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Indiana University-Purdue University Fort Wayne University Relations and Communications

## Emerging Tobacco Products

By **Josh Snyder**

**T**obacco products are constantly changing and evolving, delivering nicotine to users in a wide array of forms. Beyond the traditional smoking and smokeless forms are the new dissolvable orbs, sticks and strips, which provide nicotine to the user without secondhand smoke or spit. And though tobacco products recently fell under new U.S. Food and Drug Administration (FDA) regulations, little is known about the health effects of these emerging tobacco products, and many health care professionals worry that these small orbs, which resemble tic tac® breath mints or candy in appearance, may pose a serious health risk to children.

The first dissolvable tobacco product was introduced in 2001, when Star Scientific released Ariva®, a product that claimed to deliver nicotine to users without producing unhealthy secondhand smoke.<sup>1</sup> Star Scientific followed with another product, Stonewall®, in 2003. In 2009, R.J. Reynolds Tobacco Company began testing a line of Camel brand dissolvable products, which included orbs, sticks and strips.<sup>2,3</sup> The products dissolve in the user's mouth within three to 30 minutes, and spitting is not required. The manufacturers of these products highlight benefits such as the lack of smoke, which they claim makes them a healthier alternative to cigarettes. The convenience of obtaining nicotine where smoking may be prohibited is also a strong selling point.

At first glance, there are many differences between cigarettes and dissolvable orbs that could lead people to assume that the latter are in fact healthier. Other than the lack of smoke and spit, these products are often seen as a viable gateway toward tobacco cessation because of the reduced harm they offer. However, there are many aspects of dissolv-

able tobacco that are just as unhealthy as cigarettes. And the idea of a safe form of tobacco is one that Nancy Mann, RDH, MSEd, is quick to shoot down.

"There is no safe form of tobacco," said Mann, a clinical associate professor of dental hygiene at Indiana University-Purdue University Fort Wayne who serves on the American Dental Hygienists' Association (ADHA) Tobacco Intervention Initiative Committee.

Mann said there is a lot of misinformation regarding dissolvable tobacco products, mostly concerning their perceived healthfulness over cigarettes because they do not produce smoke. She said these supposed health benefits are overblown.

"The only advantage I see to these smokeless tobacco products is that you do not get the secondhand smoke, but they still have nicotine," Mann said. "You don't have that cloud of 4,000 chemicals that you inhale with secondhand smoke. But because they contain nicotine, they are highly addictive."

Mann believes that a major factor in the myth that smokeless tobacco is healthier relies solely on perception.

"The lack of smoke gives people the deception that these products are safer ... as long as you're getting nicotine hits and irritation inside the mouth, it is not any safer," Mann said.

But smoke is not the only way that tobacco users can unknowingly consume dangerous chemicals and carcinogens. K. Vendrell Rankin, DDS, said that tobacco of all forms, whether smoke, spit or dissolvable, contains carcinogens. Rankin is professor and associate chair of Public Health Sciences at Texas A&M Health Science Center, Baylor College of Dentistry.

"When the tobacco plant grows, it naturally absorbs some of the chemicals found in the soil," Rankin said. "The chemi-



**Examination for lesions caused by snus use.**

cals are still present in spit tobacco—the curing process doesn't eliminate these. All tobacco contains carcinogens."

Another unique aspect of dissolvable tobacco is the varying levels of nicotine found in these products. While cigarettes have regulated levels of nicotine, dissolvable products simply do not. Tobacco users may not know how much nicotine they are consuming, a prospect that worries Mann, considering the well-documented addictive nature of nicotine.

"(When consuming dissolvable tobacco), you have a rapid uptake from the oral mucosa," Mann said. "A cigarette is going to deliver about 1 mg of nicotine into the body. A strip, within three minutes, can deliver 0.6 to 3.1 mg of nicotine to the body instantaneously."

The concern Mann and others share is that, due to the small size and dissolvable nature of these products, dental hygienists may have an increasingly difficult time detecting the early warning signs of oral diseases in users. Mann explained how spit tobacco users, who tend to keep the tobacco in one spot in their mouth, will show signs of oral mucosa irritation, which is a precursor to oral cancer and leukoplakia.

"When a dental hygienist does an oral exam, it is very comprehensive," she said. "We are looking in the buccal mucosa, the inner lining of the lips, the tongue and under the tongue, the hard and soft palate, and the tonsils. We look very carefully at all of those structures for any sort of deviation from the normal."

However, while the dental hygienist is experienced in spotting these precursors in spit tobacco users, they may have greater difficulty with dissolvable products.

"The orb is different because it stays on the tongue since it's so small," Mann said.

The inability for dental hygienists to detect warning signs could lead to an increase in these diseases. Because of this, Margaret Fehrenbach, RDH, MS, said this should be a top priority when determining how dissolvable tobacco affects the health, how it should be regulated and how hygienists respond to it. Fehrenbach is a dental hygienist, oral biologist and dental science writer in Seattle, Wash.

"It's a 'clean' product, so your dental professionals won't initially know that you are using it," Fehrenbach said. "We will also not readily pick it up periodontally. And if it 'melts in your mouth' ... then it's not confined to one area in regards to its toxicity."

Further complicating the matter is the lack of research and knowledge that is available regarding these products. According to Fehrenbach, there are too many limitations when designing and implementing studies on the potential long-term effects, such as the high cost of research in an uncertain economy.

"There is so little information on them right now," she said. "It's a lot of hypothesis. We know cigars, we know cigarettes, we know spit tobacco, but dissolvable tobacco—it's unknown."

Many tobacco users turn to these alternative products in the hope that they will work as a cessation product. Despite warnings from tobacco companies that these are not intended for cessation, Rankin said that many users see them as attractive alternatives.

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"Nicotine replacement products have a stigma—people think they don't work so they try something new. However, they fail to understand the dangers of what they're substituting," she said.

Unfortunately, people who switch to alternative tobacco products do not end up cutting tobacco out of their lives. Rankin pointed to a study that showed that people who switched to spit tobacco, with the hope of quitting, were still smoking or consuming chewing tobacco six months later.<sup>4</sup>

"The goal of the nicotine replacement products is to use them in a tapered form, so you are eventually nicotine free," Rankin said. "The nicotine replacement products do not contain carcinogens, and nicotine itself is not carcinogenic."

Since dissolvable tobacco products still contain carcinogens, Rankin said they should not be used as a cessation product. She sees them as a product that is marketed as a form of tobacco that can be consumed anywhere, without social repercussions.

According to Mann, a large part of cigarette addiction that most people ignore, is the hand-to-mouth motion required.

"One of the draws to smoking that smokers tell us all the time is the extreme habit of the hand-to-mouth motion," Mann said. "People love that—they are actually addicted to the hand-to-mouth motion."

When people attempt to halt their nicotine dependence with dissolvable products, they are not taking this movement into account. When it comes to cessation, Mann often recommends a product called the Nicotine Inhaler, which also requires that hand-to-mouth motion while also lowering nicotine dependence. The Nicotine Inhaler is a form of nicotine replacement therapy. She said that this method works when compared to the dissolvable forms because it actually breaks the habit and reduces nicotine consumption.

"These new dissolvable products are not a good alternative because they contain significant amounts of nicotine," Mann said, adding that since these products contain those high levels of nicotine, they do not make a good step-down product.

Though dissolvable tobacco products raise many concerns about health effects, addiction and myths surrounding cessation, the greatest cause for alarm is their accessibility to children. Health care professionals worry that their candy-like appearance and the ability to easily conceal their use may give children the false impression that these products are healthier than smoking, and make it harder for parents or school officials to spot children using them. Mann believes it should be a goal of all dental hygienists to educate children on the dangers of these products.

"Dental hygienists need to be advocates for tobacco-free environments and education at every level," she said. "We are obligated to educate the public about this."



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Mann practices this by having her students educate children in grade school, starting with preschoolers. She teaches her students how to perform three-minute chairside interventions, and how to explain the importance of cessation with youth. She said the message should focus on how hard it is to break the addiction to nicotine and how to take action. However, Mann admits that, when dealing with youth, that message is sometimes tough to deliver.

"Tobacco cessation messages are difficult for adolescents or young people who do not have any of the medical complications from smoking," she said. "By the time the symptoms come on, they are so heavily addicted, it makes it more difficult to help them quit. Young people think they are invincible."

But the education does not stop there; Mann said that the dental community needs to become more aware of the risks these products pose to youth.

"We have to get the message to our fellow dental hygienists and state liaisons to pass this message down," she said.

The ease of accessibility is what worries Fehrenbach. Although some states are beginning to clamp down on how these products are marketed and sold, she said there will always be a way to get around that.

"We need to consider the possibility of getting them on the Internet," she said, adding that the websites that sell these items may not be designed to effectively educate young buyers about the potential risks. "With youth involved, we owe it to their future to go beyond 'buyer beware.'"

And though there is no current data suggesting a surge in use among youth, there is also nothing to indicate that the use of alternative tobacco products is decreasing either. A 2008 study conducted by the University of Michigan showed that alternative tobacco products, namely spit tobacco, were used primarily by male youths, and that their overall use hit a plateau.<sup>5</sup> However, Fehrenbach said that we may see an increase in use of dissolvable products, mainly because it is no longer a boys-only activity.

"We're seeing a blurring of gender social roles," she said. "I see girls doing things boys did, and boys doing things girls did. Who's to say young females wouldn't want to use these products? Weight loss is still a concern for young girls and now boys too!"

She said that the idea of a spit-free form of easy to conceal tobacco may be appealing to both adolescent males and females.

"The idea of spit really did gross out females, but if there's no spit ... they may start using that product," Fehrenbach said.

With such an increased risk to both tobacco users and youth, many health care professionals were hoping that strict FDA regulation would help make these health issues known, and would provide a strong catalyst to educating children. However, the issue of FDA regulation is one that is unclear to most, and the administration has not been able to keep up with the fast pace of tobacco companies.

In June 2009, President Obama signed the Family Smoking Prevention and Tobacco Control Act into law. Under the law, FDA "obtained authority to regulate tobacco products, with a special emphasis on preventing their use by children and youth and reducing the impact of tobacco on public health."<sup>6</sup> One of their first landmark rulings was to ban the sale of cigarettes with special flavorings, such as fruit and candy—a step they felt necessary to keep children from using tobacco products and to prevent them from developing nicotine addictions at a young age.

However, since the creation of the tobacco control act, there has been little regulation in the way of dissolvable products. Rankin said that FDA faces a difficult job addressing all charges of the Act. New tobacco products introduced before March 22, 2011 may continue to be marketed unless challenged.

However, as Rankin pointed out, there is still hope. She said the answer lies in advocacy groups.

"I think the majority of what happens with tobacco is advocacy and research driven," Rankin said. "Without advocacy groups, new tobacco products may not be challenged."

The lack of research on these products is troubling for Fehrenbach, who said that, having assumed many of these studies were on

the horizon, she began to worry when they never materialized. Still, she said there is no reason not to be cautious.

"Because there are no definite conclusions that can be made concerning risks, this is a time period where we have to be strongly diligent as hygienists and state that these products are risky," she said.

And with enough diligence, FDA regulation can happen faster than normal. She pointed to the recent controversy over the caffeinated alcoholic beverage as a sign that regulation can be brought up at a relatively fast pace when advocacy groups demand it.

"The recent issue with the caffeinated alcoholic drinks will hopefully shed a light on these newer products and the lack of research on them," she said.

As with any new product, there are a lot of unknown variables with dissolvable tobacco. But these emerging tobacco products do deserve to be looked at, and until then, should be treated in the same manner as cigarettes and chewing tobacco.

"There's really no safe form of tobacco," Fehrenbach said. "That's what we have to tell people."

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**Josh Snyder is the staff editor of the *Journal of Dental Hygiene*.** ■

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In preparation for Dental Day, volunteer dentists from Lexington, Neb. working with school nurses conduct screenings at no cost in December. Forms are available in English, Spanish and Somali, in order to reach as many patients as possible. The treatment plans from the screenings are then sent down to the college. In February, buses pick up children from across the state and bring them to UNMC for education and dental treatment.

"For many of these kids, the trip to the dental school is their first time to Lincoln. It's also their first university experience," Krohn explained. "In eight years, we've seen about 375 Lexington kids and done over 3,000 dental procedures. That's hundreds of thousands of dollars' worth of services done by UNMC Dental College students and staff."

Krohn added that every year, Dental Day changes, and improvements are made. She says it's a constant learning process, but it's also a matter of taking best practices that work and using resources people already have to make the programs successful.

"It's been challenging, but I see the value in our work, and the good things we can do for people," she said.

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**This edition of Working was prepared by Mariam Pera.** ■