Informatics and IT in dentistry: a look forward

By John O’Keefe, B. Dent. Sc., M. Dent. Sc., MBA

In this edition, we conclude the interview Dr. John O’Keefe, editor of the Journal of the Canadian Dental Association, conducted with Dr. Titus Schleyer, associate professor and director of the Center for Dental Informatics, University of Pittsburgh.

This part takes a look at the impact of information technology (IT) on dental education, including continuing education, the future of the practice of dentistry and opportunities for organized dentistry.

Is training in IT by dental schools increasing?

Well, I hear about courses in computing for dental students once in a while from places where I haven’t heard it before, so the answer is “anecdotally, yes.” I think people probably are paying more attention to that now.

Even at the University of Pittsburgh we do have a course on computing in dentistry, but I cannot say that I am 100 percent comfortable asserting that our graduates are completely capable of managing an IT infrastructure, either by themselves or with the

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Dentist says xylitol prevents caries

By Fred Michmershuizen, Online Editor

Aside from regular brushing, flossing and dental check-ups, a good way to prevent caries is to chew gum sweetened with xylitol, a Florida dentist says.

"It may seem counterintuitive to parents, but using chewing gum with xylitol can actually help to promote healthier teeth," says Delray Beach, Fla.-based dentist Dr. Craig Spodak.

Xylitol is a naturally occurring organic compound. It is roughly as sweet as sucrose with only two-thirds the calories.

"Of course, consumers need to remember that the best way to prevent cavities and gum disease is to visit the dentist every six to 12 months and to undergo a yearly periodontal screening after the age of 40." In studies, xylitol appears to inhibit bacterial growth, including Streptococcus mutans — the main bacteria implicated in dental decay.
help of consultants. The problem is that there is not enough time in the curriculum and we do not go into enough depth to graduate dentists who are very comfortable at managing IT. And, of course, there is the problem of attitudes.

The other day my IT manager told me about a dental student who wasn’t able to copy a file onto a USB drive. When she suggested that he should be able to do this, he said: “I’m here to become a dentist, not an IT person.” Well, this guy is in for a surprise later on.

I think one of the big barriers to productive IT use in dentistry is the fact that a lot of people struggle and learn only by trial and error. That pain could be reduced and we could be a lot more efficient and waste less money, time and effort with better educational approaches to this and with a better consulting infrastructure.

Let’s face it, some dentists hire consultants with relatively little understanding of what they can do, and then it turns out that the consultant really doesn’t know very much. It is a little bit like having your kitchen renovated: Once you get to the end of the job, then you can’t go on to the next project and the realtor was real, but you typically do not know that up front.

Do you see information technology and communication technologies playing a bigger role in the next five to 10 years in the area of continuing education? The industry, and also academia to some degree, have invested significant resources in online learning and distance education. It’s not as if this is a particularly new subject. We’ve had distance education way before the Internet started. So we’re simply talking about a new technology and not a new concept. I think partially remote learning and distance education can help dentists stay more in touch. Think about the rural dentist who doesn’t have that much access to local courses versus the dentist in a big city who does. So the rural dentist just doesn’t have the options that other people have and, in that case, it might be very helpful to take a course over the Internet.

Clearly, one challenge is when courses are offered by corporate interests. For instance, let’s take implant companies. We really have to look very closely at the validity and correctness of the material that’s presented.

What I mean is that there is an inherent bias there that sometimes shines through very clearly, and sometimes information doesn’t get presented that would put the product in a little bit more balanced light.

On the other hand, with universities and other providers who follow ethical guidelines closely or who take the mandate of providing balanced information seriously, that fear is not there as much. But clearly I think that’s an issue.

Another issue is the quality of the instructional material and the presentation. As you know, we’ve done some research in that area in the past, and many years ago the quality just wasn’t very good.

Partially as a reaction to that, the ADA’s Standards Committee for Dental Informatics has come out with guidelines for the design of educational software that we helped develop. So hopefully the quality of what’s out there has improved, but I don’t really have any data to support that hope.

Beyond the IT sector, what are the most important developments that may have an impact on the future of the practice of dentistry in North America? The main one I would point to is better accountability for how we spend our health care dollars in general, and dental care dollars in particular.

We have this movement in the United States toward a much more accountable way of providing care. Children on Medicaid receive less care for cleft lip and palate

Children with cleft lip and/or palate experience significant differences in obtaining dental care depending on the type of insurance coverage they have. Those with Medicaid are more often refused care, have fewer checkups and report less satisfaction with their dental care, according to a report in the May 2009 issue of the Cleft Palate–Craniofacial Journal, the official publication of the American Cleft Palate–Craniofacial Association.

Parents and caregivers of 171 children ages 7 to 12 with cleft lip and/or palate were interviewed for a study. Although 85 percent of the children received regular dental care, those who did not were predominantly covered by public insurance rather than private insurance.

(Source: American Cleft Palate–Craniofacial Association)
health care and measuring outcomes, probably leading in many aspects when you compare it to the rest of the world. In dentistry we haven’t had much of this, but I think it’ll come.

In America, dentistry is about 5 percent of total health care costs. So not many people have paid attention to how this money is being spent when there are a lot of bigger pieces to look at. But I think measuring what goes in and what comes out is definitely in the future of dentistry, too.

The ADA is working, once again, on developing diagnostic codes. What we need to do as a profession is to relate diagnoses to treatment and treatment outcomes, and we have not really done that in an explicit way.

Yes, I am sure it happens in some dental offices. Dentists who are into detailed record keeping write lists of problems, then they write what they did, and obviously from the record you can tell whether the patient improved or not.

On the other hand, I have also seen dentists simply dictate treatment plans. In that case, there’s no evidence from the record whatsoever what was wrong with the patient in the first place.

So that approach doesn’t lend itself very well to the “pay for performance” approaches that are emerging in American health care, and eventually, dentists have to face up to that reality.

Do you see diagnostic codes being a reality within the next 10 years in the United States?

I would hope so. The American Dental Association clearly has gotten the message that diagnostic codes should be developed, and I think the Department of Health and Human Services probably didn’t hide the fact that if dentistry doesn’t come up with them, then they’ll come from somewhere else.

I think that’s something that the ADA and other stakeholders in the dental profession would not like to see.

On the other hand, the ADA is now in its second attempt to develop SNODENT (a set of diagnostic codes for dentistry), and it appears to be a large, cumbersome and difficult process.

I probably would have picked a different strategy. A limited set of codes, on the order of a few hundred, can probably describe 70 to 80 percent of the conditions that general dentists encounter on a day-to-day basis. I would have started with that and built out from there.

Are there any opportunities that you see for the leadership of organized dentistry to advance our profession?

I think we can become better dentists collectively in many ways, but I think one of the things we haven’t really exploited that much in this context are electronic data. Right now we spend a lot of our time duplicating on the computer what we had on paper.

For instance, the electronic patient records as we know them right now, most of them actually do look like somewhat poor imitations of the paper records we have. And that’s not really what computerized records or what informatics should be about.

We have great opportunities to use digital data in much better ways, which is why it’s so much fun to do dental informatics research all day long. What we need to do is what we need to invent those ways.

We need to imagine what we can do, not just be constricted by the knowledge of what we have done.

For instance, one project we’re working on is a three-dimensional model of the patient as the centerpiece of a general dental record.

In my mind, it is perfectly possible to create the virtual patient on the computer, and we’re working on it.

This is not such a huge technical challenge. The challenge is to imagine what you can do with this model, how the information should be presented in the context of this model, how the dentist should interact with it, and what value-added functions this system provides to the dentist.

I’m a firm believer in creating things that help improve patient care and that help dentists do their work more effectively and efficiently.

Thus, I think leveraging information technology is probably one of the biggest opportunities in dentistry.

I know that sounds like a hammer looking for a nail because I am in dental informatics, so it’s logical that I would pick this, but I think it has some credibility.