2021 is shaping up to be the year of artificial intelligence (AI) for the dental industry. Not only are providers adopting AI at a rapid pace, payers are tapping this technology to automate their claims review operations and reduce friction in provider interactions. In part three of this six-part dental AI series, the authors offer their view from the frontlines of dental claims processing and the promising future impact of AI. Representing clinical and business viewpoints, the authors draw on experience working at and with some of the largest dental payers in the country. This article presents a forward-looking perspective on the potential of dental AI to improve payer-provider relations, streamline claims review, and ultimately provide an improved patient experience.

Claims Review Today
While payers have adopted some automation and statistical approaches to support operations, claims review processes still largely depend on manual clinical and administrative intervention in decisioning. This approach can lead to tension between payer and provider, which is often a result of extended processing times, the perception of inconsistency in approvals and denials, and ultimately delayed benefit payment for the patient.

The clinical management teams that review claims and support reimbursement work diligently to streamline payment approval of as many claims as possible that meet clinical criteria to allow benefit payments. These teams face challenges to meet client and legally mandated turnaround times, including navigating multiple technology systems, weighing incomplete or poor-quality documentation, and calibrating across multiple clinical reviewers. In a world of increasing claim submission volume, the efforts required of clinical reviewers in the payer community are daunting. Clinical teams are realizing, and now embracing, that automating much of this manual process through AI technology can help payers, providers, and patients.

Improving Payer-Provider Relations
Both third-party payers and dental providers are crucial to the delivery of quality care and need to be aligned to support oral health outcomes for patients. However, historically a pain point for dentists is dealing with claims reimbursement. Dentists bristle at a claims review process that they feel is opaque and inconsistent. While some tension between payers and providers is natural, even in a perfect system, today much of the unease and misunderstanding between the two sides is driven by the limited clarity of review criteria and its consistent application. Dental artificial intelligence can impact both of these factors.

With regard to review criteria, communicating transparent review criteria for specific procedure codes has long been a challenge. Clinicians at payers work to reduce ambiguity in review criteria. However, it is still possible at times to encounter general clinical language that can have multiple interpretations. For example, a review policy may call for “most of the tooth to be missing,” “radiographic evidence of bone loss,” or a “large area of decay.” Clinicians at payers have taken an interest in AI because it allows them to further increase the precision of guidelines. AI quantifies many of the criteria that previously have required clinicians to interpret subjective terms and scenarios. For example, in scaling and root planing review, AI can quantify bone levels and differentiate between root surface and non-root surface calculus to support data-driven clinical review (Figure 1 and Figure 2).
Dental AI creates for the first time an opportunity for both payer and provider to share common measurements when considering the same documentation. In the near future, dentists who utilize AI within their clinical workflows will be able to understand if claim submissions adhere to the evidence-based, quantified policies of the insurer and if additional evidence may be needed for clinical situations. For example, AI systems in the operatory can reinforce the need for a photograph as documentation of a broken cusp when it is not apparent in a radiograph, as seen in Figure 3 and Figure 4. When providers understand objective measures used by payers upfront, misinterpretations of clinical guidelines can be minimized, and patients can receive the benefits they require in a far more efficient and consistent manner.

Even with a clear, quantified review criteria, clinicians reviewing claims need to apply those standards consistently. Two factors can drive perceived inconsistency in claims review: inter-clinician variability and sampling of claims for review. First, on inter-clinician variability, multiple clinicians reviewing the same radiograph or claim often provide multiple viewpoints on the scenario, just as multiple treatment plans may be proposed for a single patient by different providers. These differences of opinion may be due to training, experience, or even fatigue by the dental consultant. Moreover, the dental consultant is also asked to make subjective “eyeball” measurements. For example, is the amount of missing tooth structure 40% or 50%? AI can support this process by providing consistent, unbiased measurements and applying policy uniformly for a recommendation on each claim. Dental consultants will still make the final decision but can take into account outputs from the AI analysis.

Inconsistency in claims review by dental consultants can lead to increased appeal rates, provider dissatisfaction, and tension between providers and payers. Dental consultants working on AI-powered platforms can review radiographs with standardized visualization and measurements. As illustrated in Figure 5 and Figure 6, AI measurements can document that tooth number 32 is impacted according to clinical guidelines and support reimbursement for a partial bony impaction. With improved consistency, AI-enhanced claims review will ultimately lower costs since every time an appeal is filed or a claim is resubmitted, it increases costs to both the provider and the payer.

Fig 1 and Fig 2. AI measures bone levels and can differentiate between calculus on enamel versus root surface. Fig 1: Radiograph. Fig 2: Caries is detected and annotated in red. (Source: Overjet, Inc.)
The second factor driving perceived inconsistency in claims adjudication is that clinical review processes examine only a small percentage of claims due to limited staffing of dental consultants. Thus, a dentist may submit two separate benefit claims for uniform conditions, diagnoses, and procedure codes and receive benefit payment on one claim but not the other. The reality is that a denial of benefit payment may have been warranted in both cases; however, the approved claim was not assessed by clinical review and therefore benefited by default. The frustration that this situation brings to providers and patients is understandable. AI will enable review processes to screen all reviewable claims and consistently route claims that do not meet clinical guidelines for review by licensed clinicians while automatically approving the rest. With this approach, providers will see claims that meet clinical criteria processed with increased speed and consistency. Claims not meeting clinical criteria will be denied with the same consistency while drawing increased visibility to the policies and provisions of a benefit plan.

Streamlining Claims Review

Beyond the clinical review impact, the entire operational process for claims review will likely undergo transformation by dental AI to streamline processing. The result will be more automation, centralization of information, and less burden for the provider.

It starts at claim receipt. Staff at provider offices submit claims and supporting documentation through clearinghouses, mail, fax, and directly through provider portals. As soon as documentation arrives, AI can assess and verify that all required information for a decision is present. Radiograph full-mouth series images can be cropped, rotated, annotated with AI visualizations, and prioritized for review by dental consultants. Missing documentation for the claim review can be detected upfront instead of discovered days later by the clinical review team. Required documentation can be requested from the provider, or better yet, automatically identified in prior claims submitted for the patient, eliminating a provider follow-up. This review can occur not just at the detection level (ie, is there a radiograph or not?) but at the judgment level of a claims processor, answering questions such as, “Is the subject tooth present in the radiograph?” or “Is this a postoperative radiograph, when a preoperative radiograph is required?” In the future, it may be possible that the user uploading documentation for a claim may receive instant feedback so that any issues can be resolved immediately. In an operational process, discovering drivers of rework early in the process typically reduces overall cycle time, variability, and operating costs.

After claim receipt, dental AI can also verify that documentation meets clinical criteria and supports the bypassing of human clinical review entirely. Automatic clinical approval leads to faster processing times for predeterminations, claim review, and claims resubmissions with additional supporting documentation. It also reduces unnecessary cost and variability in claims review. In some procedures today, clinicians will review five claims for every one denied, meaning 80% of a highly paid dentist’s time is reviewing something that should have been quickly approved. Automatically approving more claims also reduces the potential for erroneous denial of claims that objectively should be approved, helping reduce resubmission and provider frustration.

For claims that do route to processors and clinicians, AI-powered platforms can be used to bring together data scattering across payer technology systems. Claims review staff are often required to navigate among multiple IT systems or external clearinghouse sites, even within a single procedure review. This process creates the risk of overlooking information and can add extra minutes to each clinical review. These minutes, multiplied by hundreds of thousands of reviews, are a real operating cost. The introduction of AI-powered platforms represents a unique moment for technology and clinical teams at payers to come together and thoughtfully decide which tasks can be offloaded to a fast, tireless, and low-cost AI digital worker. In this area, potentially “low-hanging fruit” for many payers includes automating clearinghouse integrations, aggregating all documentation into a single decisioning platform, automating claims documentation follow-ups, and adopting claim review selection powered by dental AI.
Improved Patient Experience
Looking beyond payers and providers, the introduction of AI into claims review will also benefit patients in several ways. The first set of benefits comes from the system improvements highlighted in the two preceding sections. From section one, the improved transparency between payers and providers on clinical review criteria will mean fewer surprise denials, unexpected partial reimbursements, and patient appeals. Consistently applied, quantified clinical criteria will give patients confidence that they can get the most out of their dental benefits with their providers’ treatment plans. From section two, the improved efficiency of reviewing claims will speed reimbursement and lower administrative costs from payers, which will be reflected in slower growth of premiums for patients and employers.

While patients will welcome these first two benefits, the final benefit to discuss is likely to be the one most appreciated during an appointment: instant predetermination. Today, many dental payers offer predeterminations, or pre-estimates. Payers encourage providers to request them for costly or complex procedures. A predetermination may identify contractual limitations or exclusions that apply to a proposed treatment plan, a non-binding estimate on the insurer and patient payment responsibilities, and review of the treatment plan by the clinical team at the payer. While some of this information can and is offered in real-time today through payer websites, the clinical review piece cannot be delivered immediately, and some payers have turnaround times of 2 to 3 weeks for predeterminations. The authors expect dental AI will soon transform this process.

Payers have already started to adopt dental AI for internal claims review, and a parallel AI adoption is underway in provider offices and by dental support organizations (see parts one and two of this Compendium series for more details). Payers looking to offer the best experience for their provider networks will naturally look for ways to bring the two sides together around a common purpose: clarity for patients. Dental AI can be a neutral arbiter of truth analyzing a dental radiograph or photograph for real-time clinical predetermination.

From a patient experience perspective, an individual can have a radiograph taken. A dentist can review, diagnose, and recommend a treatment plan, all aided by dental AI detection and visualizations. Then, instantly, the dentist can share that the patient’s insurer has reviewed the same information and issued a predetermination of benefits. Or, if additional documentation is required, such as a photograph for a proposed crown, the dentist can gather it immediately. Ultimately, this paradigm both removes financial uncertainty for patients and supports oral health by removing delays that can discourage medically necessary treatments.

Moving Toward the Future of Claims Review
Rarely in the healthcare system is a “win-win-win” seen for patients, providers, and payers. Yet, as this article has documented, there is the potential for dental AI in claims review to deliver these wins across the dental system. Undoubtedly, there will be ups and downs, as with any new technology. AI models must continue to handle more edge cases, expand to lower frequency procedure types, and deliver results at both payers and providers to build trust. Dental AI companies will also need to be mindful of regional quality and care variations as they build dataset for model training to ensure models are robust and minimize bias. It is important to emphasize that AI tools are not replacing clinicians at payers, but instead supporting them to do their work more consistently and efficiently. The technology is in its early years, but the promise to improve payer-provider relationships, streamline claims review, and support the patient experience is clear. It is exciting to see the continued transformation of claims review through dental artificial intelligence.

DISCLOSURE
While the authors were pleased to collaborate on this thought-leadership article on dental artificial intelligence, authorship does not imply endorsement of any company or claims review approaches.

REFERENCES