**Supplementary Table 3.** **Tertiary items that reached consensus in Round 2 (importance and feasibility).**

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| --- | --- | --- | --- | --- |
|  | **Content of items** | **Mean value** | **SD** | **CV** |
| Tertiary items | A1.1 Centralised care for critical and major surgical patients: optimised resource allocation; | 4.95 | 0.21 | 0.04 |
|  | A1.2 Safe transitional care for complex major surgeries. | 4.95 | 0.21 | 0.04 |
|  | A2.1 ICU physicians (in green uniforms): develop treatment plans based on the patient′s condition; | 4.86 | 0.35 | 0.07 |
|  | A2.2 ICU nurses (in blue clothes and floral-patterned caps): 24-h ambulatory blood pressure monitoring and following through with prescribed treatment protocols; | 4.86 | 0.35 | 0.07 |
|  | A2.3 Respiratory therapist (in purple uniforms): managed mechanical ventilation, adjusted ventilator parameters, and provided comprehensive airway care; | 4.82 | 0.40 | 0.08 |
|  | A2.4 Nursing assistants (in blue uniforms and caps): delivered activities of daily living per nursing directives, encompassing toileting aid, laundry handling, and meal assistance; | 4.73 | 0.46 | 0.10 |
|  | A2.5 Cleaning staff (in pink uniforms): performed ICU sanitation duties including waste disposal and environmental disinfection. | 4.55 | 0.67 | 0.15 |
|  | A3.1 Ventilator: providing respiratory support; | 4.82 | 0.5 | 0.10 |
|  | A3.2 ECG monitoring: monitor vital signs; | 4.82 | 0.5 | 0.10 |
|  | A3.3 Blood gas analyser: monitoring critical blood parameters; | 4.41 | 1.00 | 0.23 |
|  | A3.4 Infusion-pump / injection-pump: precise regulation of infusion rate and volume; | 4.73 | 0.55 | 0.12 |
|  | A3.5 Air mattress: preventing pressure injuries in high-risk skin areas; | 4.73 | 0.55 | 0.12 |
|  | A3.6 Additional life-support equipment: defibrillator and manual resuscitator, etc; | 4.41 | 1.00 | 0.23 |
|  | A3.7 All aforementioned medical devices are equipped with alarm systems that activate upon detection of abnormal monitoring parameters or infusion irregularities, alerting healthcare professionals for immediate intervention. | 4.77 | 0.53 | 0.11 |
|  | A4.1 ICU costs encompass medication fees, therapeutic procedure charges, nursing care expenses, diagnostic imaging fees, and laboratory testing costs, with the total expenditure directly correlating to disease severity—higher acuity cases incur proportionally greater costs; | 4.77 | 0.53 | 0.11 |
|  | A4.2 ICU costs will be reimbursed by the health insurance; | 4.82 | 0.50 | 0.10 |
|  | A4.3 ICU costs exclusively comprise expenses incurred during ICU stays, excluding preoperative evaluations, surgical procedures, and other non-ICU related medical expenditures. | 4.59 | 1.00 | 0.22 |
|  | A5.1 Daily living supplies preparation: tissue paper, wet wipes, drinking cup with straw, washbasin, towels, and urinal / bedpan; | 4.91 | 0.29 | 0.06 |
|  | A5.2 Medical equipment preparation: nebuliser, incentive spirometer; | 4.95 | 0.20 | 0.04 |
|  | A5.3 Family members should bring necessary items and wait in the designated surgical waiting area until the procedure concludes. | 4.82 | 0.40 | 0.08 |
|  | A6.1 Preoperative psychological status: approximately 98% of patients exhibited varying degrees of anxiety and fear before surgery; | 4.82 | 0.50 | 0.10 |
|  | A6.2 Patients experiencing preoperative anxiety or nervousness may alleviate these negative emotions through deep breathing, mindfulness meditation, listening to soothing music, or engaging in proactive communication with healthcare professionals. | 4.86 | 0.35 | 0.07 |
|  | B1.1 Before patient transfer to the ICU, the critical care team prepares essential resources including bed allocation, equipment calibration, and supply stocking to ensure readiness; | 4.95 | 0.21 | 0.04 |
|  | B1.2 The operating room assistant transports the ICU bed into the operating room in preparation for patient transfer; | 4.82 | 0.39 | 0.08 |
|  | B1.3 During postoperative transfer to the ICU, the patient is accompanied by a multidisciplinary team, which includes the attending surgeon, anaesthesiologist, respiratory therapist, and operating room assistant. | 4.95 | 0.21 | 0.04 |
|  | B2.1 Verify patient identity and complete barcode registration; | 4.86 | 0.47 | 0.10 |
|  | B2.2 Healthcare professionals conduct comprehensive patient assessments; | 4.91 | 0.43 | 0.09 |
|  | B2.3 Connecting a ventilator and ECG monitor; | 4.91 | 0.43 | 0.09 |
|  | B2.4 The surgical and ICU teams conduct a structured handover, which includes the patient′s medical history and critical perioperative conditions; | 4.82 | 0.59 | 0.12 |
|  | B2.5 The physician performs arterial blood gas analysis and implements corresponding clinical management; | 4.86 | 0.47 | 0.10 |
|  | B2.6 Nurses perform monitoring procedures and document clinical care. | 4.73 | 0.63 | 0.13 |
|  | B3.1 Protect patients from self-harm behaviours (e.g., self-injury, falls from bed, accidental tube removal) that are caused by altered consciousness or deficits in cognition or attention, as well as behaviours that endanger others′ safety or disrupt medical order; | 5.00 | 0.00 | 0.00 |
|  | B3.2 Ensure the uninterrupted and effective delivery of therapeutic interventions and nursing care for patients. | 4.86 | 0.47 | 0.10 |
|  | C1.1 Endotracheal intubation: orotracheal intubation connected to a mechanical ventilator for assisted ventilation; | 5.00 | 0.00 | 0.00 |
|  | C1.2 Invasive arterial catheterisation: placement of an intra-arterial catheter for continuous blood pressure monitoring and arterial blood sampling to facilitate blood gas analysis; | 5.00 | 0.00 | 0.00 |
|  | C1.3 Closed thoracic drainage tube: for drainage of pleural effusion and air / pneumothorax; | 5.00 | 0.00 | 0.00 |
|  | C1.4 Indwelling urinary catheter: facilitates urinary drainage while potentially causing sensations of frequent urination; | 5.00 | 0.00 | 0.00 |
|  | C1.5 Electrode: connected for 24-h continuous ECG monitoring of heart rate and rhythm; | 4.91 | 0.29 | 0.06 |
|  | C1.6 Pulse oximetry sensor: continuously connected to the cardiac monitoring system for 24-h real-time SpO2 monitoring; | 5.00 | 0.00 | 0.00 |
|  | C1.7 Sensory: promptly report any pain, cold sensation, or discomfort to healthcare staff; | 5.00 | 0.00 | 0.00 |
|  | C1.8 Air mattress: automatic cyclic inflation was performed according to pre-set parameters; | 4.91 | 0.29 | 0.06 |
|  | C1.9 Central venous catheterisation: central venous catheterisation was performed as clinically indicated for vasoactive drug infusion, fluid resuscitation, and central venous pressure monitoring; | 5.00 | 0.00 | 0.00 |
|  | C1.10 Indwelling gastric tubes: patients requiring either gastric decompression for abdominal distension or enteral feeding support via indwelling gastric tubes based on postoperative clinical assessment. | 4.95 | 0.21 | 0.04 |
|  | C2.1 Clinical needs were identified using the bedside ‘One-Glance’ checklist; | 5.00 | 0.00 | 0.00 |
|  | C2.2 Light bedrail tapping; | 4.86 | 0.47 | 0.10 |
|  | C2.3 Head nodding / head shaking / eye opening / eye closing; | 5.00 | 0.00 | 0.00 |
|  | C2.4 Write when clinically necessary. | 4.95 | 0.21 | 0.04 |
|  | C3.1 Maintain normal breathing rhythm; | 5.00 | 0.00 | 0.00 |
|  | C3.2 Avoid tubing tension to prevent accidental extubation; | 4.95 | 0.21 | 0.04 |
|  | C3.3 Maintain quiet rest and avoid agitation. | 5.00 | 0.00 | 0.00 |
|  | C4.1 Maintain semi-recumbent position; | 5.00 | 0.00 | 0.00 |
|  | C4.2 Regulate the respiratory frequency with deep and slow breathing; | 5.00 | 0.00 | 0.00 |
|  | C4.3 Ensure proper positioning of oxygen tubes; | 5.00 | 0.00 | 0.00 |
|  | C4.4 Undertake respiratory muscle training by a breathing trainer; | 5.00 | 0.00 | 0.00 |
|  | C4.5 Perform coughing exercises; | 5.00 | 0.00 | 0.00 |
|  | C4.6 Engage in appropriate bed-based exercises, particularly involving the affected limb; | 5.00 | 0.00 | 0.00 |
|  | C4.7 Report pain level to the medical staff using a 0–10 NRS. | 5.00 | 0.00 | 0.00 |
|  | C5.1 Lighting: ICU night-time lighting is minimized to promote patient rest, with retained task lighting for clinical observation and interventions; | 5.00 | 0.00 | 0.00 |
|  | C5.2 Voice: ICU equipment is highly sensitive, and frequently produces alert tones and alarm sounds. Healthcare professionals generate sounds during night-time medical procedures, with any abnormalities being promptly addressed by medical staff; | 5.00 | 0.00 | 0.00 |
|  | C5.3 Comfort: promptly communicate comfort-related needs (e.g., ‘I feel too cold’ or ‘feel overheated’) to nurses for timely interventions such as blanket adjustment; | 5.00 | 0.00 | 0.00 |
|  | C5.4 ICU staffing ensures continuous care by healthcare professionals around the clock, though night-time nursing resources are frequently limited. If a nurse is not present at a given bedside, they are likely providing urgent care to another patient; | 4.91 | 0.29 | 0.06 |
|  | C5.5 Please speak softly or lightly tap your bed if you require help; | 5.00 | 0.00 | 0.00 |
|  | C5.6 Adequate rest during the first postoperative night is essential to maintain the next-day respiratory function, particularly for effective coughing and expectoration; | 4.95 | 0.21 | 0.04 |
|  | C5.7 Should insomnia occur, promptly notify healthcare professionals for evaluation of the need for potential pharmacological interventions; | 5.00 | 0.00 | 0.00 |
|  | C5.8 Drainage tube: keep the drainage clear while it is in place. Do not pull, bend, or remove the tube. | 5.00 | 0.00 | 0.00 |
|  | C6.1 Anti-inflammatory / pain medications; | 4.77 | 0.53 | 0.11 |
|  | C6.2 Phlegm-reducing medications; | 4.77 | 0.53 | 0.11 |
|  | C6.3 Haemostatic; | 4.77 | 0.53 | 0.11 |
|  | C6.4 Gastroprotective agents and antiemetics. | 4.77 | 0.53 | 0.11 |
|  | D1.1 Close your lips securely around the nebuliser mouthpiece and breathe in slowly and deeply; | 4.91 | 0.29 | 0.06 |
|  | D1.2 The nebulisation procedure requires 15–20 minutes for complete medication delivery. | 4.91 | 0.29 | 0.06 |
|  | D2.1 Perform slow, deep diaphragmatic breathing; | 5.00 | 0.00 | 0.00 |
|  | D2.2 Practice active coughing and expectoration exercises. | 5.00 | 0.00 | 0.00 |
|  | D3.1 After 6:30 AM the following morning, maintain NPO status until the physician′s evaluation determines whether bronchoscopic sputum aspiration is required; | 4.91 | 0.29 | 0.06 |
|  | D3.2 Wait for the physician′s morning assessment. | 4.77 | 0.53 | 0.11 |
|  | D4.1 The on-duty physician or nurse will collect venous blood samples for re-evaluation of postoperative parameters; | 4.55 | 0.74 | 0.16 |
|  | D4.2 Arterial blood sampling for gas analysis by physician. | 4.64 | 0.49 | 0.11 |
|  | D5.1 Nurses assessed drainage-tube patency and effluent characteristics; | 4.82 | 0.40 | 0.08 |
|  | D5.2 Replace the chest-drainage bottle when clinically indicated. | 4.77 | 0.43 | 0.09 |
|  | D6.1 The surgeon assessed postoperative recovery, including vital signs, drainage characteristics / volume, results of blood gas analysis, and cough effectiveness; | 4.86 | 0.35 | 0.07 |
|  | D6.2 Bronchoscopic secretion clearance was performed when clinically indicated, based on assessments during ward rounds. | 4.82 | 0.40 | 0.08 |
|  | D7.1 Wound assessment was performed by healthcare professionals; | 4.82 | 0.40 | 0.08 |
|  | D7.2 Wound dressings were aseptically changed in case of moisture penetration. | 4.82 | 0.40 | 0.08 |
|  | D8.1 Healthcare professionals temporarily vacated the bedside during portable radiography; | 4.77 | 0.42 | 0.09 |
|  | D8.2 When CT is clinically indicated, patients will be accompanied by both healthcare professionals and family members during transport. | 4.86 | 0.35 | 0.07 |
|  | D9.1 Routine therapeutic interventions were administered, including intravenous therapy; | 4.82 | 0.40 | 0.08 |
|  | D9.2 Contact for general ward bed allocation; | 4.77 | 0.43 | 0.09 |
|  | D9.3 Contact patient′s family members: one designated caregiver is permitted to continuously accompany the patient; | 4.91 | 0.30 | 0.06 |
|  | D9.4 Healthcare professionals completed inter-unit transfer procedures; | 4.82 | 0.40 | 0.08 |
|  | D9.5 The patient was transferred to the general ward through a collaborative effort that involved nurses, patient′s family members, and nursing assistants. | 4.82 | 0.40 | 0.08 |
|  | D10.1 Nursing assistants contact the patient′s family members to provide high-protein, easily digestible meals; | 4.82 | 0.40 | 0.08 |
|  | D10.2 Scheduled visitation conducted from 14:00 to 14:30 daily; | 4.91 | 0.30 | 0.06 |
|  | D10.3 In the afternoon free time, respiratory training, coughing and expectoration, and bed exercises are conducted; | 4.95 | 0.21 | 0.04 |
|  | D10.4 Venous thrombosis prophylaxis: perform in-bed venous thrombosis prophylaxis exercises as tolerated by the patient′s condition. | 4.91 | 0.30 | 0.06 |
|  | D11.1 After the surgery, the surgeon will come to the entrance of the ICU to brief the patient′s family members about the patient′s surgical condition; | 4.91 | 0.30 | 0.06 |
|  | D11.2 The postoperative condition was communicated to the patient′s family members by the ICU physicians, accompanied by the completion of the physician–patient communication form; | 4.91 | 0.30 | 0.06 |
|  | D11.3 The nurse–patient communication form was completed by the ICU nursing staff along with the patient′s family members; | 4.95 | 0.21 | 0.04 |
|  | D11.4 Patient′s family members labelled the prepared items with the bed number and patient′s name before handing them to the ICU nursing assistants and signing the material transfer form; | 4.95 | 0.21 | 0.04 |
|  | D11.5 Ensure 24-h telephonic availability; | 4.91 | 0.30 | 0.06 |
|  | D11.6 No patient′s family members visits or meal deliveries are required on the day of surgery; | 4.91 | 0.30 | 0.06 |
|  | D11.7 For necessary meal deliveries, patient′s family members should prepare nutritionally adequate meals (high-protein, bland, and easily digestible) in containers that are properly identified with the patient's bed number and name; | 4.91 | 0.30 | 0.06 |
|  | D11.8 Valuables should be handed over to the patient′s family members for safekeeping before surgery. All jewellery (including earrings, necklaces, etc.) must be removed; | 4.91 | 0.30 | 0.06 |
|  | D11.9 To ensure patient safety, the hospital′s policy generally prohibits the administration of externally procured medications; | 4.86 | 0.35 | 0.06 |
|  | D11.10 For assistance, please knock gently at the visitation entrance. Owing to high patient-care demands in the ICU, we appreciate your patience during waiting periods. | 4.91 | 0.30 | 0.06 |
|  | E1.1 Comply with the unit regulations; | 4.64 | 0.66 | 0.14 |
|  | E1.2 Perform pulmonary exercises at scheduled intervals. | 4.77 | 0.43 | 0.09 |
|  | E2.1 Complete the ‘Feedback and Suggestions’ form at the entrance to the ICU; | 4.68 | 0.65 | 0.14 |
|  | E2.2 Provide feedback to the head nurse. | 4.59 | 0.67 | 0.15 |
|  | E3.1 Quit smoking completely and stay away from second-hand smoke; | 4.64 | 0.66 | 0.14 |
|  | E3.2 Get routine vaccinations, including the pneumococcal vaccine, every 5 years | 4.59 | 0.67 | 0.15 |
|  | E3.3 Ensure proper ventilation and comfortable room temperature | 4.50 | 0.67 | 0.15 |
|  | E3.4 Scientific and reasonable exercise and diet | 4.59 | 0.67 | 0.15 |

Abbreviations: SD, standard deviation; CV, coefficient of variation; ICU, intensive care unit; CT, computed tomography; ECG, electrocardiogram; SpO2, pulse oxygen saturation; NRS, Numeric Rating Scale; NPO, nil per os.