Table 4, Chapter 13. Studies of anesthesia equipment checklist implementation

| **Author/Year** | **Study Design** | **Description of Organization** | **Study Phases and Checklist Fidelity** | **Reasons for Success or Failure** | **Opinions, Knowledge and Behavior** | **Health Outcomes** |
| --- | --- | --- | --- | --- | --- | --- |
| Thomassen et al. 201014 | Case Study | Anaesthesia and intensive care department of a 1,100‑bed tertiary teaching hospital | Developed 26-item checklist after review of adverse events, PubMed review of literature, and expert panel discussions. Modified Delphi technique used. Checklist used on 502 patients. | Emphasized avoiding checklist fatigue. Process was supervised by participating senior clinician; researchers were also present. 85 checklists identified one or more missing items (17%). | There was a low compliance (61%) during the testing period; a few persons in leading positions discouraged use of checklists.  | Median checklist completion time was 88.5 seconds; did not substantially increase pre‑induction time. |
| Thomassen et al. 201015 | Case Study | Anaesthesia and intensive care department of a 1,100‑bed tertiary teaching hospital | Follow up study from Thomassen et al. 201015Focus group interviews were conducted after previous study was completed. | Checklist improved confidence in unfamiliar contexts. It revealed insufficient equipment standardization. | Checklists could divert attention away from the patient. Senior consultants were both skeptical and supportive.  | N/A |

**Notes:** NS=not stated; Int=Intervention

References

1. Sewell M, Adebibe M, Jayakumar P, et al. Use of the WHO surgical safety checklist in trauma and orthopaedic patients. Int Orthop 2011 Jun;35(6):897-901. PMID: 20730425

2. Helmio P, Blomgren K, Takala A, et al. Towards better patient safety: WHO Surgical Safety Checklist in otorhinolaryngology. Clin Otolaryngol 2011 Jun;36(3):242-7. PMID: 21481197

3. Conley DM, Singer SJ, Edmondson L, et al. Effective surgical safety checklist implementation. J Am Coll Surg 2011 May;212(5):873-9. PMID: 21398154

4. Bell R, Pontin L. How implementing the surgical safety checklist improved staff teamwork in theatre. Nurs Times 2010 Mar 30-Apr 5;106(12):12. PMID: 20432772

5. Bell R. Implementing the surgical safety checklist at Guy’s and St Thomas’. [internet]. London (UK): Patient Safety First; [accessed 2011 Oct 6]. [2 p]. Available: www.patientsafetyfirst.nhs.uk/Content.aspx?path=/interventions/CasestudyGuys/.

6. Sparkes D, Rylah B. The World Health Organization Surgical Safety Checklist. Br J Hosp Med (Lond) 2010 May;71(5):276-80. PMID: 20448496

7. Anonymous. Communicating for success: Royal Bolton Hospital NHS Foundation Trust introduces the Surgical Safety Checklist. J Perioper Pract 2010 Mar;20(3):85-6. PMID: 20642232

8. Vats A, Vincent CA, Nagpal K, et al. Practical challenges of introducing WHO surgical checklist: UK pilot experience. BMJ 2010 Jan 16;340(7738):133-5. PMID: 20071413

9. Kearns RJ, Uppal V, Bonner J, et al. The introduction of a surgical safety checklist in a tertiary referral obstetric centre. BMJ Qual Saf 2011 Sep;20(9):818-22. PMID: 21693466

10. Norton EK, Rangel SJ. Implementing a pediatric surgical safety checklist in the OR and beyond. AORN J 2010 Jul;92(1):61-71. PMID: 20619773

11. Garnerin P, Ares M, Huchet A, et al. Verifying patient identity and site of surgery: improving compliance with protocol by audit and feedback. Qual Saf Health Care 2008 Dec;17(6):454-8. PMID: 19064662

12. Nilsson L, Lindberget O, Gupta A, et al. Implementing a pre-operative checklist to increase patient safety: a 1-year follow-up of personnel attitudes. Acta Anaesthesiol Scand 2010 Feb;54(2):176-82. PMID: 19719811

13. Owers C, Lees E, Roberts J. Correct site surgery - Are we up to standard? Cent Eur J Med 2010 Aug;5(4):407-10.

14. Thomassen O, Brattebo G, Softeland E, et al. The effect of a simple checklist on frequent pre-induction deficiencies. Acta Anaesthesiol Scand 2010 Nov;54(10):1179-84. PMID: 21069898

15. Thomassen O, Brattebo G, Heltne JK, et al. Checklists in the operating room: help or hurdle? A qualitative study on health workers’ experiences. BMC Health Serv Res 2010;10:342. PMID: 21171967

16. Surgical safety checklist. Geneva: World Health Organization (WHO); 2009 Jan. 1 p. Available at: http://whqlibdoc.who.int/publications/2009/9789241598590\_eng\_Checklist.pdf.

17. World Alliance for Patient Safety. WHO guidelines for safe surgery. Geneva: World Health Organization (WHO); 2008.

18. 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. Available: http://content.nejm.org/cgi/content/full/NEJMsa0810119. PMID: 19144931

19. de Vries EN, Prins HA, Crolla RM, et al. Effect of a comprehensive surgical safety system on patient outcomes. N Engl J Med 2010 Nov 11;363(20):1928-37. PMID: 21067384

20. de Vries EN, Hollmann MW, Smorenburg SM, et al. Development and validation of the SURgical PAtient Safety System (SURPASS) checklist. Qual Saf Health Care 2009 Apr;18(2):121-6. PMID: 19342526

21. de Vries EN, Dijkstra L, Smorenburg SM, et al. The SURgical PAtient Safety System (SURPASS) checklist optimizes timing of antibiotic prophylaxis. Patient Saf Surg 2010 Apr 13;4(1):6. PMID: 20388204

22. de Vries EN, Eikens-Jansen MP, Hamersma AM, et al. Prevention of surgical malpractice claims by use of a surgical safety checklist. Ann Surg 2011 Mar;253(3):624-8. PMID: 21209590

23. Greenberg CC, Regenbogen SE, Studdert DM, et al. Patterns of communication breakdowns resulting in injury to surgical patients. J Am Coll Surg 2007 Apr;204(4):533-40. PMID: 173822111

24. Griffen FD, Stephens LS, Alexander JB, et al. The American College of Surgeons’ closed claims study: new insights for improving care. J Am Coll Surg 2007 Apr;204(4):561-9. PMID: 17382214

25. Patient safety tip of the week: SURPASS: the mother of all checklists. Lewiston (NY): The Truax Group; 2010 Nov 30. 4 p. Available at: www.patientsafetysolutions.com/docs/November\_30\_2010\_SURPASS\_The\_Mother\_of\_All\_Checklists.htm.

26. Windsor JA, Petrov MS. Patient safety in medicine: are surgeons ready for checklists. ANZ J Surg 2010 Jan;80(1-2):3-5. PMID: 20575869

27. Facts about the universal protocol. [internet]. Oakbrook Terrace (IL): The Joint Commission; 2004 [accessed 2008 Jan 9]. [1 p]. Available: www.jointcommission.org/assets/1/18/Universal%20Protocol%201%204%20111.PDF.

28. Mulloy DF, Hughes RG. Chapter 36. Wrong-site surgery: a preventable medical error. In: Patient safety and quality: an evidence-based handbook for nurses [AHRQ Publication No. 08-0043]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Apr. p. 1-15. Available at: www.ahrq.gov/qual/nurseshdbk/docs/MulloyD\_WSS.pdf.

29. Using surgical checklists to comply with the universal protocol. Jt Comm Perspect Patient Saf 2011 Jul;11(7):9-11.

30. Joint Commission field tests changes to 2009 safety goals, Universal Protocol. OR Manager 2008 Mar;24(3):32.

31. Watson DS. Implementing the universal protocol. AORN J 2009 Aug;90(2):283-7. PMID: 19664421

32. Catalano K. The unveiling of the Joint Commission’s National Patient Safety Goals for 2010. Plast Surg Nurs 2010 Jan-Mar;30(1):44-9. PMID: 20220501

33. Follow-up Survey on Universal Protocol. [internet]. Oakbrook Terrace (IL): The Joint Commission; 2010 Dec 14 [accessed 2011 Oct 18]. [2 p]. Available: www.jointcommission.org/follow-up\_survey\_universal\_protocol/.

34. National patient safety goals effective July 1, 2011. Office-based surgery accreditation program. Oakbrook Terrace (IL): The Joint Commission; 2011. 6 p. Also available: www.jointcommission.org/assets/1/6/NPSG\_EPs\_Scoring\_OBS\_20110707.pdf.

35. Possible integration of actions to satisfy Joint Commission universal protocol and WHO surgical safety checklist. [internet]. Harrisburg (PA): Pennsylvania Patient Safety Authority; 2011 [accessed 2011 Nov 21]. [1 p]. Available: patientsafetyauthority.org/EducationalTools/PatientSafetyTools/PWSS/Documents/crosswalk.pdf.

36. Merry AF. Role of anesthesiologists in WHO safe surgery programs. Int Anesthesiol Clin 2010 Spring;48(2):137-50. PMID: 20386233

37. International standards for a safe practice of anaesthesia 2010. [internet]. London (UK): World Federation of Societies of Anaesthesiologists; 2010 [accessed 2011 Nov 11]. [8 p]. Available: www.anaesthesiologists.org/guidelines/practice/2008-international-standards-for-a-safe-practice-of-anaesthesia.

38. ASA Committee on Equipment and Facilities. 2008 recommendations for pre-anesthesia checkout procedures. Park Ridge (IL): American Society of Anesthesiologists; 2008.

39. Wicker P, Smith B. Checking anaesthetic machine. J Perioper Pract 2008 Aug;18(8):354-9. PMID: 18751494