

The Cost of Orofacial Pain



Not having access to regular dental care can lead to chronic pain in the mouth and face (orofacial) and to various dental diseases. It can also lead to other serious health problems, such as heart disease, stroke, and adverse pregnancy outcomes.^{1,2} Other downstream consequences, such as opioid use disorder and related crime, are less well understood. The Patient Protection and Affordable Care Act of 2010 (ACA) maintained adult dental coverage as optional under Medicaid, thereby continuing the trend of millions lacking access to regular dental care. This Policy Brief, based on analyses conducted by researchers from the Medicaid|Medicare|CHIP Services Dental Association (MSDA) and Brandeis University, explores downstream negative consequences beginning with chronic orofacial pain. The Brief further provides initial, partial estimates of the resulting cost to society.

Linkages: Dental Pain > Social Ills

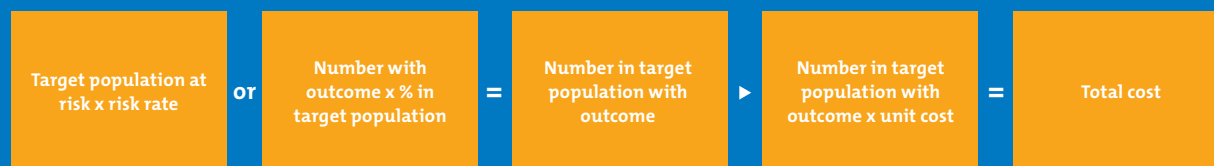
Estimates of nationally representative data from 2011-2012 National Health and Nutrition Examination Survey (NHANES) show that at least 60 million adults (i.e., 21+ years old) reported not seeing a dentist in two or more years, and at least 14 million suffer frequent dental pain. The overlap between these two groups is approximately 4.5 million. This number represents the potential at-risk population for negative socio-economic impacts resulting from continued use of painkillers (analgesics), both opioid and non-opioid, for the relief of orofacial pain.

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Researchers have mapped linkages from chronic dental pain to end-stage renal disease, liver transplants, opioid-related emergency department visits, and opioid-related crime. Further calculation showed an associated minimum additional 2,355-10,394 property crimes and an overall attributable cost in these four negative outcomes of \$0.3 to \$1.3 billion per year.

The model below may be used to estimate the number of people and the costs associated with negative outcomes preceded by chronic orofacial pain.

Figure 1. Simplified model for estimating costs of negative impacts of chronic orofacial pain.



Linkages between chronic orofacial and alcohol, opioid, and heroin use disorder have the potential to impact end-stage renal disease, gastrointestinal bleeding, acute renal failure, cardiac events, liver transplant, opioid-related crime, opioid-related emergency department (ED) visits, early death, HIV infections, hepatitis infections, and lost productivity. Of these impacts, current evidence supports an economic model for four: End-stage renal disease, liver transplant, opioid-related crime, and opioid-related ED visits (see Figure 1).

Rates of risk for each linkage came from the literature. These rates were combined with the number of people at risk at each stage of linkage to a given negative impact. Attributable risk rates for key steps (i.e., developing opioid use disorder, committing a property crime, making a drug-poisoning emergency department visit, and developing end-stage renal disease) adjusted for the fact that some people would have suffered the impact regardless of access to dental care. A similar adjustment was also made for liver transplants. For non-crime impacts, indirect costs were derived from direct costs based on patterns for all pain costs. Alternative methods and data sources generated ranges for each result.

Impact and Costs

Preliminary results show 113-3,638 related end-stage renal disease cases, costing approximately \$120-\$523 million; 4-77 attributable liver transplants at an estimated cost of \$7-\$121 million; 2,418-10,670 excess opioid-related ED visits at an estimated \$109-\$489 million; and 2,355-10,394 attributable opioid-related property crimes, costing approximately \$30-\$132 million. The total attributable annual cost to society is \$266 million to \$1.26 billion.

Researchers recognize limitations due to using disparate data sources, and suggest the resulting estimate of about \$0.3 to \$1.3 billion in attributable societal costs represents an underestimate of the true costs to society. For example, the initial target populations from the NHANES data did not include “institutionalized” people, e.g., those in nursing homes, the military, or prisons. The prevalence of kidney disease used was 3%, whereas some national estimates give 10%.³

Conclusion

Unmet dental disease leads to chronic orofacial pain and substantial use of analgesics, both opioid and non-opioid. These pain-killers in turn can lead to about \$0.3 to \$1.3 billion in costs from just four subsequent, negative outcomes: end-stage renal disease, liver transplants, opioid-related crime, and opioid-related Emergency Department visits.

These costs are in addition to other more direct health costs, such as heart disease and strokes. Given that pain is estimated to cost the nation at least \$560-\$635 billion⁴ (in 2010 dollars), addressing orofacial pain will likely make a much larger impact than estimated here. More work is needed to fully understand additional costs to society from these and other downstream impacts. Indeed, universal access to timely, quality dental care for adults in the U.S. has the potential to offer a high return on investment.

Policy Implications

These findings have important policy implications. Increasing access to routine oral healthcare services through an adult Medicaid dental benefit may decrease levels of untreated dental disease, the subsequent need for analgesic pain management, and the consequential costs to society. Furthermore, costs associated with these four negative impacts of orofacial pain management may be averted and savings used to support expanded access to comprehensive oral healthcare.

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