

DENTAQUEST

IMPROVING PROVIDER PERFORMANCE AND PATIENT OUTCOMES WITH EVIDENCE-BASED SCORING

Elder Research developed a provider risk scoring model that enabled targeted intervention with low quality providers and reduced per patient cost by nearly 25 percent.



INDUSTRY

- » Healthcare Insurance

BUSINESS NEED

- » Determine a simplified metric to assess service provider performance to improve patient outcome and reduce cost

SOLUTION

- » Developed a provider risk scoring model that provided a 360 degree view of each service provider

BENEFIT

- » Reduced Paid per Patient expenses by 25% in the pilot state
- » Increased revenue by more than \$1 per patient per month

THE CHALLENGE

Faced with increasing dental cost, poor quality, and limited patient-centric measures for assessing outcomes (see Figure 1), the dental industry is developing performance measures to promote better patient outcomes and foster professional accountability. DentaQuest was already using analytics to deliver value with existing claims data and to assist operations when they engaged Elder Research. The goal of the project was to improve on existing models used for assessing the performance of Medicaid Dental providers. The existing models were developed to ensure long-term savings for the program by ensuring patients received the highest quality care for the lowest cost. However, DentaQuest wanted to create a single simplified risk score that would provide a holistic 360 degree view for each service provider.

THE SOLUTION

In addition to the DentaQuest team, Elder Research worked with clinicians and network providers with operational and subject matter expertise. The transactional claims data used to develop the model encompassed five years for hundreds of programs, thousands of dentists across 38 states, and millions of members. The

US National Dental Expenditures 2000-2020 (\$ Billions)

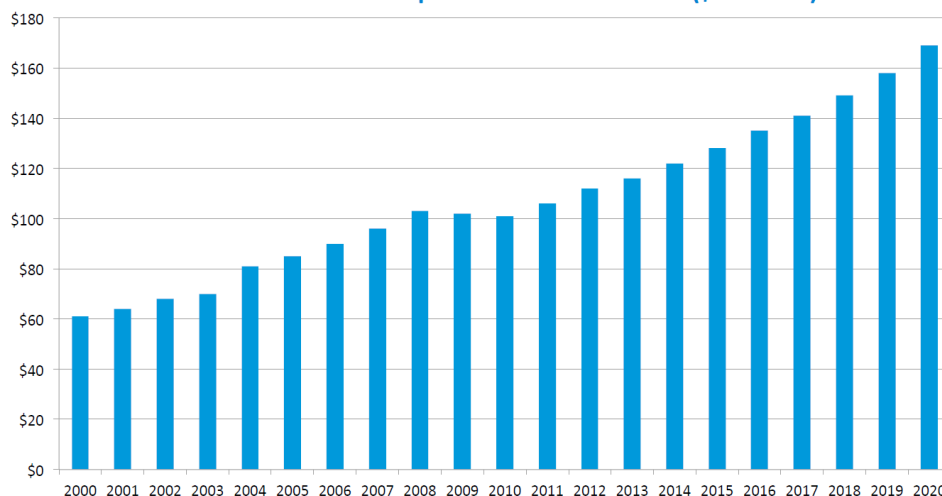


Figure 1. US National Dental Expenditures 2000-2020

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approach for the outcomes model required distilling the results into a single risk score that encompassed the three dimensions of Outcome, Quality, and Utilization Intensity to provide a 360-degree view of a service provider. Comparing provider scores across the different dimensions, there was a high correlation between the existing Outcome and Utilization Intensity models. However, there was low correlation when comparing the other dimensions.

The Bayesian adjusted binomial provider scoring model developed by Elder Research provided a different view of risk by combining the three dimensions. The model incorporated standard quality measures established by the American Dental Association (ADA) and accounted for geographic and socioeconomic factors, and also incorporated clinical review results data to adjust the scored results.

RESULTS

The solution focused on outcomes by tracking results over time and allowed DentaQuest to see early results in small increments. The Outcomes model provided quality information for specific procedures over time and enabled DentaQuest to reduce the amount paid per patient by 25 percent in the pilot state and to increase revenue by more than one dollar per patient per month.

CUSTOMER INFORMATION

DentaQuest is the third largest dental benefits administrator in the United States. The innovative dental benefits solutions they offer clients deliver better outcomes at a lower cost to approximately 22 million members across the United States. DentaQuest is developing new ways to improve the effectiveness of care delivered through

ABOUT ELDER RESEARCH

Elder Research is a recognized leader in the science, practice, and technology of advanced analytics. We have helped government agencies and Fortune Global 500® companies solve real-world problems across diverse industries. Our areas of expertise include data science, text mining, data visualization, scientific software engineering,



Figure 2. Example results from the multidimensional outcomes model. The Utilization Intensity score is represented by bubble size (a larger bubble represents a lower score).

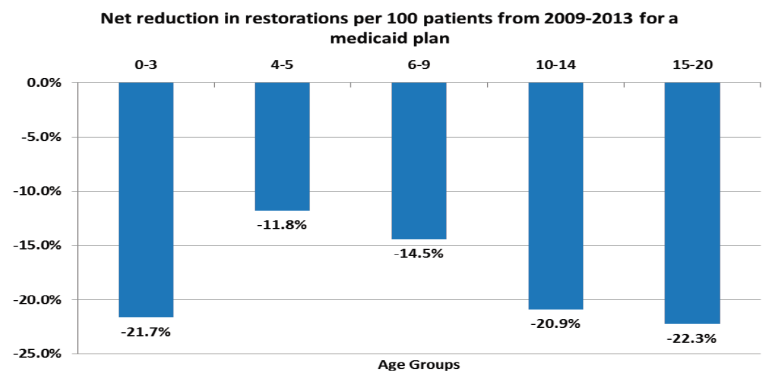


Figure 3. Results tracked over five years show a 20 percent reduction in the number of restorations per 100 patients.

private dental offices, hospital-based clinics, and safety net dental programs through the research and clinical care practiced at the DentaQuest Institute. The DentaQuest Foundation is working with local, state, and national partners to raise oral health awareness and promote effective oral health solutions.

and technical teaching. With experience in diverse projects and algorithms, advanced validation techniques, and innovative model combination methods (ensembles), Elder Research can maximize project success to ensure a continued return on analytics investment.

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