

Additional File 2: Copy of the TISS-28-scoring tool

TISS-28 (Therapeutic Intervention Scoring System-28)

Basic Activities	Points		Ventilatory Support	Points	
Standard monitoring. Hourly vital signs, regular registration and calculation of fluid balance.	5	<input type="radio"/> yes <input type="radio"/> no	Mechanical ventilation. Any form of mechanical or assisted ventilation with or without PEEP; with or without muscle relaxants; spontaneous breathing with PEEP).	5	<input type="radio"/> yes <input type="radio"/> no
Laboratory. Biochemical and microbiological investigations.	1	<input type="radio"/> yes <input type="radio"/> no	Supplementary ventilatory support. Breathing spontaneously through endotracheal tube without PEEP; supplementary oxygen by any method except if mechanical ventilation parameters apply.	2	<input type="radio"/> yes <input type="radio"/> no
Single medication, any route (IV, PO, IM, etc.).	2	<input type="radio"/> yes <input type="radio"/> no	Care of artificial airways. Endotracheal tube or tracheostoma.	1	<input type="radio"/> yes <input type="radio"/> no
Multiple intravenous medications (more than 1 drug, single shots, or continuously)	3	<input type="radio"/> yes <input type="radio"/> no	Treatment for improving lung function. Thorax physiotherapy, incentive spirometry, inhalation therapy, intratracheal suctioning.	1	<input type="radio"/> yes <input type="radio"/> no
Routine dressing changes. Care and prevention of decubitus and daily dressing change.	1	<input type="radio"/> yes <input type="radio"/> no	Renal Support		
Frequent dressing changes (at least one time per each nursing shift) and/or extensive wound care	1	<input type="radio"/> yes <input type="radio"/> no	Hemofiltration techniques. Dialytic techniques.	3	<input type="radio"/> yes <input type="radio"/> no
Care of drains. All (except gastric tube).	3	<input type="radio"/> yes <input type="radio"/> no	Quantitative urine output measurement.	2	<input type="radio"/> yes <input type="radio"/> no
Cardiovascular Support			Active diuresis (e.g. furosemid > 0.5 mg/kg/day for overload).	3	<input type="radio"/> yes <input type="radio"/> no
Single vasoactive medication. Any vasoactive drug.	3	<input type="radio"/> yes <input type="radio"/> no	Neurologic Support		
Multiple vasoactive medications. More than 1 vasoactive drug, disregard type and dose.	4	<input type="radio"/> yes <input type="radio"/> no	Measurement of intracranial pressure.	4	<input type="radio"/> yes <input type="radio"/> no
Intravenous replacement of large fluid losses. Fluid replacement > 3 liters per square meter per day, disregard type of fluid administered.	4	<input type="radio"/> yes <input type="radio"/> no	Metabolic Support		
Peripheral arterial catheter.	5	<input type="radio"/> yes <input type="radio"/> no	Treatment of complicated metabolic acidosis/alkalosis.	4	<input type="radio"/> yes <input type="radio"/> no
Left atrium monitoring. Pulmonary artery flotation catheter with or without cardiac output measurement.	8	<input type="radio"/> yes <input type="radio"/> no	Intravenous hyperalimentation	3	<input type="radio"/> yes <input type="radio"/> no
Central venous line.	2	<input type="radio"/> yes <input type="radio"/> no	Enteral feeding. Through gastric tube or other GI route (e.g. jejunostomy).	2	<input type="radio"/> yes <input type="radio"/> no
Cardiopulmonary resuscitation after arrest in the past 24 hours (single precordial percussion not included)	3	<input type="radio"/> yes <input type="radio"/> no			
Specific Interventions					
Single specific interventions in the ICU. Naso or orotracheal intubation, introduction of a pacemaker, cardioversion, endoscopies, emergency surgery in the past 24 hours, gastric lavage. Routine interventions without consequences to the clinical condition of the patient, such as radiographs, echography, EKG, dressings or introduction of venous or arterial catheters, are not included.	3	<input type="radio"/> yes <input type="radio"/> no	<p>TISS-28 = 0</p> <p>TISS-28 = SUM (points for activities performed) Compute</p> <p style="text-align:center">Clear</p> <p>Time of nurse's care = 0</p> <p>(One TISS-28 point equals 10.6 minutes of each 8 h nurse's shift)</p> <p>TISS-76 correlation = 0</p> <p>(Correlation between TISS-28 and TISS-76: $r = 0.93$, $r^2 = 0.86$)</p> <p>(TISS-28) = $3.33 + 0.97 * (TISS-76)$</p>		
Multiple specific interventions in the ICU. More than one, as described above.	5	<input type="radio"/> yes <input type="radio"/> no			
Specific interventions outside of ICU. Surgery or diagnostic procedures.	5	<input type="radio"/> yes <input type="radio"/> no			

Criteria of exclusion are applied in four conditions :

- "Multiple intravenous medications" excludes "Single medication";
- "Mechanical ventilation" excludes "Supplementary ventilatory support";
- "Multiple vasoactive medications" excludes "Single vasoactive medication";
- "Multiple specific interventions in the ICU" excludes "Single specific interventions in the ICU"

References

- Miranda DR et al. Simplified Therapeutic Intervention Scoring System : the TISS-28 items. Results from a multicenter study. *Crit Care Med.* 1996;24:64-73.
- Moreno R, Morais P. Validation of the simplified therapeutic intervention scoring system on an independent database. *Intensive Care Med.* 1997;23:640-644.