

## Surgical technique reporting checklist and standards (SUPER)

Section/Topic	Item No	Recommendation	Reported on Page Number/Line Number	Reported on Section/Paragraph
<b>Background, Rationale, and Objectives</b>				
Background	1	Describe the background of the disease or condition (e.g., its definition, classification, clinical manifestations, epidemiological characteristics, and natural history).	Pages 3-4	Introduction
Rationale	2a	Describe the pros and cons of existing treatments for the disease or condition, including currently used single or combined surgical techniques.	Pages 3-4	Introduction
	2b	Explain whether the proposed surgical technique is a novel or modified procedure, including whether any modifications have been made to key devices or materials. If only a conventional surgical technique is used, a brief description should be accompanied by a citation of a source which describes the surgical technique in detail.	Page 4	Introduction
Objectives	3	State what objectives and challenges the proposed surgical technique will address. Introduce what the surgical technique figure and video will cover.	Page 4	Introduction
Classification	4	Classify the surgical technique, either by: (i) surgical approach: open, minimally invasive (e.g., thoracoscopic, robotic), or hybrid; or (ii) treatment goal: curative or palliative.	Page 3-4	Introduction
Name	5	Report the names of all involved surgical techniques in the title or abstract. If the surgical technique is the focus of the paper, also include "surgical technique" in the title.	Page 1-2	Title and abstract
<b>Preoperative Preparations and Requirements</b>				
Setting	6a	Report information or requirements of the surgical environment (e.g., the name of the hospital, the hospital grade such as tertiary hospital, the degree of cleanliness, and whether the procedure must be performed in an operating theatre).	Page 4 lines 79-88	Patient
	6b	List and provide details of any special surgical equipment, supplies, drugs, or software used (e.g., the manufacturer, product model, quantity, dosage, route, duration, and parameters).	Lines 89-170	Surgical technique
Operators	7	Provide information about the surgical team personnel, including their role (e.g., surgeon, anesthetist, nurse), learning curve (e.g., the number of cases), and training needed if applicable.	Lines 87-88	Patient

Recipients	8	Report detailed indications and contraindications. (i) Disease or condition: type, etiology, the location, shape and size of the lesion, etc. (ii) Recipients: age, sex, clinical manifestations, disease stage and severity, comorbidities and related complications, surgical history and relevant family history, preoperative tests, pre-intervention, and other factors pertinent to successful practice.	Lines 45-49 Lines 79-88	Introduction Patient
	9	Provide detailed generic information and preparations. (i) Generic information: de-identified demographic information, symptoms and signs, imaging findings, staging, comorbidities, and relevant therapy history, etc. (ii) Preparations: cardiovascular, gastrointestinal and respiratory tract preparation, urinary catheterization, skin preparation, blood product preparation, anesthetic procedure and management, and patient positioning, etc.	Lines 79-113	Patient Surgical technique
<b>Surgical Technique Details</b>				
Surgical approach, key anatomic landmarks, and adjacent structures	10a	Describe in detail how to establish the surgical approach (e.g., devices and equipment used, the position of the surgeons, anatomic localization, and the incision type, length, size, depth, angle, and number).	Lines 114-127	Surgical technique
	10b	Describe the essential anatomic landmarks and adjacent structures, including areas, structures, blood vessels, and nerves, etc. (e.g., "use the Louis angle between the sternal manubrium and the sternal body to find the second costal notch").	Lines 114-154	Surgical technique
Intraoperative monitoring	11	Describe intraoperative monitoring specifically related to the surgical technique (e.g., near-infrared spectroscopy in aortic arch surgery).	No specific intraoperative monitoring related to the surgical technique	Step 1 surgical technique
Step-by-step description	Include all relevant details of each operative step in a step-by-step manner along with both quantitative and qualitative description.			
	12a	Details may include the intraoperative findings, timeline, histomorphology, exposure of vital structures, extent of lymph node dissection, determination of surgical margins, suture pattern (running suture or single stitches; spacing of stitches), anastomosis, knot-tying, specimen handling, and devices/supplies/drugs/blood products used, etc.	Lines 90-170	Surgical technique
	12b	Note the operative time.	Line 88	Patient
	12c	If a non-conventional maneuver was applied, specify the reason.	None	
Quality and consistency	13	Describe tips and skills for ensuring surgical quality and consistency, especially for the key steps and any conditions or variations that require uniform management (if applicable). For example, using standardized training, establishing quality control teams, and organizing multidisciplinary consultations.	None	

Safety	14	Describe tips and skills for ensuring safety. For example, how to prevent or deal with possible intraoperative complications and emergencies, or when and how to undertake a surgical conversion.	Lines 128-154	Surgical technique
Visualization	15a	Visualize the key steps in a step-by-step and self-explanatory manner. Consider using narrated video(s) and anatomic illustration(s) with designated symbols and illustrated text.	Video	Video
	15b	The key information in item 12 should be visualized; it can either be presented as a stand-alone figure or embedded in the video(s).	Video	Video
	15c	Visualization of the key information in items 10, 13, and 14 is encouraged as appropriate.	Video	Video
	15d	After peer review, add clips into the video(s) to present the video title, operator name, and operation date at the beginning, and the informed consent and the ethical approval statements at the end.	Video	Video
<b>Postoperative Considerations and Tasks</b>				
Evaluation	16a	Define the criteria for success and failure, and evaluate the efficacy or effectiveness of the surgical technique from both the technical aspect and the clinical outcome perspective (e.g., length of stay, improvements in short- and long-term mortality, recurrence, survival time, and patient impairment).	Video	Video
	16b	When possible, include the perspective of the patient (e.g., symptoms and signs, postoperative pain, and aesthetic results).	Video	Video
Postoperative monitoring	17	Describe in detail postoperative monitoring specifically related to the surgical technique (e.g., monitoring indicators, devices, frequency or duration, examination, and nursing required).	None	None
Complication prevention and management	18	Report the possible or observed postoperative complications and their prevention and management, especially complications that differ from those related to conventional techniques.	None	None
Follow-up	19a	Report the details of follow-up visits, including pathway, frequency, duration, and indicators (e.g., pathway-"telephone follow-up"; frequency-"radiological examinations every 3 months"; duration-"up to 3 years"; indicators-poor outcomes, complications, quality of life, and unexpected events).	None	None
	19b	If applicable, compare the information in item 19a with those of conventional techniques.	None	None
<b>Summary and Prospect</b>				
Strengths, limitations, and outlook	20	Discuss the main strengths and limitations of the surgical technique, and provide detailed suggestions for improvement and future outlooks.	Page 3-4	Introduction
Impact and cost	21a	Summarize the key points and take-away lessons of the surgical technique and its impact in the clinical setting and on society (e.g., the economic cost).	Pages 8-9	Comments
	21b	Consider in context the predominant cost and its potential impact on the implementation and adoption of the surgical technique.	Pages 8-9	Comments

Other Information				
Conflicts of interest, ethical approval, and informed consent	22	(i) Specify any potential conflicts of interest; (ii) include the ethics committee or institutional review board approval (and the number when applicable); and (iii) provide the informed consent for publication.	Lines 75-76	Introduction, Video

SUPER website: <https://www.thesuper.org/>

Zhang K, Ma Y, Wu J, Shi Q, Barchi L, Scarci M, et al. The SUPER reporting guideline suggested for reporting of surgical technique. *Hepatobiliary Surg Nutr* 2023. doi: 10.21037/hbsn-22-509

Zhang K, Ma Y, Shi Q, Wu J, Shen J, He Y, et al. Developing the surgical technique reporting checklist and standards: a study protocol. *Gland Surg* 2021;10(8): 2591-2599.

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\*As the checklist was provided upon initial submission, the page number/line number reported may be changed due to copyediting and may not be referable in the published version. In this case, the section/paragraph may be used as an alternative reference.