

INVITED COMMENTARY

THE PATIENT IN THE OPERATING ROOM: CONSIDERATION AT SEVEN YEARS FROM WORLD HEALTH ORGANIZATION GUIDELINES PUBLICATION.Vincenzo Palumbo^{1,2}, Benedetto Di Trapani^{2,3}, Giovanni Tomasello^{1,4}¹ Euro-Mediterranean Institute of Science and Technology (IEMEST), Palermo, Italy² Department of Surgical, Oncological and Stomatological Disciplines, University of Palermo, Italy³ Casa di Cura Torina, Palermo, Italy⁴ Department of Experimental Biomedicine and Clinical Neuroscience, University of Palermo, Italy**CORRESPONDENCE:**

Vincenzo Davide Palumbo

e-mail: vincenzopalumbo@iemest.eu

RECEIVED: DECEMBER 20TH, 2016REVISED: JANUARY 24TH, 2016ACCEPTED: JANUARY 27TH, 2016

Modern surgery is burdened by a huge amount of patient to be treated and an increasingly complex number of procedures which request planned action and shared behaviours, aimed to prevent perioperative accidents and favour good surgical outcomes. Surgical and anaesthetic safety has improved significantly in last few decades. However, the operating room environment continues to have significant safety risks for patients as well as the health care providers who work there. Adverse events may result from problems in practice, products, procedures or systems. The worldwide incidence of surgical site infection, one of the most important and frequent post-operative complication, ranges from 3% to 16%, with a mortality rate ranging from 0.4% to 0.8%; in these studies, about 50% of cases were considered preventable (1-9). Patients safety improvements demand a complex system-wide effort, involving a wide range of actions in performance improvement, environmental safety and risk management, including infection control, safe use of medicines, equipment safety, safe clinical practice and safe environment of care. Just as public health interventions and educational projects have dramatically improved maternal and neonatal survival, analogous efforts might improve surgical safety and quality of care (10). According to these objectives, the World Health Organization (WHO) has published and diffused the international "Guidelines for Safe Surgery" (11). The guidelines have the clear proposal to

ameliorate the safety of surgical interventions; they define and promote recommendation and safety standards suitable for the different Countries and operative settings, suggesting a new deal in managing pre-operative, intra-operative and post-operative processes. On the base of these recommendations, the WHO has also developed a checklist for the safety in the operating room, in order to prevent avoidable adverse events, thus minimizing unnecessary loss of life and serious complications. The results raised from a multicentre study carried out in eight different Countries, demonstrating the effectiveness of the WHO checklist in terms of better patient safety, reduction of deaths and post-operative complications (12). The objectives of this international effort are resumable as follow:

1. the patient must be correctly positioned on the surgical bed and prepared;
2. the surgery team must operate on the correct patient at the correct site;
3. blood loss and risk for surgical site infection must be minimized;
4. inadvertent retention of instruments and sponges in surgical site must be prevented;
5. during surgery, anaesthesiologists must prevent harm from the administration of anaesthetics, while protecting the patient from pain;
6. anaesthesiologists must manage patient's airways and respiratory function, in order to avoid life-threatening complications;

7. the team should consider patient's allergies or intolerances in order to prevent an allergic or adverse drug reaction;
8. at the end of intervention, the surgical team must secure and accurately identify all surgical specimens, while the anaesthesiologists will guarantee a correct patient awakening;
9. all the members of the team will effectively communicate and exchange critical information for the safe conduct of the operation;
10. post-operative thromboembolism must be prevented adopting the right measures;
11. each member of the team is responsible for his own clinical documentation;
12. hospitals and public health systems will establish routine surveillance of surgical capacity, volume and results.

On March 2013, the American Agency for Health Research and Quality (AHRQ) published the Making Health Care Safer II report, which confirmed the effectiveness of WHO checklist and considered it as one of the 10 strongest recommended practices health care organizations should immediately apply to improve patient safety (13). After the first launch of the WHO checklist, the American Veteran Health Administration observed a constant reduction of patient mortality (0.5/1000 surgeries/4 months); in Holland, compliance to the new guidelines raised from 12% of the first 4 months to the 60%, observed at the end of the second year after publication. This means that «The checklist only works if you use it» (14). The checklist does not reduce itself patient complications, but only the application of all the provided items could help to do so. The checklist should be understood not merely as a list of items to be checked off, but as an instrument for the improvement of communication, teamwork, and safety culture in the operating room, and it should be accordingly implemented. To reach the expected results it needs time, the time to let surgical team to learn and involve (gradually) all the interested units of a determined hospital or the hospitals of a specific geographic area. Agreeing with Bosk and colleagues (15), using an electronic recording format within the standard mandatory strategy facilitates apparent compliance and the use of the safety checklist as a tick box exercise. It seems that the main trick to improving safety is a

strategy leading to positive attitudes on the part of the health professionals involved, involving a far more complex adaptive process than merely mandating the use of a checklist.

References

1. Brennan TA, Leape LL, Laird N, Hebert L, Localio AR, Lawthers AG, Newhouse JP, Weiler PC, Hiatt HH. Incidence of adverse events and negligence in hospitalised patients: results of the Harvard Medical Practice Study I. *New Engl J Med* 1991;324:370-376.
2. Leape LL, Brennan TA, Laird N, Lawthers AG, Localio AR, Barnes BA, Hebert L, Newhouse JP, Weiler PC, Hiatt H. The nature of adverse events in hospitalized patients. Results of the Harvard Medical Practice Study II. *New Engl J Med* 1991;324:377-384.
3. Wilson RM, Runciman WB, Gibberd RW, Harrison BT, Newby L, Hamilton JD. The Quality in Australian Health Care Study. *Med J Aust* 1995;163:458-471.
4. Vincent C, Neale G, Woloshynowych M. Adverse events in British hospitals: preliminary retrospective record review. *BMJ* 2001;322:517-519.
5. Davis P, Lay-Yee R, Briant R, Ali W, Scott A, Schug S. Adverse events in New Zealand public hospitals I: occurrence and impact. *N Z Med J* 2002;115:U271.
6. Davis P, Lay-Yee R, Briant R, Ali W, Scott A, Schug S. Adverse events in New Zealand public hospitals II: preventability and clinical context. *N Z Med J* 2003;116:U624.
7. Baker GR, Norton PG, Flintolf V, Blais R, Brown A, Cox J, Etchells E, Ghali WA, Hébert P, Majumdar SR, O'Beirne M, Palacios-Derflingher L, Reid RJ, Sheps S, Tamblyn R. The Canadian Adverse events Study: the incidence of adverse events among hospital patients in Canada. *CMAJ* 2004;170:1678-1686.
8. Thomas EJ, Studdert DM, Runciman WB, Webb RK, Sexton EJ, Wilson RM, Gibberd RW, Harrison BT, Brennan TA. A comparison of iatronic injury studies in Australia and the USA I: context, method, casemix, population, patient and hospital characteristics. *Int J Qual Health Care* 2000;12:371-378.
9. Schioler T, Lipezak H, Pedersen BL, Mogensen TS, Bech KB, Stockmarr A, Svenning AR, Frølich A, Danish Adverse Event Study. Incidence of adverse events in hospitals. A retrospective study of medical records. *Ugeskr Laeger* 2001;163:5370-5378.
10. Kirkland KB, Briggs JP, Trivette SL, Wilkinson WE,

Sexton DJ. The impact of surgical-site infections in the 1990s: attributable mortality, excess length of hospitalization, and extra costs. *Infect Control Hosp Epidemiol* 1999;20:725-730.

11. Gawande AA, Weiser TG. *World Health Organization Guidelines for Safe Surgery*. Geneva: World Health Organization, 2008.

12. Haynes AB, Weiser TG, Berry WR, Lipsitz SR, Breizat AH, Dellinger EP, Herbosa T, Joseph S, Kibatala PL, Lapitan MC, Merry AF, Moorthy K, Reznick RK, Taylor B, Gawande AA; Safe Surgery Saves Lives Study Group. A surgical safety checklist to reduce morbidity and mortality in a global

population. *New Engl J Med* 2009;360:491-499.

13. Treadwell JR, Lucas S. Preoperative checklists and anesthesia checklists. In: Shekelle PG et al. *Making Health Care Safer II: An Updated Critical Analysis of the Evidence for Patient Safety Practices*. Comparative Effectiveness Review No. 211. Agency for Healthcare Research and Quality. March 2013.

14. Leape LL. The checklist conundrum. *N Engl J Med* 2014;370:1063-1064.

15. Bosk CL, Dixon-Woods M, Goeschel CA, Pronovost PJ. Reality check for checklists. *Lancet* 2009;374:444-445.