



# DENTAL TRADE ALLIANCE WHITE PAPER

## Sustainability for Dental Industry Manufacturers and Distributors: An Emerging Topic

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# SUSTAINABILITY ARISES AMID STUDIES, UNCERTAINTY

Bill Dragan, who runs a dental products manufacturer in Shelton, Ct., is a strong believer in introducing sustainable business practices into his family-owned firm.

To a point.

Dragan, president of Centrix, Inc., is converting some plastic packaging into biodegradable cardboard and working with a local utility to install energy-efficient lighting, heating, and air conditioning. The energy programs, he says, are “a net savings to the business. If we can save money and do something beneficial for the environment, that’s a driving factor.”<sup>1</sup>

Yet as Dragan considers further steps to modernize the business founded by his father in 1970, he sometimes feels “overwhelmed. You hear about calculating your total carbon footprint. I don’t have the capacity to do that kind of investment ... I can’t see adding large expenses just from a sustainability point of view. They have to have a business benefit as well. But I think those opportunities exist.”

Dragan’s experience spotlights an emerging focus among some U.S. manufacturers and distributors of dental products, equipment and devices: whether – and how – to integrate sustainable business practices into their existing dental businesses. The topic is still relatively new in the United States, almost a curiosity to some in the industry but a significant part of the business to others. “Understanding the interplay between dentistry, environmental impact and human health is still in its infancy,” according to an examination of sustainable dentistry published by the American Dental Association (ADA).<sup>2</sup>

A DTA review of academic literature from the United States and Europe and interviews with DTA members shows that as information about dentistry’s effect on the environment becomes more available, some in the industry are calling for more sustainable methods of manufacturing, packaging, and transporting dental products and supplies. The advocacy stems from a combination of overarching environmental factors and other rationales more specific to dentistry.

According to the Harvard School of Dental Medicine, the dental industry produces substantial pollutants that include plastic, mercury, lead, and silver waste.<sup>3</sup>

Some of that waste arises from the supply chain for dental products – from extraction of raw materials through manufacturing, packaging, distribution, and ultimately end-user procurement and clinical use. One study, for example, showed that procurement accounts for 19 percent of the carbon footprint for primary care dentistry at England’s National Health Service.<sup>4</sup>

“It is clear that in the product journey, from mineral extraction to clinical usage, all materials used in dentistry have an environmental impact,” according to an examination of the relationship between oral healthcare and the environment.<sup>5</sup>

As recently as 2022, however, the extent of those environmental effects was unclear, acknowledged a joint “stakeholder statement” from the FDI World Dental Federation and the University of Sheffield in England. “The environmental impacts (carbon emissions, air and water pollution) associated with the entire oral health-care supply chain have not been comprehensively determined and, as such, are largely unknown,” it reported.<sup>6</sup>

The Swiss-based FDI federation, the world’s largest membership-based dental organization,<sup>7</sup> has been leading the charge on dental sustainability since launching a program aimed at implementing it in 2021.<sup>8</sup> FDI includes leading U.S. dental industry organizations such as the ADA, though the vast majority of its membership is overseas.

## SCIENCE MEETS ENVIRONMENTALISM

Even as the science on dentistry's environmental impact sorts itself out, the academic activity comes amid an overwhelming consensus among climate scientists that humans "are causing global warming and climate change."<sup>9</sup> While the DTA takes no position on politically divisive issues such as climate change, DTA members said in interviews that society's growing focus on environmentalism has led some in dentistry to push for sustainability, especially younger dentists.

"Everyone is very aware nowadays about environmental protection. We hear it all the time, in advertisements, in product that are promoted," said Richard Campos, Director of Corporate Business Development and International Sales for Solmetex, a Massachusetts-based provider of amalgam separators and other waste compliance products. "The demographics and age groups of dentists have forced them to look at the industry and say 'hey, wait a minute,' I want to have my patients safe, I want myself safe, so I'm going to look for products that are environmentally friendly, low residue, low chemical."<sup>10</sup>

Marv Nelson, chief operating officer of A-dec, a manufacturer of dental operatory equipment based in Oregon, said customers are increasingly asking about what the company is doing to be more sustainable. "More and more people want to do business with companies that have a focus on sustainability," he said. "We need to collectively do what we can to prevent continued disposal of things that aren't good for the environment. And it extends to what we can do to help dentists be more sustainable."<sup>11</sup>

Although experts agree that the U.S. lags behind Europe in sustainability, DTA members said some recent regulation of water quality and amalgam waste has made them pay more attention to the issue. The state of Washington, for example, in 2021 amended its infection control rules for dentists, citing the increasing prevalence of antibiotic-resistant bacteria "in dental settings."<sup>12</sup>

A year earlier, the Environmental Protection Agency began enforcing a 2017 rule on dental best practices for amalgam waste handling and disposal.<sup>13</sup>

Even as awareness of sustainability grows, however, those encouraging change emphasize that dental manufacturers and distributors who choose to participate can start slowly, take things one step at a time – and try not to feel overwhelmed. "Even the small things matter. It doesn't have to be that you're putting solar panels on the buildings," Nelson said. "You don't have to swing for the fences here. You can have a bunch of base hits and bunts."

# WHAT ARE THE CORE PRINCIPLES OF DENTAL INDUSTRY SUSTAINABILITY?

To Campos, sustainability is relatively straightforward. “For the most part,” he said, “sustainability in dental is reducing single use packaging and providing products and boxing that are biodegradable, if possible.”

Jennifer Kim Field endorses those sentiments. But Field, who is Chief Sustainability Officer at Henry Schein, Inc., an industry leader on the topic, also sees sustainability in a broader environmental and social context. She says it fits into a rubric of corporate responsibility for dental companies, part of the effort to reduce carbon footprints to meet greenhouse gas emissions reduction targets. “There is a growing movement out there, and certainly FDI ... has been spooling out guidelines and best practices, but it will take all of us to start galvanizing standardizations for different products.”<sup>14</sup>

Though it depends to some degree on who you ask, experts say that in essence, the core principle of dental industry sustainability is producing products that help deliver high quality oral health care in ways that minimize environmental impacts. Its main components are applying eco-friendly practices to the supply chain, the manufacturing process, product distribution, and transportation– from the factory to the dental chair.

By most accounts, the authority on sustainability is FDI, which defines it as ensuring that oral health care is “delivered ethically, with high levels of quality and safety and (is) environmentally sustainable. In this way, the healthcare opportunities of current and future generations are respected and protected by actively minimizing negative environmental impacts.”<sup>15</sup>

When it unveiled the 2021 sustainability initiative, FDI focused in part on manufacturers and distributors, along with clinical practitioners. “Environmental sustainability in dentistry is multifaceted and involves numerous stakeholders,” the organization wrote. “CO<sub>2</sub> emissions, plastics use, waste generation and other environmental impacts are major challenges at all levels of the dental resource supply chain as well as in care delivery. Reducing the impact of the dental profession on the environment will require action and collaboration from many different actors.”<sup>16</sup>

## COSTS, CULTURE, AND COMPATIBILITY: WHAT DENTAL COMPANIES NEED TO CONSIDER WHEN IMPLEMENTING SUSTAINABILITY

In deciding whether to implement a sustainability business plan/model, members say they try to emulate the DTA's approach of balancing a "dedication to oral health" with the imperative of operating "profitable businesses."<sup>17</sup>

The first consideration, for many, is cost, and experts say far-reaching solutions can be cost prohibitive. "The authors acknowledge that there are obvious practical and financial implications to implementing some of these suggestions and that government subsidies would be crucial to the success of any such proposals," said a 2022 study published by the National Institutes of Health's National Library of Medicine. It recommended steps including switching to green energy companies or using green energy power sources such as solar panels and ground source heat pumps.<sup>18</sup>

But advocates and some DTA members say a range of more practical measures -- such as using energy-efficient equipment and packaging and reducing waste -- can actually save money in the short and long term.

In a 2021 presentation at an investor forum, Henry Schein officials emphasized that the company's three-decade commitment to Environmental, Social and Governance (ESG) principles, including sustainability, had yielded a 12 percent (non-GAAP) compound annual growth rate (CAGR).<sup>19</sup> "Solar panels -- yes, it's upfront initial investment, but what you're going to gain over 3-10 years is cost savings," Field said. "...And it's also weighing that you have a sustainable product. How many new customers can you get over that, and is it a source for revenue?"

Beyond cost, companies need to consider more broadly whether sustainability-related changes can be introduced gradually, without upsetting their work culture -- and whether becoming more eco-friendly is just good for business in a more environmentally focused world. "I've been pushing in my organization to try to reduce waste. It's hard because there is always a cost associated with it and always a change in the procedure," Campos said. "It's a balance of how do you make the changes, where is the return on investment? I'd rather be ahead of the game and capture the market."

In striking that balance, dental manufacturers and distributors are trying to determine the benefits of sustainability versus the tradeoffs -- and if those tradeoffs include business imperatives that limit how far they can go. At Centrix, for example, Dragan says his efforts to move to biodegradable packaging are limited to some degree because certain product lines require single-use plastics to avoid cross-contamination between dental patients. "You have to balance the costs, balance the needs for the doctors, hygienists, and patients against the sustainability of the materials," he said.

## CASE STUDIES

DTA members are wrestling with these factors as some begin to incorporate sustainable practices into their businesses – or continue a sustainability path forged long ago. Here are some case studies to consider:

### Henry Schein

In January 2023, a 91-year-old worldwide distributor of dental and medical supplies introduced a thoroughly modern initiative in an effort to “champion” sustainable business practices.<sup>20</sup> Citing the threat of climate change, Henry Schein launched Practice Green “to encourage practitioners, practice teams, and dental laboratories to become more eco-friendly and to help empower the health care community to establish sustainable practices for a healthier planet.” The program makes available

environmentally friendly products and solutions deemed “green” because they are reusable, contain recycled materials, can be recycled, are biodegradable, or are from a sustainable source.

It was the latest in a series of steps by the New York-based Fortune 500 firm, which spotlights its sustainability and ESG efforts in annual reports and investor presentations. Among Schein’s other initiatives: to increase its North America distribution center recycling program 10 percent by 2025 and by that same year, decrease landfill waste disposed by the distribution centers by five percent over 2020 metrics.

The ultimate goal: to be carbon neutral in supply chain emissions by 2050.<sup>21</sup>

“We’ve had environmental sustainability as one of our pillars and tenets since the Henry Schein corporate responsibility program began, for really 25 years,” Field said. “This is not new for us ... we want to do our part as a company.” Her advice to companies starting out on a sustainability path: “Don’t let perfection be the enemy of the good. You need to start somewhere ... every little bit counts. That’s what’s really important.”

### A-dec

At A-dec, which produces dental equipment including chairs, lights, and cabinets, sustainability had been a more informal priority over the years – but a priority nonetheless.

Nelson said the company has emphasized sustainable methods in manufacturing, an effort that includes recycling metals and chemicals. A-dec has even embraced the Japanese method of “lean” manufacturing made famous by the Toyota production system, which seeks maximum efficiency by eliminating waste.<sup>22</sup>

"We focus on waste reduction, and it's not only the materials we're using but waste in our processes," Nelson said. "When you have hundreds of people looking for direction on what's important, just the concept of waste reduction and elimination is good to have rooted within your culture."

It wasn't until about a year ago that the process became more formalized when the firm established a cross-functional committee to examine sustainable business practices. "They've brought ideas to the table. We're looking at those ideas and figuring out which make the most sense for our business," Nelson said. With the increasing societal focus on environmentalism, he added, "if customers are looking to interact with companies that have a sustainability story, that's good for business."

In a recent step, the company launched A-de Certified Pre-Owned, reselling its own equipment rather than taking the equipment to a landfill. A catchy slogan advertises the program: "Used dental equipment that's new to you. Affordable. Sustainable. Authentically A-dec. Welcome to a better way to buy used dental equipment."<sup>23</sup>

"From an optics standpoint, the message needs to get sent from executive level that this is important," Nelson concluded. "Otherwise, nobody is going to focus on it."

## Solmetex

Solmetex's focus on environmental sustainability extends back to 1996, when the company began providing amalgam separators to help "dental practices meet the EPA's regulations for the safe disposal of amalgam waste."<sup>24</sup>

But the effort kicked up in 2022, when Solmetex merged with two other firms, DryShield and Sterisil, and broadened its focus to providing "comprehensive water management solutions for dental practices." As company executives reviewed their expanded product lines, Campos recalled, "we said, 'wow, we have some products that are really sustainable that actually do help the industry.'"

Among the new Solmetex offerings is a DryShield isolation system that the company says performs the tasks of a high-suction evacuator, bite block, tongue shield, and oral pathway protector in a single device.<sup>25</sup> Campos said the product can be single use and disposable, which was popular during the COVID-19 pandemic, but also offers an autoclavable that allows dentists to disinfect it and use it again. The autoclavable is growing in popularity, Campos said, and winds up cutting costs for dentists because they can use it up to 50 times.

The company's sustainability efforts extend to packaging: it is compiling some products in groups of 10 to use only one box instead of 10. Executives are also examining the purchase of biodegradable bottles to replace the plastic bottles on a line cleaner the company uses.

“We have always made strides to protect the environment,” Campos said.

## Centrix

In Connecticut, Dragan’s search for the “low-hanging fruit” of sustainability led him to the website of a local electric utility. Looking for energy saving opportunities, he came across a program that piqued his interest.

If he upgraded all lighting in his facility, installing motion sensors so lights go on and off as people walk down hallways – and moving to energy-efficient LED fixtures – the utility would pay 65 percent of the cost.

He did – and they did.

“They gave us a grant for 65 percent and financed the balance of the cost at zero percent interest, paid for on the monthly electric bill,” he recalled. The project also included upgrading aging heating and air conditioning units with computer controls to conserve energy.

Though he remains hesitant to take larger-scale, potentially expensive sustainability measures without clear business benefits, Dragan is happy with his initial path. “In just energy costs, we will save \$30,000 a year for a 45,000-square-foot facility with no immediate costs out of pocket. If we can save some money and also consume less energy ... and put less carbon dioxide into the atmosphere, that’s a good thing.”

“It’s a good place to start.”

# BEST PRACTICES

For dental companies that decide to move toward a more sustainable business model, here are some suggested best practices. They are drawn from environmental experts and advocates, along with interviews with DTA members:

## Supply Chain

- With procurement accounting for a large portion of dentistry's carbon footprint, focus on making procurement more sustainable along the entire supply chain.

## Manufacturing

- Do what you can to reduce manufacturing waste, including potentially implementing the lean manufacturing approach.
- Use energy-efficient technologies in the manufacturing process.

## Packaging

- With 33 percent of the waste generated in dental surgery coming from packaging, reduce the overall quantity of packaging.<sup>26</sup>
- Limit single-use packaging especially. Compile dental materials together in larger quantities so you can use a smaller number of boxes.
- When you do need boxes, try to use biodegradable materials as much as possible.

## Plastics

- Dental practices produce large amounts of waste plastic, including plastic cups, gloves, and single-use instruments, along with disposable syringes.<sup>27</sup>
- Plastics are having an increasingly detrimental effect on the environment, since they do not naturally biodegrade.
- As a result, reduce use of plastics wherever possible, balancing sustainability goals with clinical needs of dentists.

## Products

- Redesign dental industry products to eliminate toxicity and produce products that are

biodegradable.

- Prioritize renewable materials in products.
- Reduce single-use products if clinically appropriate.
- Consider more sustainable products such as biodegradable gloves and disposable bib napkins.

## **Shipping/Transportation**

- Since studies show the highest proportion of emissions in dentistry come from travel, try to reduce travel at all levels of the production and distribution process.<sup>28</sup>
- When shipping products, work with other suppliers and manufacturers to consolidate shipments.
- Optimize shipping routes with software solutions that reduce mileage traveled.
- Drive less as part of your business, use more public transportation, and switch to electric vehicles when feasible.

## **Recycling**

- It may seem elementary, but recycling is very important for sustainability goals, to reduce landfill and incinerated waste and the associated environmental consequences.

## **Utilities**

- Consult local electric and other utilities to see if they provide subsidies or grants to upgrade facilities in a more eco-friendly manner.

## **Facilities**

- Adopt energy efficiency in your own buildings and facilities, including lowering lighting costs with LED technology, turning off appliances at night, and reducing use of paper.

## **Organization**

- Form a sustainability committee to advise on ways to improve the business from a sustainability standpoint.

## CONCLUSION

While dental manufacturers and distributors may have varying views on integrating sustainability into their businesses, one thing seems clear: it is an increasingly important topic to consider.

Business owners and boards are of course entirely free to make their own decisions about whether to proceed with more sustainable measures – or even engage in the discussion at all. As this white paper has documented, the sustainability calculation is a complex one, a series of tradeoffs that potentially balance environmental and societal concerns with the imperative to run a profitable business.

But with the environmental and economic debate likely to intensify, it is only through education that dental companies can acquire the information they need to make the best decisions for their businesses.

“It is the beginning of a journey,” concluded Henry Schein’s Field. “And it is a good conversation to have.”

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