

## Ready for Prime Time?

In June of this year, Steve Jobs announced Apple's plan to release the "iCloud" this fall. iCloud is an outgrowth of a previous generation of cloud-based computing that failed to generate the enthusiasm or the following that Apple had anticipated. When you inquire into the history of cloud computing, you will find that Bill Gates spoke of this in revolutionary terms in 2008, while the Google company touted the cloud a decade ago. This demonstrates that some great ideas take time to germinate and, even after growth occurs, it is not always easy to tell what will become a perennial grower.

We see similar situations when we look at technology in implant dentistry. Some ideas take root while others fall by the wayside. Since the introduction of a new method into practice demands a major commitment of time, intellectual effort, and physical skill development, clinicians must be sure that they embrace technology that will still exist (and remain commercially viable) a few years down the road. It is important to remember that one bleeds easily if the wrong side of the cutting edge is embraced. With this in mind, the clinician must choose carefully when new technology comes along.

Science and industry are committed to constant demonstration of new possibilities. In science, discovery is the name of the game. Every scientist is in a constant struggle to discover. Whether this is an incremental piece of the pie or a monumental new observation that changes the way things are done, both work consistently in the same direction: the direction of progress. Industry is a little different. Indeed, industry sometimes leads the way in the field of discovery but there are certainly instances where industry simply repackages existing knowledge into a more user-friendly fashion, thereby popularizing products that already existed, albeit as niche products that lacked the ubiquitous appeal that designers anticipated.

Of course, whenever a new product is introduced, the manufacturer assumes that this product will represent a change in treatment paradigms. However, it is rare that those practice-changing products truly materialize. Instead, most products provide small changes in the way dentistry is delivered and, in some instances, new products may actually follow a regression in practice style.

Paradigms shift when possibility meets practicality. We have seen this a number of times in the practice of implant dentistry. Osseointegration represented a new paradigm in implant dentistry as it provided a higher level of predictability, not only in comparison to traditional implant procedures but also relative to traditional dental care. Truly, osseointegration represents one of the most significant changes in treatment paradigms observed over the last 50 years of dentistry. This change occurred

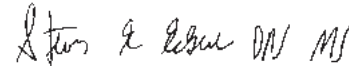
when a pragmatic assessment of treatment modalities was conducted. When it was realized that these implants provided dramatic improvements in prosthetic support, bone retention, patient comfort, and functional outcomes, the practice of dentistry changed forever.

Today we look at a number of new technological advancements and wonder which of these will represent the next fundamental change in care delivery. There certainly is a plethora of worthy candidates. We can now make digital impressions of teeth, have casts fabricated in remote facilities, design crowns on a computer using a library of anatomic forms, create full or partial restorations using computer-assisted manufacturing, and use guided surgical approaches that claim to provide sufficiently accurate guides to allow definitive prostheses to be made in advance of the surgical procedures. The question is which, if any, of these systems will drive change.

Ultimately, the system that will be ready for prime time is the one that will link all the individual components (unless all the components are assembled by one individual company). To do this, it will be necessary to create an open environment that allows crosstalk among different proprietary systems. Currently, most of the high technology is limited to closed systems. In a closed environment, the manufacturer protects its interest/investment while the clinician acts as the general contractor to piece together all the individual segments. The process works despite the fact that there is little integration of the steps needed to complete the project at hand. Perhaps the largest risk is that the failure of one of the companies in the chain could threaten the viability of the total treatment.

Indeed, it is a fragile chain of technological links that make the current "advancements" function in some degree of harmony. Although we may call this "ready for prime time," it would be quite easy to derail the process. Embracing the new technology is probably not an activity for the faint of heart because one misstep on the cutting edge could be injurious to one's clinical practice.

This all begs the question of whether any clinician has the luxury of observing the technological advancements while waiting for the industry to demonstrate what is and what is not about to succeed. Failure to embrace technology relegates the clinician to yesterday's outcomes, while conversely premature incorporation of technology can lead to the promised land or to an alternate dead end.



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