

digital

international magazine of digital dentistry



interview

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Dr Scott D. Ganz

Editor-in-Chief



Fast, faster, fastest...

It is difficult to believe that at one time clinicians lectured using 35mm slides in a Kodak Carousel projector, first using one screen, then two projectors and two screens, and then some clinicians would use three projectors and three screens, all with static images taken with an analogue camera. Of course, this all changed when the graphical user interface became available with the Windows operating system and software like Microsoft PowerPoint was introduced. The problem then became how to move the analogue slides to digital. Many of us either used a service bureau or bought a dedicated slide scanner to digitise the 35mm slides. For those of us fortunate enough to have one of the first laptop computers, we could take the hundreds of 35mm slides imported into PowerPoint and leave the slide carousels at home! This was certainly not a fast process for most, but we were so impressed with the imagery that speed was not an issue.

At the beginning, when the practice of dentistry began to go digital, we were all amazed when objects appeared on a computer screen which could be rotated, sized and enlarged for better viewing. Of course, the technology was not always fast, and the images on the screen may not have reacted with great speed, but it was fascinating! Many clinicians started out with an intra-oral digital camera which could be used to capture images of patients' oral cavities in the hopes of educating patients about their oral condition. We could even create physical prints from the intra-oral screenshots and then technology continued to evolve with the introduction of intra-oral scanners which would capture 3D images of teeth and adjacent structures. These first intra-oral scanners introduced

clinicians to the use of digital technology in dentistry—a major advance for certain! Computed tomography has been used for dental applications since the mid-1980s, but did not reach mainstream US until after the introduction of CBCT scans, starting after the turn of the century. We could then take data from the intra-oral scanner and merge that data with the data set from the CBCT scan to relate the placement of implants to the actual position of the planned restoration, and we could take the next step to export the final implant plan for CAD/CAM or 3D-printing a surgical guide.

All these innovations have taken years for clinicians to embrace, and we are still at the tip of the iceberg in terms of global use of technology. While this is happening, most of the marketing strategies have been to promote the fastest intra-oral scanner or the fastest 3D printer or immediate loading of implants to achieve faster treatment outcomes. A word of caution: digital dentistry is dependent on sound principles of restorative and surgical dentistry, so although fast may be important, we should not move so fast that we may lose the foundation of proper diagnosis and treatment planning. Sometimes, it is OK if a scan takes 30 seconds longer—if it provides the necessary information to achieve the best treatment outcomes for our patients.

Please take a moment to enjoy this latest edition of **digital** to learn current concepts and modalities that will enhance your practice of dentistry.

Dr Scott D. Ganz
Editor-in-Chief



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editorial

Fast, faster, **fastest...**

Dr Scott D. Ganz

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Dental sales a mixed bag as war and supply difficulties bog down pandemic recovery

By Jeremy Booth, Dental Tribune International

Dental companies may have expected a widespread ebbing away of the SARS-CoV-2 pandemic to bring them out of the financial woods. However, the resulting supply chain crisis has choked the world's ports, and the war in Ukraine has caused consumer price indexes and inflation to soar. Owing to these factors, the first quarter of this year arguably provided a stiffer operating environment than that of two years ago, and economic headwinds appear to have finally caught up with clear aligner therapy.

The first quarter was a challenge for the dental giants Dentsply Sirona, Align Technology, Envista Holdings and the Straumann Group—the latter being the strongest performer during the three-month period ended 31 March.

Sales of clear aligners appeared to be unshakeable at the beginning of the pandemic, but this idea was contradicted by minimal—albeit, symbolic—consecutive dips for the world's largest clear aligner manufacturer. Align had recorded six consecutive quarters of sequential revenue growth prior to the first quarter of this year, when total sales of US\$973.2 million (€914.0 million) represented a 5.6% decline compared with the prior quarter.

In a webcast call with analysts, Align Technology President and CEO Joseph Hogan listed three factors that had resulted in a challenging quarter: the continued impact of the COVID-19 pandemic, particularly the strict measures in place in China; a difficult economic environment driven by inflation, waning consumer confidence and supply chain disruptions; and fallout from the war in Ukraine.

Hogan explained that industry data showed a decrease in orthodontic demand. He said: “[The] data from about 700 ortho practices, covering more than 1,000 orthodontists across 1,600 locations in the United States and Canada, showed weakening underlying patient demand trends in the first quarter for both adult and teens and across wires and brackets and clear aligner products.”

Hogan added that new patient visits in North America during the period were down by 7.6% year on year.

Dentsply Sirona navigating troubled waters

Dentsply Sirona's revenue for the first quarter was down 6.1% year on year. In the first quarter of 2021, the company topped one billion in sales, and a year later, this had decreased to US\$965 million. Operating income of US\$93 million represented a decline of 39.5%.

Dentsply Sirona reported preliminary earnings with the US Securities and Exchange Commission and did not submit a Form 10-Q. The company was therefore not in compliance with the listing rules of the Nasdaq stock exchange, where its stock is listed under the XRAY ticker symbol, and was given a period of 60 days to detail the steps it will take to regain compliance. Dentsply Sirona said in a statement in mid-May that it was unable to file its Form 10-Q owing to a pending investigation into its use of incentives to sell products to distributors in the third and fourth quarters of last year. It received a filing of delinquency from Nasdaq.

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These events follow an April leadership reshuffle at the dental giant that included the unceremonious dismissal of Donald Casey as board member and CEO of the company and the appointment of John Groetelaars as interim CEO.

Groetelaars said that it had been a challenging quarter, ending with a disappointing result. He said that US sales had been weaker than in the prior quarters and that COVID-19 restrictions in China, supply chain issues and disruptions resulting from the war in Ukraine were hampering the manufacturer. Dentsply Sirona earns roughly 5% of its revenue in China.

Barbara Bodem, the company's interim chief financial officer, noted that currency exchange rates and increased investments in research and development had contributed to the drop in operating income. "We attribute approximately 60% of the year-over-year decline to the transitory macro challenges of foreign exchange, inflationary pressures, and the impact of COVID in China," Bodem told analysts, noting that earnings per share for the first quarter were US\$0.52 versus US\$0.72 in the comparable period last year.

"Dental companies faced a difficult economic environment during the first quarter of this year."

Straumann Group outperforms

Straumann reported revenue of CHF589 million (€573 million), a year-on-year increase of more than 25% compared with the CHF469 million that it banked for the same period last year. Straumann's sales increased by double digits (on an organic basis) in all regions where it operates, and its sales grew most quickly in the Latin America region.

In Latin America, Straumann's sales for the quarter increased by 56.1% to reach CHF39.3 million. Sales of CHF267.2 million for the Europe, Middle East and Africa region represented an increase of 24.7%, and those for North America—at CHF170.1 million—were up by 23.2%. Sales for the Asia Pacific region amounted to CHF112.3 million, and this represented Straumann's narrowest regional growth margin of 21.7%.

Straumann said in its results that patient volumes had remained strong in most countries during the three-month period, except in China, where local lockdowns to contain the spread of SARS-CoV-2 had interrupted patient flow.

CEO Guillaume Daniellot commented that digital solutions, led by intra-oral scanners, had helped sales, and the company attributed some of its success during the quarter to a strong performance from its dental support organisation business in North America and to sales of premium dental implants in the region. In Latin America, orthodontic sales grew rapidly and sales of the Straumann Virtuo Vivo intra-oral scanner drove revenue growth.

Sales growth in China was constrained by COVID-19 lockdowns, Straumann said, but the impact of this had been partially compensated for by strong sales in fellow Asia Pacific markets Japan and Australia and expansion in India. "Across the region, premium implants and orthodontics contributed strongly to the overall performance," the company said.

Envista leads way to differentiated portfolio and remains upbeat on dental

During the quarter, Envista further aligned its portfolio with faster-growing segments of the dental industry. In January, it completed the sale of its KaVo treatment unit and instrument business to Planmeca and announced that it would purchase Carestream Dental's intra-oral scanner business.

The company's revenue from the first quarter amounted to US\$631.4 million and represented a year-on-year increase of 5.4% in core sales growth. Sales of specialty products and technologies were US\$397.1 million, compared with US\$366.5 million in the first quarter of last year, and sales of dental equipment and consumables decreased to US\$234.3 million from US\$246.1 million. Operating profit for these two segments during the period showed little year-on-year change, being US\$70.3 million and US\$45.5 million, respectively.

CEO Amir Aghdai said in Envista's earnings announcement that the company had performed well in what had been a "challenging macro environment" and that it had made progress towards its goal of transforming its portfolio and building a strategically differentiated dental company. "With the closing of the acquisition of Carestream Dental's intra-oral scanner business, we have now added a suite of world-class scanners and software solutions that further differentiate our portfolio and support our vision of digitising, personalising, and democratising dental care," Aghdai said.

Signalling the company's ongoing optimism about the dental sector, Envista announced in May that it would acquire Osteogenics Biomedical, a leader in the development of regenerative solutions for periodontists, oral and maxillofacial surgeons, and clinicians involved in implant dentistry. The transaction is expected to close in the third quarter of this year.

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- [1] Wen et al. J. Periodont. 2019, 1, 734.
 [2] Schmitt et al. Clin Oral Implants Res. 2013, 24, 576.
 [3] Kloss et al. Clin Oral Implants Res. 2018, 29, 1163.
 [4] Solakoglu et al. Clin Implant Dent Relat Res. 2019, 21, 1002-1016.
 [5] Kloss et al. Clin Case Rep. 2020, 8, 5.
 References available at: www.biohorizonscamlog.com/references_minerossa

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