

# linking oral and ocular health with comprehensive health and well being:

## stabilizing healthcare costs by sharing dental and vision encounter data, providing clinical review

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### abstract

Dental disease and poor ocular health are indicators of acute, chronic, and systemic disease. Study after study indicates that afflictions such as heart disease, diabetes, stroke, hypertension, multiple sclerosis, and HIV/AIDS often can be discovered during a routine visit to the dentist or eye doctor.

Dentists and eye-care physicians are frequently the first to detect symptoms of systemic disease and are valuable assets to benefit companies' care coordination and disease management programs. With increased demand for health care cost savings, early detection, preventative care, and ongoing management of disease are critical components of cost-effective care delivery system.

Eye doctors' and dentists' clinical observations are important supplements to the information medical insurers collect through health risk assessments, diagnostic screenings, and claim administration processes. Cross-referencing dental and vision diagnostic and claim records with medical data creates opportunities to identify and control disease in its earliest stages. Data sharing and clinical assistance represent two of the key tools in which dental and vision carriers can add significant value in containing overall healthcare costs

### scope of the problem

Despite the breadth of research that correlates oral and eye health with systemic disease, many traditional models of healthcare delivery do not fully take into account that eye doctors and dentists are trained to recognize the signs and symptoms of systemic diseases in their early stages before intense and very expensive medical intervention is required.

Individuals enrolled in dental and vision benefit plans seek care from their dentist or eye doctor far more frequently than those who do not have coverage.<sup>1</sup> However, only 46 percent of full-time employees are covered by dental insurance while even fewer—28 percent— are covered by vision plans.<sup>2</sup> Without dental and vision benefits coverage, many people choose to skip regular oral and eye examinations, thus forgoing an opportunity for the early detection of more serious disease. The potential for the onset of diabetes or the occurrence of a stroke often can be detected through signs and symptoms, which manifest in the eye and mouth. Diabetes and periodontal disease are often seen simultaneously,<sup>3</sup> and certain abnormal blood vessel conditions in the eye can be an early predictor that a patient is at high risk for a stroke.<sup>4</sup>

dental disease: the canary in the coalmine - The *New York Times* quotes one researcher who calls dental disease "the canary in a coalmine."<sup>5</sup> The United States Surgeon General agrees that the mouth is a "mirror for general health and well-being."<sup>6</sup>

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Periodontitis, a severe infection of the gums, is the most chronic infectious disease in the world.<sup>7</sup> The mouth is an ideal breeding ground for bacteria and those affected by periodontal disease are at increased risk for potentially fatal bacteria entering the bloodstream via infected oral tissue. Those suffering from periodontitis are highly susceptible to major health issues such as premature births and low birth-weight babies, cancer, anorexia, vascular and heart disease including that caused by the introduction of germs that attack the heart's mitral valve.<sup>8</sup>

- Periodontal disease in an expectant mother has been identified as one of the signs that an infant will be born prematurely or at a low birth weight.<sup>9</sup> Direct healthcare costs to employers for premature babies averages more than \$40,000, 15 times higher than healthy, full-term deliveries.<sup>10</sup>
- People with periodontal disease may be at greater risk of heart attack or stroke. Recent studies have shown that the inflammatory effects of periodontal disease help to promote blood clot formation in arteries.<sup>11</sup>
- Almost 80 percent of dentists have referred patients to medical doctors for diabetes, 66 percent have referred patients for heart disease and 21 percent have referred patients for osteoporosis.<sup>12</sup>
- Nearly 75 percent of Americans between the ages of 35 and 44 experiences periodontal disease.<sup>13</sup> By age 55, that number increases to almost 80 percent.<sup>14</sup>

vision care: one of the nation's greatest unmet health needs. Eye health ranks second only to oral health as the greatest unmet public health care need in the United States.<sup>15</sup> While more than half of Americans require vision care, fewer than 29 percent have access to a benefits plan that includes annual examinations.<sup>16</sup>

Routine eye examinations can identify individuals who are at-risk for stroke, heart disease and other conditions. Scientists at the University of Sydney (Australia) presented in *Neurology*, the journal of the American Academy of Neurology, findings that indicate people with changes in their eyes' blood vessels are more likely to have strokes and other vascular disease.<sup>17</sup>

- Hypertension and diabetes are two of the most common illnesses eye doctors diagnose.<sup>18</sup> People with diabetes and prehypertension are four times more likely to develop heart and blood vessel disease.<sup>19</sup> Hypertension is expressed in the eyes as hypertensive retinopathy—damage to the retina from high blood pressure.<sup>20</sup> The detection of hypertensive retinopathy with the use of an ophthalmoscope has long been regarded as part of the standard evaluation of persons with hypertension.<sup>21</sup>
  - Unexpected refractive changes can be an early indicator of diabetes.<sup>22</sup>
  - Multiple sclerosis can present with several vision disorders, including loss of vision, double vision, and uncontrollable rapid eye movements.<sup>23</sup>
  - Cholesterol deposits may be observed in certain structures of the eye, such as the retina, during a comprehensive eye exam.<sup>24</sup>
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## CompBenefits capabilities implementing clinical review and data exchange

As part of its delivery of dental and vision benefits, CompBenefits can capture encounter data to forward to medical carriers, disease management companies, and care coordinators as an added dimension to early disease detection and management. Following are two specific examples of how sharing encounter data can save healthcare dollars—and lives:

- Lesions in the mouth can be the first signs of life-threatening, immunodeficiency diseases like HIV/AIDS.<sup>25</sup> These lesions are “strongly associated” with gingivitis and periodontitis as well as a host of other oral symptoms like candidiasis, oral hairy leukoplakia, kaposi sarcoma and xerostomia (dry mouth).<sup>26</sup> By combining the discoveries of early oral manifestations of HIV/AIDS that are supplied to CompBenefits with medical doctors’ diagnosis of human papilloma virus (HPV) infection, medical insurers can assist a member—who appears to be at-risk for HIV—in seeking appropriate care before the onset of AIDS.<sup>27</sup>
- Blurred vision is a sign of blood sugar dysfunction, which can ultimately cause permanent loss of vision if left untreated.<sup>28</sup> A person can develop both hypertensive retinopathy and macular edema and, initially, maintain their vision quality.<sup>29</sup> As eye health begins to deteriorate, patients may seek an examination from their eye doctor, who can report observation of symptoms to CompBenefits. This information can be the missing piece medical benefit plan administrators need to infer that a member is at a high risk for developing—or having—diabetes.

**clinical expertise:** In addition to sharing data, CompBenefits’ dentists and eye doctors can, on a consultative basis, provide their clinical insight based on the combination of claims data, treatment plans and outcomes. CompBenefits’ dentists and optometrists can review and interpret medical, dental, and vision records and make recommendations for treatment.

Because they are trained as medical professionals who approach diagnosis and treatment from a more specialized point of view than general-practitioner medical doctors, CompBenefits dentists’ and eye doctors’ input will bring a different perspective to health care management. Beginning with treatment- and diagnosis-specific information, CompBenefits clinicians can look for parallels between dental and vision codes and the reports medical carriers collect and can then draw conclusions or inferences from these patient files.

**data integration:** CompBenefits utilizes state-of-the-art tools for data exchange of membership, diagnostic, claims, and financial information with its customer and partners. Data can be provided in a variety of industry-standard claims formats as well as non-standard formats. To supply medical carriers with diagnosis and treatment code data, CompBenefits can create American National Standards Institute’s (ANSI) recommended 837-Dental and 837-Professional (vision) transaction files. The 837-Dental files are based on CDT-2007-2008 codes, and the 837-Professional files will contain ICD-9 codes. For companies with other dataset requirements, CompBenefits can provide flat files to suit the customers’ needs.

CompBenefits can produce data based on these dental treatment codes: D0100-D0999 (diagnostic), D1000-D1999 (preventive), and D4000-D4999 (periodontics). Vision diagnostic data can be categorized under four ICD-9 codes: Diabetes (250), hypertension (401), vascular disease (430-438), and autoimmune disease-multiple sclerosis (340).

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## **Conclusions**

Eye doctors and dentists are often the first medical professionals to identify underlying—perhaps hidden—signs of serious health problems before they escalate or become difficult to control. Routine oral and eye examinations can lead to early detection of suspicious signs and symptoms of acute or chronic systemic disease.

Dentists' and eye doctors' encounter and claims data, when combined with other medical data, can be a very effective tool in the facilitation of early detection of disease. However, historically, dental and vision benefits carriers and medical insurers have rarely worked together, or even shared encounter data.

By capturing important vision and dental information, CompBenefits offers medical carriers additional data in order to draw conclusions about an individual's healthcare needs. CompBenefits' clinical experience, benefit plan configurations, data warehousing, and electronic data integration expertise combine to make its dental and vision benefit plans a valued component of any overall medical benefits plan.

### **leading the dental and vision benefits industry.**

CompBenefits provides dental and vision benefit plans to over 4.8 million members in 31 states, offering a diversified portfolio of products designed to fulfill the oral- and eye health benefit needs of public and private sector employer groups, government-sponsored plans, health plans, and individuals. CompBenefits delivers its broad suite of dental benefit plans through a provider network of 20,800 dental locations and its vision benefit plans through an extensive network of 18,800 independent optometrists and ophthalmologists. The company is an industry leader in providing barrier-free, easy-to-access dental and vision plans. With low or no co-payments, CompBenefits' flexible and innovative plans stress comprehensive oral and eye health examinations that include preventive and diagnostic care.

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