



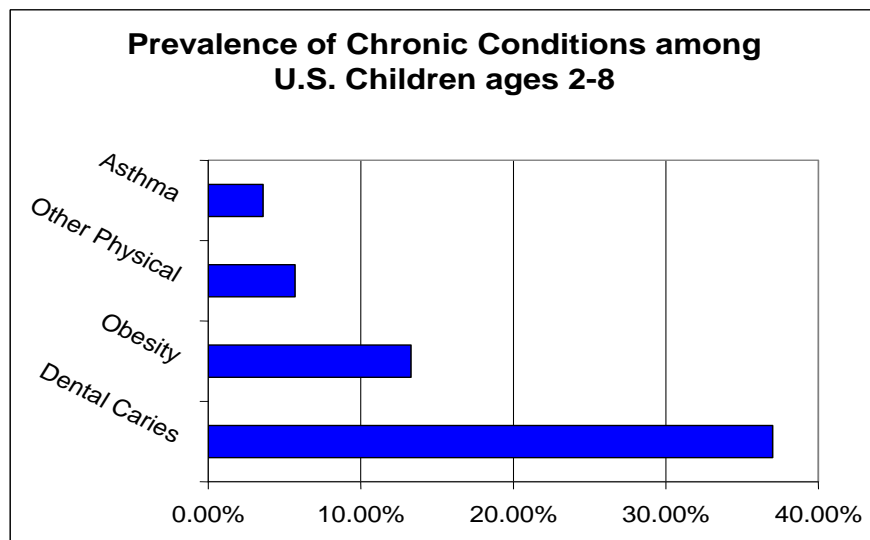
## Cost Effectiveness of Preventive Dental Services

### Preventive Dental Interventions Reduce Disease Burden and Create Savings

Established preventive interventions for childhood tooth decay—including early and regular preventive dental care, fluoridation, and sealants—are effective in reducing disease burden and lowering costs.<sup>1,2,3,4</sup>

Yet millions of children suffer needlessly from preventable dental disease.

Dental caries, the bacterial infection that causes tooth decay, is the most common chronic disease among U.S. children ages 2-8. (See graph.<sup>5</sup>)



**Preventive Care:** Low-income children who have their first preventive dental visit by age one are less likely to have subsequent restorative or emergency room visits. Their average dental-related costs are almost 40% lower over a five year period than children who receive their first preventive visit after age one (\$262 compared to \$546).<sup>6</sup>

**Fluoridation:** Every \$1 invested in community water fluoridation saves \$38 in dental treatment costs, according to the Centers for Disease Control and Prevention.<sup>7</sup> The cost of Medicaid dental programs in fluoridated communities is less than half the cost of programs in non-fluoridated communities.<sup>8</sup> State-based studies in New York,<sup>9</sup> Colorado,<sup>10</sup> and Texas<sup>11</sup> have also documented savings in treatment costs through community water fluoridation.



*School-based and school-linked sealant programs reduce decay by up to 60%.*

**Sealants:** Sealants prevent cavities on the biting surfaces of molars and reduce associated dental treatment costs, especially among high-risk children. Among these children, sealants avert tooth decay for an average of 5-7 years.<sup>12,13,14</sup> School-based and school-linked sealant programs have been shown to reduce decay by up to 60%.<sup>15</sup>

## Innovative Models Demonstrate New Potential for Better Outcomes, Lower Cost

Early childhood caries can be prevented. Evidence is building that true cost savings associated with improved health outcomes (measured as reduced dental repair for affected or high-risk low-income children) and improved patient experience is possible through ECC management.

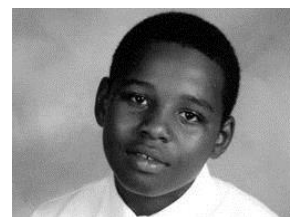
- System dynamics modeling by CDHP and partners in Colorado suggests that disease management could reduce dental expenditures by up to 28% over 10 years.<sup>16</sup>
- An ECC management effort targeting 1-5 year olds in Alameda County, California through a WIC collaboration is reporting a 54% cost savings (after anticipated Medicaid reimbursements and donated facilities).<sup>17</sup>
- A Boston Children's Hospital ECC management endeavor reports drops in operating room use, new cavity occurrences, and pain experience (figure below).<sup>18</sup>

	Historical Control	Rate Target	ECC Improvement Rate Achieved	Improvement % Achieved
Operating Room Utilization	20%	16%	9%	55%
New Cavitation	72%	48%	22%	69%
Pain	20%	10%	10%	50%

- A birth-to-3 ECC intervention in Los Angeles County anticipates break-even at 3-4 years and cost savings accrual thereafter.<sup>19</sup>
- An Oregon Medicaid managed care plan reduced ECC treatment costs in the hospital by 30% in one year through medical management of ECC (\$7M in 2011; \$4.9M in 2012).<sup>20</sup>

## Lack of Preventive Care Has Costly, Sometimes Tragic, Consequences

Lack of preventive oral health treatment can generate significant costs and suffering. Without access to regular dental services, dental care may be postponed until toothaches and infections become acute and care is sought in hospital emergency departments.<sup>21</sup> The cost to treat caries-related symptoms on an inpatient basis is approximately 10 times greater than in a dental office (\$6,498 compared to \$660).<sup>22</sup> Further, because caries is a transmissible, diet-dependent disease, ER treatment does not typically arrest the underlying disease, so infections may recur.<sup>23</sup>



*Deamonte Driver, 12, died in 2007 from infection caused by dental decay.*

## Dental Insurance Increases Use of Preventive Services

Interrelated social and demographic factors can limit children's access to preventive dental care.<sup>24,25</sup> Children from low-income families are half as likely as wealthier peers to access preventive dental care and are 2-3 times more likely to have untreated dental disease.<sup>26,27</sup>

Dental insurance plays an integral role in access to preventive care. Children with private or public dental coverage are 30% more likely than uninsured children to have a preventive dental visit in the previous year.<sup>28</sup> The estimated cost savings for preventive care is \$66-\$73 per cavity prevented among young Medicaid-enrolled children.<sup>29</sup>

Updated April 2013 by Adam Lincoln, MPA, and Shanté Alerté, MPH. Developed in 2005 by Shelly-Ann Sinclair, MPH, and Burton Edelstein, DDS, MPH. See citations here: [http://www.cdhp.org/resource/cost\\_effectiveness\\_preventive\\_dental\\_services\\_0](http://www.cdhp.org/resource/cost_effectiveness_preventive_dental_services_0)