

The Case for Checklists in Dentistry

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In 1935, the U.S. Army held a competition to determine which manufacturer would be awarded a contract to build the military's next-generation long-range bomber. Boeing's prototype of the B-17 "flying fortress" was considered greatly superior to the competition and highly favored to win. On the day of the test flight, the plane lifted off smoothly, climbed to 300 feet, and then dropped from the sky in a fiery crash. An investigation revealed that the pilots had simply forgotten to disengage a new elevator and rudder locking mechanism prior to takeoff. In the wake of this tragedy, Boeing created the first pre-flight checklist. After it was implemented, almost thirteen thousand B-17 bombers went on to fly 1.8 million miles without a single incident.¹

The story of the first aviation checklist demonstrates the nature of human fallibility. We have greater knowledge than ever before, yet we fail to apply it consistently and correctly. As a result, human mistakes endanger lives in airplanes, hospitals, and even dental offices. The landing gear is improperly deployed, a pre-surgical antibiotic is not administered, or a throat pack is left after the procedure. In health-care and aviation certain steps don't always matter. This leads to lapse of memory, attention, and thoroughness, which can cause us to skip those steps.

Patients are significantly more variable than airplanes, and as clinicians, we must exercise significant judgment in our clinical interactions. This takes a great deal of mental energy, giving us even more of a reason to not overlook the routine steps that can be confirmed with a checklist.

We know that checklists work. They increase detection of potential safety hazards and decrease surgical complications. Accordingly, in the last two decades, checklists have become integral to the culture of patient safety and perioperative care.² They have also been widely endorsed by those who know healthcare best: 93 percent of clinicians surveyed indicated that they would want a checklist used if they were undergoing surgery themselves.³

Checklists are powerful communication tools. The majority (77 percent) of providers surveyed believe that a checklist improves team communication.⁴ This is because they are frequently employed in team "briefings" or "huddles" where team members take a moment to review procedure specifics before proceeding. These interactions are intended to empower all individuals to speak up and share concerns, regardless of their position or role—including patients, parents, students, residents, and staff members. The checklist is not just

about ticking boxes. It is a mechanism for us to embrace a culture of teamwork, discipline and safety.

Since 1935, the airline industry has taken this concept far beyond simply completing a form before takeoff. Today, Boeing issues over 100 new or revised checklists each year, and pilots who fly their planes drill regularly on their use in high-fidelity simulators.¹ Of course, we have adopted this practice in dentistry too. The tools we use include "normal checklists" such as the OR timeout, team huddles, and surgical sign-outs as well as "non-normal" checklists like the ASA difficult airway and BLS/PALS algorithms. At their best, they are precise, efficient, and easy to use – even in difficult situations. Knowing how effective a checklist can be in a cockpit or the operating room, where else could checklists be used to increase safety and efficiency in our offices? Appointment confirmation? Chairside equipment setup? Prior to irreversible treatments? Before administration of sedation medications or sedation discharge? Post-op care instructions? In medical emergencies? Professionalism in health care is defined by competence and ethical practice. Today, should it not also include a commitment to vigilance, discipline and patient safety? Perhaps the best place to begin is with a checklist.

1. Gawande A. *The Checklist Manifesto*. London, England: Profile Books; 2011.
2. Treadwell JR, Lucas S, Tsou AY. *Surgical checklists: a systematic review of impacts and implementation*. *BMJ Qual Saf* 2014;23(4):299-318.
3. Haynes AB, Weiser TG, Berry WR, et al. *A surgical safety checklist to reduce morbidity and mortality in a global population*. *N Engl J Med* 2009;360(5):491-9.
4. Sewell M, Adebibe M, Jayakumar P, et al. *Use of the WHO surgical safety checklist in trauma and orthopaedic patients*. *Int Orthop* 2011;35(6):897-901.