. Additionally, such children will suffer through many more days in pain while attending school, which negatively affects their in-school performance. These issues have a predictable, detrimental impact on children’s lives. Untreated dental disease can cripple a child’s efforts to function well and undermine societal efforts to improve these children’s lives.

While much of this Article, like most research in this area, is focused on children from impoverished families or those from historically disadvantaged ethnic backgrounds, all people have an increased vulnerability to dental diseases.

21. See id. at 9.
22. See Pew Ctr. on the States, supra note 8, at 2.
when they do not receive adequate preventive care;\textsuperscript{23} change should not focus solely on those from known vulnerable groups. Children are, by definition, dependent and vulnerable to choices adults make for their lives. Studies show that even in the most financially privileged families, nearly 30\% of children ages six to eighteen have not seen a dentist in the past year, and that almost 60\% of children ages two to five have not seen a dentist in the past year.\textsuperscript{24} Though the wealthiest children miss few days from school due to dental problems, the cumulative effects of poor dental care in childhood can lead to expensive and potentially debilitating costs in their adult lives.\textsuperscript{25} This is especially unsettling given how preventable this damage is.

There are other causes for dental problems besides access to preventive care. Two examples are the high amounts of sugar in children’s diets\textsuperscript{26} and the lack of fluoride in some community water systems.\textsuperscript{27} In addition, preventive care cannot entirely avert the occurrence of periodontal diseases. This Article primarily focuses on preventive care, but systematic approaches to addressing all of these harms require further study from a legal perspective.

This epidemic is ripe for legal analysis in light of recent legislation to broaden health care coverage. The Patient Protection and Affordable Care Act (PPACA) contains significant potential new funding streams for providing dental care to children and educating parents about dental care’s importance.\textsuperscript{28} If there are structural, legal impediments to achieving universal care, the opportunity presented by this funding will not be utilized properly. The challenge of achieving universal pediatric preventive dental care at this time of broader reform offers an opportunity to create a model of how access and quality can be achieved in a cost-effective manner.

Part I of this Article explains the elements of good pediatric preventive dental care, the known problems caused by a failure to receive this care, and the prevalence of children failing to receive it. It also identifies the particularly vulnerable populations that suffer from these problems in greater numbers than the general population of children. Part II explains the current dental infrastructure, focusing on structural problems that impede children’s access to timely care. Part III examines current reform activity, and Part IV contains proposals for further reform, focusing on the necessary legal changes and

\textsuperscript{23} See Benjamin, supra note 2.

\textsuperscript{24} See ORAL HEALTH, supra note 20, at 15.

\textsuperscript{25} See, e.g., P E W C T R. ON THE ST A T E S, supra note 8, at 2.

\textsuperscript{26} The effect of high consumption of sugar on dental disease is actually quite limited in developed countries with access to fluoridated water, with the exception of a significant correlation between increased risk of dental cavities and high consumption of sugar in drinks, such as soda or sweetened fruit drinks at age 3. See Teresa A. Marshall et al., Comparison of the Intakes of Sugars by Young Children With and Without Dental Caries Experience, 138 J. AM. DENTAL. ASS’N 39, 42 tbl.1 (2007).

\textsuperscript{27} See infra Section II.A.

corresponding impediments. Part V discusses impediments to adoption of the Article’s proposal. Part VI concludes by arguing for a significant change to the infrastructure for providing dental care in order to achieve universal preventive care for all children.

I. THE COSTS OF POOR DENTAL HEALTH IN CHILDREN

A. Defining Good Dental Health and Proper Pediatric Preventive Care

As medical science progresses, it is increasingly clear that dental health is intrinsically bound to overall health. A basic program of preventive dental care for children consists of twice yearly examinations and tooth cleanings when teeth start to emerge, fluoridated drinking water supplies in the community, and brushing and flossing twice daily. Studies show that this program’s effectiveness is enhanced by the use of both professional topical fluoride applications provided to children (who are at moderate risk) by a dentist during the biannual visit as well as “pit and fissure sealants” on emerging molars to prevent decay or cavity development. While some mouths require expensive orthodontia and interventions to fix damage due to accidental injuries, adhering to this basic plan in childhood may greatly reduce tooth decay, cavities, and loss of adult teeth throughout a person’s life. If preventive care is effective, it logically follows that universal adherence to it will greatly reduce these problems for an entire population. Medicaid’s Early Periodic Screening, Diagnosis, and Treatment (EPSDT) standards, which describe a package of healthcare benefits that must be provided to children enrolled in Medicaid, include the recommendations described above, and every state’s Medicaid program fully covers these preventive measures for all Medicaid-eligible children. Most State Children’s Health Insurance Programs (SCHIP), created to provide insurance for children of the working poor with family incomes above the level of Medicaid

30. Id. at 94.
31. See REPORT FROM THE SURGEON GENERAL, supra note 1, at 8.
32. AM. ACAD. PEDIATRIC DENTISTRY, supra note 29, at 94.
34. See Paul S. Casamassimo et al., Beyond the DMFT: The Human and Economic Cost of Early Childhood Caries, 140 J. AM. DENTAL ASS'N 650 (2009).
35. CTRS. FOR MEDICARE & MEDICAID SERVICES, supra note 7, at 6.
eligibility, also cover this care. The American Academy of Pediatric Dentistry publishes a “Periodicity Schedule,” which provides a detailed, age-tailed set of standards that is in full accord with the EPSDT standards.

The statistics show a deep, persistent failure to meet these preventive care recommendations. While the numbers are not close to universal provision of care for any group, issues such as income disparities, racial and ethnic identity, and homelessness greatly increase the likelihood that a child is not receiving the proper care.

B. Problems Caused by Poor Dental Health in Children

1. Death from Infection and Increased Risk of Other Serious Medical Conditions

Death in a developed country from an entirely preventable and easily treatable problem such as dental decay may seem absurd, but it is a real risk when children do not receive appropriate preventive dental care. Dental decay and cavities, if left untreated, often lead to infections in the mouth. Moreover, without treatment, these infections may spread to other parts of the body. Deaths have occurred when infections that start in the mouth spread to the brain. While fatalities caused by dental infections are rare, it has been hypothesized that the incidence of these deaths in children are most likely under-reported, with the cause of death listed as a brain infection rather than the underlying dental infection that caused it. The tragic case of Deamonte Driver, a twelve-year-old boy who died on February 25, 2007, from a brain infection caused by an infected

---

37. See generally Letter from Cindy Mann, Director of the Center for Medicaid and State Operations, to State Health Official[s], Re: Dental Coverage in CHIP 2 (Oct. 7, 2009), available at http://www.cms.gov/smdl/downloads/SHO100709.pdf. SCHIP (State Children’s Health Insurance Program) and CHIP (Children’s Health Insurance Program) are joint federal/state programs designed to provide health care to children who are from financially stressed families but who are not entitled to Medicaid. See Rosebaum, Markus, & Sonosky, supra note 39, at 17.
39. See REPORT FROM THE SURGEON GENERAL, supra note 1, at 74.
41. For example, the mouth does not exist in isolation and is particularly close to the brain; infections of the sinuses, ear canals, and dental structures can all result in brain infections. See Itzhak Brook, Topical Review: Brain Abscess in Children: Microbiology and Management, 10 J. CHILD NEUROLOGY 283, 283 (1995).
42. See Casamassimo et al., supra note 34, at 652-53.
tooth, is perhaps the best-known example of this type of fatality.43 His tooth decay was entirely preventable. A tooth extraction, once the decay had reached a serious level, would have cost eighty dollars.44 Left untreated, Deamonte’s cavity led to an abscess in his mouth, and the bacteria from the abscess spread to his brain.45 The infection became serious enough before any medical treatment was provided that, despite extensive brain surgery and a lengthy hospitalization, the damage proved irreparable, leading to the young boy’s death.46

The risk of death and other health dangers spring from the intimate relationship between the mouth and the rest of the body’s functioning. Wounds to teeth and gums from decay and the loss of permanent teeth create portals by which bacteria enter the body.47 This is a well-established fact in medical literature.48 Dental decay, poor gum health, and untreated cavities place stress on the body’s immune system, making it more vulnerable to many unrelated illnesses.49 Medical research is currently finding many instances where poor oral health has a serious effect on other health problems such as heart disease, diabetes, and obesity.50 Thus, the health of the mouth is intertwined with the general health of a person, and dental problems that begin in childhood have long-term, negative effects throughout a person’s life.51

2. Pain and Its Known Costs

For children, the persistent pain of untreated dental problems is particularly poignant and costly. Pain decreases the quality of a child’s life, interrupting her

43. See Otto, supra note 15. While Deamonte’s case is probably the best-known recent example of a child dying from untreated dental decay, unfortunately, there have been other reports of similar tragic occurrences. For instance, Alexander Callender, a six-year-old boy who lived in Mississippi, died in 2007 from sepsis caused by an infected tooth. It is suspected that many more children have died from dental problems, but the reporting is not accurate, since dental decay directly leads to, but is not the ultimate “cause” of, the death. See Casamassimo et al., supra note 34, at 652.
44. See Otto, supra note 15.
45. Id.
46. Id.
47. See REPORT FROM THE SURGEON GENERAL, supra note 1, at 104.
48. Id.; see also L. Feldman & I.M. Trace, Subacute Bacterial Endocarditis Following the Removal of Teeth or Tonsils, 11 ANNALS INTERNAL MED. 2124 (1938), available at http://annals.org/content/11/12/2124.extract.
49. See Linkages with General Health, The Mouth as a Portal of Entry for Infection, in REPORT FROM THE SURGEON GENERAL, supra note 1, at 95; PEW CTR. ON THE STATES, supra note 8, at 2.
50. See REPORT FROM THE SURGEON GENERAL, supra note 1, at 95; PEW CTR. ON THE STATES, supra note 8, at 2.
51. See Univ. Buffalo, News Release, Decay of Baby Teeth May be Linked to Obesity, Poor Food Choices, Study Suggests, (June 22, 2010), available at http://www.buffalo.edu/news/11463; see also Brita Willerhausen et al., Association Between Body Mass Index and Dental Health in 1,290 children of Elementary Schools in a German City, 11 CLINICAL ORAL INVESTIGATIONS 195 (2007).
52. See ORAL HEALTH, supra note 20, at 9–11.
ability to learn, play, eat, and sleep. While children who suffer from chronic pain can live fulfilling and productive lives, it is certainly more difficult for them to do so. Persistent dental pain from untreated decay and cavities comes, first and foremost, from inattention to a child’s medical needs. It is both preventable and treatable; this may indicate that the child already suffers from a lack of appropriate, effective attention and care giving. In these circumstances, it is highly unlikely that the child will have access to additional support that can limit the pain’s impact.

Dental pain causes children to stay home from school. For those children whose parents are unable to gain access to timely dental interventions, these missed days add up. However, even when pain does not result in time away from school, the time spent in school is markedly less productive. Pain interferes with a child’s ability to concentrate, reducing the value of time spent in school. It is exhausting and diminishes a child’s energy for the difficult tasks of a full day of school. Furthermore, pain in the mouth leads to a decreased ability to eat healthy foods. For children who are not properly fed at home, the free-food programs in school are of greatly reduced value when the food is not consumed because of dental problems. Poor food intake exacerbates the effects of pain on concentration and energy and leads to malnutrition.

Pain also disrupts the development of a child’s intellectual capacity that takes place apart from schooling. Developmental psychiatry has long

53. See Pew Ctr. on the States, supra note 8, at 2 (explaining that poor dental health has adverse effects on growth and development as well as overall health).


57. See id. at 9-10.

58. See id. at 7; Report from the Surgeon General, supra note 1, at 2.

59. See generally Report from the Surgeon General, supra note 1. Supporting the idea that dental disease can lead to problems eating, see Martha Clarke et al., Malnourishment in a Population of Young Children with Severe Early Childhood Caries, 28 Pediatric Dentistry 254 (2006), available at http://www.ingentaconnect.com/content/aapd/pd/2006/00000028/00000003/art00006 (showing a correlation between high levels of cavities in children and malnutrition).


62. See Pew Ctr. on the States, supra note 8, at 2.
recognized the importance of play and other childhood activities for the development of intelligence and other social skills. Often, pain greatly interferes with a child's ability to play, thus detracting from a child's ability to garner the intellectual development provided by this activity.

It is through play and school involvement that children develop social skills, and pain diminishes a child's ability to cultivate these skills. Furthermore, untreated dental decay and cavities may result in disfigurement, ranging from misshapen smiles to foul odors. Apart from the problems caused by pain and discomfort, these effects likely have a detrimental effect on a child's social development.

3. Poor General Health into Adulthood

Lack of proper preventive care in childhood greatly increases an adult's risk of losing permanent teeth during adulthood. There is a significant association between the number of missing permanent teeth and an adult's increased risk of developing heart disease. This association holds true even when the numbers are adjusted to accommodate numerous other factors, such as age, race, alcohol use, obesity, and hypertension.

The adult dental care required to fix the problems caused by poor childhood dental care is more expensive than providing the preventive care prior to the development of decay. Replacing a lost tooth with an implant, for example, may cost thousands of dollars and requires surgery. The failure to provide care in childhood leads to an increased burden of reduced education, reduced social development skills, and the social stigma of having missing teeth. Finally, adults with significant untreated dental problems are often in a great deal of pain, thus

64. For example, in a study assessing the effect of cancer on a child's ability to play, on a scale of 1 to 100 (100 being normal, measured by siblings without cancer and other children), the mean for children with cancer was 75.4, compared to 97.4 for other children. See Shirley B. Lansky et al., The Measurement of Performance in Childhood Cancer Patients, 60 CANCER 1651, 1651 (1987).
65. See ORAL HEALTH, supra note 20, at 9-11 (explaining that decay and gum disease lead to tooth loss).
67. See Okoro et al., supra note 66, at 50.
69. See id.
suffering from a decreased ability to function properly in their own lives.\textsuperscript{70}

Approximately 22\% of adults in the United States experienced dental pain in early 2003.\textsuperscript{71} Fifty-three million Americans currently have decay in adult teeth.\textsuperscript{72} For adults aged nineteen to sixty-four with family incomes of less than $10,000 a year, “nearly one in two had at least one decayed tooth that had not been treated.”\textsuperscript{73} Tooth loss, which has been closely correlated with increased risk of heart disease,\textsuperscript{74} is prevalent in adults at all income levels, though at increased rates for those who live in poverty. For those with family incomes of $35,000 or more a year, for example, only 51\% have all of their teeth, 34\% have lost one to five teeth, and 13\% have lost six or more of their teeth.\textsuperscript{75} For poorer Americans, the problem increases in severity. For those family incomes of less than $15,000 a year, 34\% have all of their teeth, 30\% have lost one to five teeth, and 34\% have lost six or more teeth.\textsuperscript{76}

\textbf{C. Prevalence of Dental Disease Increases Among Vulnerable Populations of Children}

While it is easy to explain, in theory, how important preventive dental care is for children, a call for widespread legal reform would be unjustified without evidence of the substantial “real life” problems caused by failures in pediatric dental care. Unfortunately, this evidence is too easy to find. As is often stated, there is an epidemic of untreated dental decay and cavities in children of the United States, and the epidemic’s prevalence in this population exceeds any other single health threat, including asthma, diabetes, and obesity.\textsuperscript{77} Generally, access to preventive dental care is far from universal, and there are vulnerable subsets,, primarily identifiable by poverty level and ethnicity, with an increased risk of harm.

Untreated dental pain can have harsh consequences for the children not receiving care. As discussed above, it may diminish quality of life and schoolwork\textsuperscript{78} as well as lead to other health problems throughout the body.\textsuperscript{79}

\begin{itemize}
\item \textsuperscript{70} See \textsc{Oral Health}, supra note 20 (describing how poor dental health and tooth decay can negatively impact activities like going to work).
\item \textsuperscript{72} Division of Oral Health, Ctrs. for Disease Control and Prevention, \textsc{Oral Health: Preventing Cavities, Gum Disease, and Tooth Loss} (2010), available at http://www.cdc.gov/ncddphp/publications/aag/doh.htm.
\item \textsuperscript{73} See \textsc{Oral Health}, supra note 20, at 10.
\item \textsuperscript{74} See Hsin-Chia Hung et al., \textit{The Association Between Tooth Loss and Coronary Heart Disease in Men and Women}, 64 J. PUB. HEALTH DENTISTRY 209, 209 (2004).
\item \textsuperscript{75} See \textsc{Oral Health}, supra note 20, at 11 tbl.2.
\item \textsuperscript{76} Id.
\item \textsuperscript{77} \textsc{Oral Health}, supra note 20, at 7; \textsc{Report from the Surgeon General} supra note 9, at 2.
\item \textsuperscript{78} \textsc{Pew Ctr. on the States}, supra note 8, at 2.
\end{itemize}
including death from infection.\textsuperscript{80} Tooth decay and dental cavities are the most common chronic diseases of childhood\textsuperscript{81} and are almost entirely preventable with simple treatments such as water fluoridation, dental sealants, fluoride toothpaste, and professionally applied topical fluorides.\textsuperscript{82} Yet, as the statistics discussed below show, untreated dental problems are the single most prevalent unmet health need of children in the United States.\textsuperscript{83} The lack of care is most obvious in children from low-income families, where as few as 20\% of Medicaid-eligible children receive the bare minimum of dental care to which they are entitled.\textsuperscript{84} However, even the wealthiest families fail to provide their children with appropriate preventive care.\textsuperscript{85}

\textbf{1. Family Income}

Data regarding children's access to dental care are grim. Though the numbers of children who are suffering the ill effects of poor access to preventive dental care are quite large across the population, such numbers are largest in groups who already suffer from poverty or are historically less privileged. However, the problem of access to preventive pediatric dental care is not entirely explained by differences in family wealth. The group of children who receive care at the highest percentage of the population consists of children in families that are relatively well-off financially. But even in this segment of the population, preventive dental care is not universal. As of 2004, studies have shown that for families with incomes over $75,000 a year, 14\% of children had not seen a dentist in the past year.\textsuperscript{86} The numbers receiving care then drop steadily with family income levels. Among all families with income that exceeds 200\% of the federal poverty level, some reports show as few as 82\% of those aged two to seventeen have seen a dentist in the past year. Twenty percent of children aged two to eleven had never seen a dentist.\textsuperscript{87}

\textsuperscript{79} GEHSAN ET AL., supra note 40, at 3.
\textsuperscript{80} Id.
\textsuperscript{82} Wendy E. Mouradian et al., \textit{Disparities in Children's Oral Health and Access to Dental Care}, 284 JAMA 2625, 2625 (2000).
\textsuperscript{83} Id.; Newacheck et al., supra note 7, at 989.
\textsuperscript{84} Mouradian et al., supra note 82, at 2625.
\textsuperscript{86} Id.
\textsuperscript{87} Bruce A. Dye et al., \textit{Trends in Oral Health Status: United States, 1988-1994 and 1999-2004}, CDL VITAL AND HEALTH STATISTICS SERIES II, at 28 tbl.19 (2007). These data include children ages 2 to 5—individuals who are far less likely to see a dentist than older children, which may skew the numbers in a negative direction. Still, according to the same study, almost 7\% of all children ages 6 to 11 have never seen a dentist (from 1999–2004 data). Id. As described above, children should be seeing a dentist every 6 months, whereas this study only looks at whether a child has seen a dentist in the past 12 months. It simply does not tell us if the children who are seeing a
When family income is below 100% of the federal poverty level, the percentage of children ages six to eighteen that have not seen a dentist in the previous year is 64%. For children with family incomes between 100% and 200% of the poverty level, the percentage is even worse, with 69% not having seen a dentist in the past year. For those with family incomes between 200% and 400% of the poverty level, the percentage of children who have not seen a dentist drops to slightly below 50%. Data show “eighty percent of untreated cavities in permanent teeth are found in roughly 25% of children who are five to seventeen years old, mostly from low income and other vulnerable groups.”

While these numbers are truly awful, it is far too optimistic to use these as placeholders for percentages of children who are, or are not, receiving adequate preventive dental care. The studies cited in this Article only measure whether there was at least one visit to the dentist in a given calendar year, rather than the two annual dental examinations that are recommended. They also do not specify whether these dental visits were for preventive care or to treat a problem. As a result, these data do not give percentages of children who are receiving care that fully comply with an adequate preventive care schedule. However, if a child has not seen a dentist in the last calendar year, as measured here, that child is clearly not getting appropriate dental care. Subsequently, these studies most likely underreport the extent of the problem that is the focus of this Article, meaning that the number of children who are not getting appropriate care is most likely greater than any percentage the data provides.

2. Ethnicity

Income is not the sole determinant of increased risk of untreated tooth decay or cavities. Studies that have looked at the prevalence of these dental diseases show that, while they are widespread in the general pediatric population, there are also distinct patterns of increased vulnerability based on ethnicity. For example, looking at the population of children aged six to eight, 29% of all these children have untreated tooth decay. For Native American children, the number soars to 69%, and for Asian and Pacific Islander children, 71%. African American children report 36%, Mexican Americans 43%, and white children, as reported here, are getting the full benefit of recommended preventive care; so we do not know, for a fact, how many children within the 72% are being treated properly. In short, the problem is at least as bad as these numbers suggest, but could be much worse.

88. See ORAL HEALTH, supra note 20, at 15 fig.5.
89. Id.
90. Id.
91. Id. at 7.
92. See ORAL HEALTH, supra note 20, at 12. This number by itself is inexcusable given that decay is almost entirely preventable and entirely treatable.
93. Id.
26%. Interestingly, these numbers dip for all reported ethnic groups by age fifteen then rise again by age thirty-five. For example, 29% of African American children at fifteen have untreated tooth decay, while 46% of African American adults aged thirty-five to forty-four have the same problem. While the study that reported these data does not offer an explanation for this dip and subsequent rise in dental decay, it is perhaps explained by the growth over the course of childhood of new, healthy adult teeth, which then gradually decay.

D. The Measurable Effects of Untreated Dental Pain on Vulnerable Children: Educational Deficits

Ethically, it is difficult to design an observational study that measures the number of children in pain from dental problems and the effect of this pain on their activity levels, learning, socialization, etc. The pain and other negative effects from dental decay and cavities are so easily treatable; thus, it is ethically unjustifiable to identify a child who is suffering from treatable pain and then deny the child access to treatment while a study is conducted. In the absence of this type of study, other information may be used to identify the costs of lack of dental care. A potentially useful focal point is education, with respect to both a child’s school attendance and her ability to focus in school. While school performance is not, by itself, the same as a wholesale measure of a child’s well-being, a child’s functioning in school can be illuminating as to whether the child is thriving.

For children living in poverty, dental problems lead to an astonishingly high number of “missed activity days,” such as missing school. For children with family incomes less than $10,000 a year, it has been estimated that they miss twelve times the number of days compared with wealthier children due to dental problems. For those children with family incomes between $10,000 and 94. Id.
95. Id. (The table reports 195% for white children aged 15. Presumably the source means 19%).
96. Id.
97. Jihong Liu et al., Disparities in Dental Insurance Coverage and Dental Care among U.S. Children: The National Survey of Children’s Health, 119 PEDIATRICS S13 (2007) (“Poor children experience nearly 12 times as many restricted activity days from dental diseases as do children from higher income families.” (citing ORAL HEALTH, supra note 20, at 9)). This is a complicated number to both assess and comprehend. It most likely represents the terrible impact something as simple as dental care can have on a family stressed by poverty and by whatever circumstances led to the poverty. As will be seen later in this Article, parents in the lowest income groups have a consistently difficult time finding dentists who will treat their children, as well as difficulties in actually getting their children to dental appointments once one is successfully made. The circumstances that lead to missed school days for this population are most likely as deep and complex as poverty, itself. The author would like to thank David Owen for his insightful questions about this statistic about missed school days.
$20,000, the number is still quite high—eleven times that of wealthier children. For those with family incomes above $20,000, the number of missed activity days due to dental problems drops dramatically. In total, as of 1989, the last year for which data is available, the accumulated burden of missed school days for dental problems amounted to fifty-two million school hours, or eight million school days.

These numbers are breathtaking, especially when considered in light of ongoing debates about measuring school and teacher performance and the costs and benefits of extending the school year or increasing the hours in the school day to improve children’s performance. The infrastructure pays for these missed hours of school, whether the children attend school or not. When these children do not attend, the money and teaching time is simply wasted.

Tens of millions of school hours are being missed, surely with some effect on overall school performance. From a school system’s perspective, these absences will likely lead to a gross distortion of quality assessment. Comparisons between schools are also likely to be inaccurate if the schools have different levels of dental disease in their respective student populations. The statistics that show an increased prevalence of dental diseases in poorer populations imply a problem for assessing the comparative performance between schools that might have disparate rates of dental health. Given that a high proportion of dental diseases in a school population has the potential to distort student performance, data should be collected so that its role can be more clearly ascertained or else conclusions about a school’s success in teaching are likely to be inaccurate.

II. THE INFRASTRUCTURE OF THE PEDIATRIC DENTAL CARE SYSTEM

A well-planned infrastructure for providing preventive dental care seems to be a sensible goal of social policy given the importance of preventive dental care for children, its cost-effectiveness from a medical perspective, and the other significant costs detailed above caused by failing to provide it. As data in Part I show, the infrastructure currently in place is failing to ensure that children have this preventive care, as well as often failing egregiously in providing treatment for the twin diseases of decay and cavities. The pediatric dental infrastructure consists of three distinct arms: fluoridation of drinking water, providers, and payment systems. It requires the cooperation of dentists and other care providers, payers, and parents to function properly.

A. Fluoridation of Public Water Supplies

Adding fluoride to water supplies is both cost effective and very helpful in

98. See ORAL HEALTH, supra note 20, at 9 fig.2.
99. Id.
100. Id.
THE EPIDEMIC OF CHILDREN’S DENTAL DISEASES

preventing dental decay and cavities. According to an analysis of CDC data conducted by the Pew Center, roughly 88% of Americans get water from a community system, and more than one quarter of these people do not get water that is properly fluoridated. If all Americans were supplied with properly treated water, it has been estimated that the country could save as much as $1 billion per year in dental costs. The current widespread availability of fluoridated water in many areas of the country is a critical part of dental care for children, and increasing access is a continuing project for numerous federal agencies.

B. Providers

There is a significant shortage of dentists who are trained to treat children. This shortage has an effect on every aspect of the dental care infrastructure in the United States, making it harder for patients to find dentists and allowing dentists to be more selective in the populations they treat. Dentists work predominantly in private practices, a high proportion of which are solo or small groups, and they retain significant autonomy in practice decisions. These practices are

101. A study conducted by the Center for Disease Control found that every $1 spent on adding fluoride to the water supply generated $38 in savings on dental care. DIV. FOR ORAL HEALTH, CTRS. FOR DISEASE CONTROL AND PREVENTION, Cost Saving of Community Water Fluoridation (2009), http://www.cdc.gov/fluoridation/fact_sheets/cost.htm. The use of fluoride in drinking water has been found to be useful in reducing tooth decay for children and adults in a number of different studies, with reductions ranging from 18% to 40%. PEW CTR. ON THE STATES, supra note 8, at 21.
102. See id. at 22.
103. See id. at 21.
104. See, e.g. CTRS. FOR DISEASE CONTROL AND PREVENTION, Community Water Fluoridation, http://www.cdc.gov/fluoridation (last visited Jan. 25, 2010). This concern is also highlighted in PPACA.
105. According to data collected in 2000, there are 4 pediatric dentists for every 100,000 children in the United States, with roughly 2900 total in private practice. See S.M. Hashim Nainar & Robert J. Feigal, Geographic Distribution of Pediatric Dentists in Private Practice in the United States, 26 PEDIATRIC DENTISTRY 526, 528 (2004). These few dentists are not evenly distributed geographically, with Connecticut having twice the national average and Maine having only one quarter of the national average. See id. at 527-28. There is also an overall shortage of general dentists and the problem has been growing over the last two decades. In the last twenty-five years, six national dental schools have closed, whereas only one new one has opened, resulting in far fewer new dentists each year. See Richard W. Valachovic, Dental Workforce Trends and Children, 2 ACADEMIC PEDIATRICS 154, 154 (2001). Furthermore, dental practices are more likely to suffer in a bad economy than medical practices, making it a less secure profession unless one is planning on building a practice that primarily serves the most well-off, which is, not coincidentally, where most new pediatric dentistry practices have been located. Id. It is unclear what an adequate ratio of dentists to children should be. There are roughly 2000 people for every practicing dentist, which is merely descriptive and not a reflection of what is adequate. To equal this ratio for dentists trained in treating children, the numbers would need to be increased by 1200%.
106. There are also some clinics of varying types, some of which hire dentists on salary. But this represents a very small proportion of dentists, overall. See, e.g., Federally Supported Dental Health Programs, FEDERAL DENTAL HEALTH, http://www.federaldentalhealth.com.
extremely profitable and tend to be located where patients can afford their services, such as in more well-off suburban areas.  

While the small number of dentists is highly problematic, this does not present an insurmountable impediment to achieving universal care. Studies have shown that full training in the field of dentistry may not be necessary in order to provide the preventive care that children need and that a different type of professional can be utilized to address the problem. In a number of countries including New Zealand, the United Kingdom, Australia and the United States, dental care providers, called dental health aid therapists (DHATs), have been trained to clean, examine, and fill cavities in children’s teeth; they have proven to be as good as or better than dentists at performing these tasks if one measures quality by reduction in the incidence of dental diseases, improvement in dental health generally, and patient satisfaction. The DHAT concept is slowly gaining traction in the United States, with Minnesota recently becoming the first state to create a system for training dental therapists and allowing them to practice. It has not, however, been free of controversy within the dental community, and the United States is far behind other countries in embracing this newer model for providing preventive care. The American Dental Association filed suit in Alaska (unsuccessfully) in an effort to stop a limited dental therapist program


111. The full scope of this controversy is outside the scope of this Article. In brief, it mirrors the controversies surrounding nurse practitioners and physician assistants and many other similar movements within health care that threaten any one professional group’s monopoly control of a specific type of care.
among Native Americans and has been adamantly opposed to the adoption of the model.\textsuperscript{112}

The ADA's opposition to the widespread use of DHATs is unsurprising. A new model of healthcare professional such as the DHAT presents a direct challenge to the monopoly that dentists currently hold over the provision of specific types of dental care. Dentists currently work closely with dental hygienists, who, as a rule, only work under the direct supervision of a licensed dentist. The current model, then, consists of the care provider and an assistant. DHATs work without the direct supervision of dentists and can hire and utilize hygienists themselves. To further complicate the effect of the DHAT model on current norms, many hygienists with a bachelor's degree would likely pursue advanced training to become DHATs. The model, then, is arguably transformed from rigid groups relating within strict hierarchies to one that more closely resembles a ladder, with some mobility possible between the rungs.\textsuperscript{113}

\textbf{C. Payment Systems}

Private practice dentists are generally paid directly by patients or through a fee-for-service arrangement with patients and insurance companies, though a small percentage of dental professionals work under managed care contracts. A fee-for-service arrangement means that dentists are paid for each procedure that they provide to the patient. Money to pay these fees comes from private insurance plans, public insurance plans, or individuals paying for care out-of-pocket. Private dental insurance policies are purchased by employers or by individuals in the open market. These policies are less prevalent than health insurance, with only 73\% of those with health insurance having dental coverage.\textsuperscript{114} There is a significant correlation between having dental insurance of some kind and an increased likelihood that a child will see a dentist in any given year. The cost of a child's biannual cleanings and exams are fully covered by many of these plans. However, even among those children with private dental

\begin{itemize}
  \item \textsuperscript{112} See Michael C. Alfano, \textit{Dentistry: Circle Back? Circle the Wagons? Or Circle the Moment?}, GLOBAL HEALTH NEXUS 1, Summer 2010, at 10-11 for a discussion of this opposition.
  \item \textsuperscript{113} There is a distinct gender subtext to this discussion. Dentists in the United States have historically been men; currently, men make up 75\% of this group. The dental hygienist profession is considered a predominantly feminine one. To quote from an article recently published in a dental hygienist magazine, "I believe part of our struggle is because of dental hygiene's predominantly female gender in the male-dominated, patriarchal setting of dentistry." Heidi Emmerling Jones, \textit{The Softer, Gentler Side Leads to Traditions where Gender Differences are Misunderstood}, RDH Sept. 1996, available at http://www.rdhmag.com/index/display/articledisplay/122882/articles/rdh/volume-16/issue-10/columns/thinking-sharply/the-softer-gentler-side-leads-to-traditions-where-gender-differences-are-misunderstood.html. Any change that has financial, hierarchical, and gender implications is bound to face opposition from those who risk losing power on all three fronts.
\end{itemize}
insurance, 42% did not receive annual dental care in 2008.\textsuperscript{115} Clearly, cost is not the sole barrier to care in these cases. The poor statistics may be related to the structure of the benefits in these plans, or due to different problems with accessing care, such as lack of parental commitment or a shortage of dentists, as discussed further in this Article.

Dental plans are not the same as medical insurance. Many of the plans are actually discount arrangements with dentists, where the patient is responsible for paying the full, negotiated cost.\textsuperscript{116} Those that function as traditional insurance plans have strikingly low caps on annual reimbursements. For example, the most generous benefit provided to federal employees under the Aetna dental plan for 2010 has an in-network cap of $3,000 a year per patient, with co-payments for any major dental work ranging from 40% to 60% of the cost for in-network providers.\textsuperscript{117} In short, a patient with dental insurance can still bear a substantial financial cost when getting care.

\textbf{D. Private Practice and Medicaid}

For those children whose families do not have private dental insurance or the financial ability to pay for care with their own money, the most significant source of payment for preventive dental care is through public plans, primarily Medicaid and SCHIP. More than 40% of children in the United States live in poverty or low-income families.\textsuperscript{118} Of these, twenty-eight million are enrolled in these programs, and roughly five million are eligible, but are not enrolled,\textsuperscript{119} so these plans play a significant role in the infrastructure of pediatric dental care. Medicaid provides dental insurance to children from impoverished families and, through its regulations, defines the elements of adequate care. Federal law created Medicaid in 1965, and the minimum schedule of benefits that children are entitled to receive under Medicaid is tightly controlled, specifically through the language of the Early Periodic Screening, Diagnosis and Treatment (EPSDT) benefit, which defines the basic care to which all children enrolled in Medicaid

\textsuperscript{116. Id.}
\textsuperscript{118. Nineteen percent of children live in poverty, as defined by the United States government, and 41% are part of low-income families, which means with family incomes at or below 200% of the federal poverty levels. See VANESSA R. WIGHT & MICHELLE CHAU, BASIC FACTS ABOUT LOW-INCOME CHILDREN, 2008: CHILDREN UNDER AGE 18, at 1 (2009), available at http://www.nccp.org/publications/pdf/text_892.pdf.}
\textsuperscript{119. KAISER COMMISSION ON MEDICAID AND THE UNINSURED, ENROLLING UNINSURED LOW-INCOME CHILDREN (2007); see also KAISER COMMISSION ON MEDICAID AND THE UNINSURED, HEALTH COVERAGE OF CHILDREN: THE ROLE OF MEDICAID AND CHIP 1 (2010).}
are entitled. However, Medicaid is administered by the individual states, with joint state and federal funding. Also, while complying with EPSDT is mandatory, the details of the state plans vary.

Medicaid pediatric dental coverage promises much, but often fails to provide that which it promises. In theory, under its language, EPSDT provides the full schedule of preventive dental care, described above, at no cost to families. Biannual cleanings, exams, and prophylactic treatments (such as fluoride and sealants) are all covered. Medicaid prohibits states from requiring co-payments from parents for these basic preventive services. The benefits provided by SCHIP plans in every state are similar. In reality, roughly one-third of children enrolled in Medicaid actually receive dental services in any given year. The difference between theoretical coverage and access for this population has been extensively studied, and there appear to be few surprises or disagreements about what causes the discrepancy. For a number of reasons, it is neither easy nor routine for a child covered by Medicaid or SCHIP to see a dentist.

1. Low Reimbursement Rates

The problems with low-income children’s access to preventive dental care begin with the low reimbursement rates that are paid to dentists who accept Medicaid patients. Families in poverty suffer far more than well-off families from the significant shortage of pediatric dentists in the United States. Even for families with money, it may be difficult to find a properly trained dentist to


121. See supra Part I.


124. See PEW CTR. ON THE STATES, supra note 8, at 2. As of 2007, a full 75% of children on Medicaid received no dental care at all in three states, Delaware, Florida and Kentucky. Id. at 22.


126. This problem has been growing over the last two decades. In the last twenty-five years, six national dental schools have closed, whereas only one new one has opened, resulting in far fewer new dentists each year. See Richard W. Valachovic, Dental Workforce Trends and Children, 2 AMBULATORY PEDIATRICS 154, 154 (2001). Dental practices are more likely to suffer in a bad economy than medical practices, and that a less secure profession unless one is planning on building a practice that primarily serves the most well-off, which is, not coincidentally, where most new pediatric dentistry practices have been located. Id.
provide regular care. For Medicaid patients, this shortage is compounded by Medicaid’s meager reimbursement rates in most states.

The division of responsibility within the Medicaid system leads to individual states being responsible for setting the reimbursement rates for pediatric care that dentists are entitled to for treating children on Medicaid in that state. Only one state pays for Medicaid pediatric dental care at a rate that is 100% of dentists’ national median retail fees.127 Using median fees as a stand-in for adequate reimbursement rates, Medicaid rates fall far below this, averaging 60% of the median, with twenty-six states reimbursing at far lower rates.128 Dentists are not compelled to treat Medicaid patients, but must actively choose to do so if they are to participate in the program. Given the shortage of dentists, coupled with the usual law of supply and demand, any dentist that treats Medicaid patients in the many states with extremely low reimbursement rates is likely choosing to do so for reasons other than financial gain.

Hard data have emerged showing access to dental care for Medicaid-enrolled children increases in proportion to the amount that states increase their reimbursement rates.129 For example, Alabama increased its Medicaid reimbursement rates in 2001.130 In 2000, roughly 72,000 children in Alabama used Medicaid dental services.131 The number of Alabama children increased to 155,000 by 2004.132 At the same time as the number of children using the services increased by 115%, the amount paid for these services increased by 288%.133 In South Carolina during the same time frame, and with similar increases, the number of enrollees utilizing dental services increased by 58% and the costs by 85%.134

Even in states with the most generous reimbursement rates, however, the percentage of children actually receiving the proper care is still less than children who have private insurance, and not close to 100%. Currently, financial strains are driving many states to cut government programs as much as possible, likely making it difficult for states to sustain their commitments to increasing, or maintaining already increased, reimbursement rates. The Medicaid model of utilizing private practice dentists and paying them through fee-for-service reimbursements may not be feasible for pediatric dental care, if the goal is to provide preventive care to all children.

127. See Pew Ctr. on the States, supra note 8, at 7.
128. Id. at 7. The lowest four states report reimbursement rates that are lower than 40% of the median retail fees. Id.
129. See Borchgrevink et al., supra note 120, at 17.
130. See id. at 6.
131. Id. at 18.
132. Id.
133. Id.
134. Id.
2. Bureaucratic Burdens

If a dentist chooses to see Medicaid patients, they must undertake the bureaucratic burden of organizing their office to handle the claims process. It can actually be less expensive for a practice to treat these children for free than to incur the expense of filing claims for reimbursement. In surveys and individual interviews, many dentists have reported that the cost of paying support staff to become trained in Medicaid claims processes, as well as paying staff for the tasks associated with submitting the claims, often exceeds the proceeds of treating a Medicaid patient, without any money left to go toward the cost of the treatment itself. It is critical that a dentist’s support staff are properly trained in Medicaid billing processes because errors in Medicaid billing are subject to possible criminal prosecution as Medicaid fraud. While these prosecutions are not as common as those against physicians, the fear of prosecution is surprisingly widespread among dentists. The combination of these burdens and fears leads to either reluctance to actually submit claims to Medicaid for treatment that is provided or a refusal to accept any Medicaid patients at all.

3. Missed Appointments

If a parent or guardian with a child on Medicaid can find a dentist and secure an appointment for their child, it has been argued that a substantial percentage of the patients do not actually keep the appointments that have been successfully made. As a result, many pediatric dentists who do take Medicaid double- or triple-book their Medicaid patients in an effort to ensure that at least one patient will actually appear for the time allotted.

135. See, e.g., MEDICAID: ACCESS AND UTILIZATION, supra note 125, at 7.
136. Id.
137. Id.
139. While most information supporting this claim is anecdotal, coming from interviews with dentists conducted as part of studies concerning Medicaid and access problems, there have been studies that substantiate the dentists’ oft-repeated complaint. For example, a study that measured missed appointments for Medicaid and non-Medicaid children in a University-based orthodontic practice in Virginia found that Medicaid patients failed to keep 15.4% of their appointments, while non-Medicaid patients failed to keep 8.3%. See Bryan P. Horsley et al., Appointment Keeping Behavior of Medicaid vs Non-Medicaid Orthodontic Patients, 132 J. ORTHODONTICS & DENTOFACIAL ORTHOPEDICS 49, 49 (2008). This study does not reveal a level of missed appointments that is commensurate with the claims made by many of the interviewed dentists, but still presents a substantial problem for the children who are not receiving care.
4. Poor Parental Education

The low rates of children’s utilization of proper dental care might imply that parents are undereducated about the importance of dental care for their young children and how painless proper care can be. In the current dental infrastructure, parental commitment to children receiving proper care has been found to be a critically important element of preventive care. Parents supervise brushing and flossing, minimize processed sugars in the diet, and make sure children visit the dentist twice a year. Interestingly, parental attitudes about dental care also influence the success of their children’s visits to the dentist, measured by children’s behavior at the dentist’s office, cooperation with the examination process, and experience of pain and discomfort. For parents who do not have healthy teeth and were not raised with regular and effective preventive care, visiting the dentist can be a frightening and anxiety-producing experience; it has been theorized that this is communicated to their children, making visits to the dentist more difficult for all concerned, including the dental profession. While these problems, poor education, and high levels of anxiety may be more common in the Medicaid and SCHIP populations, they are not exclusive to them. Many adults simply do not fully comprehend what is at stake with preventive dental care, and dental anxiety is widespread in the general population.

Substantial data are unavailable to support that parents are uneducated about children’s dental needs, but recent legislative activity suggests the perception that this is a problem is widely shared. For example, PPACA includes funding for a five-year campaign to improve parental education regarding the importance of children receiving timely preventive dental care.

III. CURRENT REFORM ACTIVITY

Preventive dental care for children has been shown to be cost-effective in light of both the extremely expensive and damaging problems that poor dental care can cause during childhood and the long-term negative effects of poor


141. See Peter Milgrom et al., A Community Strategy for Medicaid Child Dental Services, 114 PUB. HEALTH REP. 528, 528 (1999).

142. See, e.g., M. O. Folayan et al., Parental Anxiety as a Possible Predisposing Factor to Child Dental Anxiety in patients Seen in a Suburban Dental Hospital in Nigeria, 12 INT’L J. PEDIATRIC DENTISTRY 255, 255 (2002).

143. Id.


145. PPACA, § 399LL(a).
pediatric dental care into adulthood.146 The Surgeon General signaled the extraordinary importance of childhood access to preventive dental care in the 2000 report.147 Yet, even with this apparent agreement among stakeholders, the epidemic of preventable dental disease has proven resistant to fairly aggressive attempts at amelioration by health care providers, government officials, and school systems.

Given the depth of the problems described above, and how well-known these problems are, it makes sense that there are numerous pilot programs that are being utilized to determine how best to resolve them. The pilot programs are being developed by many different stakeholders, including governments at both state and federal levels, school boards, dental licensing organizations, and assorted non-profit organizations concerned with children’s well-being. These pilot programs can be grouped into different approaches, which will be discussed below. First are efforts to address problems that are especially prevalent among low-income families, such as low Medicaid reimbursement rates for children’s dental care. Second, in order to address the persistent shortage of dentists, there are efforts to increase the number of people who are qualified to provide preventive care to children. Third are programs that focus on providing children with specific interventions, such as sealants. Fourth are movements to require proof of an annual dental screening before a child can begin school, much as children must show proof of proper vaccines. In an effort to contain the analysis here, this short list highlights the dominant approaches that are presently utilized. Also, programs exist that provide full access to dental care in schools, with great measurable success.

Part II of this Article describes the weakness of the dental care infrastructure; in light of this weakness, it is difficult to see how any reform steps taking place within this existing infrastructure can hope to achieve the substantive changes necessary to achieve dental care for all children. There is a shortage of dentists. The funding for public insurance is not rich enough to attract a sufficient number of dentists. And while some parents arrange for dental care for their children, many others do not provide for this care, even when resources appear adequate.

A. Medicaid Reform

As stated above, the primary problems with Medicaid dental care are low reimbursement rates, missed appointments, poor parental education, and few


147. REPORT FROM THE SURGEON GENERAL, supra note 1, at 249.
pediatric dentists who accept Medicaid patients. The numerous Medicaid reform pilot programs that are currently taking place are certainly focused on increasing the number of children who see a dentist on a regular basis. However, the success of Medicaid’s dental coverage is dependent on private practice dentists choosing to treat Medicaid patients, so a realistic goal of reform must also include making children on Medicaid more attractive to dentists as patients.

The low reimbursement rates for Medicaid patients create a major problem. There have been two distinct approaches to addressing this issue. Over time, a series of successful lawsuits have been brought on behalf of Medicaid-eligible children that have forced states to as much as double their reimbursement rates.\textsuperscript{148} While these represent substantial successes and required sophisticated lawyering to achieve, doubling some of these rates still resulted in shockingly low reimbursements that came nowhere close to the national commercial rate charged for the same services.\textsuperscript{149} More recently, as the costs of failing to provide this care have become better understood, a number of states, with assistance from the federal government, have voluntarily increased reimbursement rates.\textsuperscript{150} As described earlier, these increases have resulted in increased utilization, but have not managed to budge the number of children being treated to a number above 50% in any state and the improvements are proving difficult to sustain in the current recession. Certainly, the United States Medicaid system, as a whole, is nowhere near the national retail average in its Medicaid dental reimbursements. For a dentist to treat a child on Medicaid, the practice must decide to dedicate its time to what is in essence a charitable act, which is not a firm foundation for providing the necessary care that millions of children require. As was noted in a recent article by the dean of the New York University College of Dentistry, high compensation is emerging as a “key driver in the selection of an occupation” for the new generation of dental students,\textsuperscript{151} making it even less likely that care will be provided to children on Medicaid in the future.

The problem of missed appointments also has received attention, and reform programs have achieved a degree of success. Some states offer transportation reimbursements for families on Medicaid.\textsuperscript{152} This is helpful if such money is beyond the means of those on Medicaid. In order to create an incentive for parents to not inconvenience dental care providers, it could be argued that parents

\begin{itemize}
\item\textsuperscript{148} See generally Sean Jessee, Comment, Fulfilling the Promise of the Medicaid Act: Why the Equal Access Clause Creates Privately Enforceable Rights, 58 EMORY L.J. 791-830 (2009) (discussing the challenges in bringing these actions).
\item\textsuperscript{149} See Carr v. Wilson-Coker, No. 3:00 CV 1050 (AVC) (D. Conn. Apr. 29, 2008). This class action lawsuit in Connecticut was settled in 2008, after eight years of litigation. Id.
\item\textsuperscript{150} See BORCHGREVINK ET AL., supra note, at 120.
\item\textsuperscript{151} See Charles Bertolami, Message from the Dean, 12 GLOBAL HEALTH NEXUS 2, at 5 (2010).
\item\textsuperscript{152} See, e.g., Delaware’s Medicaid program, http://dhss.delaware.gov/dhss/assc/dentaltms.html.
\end{itemize}
THE EPIDEMIC OF CHILDREN'S DENTAL DISEASES

should suffer a financial penalty for missing their children's appointments by being billed for the cost of that appointment, as this could be an effective incentive for non-Medicaid patients—causing them to more often attend or provide notice when cancelling their appointments, and helping to offset dental practice costs for an empty appointment slot. This type of penalty is not permitted under the current Medicaid claims structure for parents whose children are enrolled in Medicaid.153 But this could be an effective incentive for non-Medicaid parents. Under Medicaid, actual medical care must be provided to a patient for any billing to take place, which leaves no mechanism for billing a parent when the care is skipped. The dentist is allowed to refuse to see the child in the future in response to a missed appointment or for any other reason, but she cannot financially punish the parent. To address this problem in the Medicaid population, studies are now documenting the promising potential of Medicaid programs hiring dental case managers, whose purposes are the following: to find dentists for Medicaid children; make appointments; and remind parents that the appointments have been made, are necessary, and that the children need to go.154

Many Medicaid programs now actively encourage parents to bring children to the dentist sometime in the child's first year of life in an effort to catch any early problems, but more importantly, so that the dentist can educate parents about what will be necessary as the child's teeth begin to develop and to create a "dental home" for the child that will be a source of regular care and continuing education.155

B. Increasing the Number of Pediatric Dental Care Providers

Any change in the current system must take into account the shortage of dentists, given that there are not enough dentists trained in treating young children. Furthermore, dental practices are not evenly spread across the country and tend to be concentrated in more densely populated areas.156

There were 40% fewer graduates of dental schools in 2000 than in 1986,157


156. See Louis Susi & Ana Karina Mascarenhas, Using a Geographical Information System To Map the Distribution of Dentists in Ohio, 133 J. AM. DENTAL ASS'N 636, 642 (2002) (analyzing the location of dental practices in Ohio).

though one can see signs that this may be slowing. Between 1982 and 2000, seven dental schools closed.\textsuperscript{158} Three new dental schools opened since 2000, and a number of other new dental schools are being planned.\textsuperscript{159} In raw numbers, the academic world of dentistry will soon be graduating an increasing number of students.\textsuperscript{160} Even with this increase, in the future a significant problem is likely to be caused by the current age of practicing dentists, with more than one-third of dentists in the United States over the age of fifty-five and "edging towards retirement."\textsuperscript{161} There are roughly 248,000 dentists practicing in the United States,\textsuperscript{162} which means more than 75,000 will have to be replaced in the next decade to stay even with current numbers. There were 4500 new graduates from dental schools in 2006, which is simply not enough to keep pace with expected retirements.\textsuperscript{163}

The geographic disparities in the locations where dentists practice present a serious challenge to providing access to care, particularly for low-income families. A conservative method for measuring those areas that suffer from a shortage of dentists is to count the areas that have successfully applied to the federal government to be designated as Dental Health Professional Shortage Areas (DHPAs). This designation triggers federal assistance in attracting dentists. But the application is a lengthy process that many areas do not have the resources to complete, making it likely that the actual shortages are under-reported.\textsuperscript{164} Using DHPAs' numbers, more than 46 million people live in DHPAs, and more than 30 million of those people have no access to a dentist.\textsuperscript{165} And it has been calculated "that more than 10 percent of the nation's population has no reasonable expectation of being able to find a dentist."\textsuperscript{166}

Two distinct approaches for addressing the problem have emerged. The first identifies the skills that a professional must have to meet the preventive dental care needs of children and creates a distinct class of professional, the dental therapist, who is trained in those exact skills. The second approach utilizes people who currently have interactions with children, training them to administer any part of preventive dental care that they can comfortably handle.

\textsuperscript{158} Bertolami, supra note 151, at 5.
\textsuperscript{159} Id.
\textsuperscript{160} Two things have occurred that might be encouraging this new vigor. First is the Surgeon General's eloquent "Call To Action" to reduce oral health disparities, made in 2000. Second, recent science has changed how we assess the role of dental health in overall health, due to a steady series of studies that consistently show dental health is related to a slew of other conditions, and concurrently, good oral health can play a critical role in reducing the incidence of other problems. See \textit{REPORT FROM THE SURGEON GENERAL}, supra note 1.
\textsuperscript{161} PEW CTR. ON THE STATES, supra note 8, at 24.
\textsuperscript{162} Number of Dentists 2009, \textsc{statehealthfacts.org}, available at http://www.statehealthfacts.org/comparemaptable.jsp?ind=442&cat=8 (last visited June 25, 2011)
\textsuperscript{163} PEW CTR. ON THE STATES, supra note 8, at 24.
\textsuperscript{164} PEW CTR. ON THE STATES, supra note 8, at 24.
\textsuperscript{165} Id.
\textsuperscript{166} See id. at 24.
For pediatric preventive dental care, the necessary skills are a subset of those acquired by dentists and dental hygienists, with additional training to treat young children. A dental therapist is a professional who is trained to clean children’s teeth, take x-rays of their mouths, fill cavities, and recognize problems that require referral to a dentist. It requires between two and four years of post-secondary education, depending on the program, to complete a dental therapy program, making it far easier to train dental therapists to provide the necessary care to all children than it is to train more dentists. Alaska has one of the few dental therapist programs in the United States, which was created and is currently being utilized to provide care for American Indian and Alaskan Native people. The training occurs in Alaska and is supervised by staff from the University of Washington, in partnership with the University of Otago in New Zealand. New Zealand, as discussed more fully below, has been the international leader in expanding access to dental care for its children to near universal levels, and one of the primary means for it accomplishing this has been the development and support of dental therapist training in that country.

Dental therapy programs have not been as readily adopted in the United States as in other countries. The American Dental Association (ADA) has been adamantly opposed to these programs, and employment for any graduates will require the political will to create dental therapist licensing structures in every state they practice in. Only Oregon has a training program for dental therapists, and this program is quite new. This program was created to provide dental therapists to rural Alaskan children and came into existence only after a bruising political battle between its proponents and the ADA, as detailed below. However, the success of the program in New Zealand has not gone unnoticed in the United States, and pressure is clearly building for a broader move towards this caregiver model in the United States.

Utilizing the second approach and focusing on those who already have contact with children, many medical groups have begun to promote the training of primary care physicians and their nurses to perform dental screenings, educate


168. A related approach is to allow licensed dental hygienists to practice without immediate dental supervision, which could increase children’s access to dental cleanings, though without the added benefit of diagnosis and treatment of cavities.

169. Rural Alaska Native People, supra note 167.

170. For example, during the legislative debate in Minnesota about creating a dental therapist training program, the ADA provided funding to the Minnesota Dental Association, which lobbied in opposition to the legislation.

171. For a discussion of the momentum and conflict within the profession, see Alfano, supra note 112, at 10-15.
parents and children about oral hygiene, and apply fluoride to teeth. While these steps are not as effective as receiving the full menu of preventive care, most children do see their pediatricians with some regularity. In addition, studies have shown that parents are more likely to be given a referral to see a specific dentist if a pediatrician is involved in caring for a child’s teeth.

C. Dental Sealants in Schools

Dental sealants are thin plastic coatings that are applied to molars in children’s mouths. A painless and brief procedure, applying a sealant can protect teeth from decay for as much as ten years. They are most effective if applied soon after the mature molar erupts in a child’s mouth. The Surgeon General’s Report on Oral Health in 2000 reported that sealants can reduce decay in children’s mouths by as much as 70%. Sealants are very inexpensive, far less than the cost of filling cavities, and can be applied by a dental technician.

School-based sealant programs have been developed to provide this type of preventive care to children who are otherwise less likely to receive proper preventive dental care; such programs have been successful in the areas that have adopted this approach. The Centers for Disease Control (CDC) and the Task Force on Community Preventive Services are strong proponents of these programs, and funding and support for them has been provided by the Maternal and Child Health Bureau, Health Resources and Services Administration, Department of Health and Human Services. The CDC developed a software program, known as Sealant Efficiency Assessments for Locals and States (SEALS), for tracking the results of the school-based sealant programs, and this software continues to provide evidence of the effectiveness of this public health program.

172. See Integrating Oral Health into Primary Medical/Pediatric Care, 14 COLGATE ORAL CARE REP. 1, 1 (2004).
173. See Georgia G. dela Cruz et al., Dental Screening and Referral of Young Children by Pediatric Primary Care Providers, 114 PEDIATRICS e642, e652 (2004).
175. Id. at 1.
176. Id.
178. See PEW CTR. ON THE STATES, supra note 8, at 27.
179. Id. at 26–28.
181. See Barbara F. Gooch et al., The Role of Evidence in Formulating Public Health Programs To Prevent Oral Disease and Promote Oral Health in the United States, 6 J. EVIDENCE-BASED DENTAL PRAC. 85, 88 (2006).
THE EPIDEMIC OF CHILDREN’S DENTAL DISEASES

D. Dental Screenings as a Condition of School Attendance

In an effort to address parental failure to care for children’s teeth, many school districts have begun requiring proof of a dental screening before children can be enrolled in school.182 Unfortunately, studies have shown that a dental screening alone has no correlation to increased dental health for a pediatric population.183 There is a significant difference between the occasional screening, which can be nothing more than a cursory glance in a child’s mouth every few years to satisfy a school district’s requirements, and the recommended twice yearly dental exam and cleaning that children should receive. Screenings can serve to inform a child (or the parents) that a problem exists, but the child is still left adrift in the current dental infrastructure with no guaranteed referral source available to provide any treatments that the screening reveals are necessary. Furthermore, while a screening may reveal that a problem has occurred, it does nothing to provide the preventive care that will inhibit the problems from happening. Finally, given the insufficient number of pediatric dental care providers that are available, if the person performing the screening is trained in dentistry, an interaction that is limited to merely screening for the presence of a dental problem wastes one of the limited times a child might have this access. It would appear that in an apparent rush to adopt this requirement, many school districts appear unaware of the data proving its lack of effectiveness.184 A more robust screening program, coupled with treatment, could be more effective.


183. See, e.g., K. Milsom et al., School Dental Screening Does Not Increase Dental Attendance Rates or Reduce Disease Levels, 8 EVIDENCE-BASED DENTISTRY 5, 5 (2007) (noting that data support that no improvement results from screening); see also K. Milsom et al., The Effectiveness of School Dental Screening: A Cluster-randomized Control Trial, 85 J. DENTAL RES. 924, 924 (2006).

184. See School Dental Screenings, IOWA DEPARTMENT OF PUBLIC HEALTH, http://www.idph.state.ia.us/hpcdp/oral_health_school_screening.asp (last visited Apr. 14, 2011) (“All children newly enrolling in an Iowa elementary or high school are required to have a dental screening. This requirement was passed by the 2007 legislature and became effective July 1, 2008. The purpose of the dental screening requirement is to improve the oral health of Iowa’s children. Dental screenings help with early detection and treatment of dental disease; reduce the incidence, impact, and cost of dental disease; inform parents and guardians of their children’s dental problems; promote the importance of oral health for school readiness and learning; and contribute to statewide surveillance of oral health.”). It bears noting that this requires two screenings over the course of a child’s education. This is not meant to single out Iowa. England has long required all school children to have screenings, and many other school districts in the United States are also implementing these requirements.
IV. A PROPOSAL FOR SCHOOL-BASED DENTAL CARE: TOWARD UNIVERSAL PEDIATRIC PREVENTIVE CARE

This Article argues that the infrastructure for providing preventive dental care for children should be reassessed and changed for all children. As it is currently structured, it does not, and most likely cannot, provide the level of care required for the entire population of children. Given the range of problems that stand in the way of lower income children receiving timely and adequate access to preventive care, this segment of the population emerges as the most pressing target for immediate reform. This statement is made in light of the fact that the strong commitment of many stakeholders to improving the current system for these children has not been enough to raise the penetration of care anywhere close to 100%. There have been many federal block grants made to states to assist them in providing access to dental care for their children. Even this has not been enough to improve care so that the epidemic is controlled. One must be cautious in shaping calls for reform in language that relates exclusively to income disparity. While family income clearly plays a significant role in this problem, ethnicity also has a measurable correlation with access to care. Furthermore, the significant percentage of relatively well-off children not receiving adequate care implies that there are other impediments to access beyond wealth and ethnicity that have not yet been defined properly. If the goal is providing care to all children, these impediments must be identified.

The solution called for in this Article is to provide all children in the United States with preventive dental care in their schools from a fully trained and plentiful group of professionals, specifically dental therapists. In the short term, however, this outcome seems unlikely because of the sheer scale of the changes that would be required. In the short term, the focus should be on children who are impoverished. Family income identifies children highly likely to be at risk for receiving substandard dental care and schools with high concentrations of these students can be readily identified by using the percentage of children who receive federally funded lunch and breakfast (the school lunch programs) since these programs are based on the family income of individual students. This focus should, however, take into account the children in school districts who are receiving appropriate care and support them accordingly.

The current system focuses on dentists as the primary caregivers and private practices as the location for that care to be provided. Working within this system as it now stands, another solution to providing care to children living in poverty would be to train numerous pediatric dentists to work in private practices that are geographically widespread and welcoming of Medicaid patients. However, this is

185. For a detailed description of these grants, see NATIONAL MATERNAL & CHILD ORAL HEALTH RESOURCE CENTER, MCHB-FUNDED PROJECTS, available at http://www.mchoralhealth.org/Projects/index.html.
not likely to occur, as it would require a substantial increase in the number of
dental schools to train the necessary number of dentists and a significant change
in how dentists who treat Medicaid children are paid in order to create a financial
incentive for them to treat this group in large numbers.

For children who are not living in poverty, there are stop-gap measures that
are likely to increase the utilization of care while using fewer societal resources.
These proposals are delineated below. These measures should be created to not
only improve children’s access to care, but to help identify the impediments to
this occurring. The overall percentage of children who receive all recommended
care is well below one hundred, including those whose parents can afford to
provide it. This could be caused by a simple access problem, given that dental
practices are not dispersed equally throughout the country, and there are some
locations where it is difficult for even committed parents to find appropriate care
for their children. However, it is likely that some of the same problems that have
been studied and documented in lower income families, such as poor parental
understanding of the importance of preventive dental care, parental anxiety about
seeing a dentist, and the difficulties of making time to take a child (or children) to
the required biannual appointments are present in all socioeconomic groups and
are detrimental to children’s care. The answer is unknown and needs to be
identified.

A. School-Based Care

For children from lower income families, particularly those who go to
schools that have a significant percentage of children receiving free lunches and
breakfasts, it may make sense to begin providing preventive dental care in those
schools, at no cost to the students. Providing twice yearly cleanings,
examinations, sealants, cavity and decay treatment and fluoride rinses builds on
the proven success of the dental sealant programs that have focused on reaching
children in their schools.186 Recognizing the shortage of dentists who are
available to treat significant numbers of poor children, and the expense of paying
national retail rates to attract dentists to these patient populations, dental
therapists, or similar professionals, should be utilized to provide basic care and
make referrals to dentists for anything outside the scope of their expertise that is
discovered during examinations. School-based clinics staffed with dental
therapists should both increase access and reduce the cost of providing it from
current levels.

Given the need to refer patients to dentists for the treatment of particularly
serious conditions, the clinics should have an assigned caseworker who manages
children’s referrals to dentists. This will ensure that more serious problems are

186. See PEW CTR. ON THE STATES, supra note 8 (resulting in an impressive increase in the
number of children who receive dental sealants).
properly handled, which is important for two reasons. First, as discussed above, these caseworkers have a proven record of increasing children’s utilization of appropriate care. Second, the use of a caseworker may calm some concerns dentists might have with the introduction of a new form of dental professional that may be competitive with the dental business model. The caseworkers can build up relationships with dentists, providing a steady source of referrals from their schools as well as ensuring that the children who need care do, in fact, arrive at scheduled appointments.

This type of in-school clinic should ensure close to universal care for this population, extrapolating from the experiences in Boston and New Zealand, whose very similar program is discussed below. Furthermore, there have been numerous studies showing the cost effectiveness of preventive dental care, implying that this will eventually save money for the states that implement it, as Medicaid dental costs for these children’s care are reduced over time.\textsuperscript{187}

A case study that proves this model can have an important positive effect on children’s dental health is a program called ForsythKids, which has operated in Massachusetts over the last six years.\textsuperscript{188} This program uses dentists and hygienists to provide care to children, with parental permission, during the school day in the public school.\textsuperscript{189} The schools initially chosen for this study all have substantial at-risk populations with high levels of poverty, as evidenced by more than 50% student enrollment in free or reduced cost lunch programs.\textsuperscript{190} The program has proven so successful that it has since been expanded to fifty-three schools, form the original six.\textsuperscript{191}

In the initial screenings, “77% of the children had untreated cavities and 13% had acute infections or abscesses.”\textsuperscript{192} After two rounds of the full schedule of preventive care, the children are now “virtually free of new tooth decay.”\textsuperscript{193} The average time away from class per year was less than one hour, and the only adverse event was a single abscess that formed after treatment, a rate of less than .05%.\textsuperscript{194}

As this case study shows, providing the full scope of preventive care in schools solves myriad problems. First and foremost, schools are where the children are. As described earlier, dentists who do treat Medicaid patients routinely complain about the large number of children on Medicaid who fail to

\begin{footnotesize}
\begin{enumerate}
\item[187.] See CHILDREN’S DENTAL HEALTH PROJECT, supra note 146, at 1.
\item[188.] See Richard Niederman et al., A Model for Extending the Reach of the Traditional Dental Practice: The ForsythKids Program, 139 J. AM. DENTAL ASS’N. 1040 (2008).
\item[189.] Id. at 1040.
\item[190.] Id. at 1042.
\item[192.] Id.
\item[193.] Id.
\item[194.] See id. at 1044; NIEDERMAN ET AL., supra note 188.
\end{enumerate}
\end{footnotesize}
show up for their scheduled appointments, which implies there are substantial logistical hurdles that impoverished parents face in getting their children to the dentist’s office. Providing care in schools will do away with many of these logistical hurdles, making it far more likely that children will receive regular and timely preventive care. Second, the population of schools is relatively easy to predict, as is the time required for providing preventive care. This makes planning for staffing and scheduling in a school-based clinic relatively straightforward.

Third, funding this care through a single entity, such as a school district, and basing that funding on a set population, such as the number of students enrolled in that school, creates a simplified model of financing, compared to the current, more burdensome process. This, too, is likely to increase the number of children who receive care on a consistent basis, and reduce the cost of providing the care to each person who receives it. Innovative programs created to provide dental care to low-income children often have little on-going funding, instead relying on determining the insurance status of specific children, and then submitting claims for reimbursement to any third-party payer that is discovered. This is laborious, risky, and can cause problems for the care providers, judging from dentists’ other problems with Medicaid billing and claims processes. All of these issues may dissuade dentists from providing these services. As described in Part III, above, given the threat of criminal fraud prosecution, the process of submitting Medicaid claims is, by itself, time consuming and somewhat stressful for dental professionals. Perhaps more importantly, many children have sporadic enrollment in Medicaid or SCHIP, and some do not enroll at all, even though they are technically entitled. If treatment were dependent on Medicaid-enrollment status, a significant and important portion of these children would not receive care. If treatment were not dependent on enrollment, but funding were dependent on claims reimbursements, a funding mechanism incorporated into some school sealant programs would make it difficult to develop consistent funding streams for the dental care that is provided, since varying portions would be offset by Medicaid reimbursements.

Some school districts currently provide dental care to their students and

195. See supra Section II.D for a discussion of current problems with claims processing.
196. See, for example, Colorado’s “Be Smart and Seal Them” school-based, dental sealant program. This program’s central mechanism for providing care is dental hygienists going to schools and applying sealants. The hygienist is expected to submit Medicaid claims for all eligible children, and this is the only source of funding for these programs that is explicitly delineated in the program’s guidelines, beyond one time seed money provided by the state public health department. See Colorado Department of Public Health & Environment, Be Smart and Seal Them! A School-Based Dental Sealant Manual, at section titled “Budget,” available at http://www.cdphe.state.co.us/pp/oralhealth/BeSmartandSealThem.pdf (last visited Aug. 26, 2010).
anecdotal evidence of the success of these programs appears highly favorable. At the present time, there are no large-scale studies conducted in the United States that have examined this closely, but it appears that much of the care is provided by dental hygienists, who then bear the responsibility of submitting Medicaid claims for reimbursement.

B. Increased Use of Dental Therapists

This Article argues in favor of using dental therapists to provide preventive care to children, and this is an area that will require significant changes to the existing legislative and regulatory structure. This profession is emerging as a competent, easily trained, and relatively inexpensive resource. Currently, there are not enough dentists, and the marketplace of dental care is stacked against children from low-income families. The overall demand for dental care nationwide exceeds the supply, making it relatively simple for dentists to fill their practices with those who can afford the national retail rate for their services. As discussed in Part III, Medicaid and SCHIP reimbursement rates are generally far below the retail rate to purchase care from dentists. For lower-income children, it is well documented that it is exceedingly difficult to find a private practice dentist who will treat them, and their inability to pay the market rate for the required services is a primary cause. Dental therapists have been successfully utilized to resolve this shortage in other countries, as well as in certain areas of Alaska.

A new profession requires creating the legal structure to sustain it. Currently, only Minnesota and Alaska have created a structure for licensing dental therapists, and in Alaska the licensing is limited so that dental therapists can only work within specific geographic areas and only treat indigenous populations. Every other state will have to create a licensing structure for this emerging profession, as well as setting parameters for the types of care they can provide for patients. Licensing by itself will not create a market for dental therapists, but the


199. In New Zealand and Great Britain, this is a two-year, post-high school degree, though the first general program in the United States is a forty-month combined dental therapy and bachelor of science degree offered at the University of Minnesota School of Dentistry.

200. See Rural Alaska Native People, supra note 167. The total cost of training a dental therapist from Alaska in New Zealand was between $50,000 and $60,000 including all travel and books.

201. See Berenson, supra note 107.

202. See discussion supra Part III.

absence of a licensing process is a significant impediment to the emergence of this profession. Further actions, such as establishing more schools to train dental therapists, creating liability insurance programs, and changing third party payer arrangements so that dental therapists can be reimbursed are additional necessary steps to altering the infrastructure so that it can incorporate this new model.

C. The New Zealand Model

A model that should be looked at as one way of ending the epidemic of children’s dental diseases in the United States is the system in New Zealand that provides school-based dental care to its children. New Zealand recently faced its own crisis of pediatric dental care and adopted a program similar to the one called for here. New Zealand’s program covers its entire population, rather than only low-income children, who are the focus of this Article’s initial proposal. While New Zealand has been providing some dental care in its schools for more than ninety years, it has recently modernized its system.\textsuperscript{204} All New Zealand children up to the age of eighteen are entitled to receive preventive dental care free of charge.\textsuperscript{205} For children through age twelve, care is provided in dental clinics that are located in the schools that the children attend, or for preschool children, the school closest to where they live.\textsuperscript{206} In the school clinics, dental therapists—salaried employees of the government—provide the care.\textsuperscript{207} For adolescents, care is provided in private dental offices and paid for by the government; the parent selects a dentist or dental therapist, and the family is responsible for taking the child to that office.\textsuperscript{208}

The statistics from this new program, while not perfect, are impressive. In 2002, for children ages five to six, 93.4% received proper preventive care; for those ages seven to ten, 97% did. There is a drop for children ages eleven to fourteen, down to 88.2%.\textsuperscript{209} This decline is most likely due to inclusion of thirteen- and fourteen-year-olds, who do not receive their dental care at school clinics—which reinforces how important the location is to achieving universal care. Within the small percentages of children who do not receive appropriate care, less privileged minorities are over-represented, much as they are in the United States. But the overall numbers are still extremely positive.

This model faces significant hurdles to adoption in the United States. This type of program, with broadly available care at no cost to the patient, requires a significant re-envisioning of the healthcare system. Even without the political

---

\textsuperscript{204} See Nash et al., \textit{supra} note 4, at 63.
\textsuperscript{205} \textit{Id.}
\textsuperscript{206} \textit{Id.}
\textsuperscript{207} \textit{Id.}
\textsuperscript{208} \textit{Id.}
impediments such as the opposition of the ADA, programs for training therapists have to be created. Licensing procedures in every state must be enacted, requiring the creation of numerous appropriate regulatory bodies to govern the process.

New Zealand is a small country, with roughly six million citizens. Historically, the government has provided centralized services in many different areas. The tax burden to support the services is far more equally distributed than in the United States, because the income disparities across the population are far smaller. It may be entirely unrealistic to anticipate the United States developing a commitment to a communal sense of responsibility for children’s health such as exists in countries with more centralized healthcare systems. On the other hand, the language of Medicaid presumptively provides this high level of care to poor children, and this is a proposal to do so in a way that may be less expensive and more effective than what currently occurs.

D. Certificates of Preventive Care Compliance

In pursuit of the goal of universal adherence to preventive dental care for all children, those children who live in families with more resources should not be forgotten. To ensure that these children receive care, it may be necessary to require proof of full compliance with the ADA’s preventive care schedule as a prerequisite to school attendance. The current dental screening requirements adopted by some school districts described in Part III provide useful information to parents who choose to take advantage of it, but do not appear to have solved the underlying problem of getting all children preventive care on a regular basis. The effect of the requirement proposed here should be relatively minor for the majority of families, as the dentist they already see can simply complete any necessary form when the student is in the office. For those families that do not get necessary care for their children on a regular basis, this requirement will make it extremely difficult to continue to neglect doing so.

It may be that requiring all children to show proof of proper dental care will be extremely burdensome and perhaps impossible for some parents who do not fit current profiles for at-risk families. A significant, known risk for many families is lack of access to a dentist. Requiring that all children receive adequate preventive care should rapidly expose any true shortages of dentists, and will create momentum for the adoption of alternative dental professionals. Requiring proof of compliance may also expose other impediments that are causing problems for families, which will be extremely helpful for purposes of identifying systemic problems in the dental healthcare infrastructure. Learning about the parents who, while earning family incomes above the poverty line, still have serious challenges in accessing appropriate care, is necessary to design a program that will meet their needs. On the other hand, given the apparent ability of these families to acquire dental care when a problem presents itself, it may be
that failure to provide proper preventive care is caused by a lack of commitment, and this program should rectify that problem.

V. IMPEDIMENTS TO CHANGE

The New Zealand approach is attracting attention around the world, but it faces substantial hurdles to being adopted in the United States. The primary problem is the cost of training and licensing of dental therapists and building new clinics. New Zealand uses schools to provide care, but its pre-reform infrastructure already included dental clinics in many schools; so the reform there could build on this.210 This infrastructure does not exist in most schools in the United States and will require a significant investment to develop. The secondary problem is political and societal. The dental profession, while divided, overall appears reluctant to readily embrace the dental therapist as a profession. Furthermore, providing care in schools may alarm parents, who may perceive it as a loss of control over their children’s health care.

A. Cost of New Infrastructure

Change can be expensive to implement, and this type of program requires the construction of numerous clinical environments in schools for providing dental care.211 This means a high initial outlay of funds to generate long-term cost savings, a difficult argument to make in difficult financial times. Furthermore, while the model proposed here would be almost certainly cost-effective by measure of overall cost to society, the current system is sufficiently diffuse as to make it difficult to develop specific evidence of calculable savings for any single participant. Funding sources for dental care currently include individuals, employers, multiple governments and school districts, as well as taxpayers. The cost of poor dental care, including the increased prevalence of dental diseases and other health problems caused by the diseases, is borne primarily, but not exclusively, by individuals. It is also borne by the following: healthcare payers who must fix the eventual problems that develop as a result of poor care; the education system; and society, which suffers the cost of less happy, less productive members.212

210. See generally Rhys B. Jones, The School-Based Dental Care Systems of New Zealand and South Australia—A Decade of Change, 44 J. PUB. HEALTH DENTISTRY 120 (1984) (discussing the history of this program).

211. For a rough cost estimate for these clinics, see CARTER, supra note 180. There are two primary approaches to building space for providing care in schools: building a clinic center at the school itself or using a bus or truck that has been outfitted as a travelling dental office. Either approach would appear to require a significant investment, especially considering the sheer number of schools that would need access.

212. For an example of the diffuse cost, see PEW CTR. ON THE STATES, supra note 8, at 14 (“In 2007, California counted more than 83,000 visits to emergency departments for both children and adults for preventable dental conditions.”).
The state Medicaid programs are an exception to this problem, as studies have shown significant cost savings for these programs when children receive timely preventive dental care.\(^{213}\) Unfortunately, while a program such as the one used in New Zealand should offer significant cost savings for state Medicaid programs, these programs are not currently structured to allow for investments in infrastructure and salaried payments to care providers. Medicaid pays when care is provided. Changing this will most likely require coordinated action from Congress, different state governments, and school boards. A model could be based on contacts that Medicaid programs have negotiated with managed care plans, where a flat fee is paid for each child’s care. But the proposal here is still a substantial change from current Medicaid practices.

There are a small number of federally funded dental clinics, and perhaps reform could be modeled on the existing financing structure for these, leaving aside the Medicaid programs entirely. However, using dental therapists and providing care in schools would be a significant enhancement to how these clinics are currently structured. PPACA does include funding for increasing the provision of care in schools,\(^ {214}\) and does not exclude dental care from that funding.\(^ {215}\) This may create working models that can serve to prove cost effectiveness and assuage state government concerns.

**B. The Dental Profession’s Opposition**

It is likely that any change of the scope envisioned here will arouse concerns in the dental profession, which has been profitable and successful for decades.\(^ {216}\) And organizations such as the American Dental Association (ADA) have already proven their power in slowing the adoption of any models that might challenge this profitability.\(^ {217}\) This opposition, however, is not uniform. Several states have or are considering adopting legislation that would allow for dental therapists, and some state dental organizations are meeting privately, without ADA involvement, to organize approaches to what they term “mid-level practitioners.”\(^ {218}\) Furthermore, influential schools of dentistry are showing support for reform.\(^ {219}\) On the other hand, other state dental organizations are meeting to formulate plans to oppose the same model,\(^ {220}\) signaling serious discord within the profession. It is likely that significant opposition from organizations like the ADA will continue to present problems for adopting

\(^{213}\) See CHILDREN’S DENTAL HEALTH PROJECT, supra note 146, at 1.
\(^{215}\) Id.
\(^{216}\) See Berenson, supra note 107.
\(^{217}\) See Alfano, supra note 112, at 12 (criticizing the “dysfunctional” and reflexive opposition of the ADA to new caregiver models).
\(^{218}\) Id. at 13.
\(^{219}\) Id. at 10.
\(^{220}\) Id. at 13.
reforms. Perhaps signaling its recognition of this obstructionist mindset, the federal government has recently excluded the ADA from committees that are studying the delivery of dental care in the United States.\footnote{221}

The potential effect on private dental practices of providing preventive dental care in schools or in private practices of dental therapists should not be overestimated. As described earlier, dental practices are operating at maximum capacity and are not serving the entire population. Furthermore, the number of graduates from dental schools, at current rates, will not come close to equaling the number of dentists who are likely to retire in the next two decades. Focusing initial changes on populations who are currently not served by traditional dentists may ease concerns created by the introduction of this form of care-giving model, but the ADA’s previous reaction to dental therapist proposals, such as the one in Alaska, implies otherwise. Given that much of Alaska has no dentists, and that the population of dental therapists consisted almost entirely of Native Americans from Alaska, it seemed to have presented no threat to the ADA. Yet its opposition was fierce.\footnote{222}

Data generated by the successful ForsythKids program, described above in Section IV.A, shows a program where the traditional dentist-hygienist team were successful in treating at-risk children, and could be used as an argument for why the dental therapist model is unnecessary.\footnote{223} However, it is unclear whether any increased efficiency gained by providing care in schools will offset the terrible shortage of dentists now and into the future.

\textbf{C. Parental Concerns}

It is not difficult to imagine that a parent might feel frightened at the thought of a stranger providing medical care to her child, especially when she may have no opportunity to meet the caregiver or supervise the interaction. While the provision of dental care in schools may be perceived as a significant convenience to some parents, all parents must be given the option of providing the care themselves at their own cost and with the care provider they have chosen. Preventive dental care is a low-risk medical interaction, and the benefits of providing the care in schools seem to outweigh any theoretical parental concerns. But mandating such care significantly and unjustifiably diminishes parental authority.

This Article’s proposal calls for an initial focus on lower income families, who may not have the resources to pay for a private dentist of their choosing. So as not to unjustly impose a burden of lesser parental authority on less well-off...
parents than on those with greater financial resources, Medicaid should continue to reimburse for care provided to children by dentists in private practice. The parents thus suffer no loss of any choice they may have under the current system, limited as it may be. If care is provided to the bulk of lower income children in their schools, it should make it far easier for lower income families to have access to private practice dentists when necessary.

Finally, parents may be concerned about the loss of classroom time when a student is being treated. As was shown in the discussion of the program in Boston, the average time away from class is an hour, which is less than the time children usually spend away from school when going to the dentist. However, the parents’ ability to seek private care outside of normal school hours should lessen this concern, if not entirely relieve it.

CONCLUSION

Preventive care is absolutely necessary for protecting children from dental decay and cavities. Currently, there is an epidemic of both diseases in children due to the failure to adequately provide this care. This is an inexcusable problem, as the basic requirements for pediatric preventive dental care are well-known, generally low-risk, and cost effective. The problem exists across all income levels, with many children from even upper middle class families failing to receive recommended preventive care.

Certain identifiable groups of children are particularly vulnerable, affected by this epidemic, and suffer dental diseases at a far greater rate than the general population. Low family income, vulnerable racial or ethnic identities, and homelessness all increase a child’s risk. Many of these children already carry an overwhelming number of burdens, including poor nutrition and lack of parental involvement in their lives. The failure to receive preventive dental care in childhood exacerbates these problems. First, dental decay and cavities can cause pain. This pain alone may then lead to lower educational achievements, poor socialization, and an inability to eat proper foods. Furthermore, suffering the diseases of decay and cavities increases a child’s vulnerability to other infections, and at its worst, leads to death from infection.

The problems that spring from poor childhood preventive care persist into adulthood. For example, receiving proper preventive care in childhood can reduce the number of adult teeth lost over a lifetime. Concrete connections exist between missing teeth in adulthood and increased risk of cardiac disease and diabetes. It is likely that the list of health problems linked to dental decay, cavities, and the oral problems they cause will grow, as all evidence leads researchers to believe that the connection between oral health and general health is far more pervasive than had been realized before. Poor oral health in adults, including missing or rotting teeth, also may be unattractive and painful, leading to difficulties in acquiring and keeping employment. Dental problems are
expensive to fix properly, and there is little or no public funding to provide this care to adults, making the burdens of poor oral health beginning in childhood potentially crippling later in adulthood. Finally, childhood impairment of educational and social development caused by dental pain and disfigurement has negative consequences on an adult’s ability to thrive.

As shown here, the current infrastructure for providing preventive dental care to children is not capable of providing this care to all children who need it. Few dentists are available to treat all children, and these professionals are not distributed evenly, leading to geographic areas that contain almost no dental care for people who live there. Medicaid, the primary public insurance plan for children living in poverty, lacks adequate funding to compete for the scarce good of pediatric dental care in this marketplace.

This Article argues that the infrastructure for providing dental care to children needs to be changed, and that much of the necessary change requires fundamental legal reform. Comparatively, dental therapists are easy to train and can begin to fill the gaps in children’s care caused by the shortage of dentists. However, this will require the development of legal structures for training and licensing this profession.

Preventive dental care should be provided to children in schools, ensuring that most children receive it in a consistent manner. New Zealand currently provides preventive dental care to its children in this way, having dental therapists administer the care in schools for children up to age twelve. This program has achieved close to universal treatment for these children, and it is a useful model for the development of a similar system in the United States. Given both the costs associated with a change of this magnitude and the disproportionate suffering borne by children who live in poverty, this program should begin in schools where a large percentage of children receive free or reduced cost meals. But ideally, all children will eventually either receive care in schools or be required to submit proof of having received proper care elsewhere. Providing care in schools requires the development of systems to both pay for the care and administer it.

Many stakeholders have been actively involved in the reform of the dental system, but they all have sought to achieve reform while avoiding wholesale change of the structure itself. The epidemic that children currently face has proven resistant to current reform efforts, and it is time to consider what the legal and regulatory infrastructure of pediatric dental care should look like in the future. It must be designed to reach all children, to have the capacity to care for all children on a regular basis, and to do so at a sustainably affordable cost. The proposal described here will help to accomplish these goals.