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digital

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practice management
Surviving disasters—why dentists need more than traditional backup

case report
Novel digital workflow for full-arch rehabilitation

interview
The seeds of change: “Practices that start now will dominate tomorrow”

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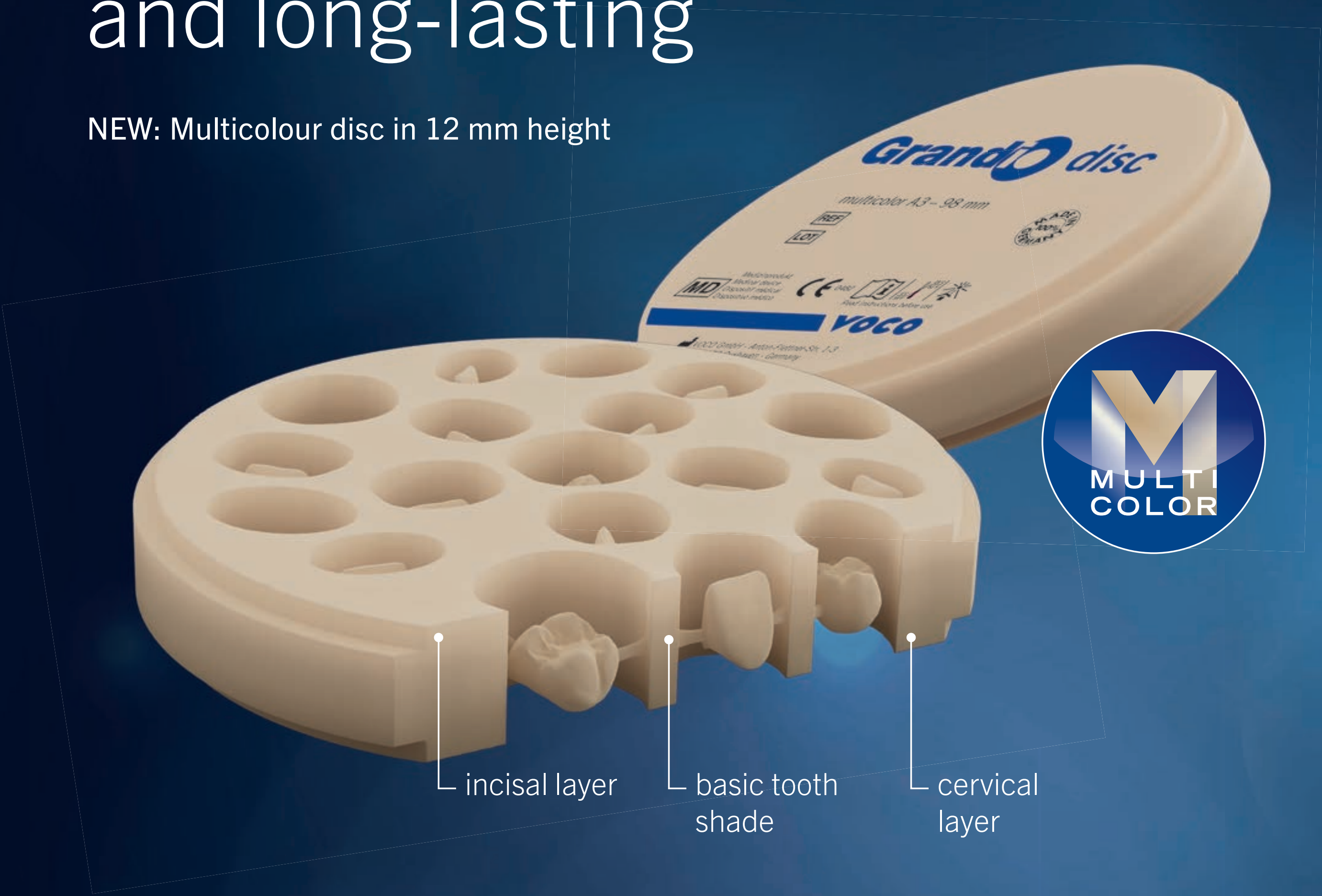

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VOCO THE DENTALISTS

Dr Scott D. Ganz

Editor-in-Chief

Redefining full-arch rehabilitation: The digital workflow revolution in implant dentistry

In the evolving landscape of implant dentistry, full-arch rehabilitation has emerged as the flagship of technological integration. Traditional analogue workflows, with their inherent limitations in precision, time efficiency and reproducibility, are slowly giving way to fully digital protocols that harness the synergy of intra-oral scanning, CBCT, guided surgery and photogrammetry, combined with the power of artificial intelligence (AI). These advancements are not simply incremental; they represent a paradigm shift in how we diagnose, plan and deliver complex implant treatments.

At the foundation of this transformation is CBCT imaging, which has redefined the way we appreciate patient anatomy. Intra-oral scanning offers high-resolution digital impressions which eliminate inaccuracies of conventional methods and allow immediate data transmission for surgical and prosthetic designs. The fusion of digital impressions and CBCT scan data enables precise virtual treatment planning, fostering greater control over implant positioning relative to prosthetic goals.

Static or navigational guided surgery applications have continued to evolve and can be valuable for single-tooth or full-arch cases, where deviation of even a few millimetres can compromise aesthetics, function or osseointegration. The incorporation of 3D printing has served as a catalyst for surgical guide fabrication, helping to ensure that implant placement is prosthetically driven and biomechanically sound, while reducing intra-operative surprises and postoperative complications. An equally transformative technology is photogrammetry, which offers highly accurate 3D capture of implant positions, dramatically reducing the need for conventional analogue impression techniques and verification jigs and helping to achieve the required passive fit of provisional and definitive prostheses.

Perhaps the most exciting—and still rapidly developing—element in this ecosystem is the role of AI. AI is already proving its value in diagnostic support, CBCT interpretation, anatomical segmentation, and even caries and pathology detection. As machine learning models continue to evolve, we can anticipate AI systems that propose optimal implant positions based on biomechanical load predictions, bone density analytics and long-term outcome modelling.

Looking ahead, the convergence of these technologies promises a workflow that is not only more precise and efficient but also increasingly predictive and adaptive. AI-enabled systems could soon offer clinicians real-time intra-operative guidance, dynamically adjusting implant angulation or suggesting modifications based on live feedback from digital scans or robotic tools. The future of full-arch rehabilitation is not merely digital; it is intelligent, limited only by our imagination. For those who embrace the digital transformation, the horizon is not only promising; it is already here. Please enjoy this latest issue of digital and let your imagination flow.

Respectfully,
Dr Scott D. Ganz
Editor-in-Chief

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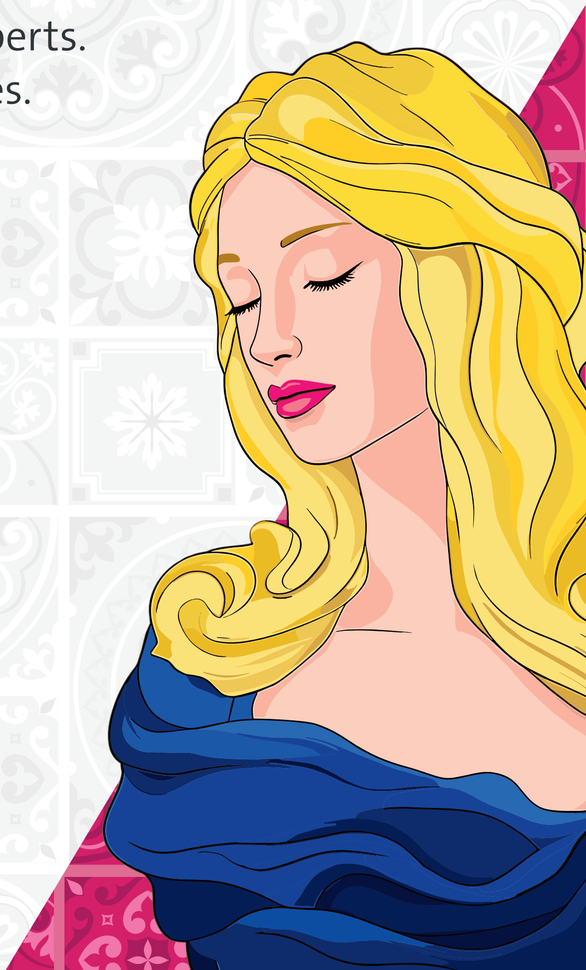

From chairside to cyberspace: Surviving disasters—why dentists need more than traditional backup

Part 3 of a four-part series on helping practices get prepared

Anne Genge, Canada

In Part 2 of this series (digital 1/2025), we talked about common cyber threats effecting dental practices. Imagine coming into the office on Monday morning, only to find all of your patient records locked, your schedule inaccessible and your imaging systems frozen. This is ransomware, the most common type of cyber-attack being used against organisations of all sizes today. No patients can be seen. No billing can happen. Patients start arriving and you have no answers. Everything grinds to a halt, and there is the potential of losing all your data.

Every dental office faces serious risks such as fire, theft, flood, server failure or a ransomware attack. Many teams assume that their data is safe because they have a backup—but most traditional backups are not enough.

Take the real case of a general dentist who arrived one morning to find a chilling message on his screen: "Your files have been encrypted. Pay $50,000 in Bitcoin or lose everything."

He thought he had good backup. However, when his IT team went to restore from that backup, there was months of data missing. The backup had never been tested. He paid the ransom and still could not recover everything. Critical imaging data, treatment notes and patient records were permanently lost. His practice had no failover system, so it was offline for days, losing thousands in revenue, and it had a damaging effect on patient trust.

This case is not an isolated one. It highlights the urgent need for comprehensive business continuity plans, kuraray

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Table 1: Meaning and examples of the terms “backup”, “disaster recovery” and “business continuity”.

Term	Meaning	Example
Backup	A copy of your data stored somewhere safe	Saving patient records to a secure server
Disaster recovery	A plan and system to restore everything after a major incident	Restoring your systems again after a ransomware attack
Business continuity	Keeping the business running during and after a disaster	Still seeing patients even if your main server is down

not just backups, to ensure that dental offices can recover quickly and fully from any kind of disaster.

What went wrong?

- The practice did not have an effective disaster recovery plan.
- The practice did not have failover technology.
- The practice had never tested its backups.

“A failed backup, a ransomware attack, a server crash—these events can shut down your practice for days, weeks or forever if you are not properly prepared.”

Did you know? A backup is not a business continuity plan

Today’s dental practices are much more reliant on connectivity than they were 20 years ago. Today, many offices are highly digitised, employing digital diagnostics, digital patient records, automation, artificial intelligence and more. This means that the majority of dental offices cannot afford any downtime, let alone days of it, and they certainly cannot suffer data loss.

Most dental offices have some form of backup. Often, it is a cloud service that runs every night and/or an external drive that the team rotates once a week. While these methods can store data, they do not do a great job of protecting the practice from downtime, data loss or the stress of system failure.

Like the case just described, today’s risks are much more complex. The common types of disasters dental offices face are:

- cyber-attacks, such as ransomware, phishing and hacking;
- hardware failures, such as dead servers and crashed hard drives;
- natural disasters, such as fires, floods, earthquakes and power outages;
- theft or vandalism, such as stolen computers or malicious damage;
- human error, such as accidental file deletion or misconfigurations; and
- software corruption, such as bad updates that damage the system.

No matter how careful you are, something will happen. The question is: how fast can you recover? Each of these incidents can stop a practice in its tracks, and without a proper plan, recovery could take days or weeks.

What most dentists do not realise is that backup is just one part of what they need. Without a full business continuity plan, your patients, revenue and reputation are still at risk. Unfortunately, this is not a distant possibility. It is happening to dental practices every single week across North America. A failed backup, a ransomware attack, a server crash—these events can shut down your practice for days, weeks or forever if you are not properly prepared. According to the National Cybersecurity Alliance, a US non-profit organisation, 60% of small businesses that suffer a major cyber-attack are out of business within six months.[1]

That is why understanding this matters: every dental practice needs not just a backup but a comprehensive backup, disaster recovery and business continuity solution designed specifically for the speed and complexity of modern dentistry and the unique needs of each individual dental practice (Table 1). Backup saves your data. Disaster recovery restores your systems. Business continuity keeps you treating patients. You need all three working together—not just one.