Sanity Template for Intensive Care Unit Prone Positioning of the Patient

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| **Field** | **Text** |
| Title | Covid-19 Part 3: Proning Procedure of Patient on a Ventilator |
| Subtitle | Advanced Respiratory Care |
| Publishing Organization | Laerdal Medical |
| Overview tab |  |
| Simulation Type | SimMan3G |
| Simulation time | 25 minutes |
| Debriefing time | 40 minutes |
| Level | Advanced |
| Patient Type | Adult |
| Target Groups | Health Care Providers in Intensive Care Unit |
| Summary | This scenario presents a 71-years-old male with diagnosed Covid-19, who was triaged from the Emergency Department and transferred to the Intensive Care Unit in an isolation bay two days ago. The participants are expected follow isolation protocols, including PPE for contact precaution. They should assess the patient’s saturation status, discuss proper respiratory treatment and recognize the need for turning the patient into prone position. The participants should delegate roles, utilize closed loop communication and successfully turn the sedated and paralyzed patient in one movement.**NOTE**: This scenario contains an optional alternative partway with accidental extubation of the patient while turning him to prone position. The participants should then recognize the unintentional emergency incident and act immediately by reversing the patient to supine position, apply cricoid pressure, reintubate the patient and reconnect to ventilator.  |
| Learning objectives  | * Apply standard precautions according to presumed diagnosis including appropriate PPE
* Perform a primary assessment of a patient with Covid-19 respiratory infection (SARI).
* Realize the need to turn a patient into prone position
* Verify sedation and paralysis prior to changing position of a patient
* Delegate roles and communicate with team members to move a patient in one movement
* Perform turning of a sedated and paralyzed patient while on ventilator

Doff PPE according to procedure |
| Educational information | Ingmar medical has created a Covid-19 Knowledge Base on their website with an easy access to educational material. Here, users can apply for on-demand-webinars on running simulations with mechanical ventilation. On the link to external resources, you can access links to latest articles on Covid-19 treatment as well as videos on how to run simulation with a wide range of ventilator producers. Find the Covid-19 Knowledge base here: <https://www.ingmarmed.com/covid19/> |
| Further readings | *Infection prevention and control during health care when**novel coronavirus (nCoV) infection is suspected. Interim Guidance*, World Health Organization 25 January 2020, WHO/2019-nCoV/IPC/v2020.2: [https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125](https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-%28ncov%29-infection-is-suspected-20200125)**I**ntensive care nurses’ perceptions of simulation-based team training for building patient safety in intensive care: A descriptive qualitative study*, In Intensive and Critical Care Nursing,*Vol. 34, issue 4, August2014, pp 179-187, attained from <https://www.doi.org/10.1016/j.iccn.2014.03.002> COVID-19 Knowledge Base on Ingmar Medical website: <https://www.ingmarmed.com/covid19/> |
| Scenario image | Pending |
| Scenario Video | NA |
| Why use this scenario? | Various publications of the CoVid-19 guidelines suggest prone positioning could be a successful advanced ventilation technique for patient with CoVid-19. The scenario was designed to ensure all team could practice proning of a simulator that is ventilated, prior to completing this with a real Covid-19 patients in their Intensive Care Unit. |
| Prepare tab |  |
| Location | Intensive Care Unit |
| Participants | * 1-2 health care providers
* 5 participants to complete a team of 7 to flip a sedated and paralyzed patient
* 1 observer
* 1 instructor to run the scenario
* 1 facilitator to lead the debriefing session

**Alternative pathway with accidental intubation**:* Scenario assistant to exhale tubing during procedure to turn patient into prone position
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| Equipment list | Medical Supplies* ABHR - Alcohol base hand rub
* Blood pressure cuff
* Capnometer
* ECG electrode cables
* Endotracheal intubation kit
* IV line
* Medical face masks (N95 mask with respirator)
* Multiple IV-line poles and pumps
* Closed circuit ventilator (long-term)
* SpO2 probe Standard precautions equipment for all participants (long-sleeved, disposable gown, goggles or face shield and non-sterile gloves)
* Stethoscope
* Suction line and tubing
* Thermometer
* Universal precautions equipment
* Circuits for the ventilators
* IV Therapy Running
* Arterial Line
* Central Venous Catheter line
* Multiple IV line poles and pumps
* Indwelling Catheter
* NG Wide bore
* Bag Valve Mask

Props* Patient gown
* Hospital bed on wheels
* Ventilator

Medications* Ipratropium
* IV Antibiotics
* Midazolam
* Morphine
* Normal Saline
* Propofol
* Suxamethonium
* Vecuronium
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| Preparation and setup | * Place the simulator lying in a hospital bed, apply moisture on upper lip and forehead to simulate sweating
* Intubate the simulator and connect to central line, arterial line, and IDC with lines labelled at bedside
* Connect tubing to ASL 5000 Lung Solution and connect to local ventilator
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| Role Information | Optional Pathway: Accidental extubation**Instructions for confederate scenario assistant:**In this scenario, you will be a part of a team who should coordinate and flip an intubated, sedated and paralyzed patient from supine to prone position while connected to a ventilator. Make sure to be placed at the patient’s head for the procedure. During the turn of the patient, exhale the tube as unseen as possible to simulate an accidental extubation. You should verbalize the extubation accident but leave the decision making and delegation of emergency tasks to the participants in the training session. |
| Patient chart | NA |
| Training Devices | SimMan 3G family |
| Simulation devices | Lleap |
| Simulation mode | Automatic mode |
| Additional Simulation Equipment | Patient Monitor, SpO2 probe, ALS 5000 Lung Solution |
| Simulate tab |  |
| Learner Brief | *The learner brief should be read out loud to the learners before the simulation starts.* **Intensive Care Unit** **20:00 Hours****Afternoon shift - Day two****Situation***:* Your patient, Antonie Debuzzy, is a 71-years-old male who was diagnosed with Covid-19 two days ago. The patient was transferred to the Intensive care unit and has been paralyzed and sedated to improve ventilation. In the last hour, the patient has deteriorated, and the team is considering proning the patient. **Background:** The patient has had a past history of non-insulin requiring diabetes and chronic kidney disease. **Assessment:** Neurological: Patient sedated and was given Vecuronium 1 hour ago, PEARL 3+, Train of four 2/4.Cardiovascular: The patient is tachycardiac, hypotensive, febrile at 39 degrees, pale at peripheries, CVP at 8 mmHg.Respiratory: ETT 8.5 cm 22 cm at the Lips, Volume Control-AC, rate (ventilated) 20 bpm, Tidal volume target is 420 mL, PEEP 10C cmH20, Flow trigger 3L, some secretions when suctioning. Gastrointestinal: Naso-gastric feeding stopped and on free drainage bag, Bowels sounds present. Renal: IDC infusion at 40 mL/hr and intravenous therapy at 42mL/hr Skin: No pressure breaks noted, all lines secured and 2 days old. **Recommendation**: Please, go and assess the patient and perform interventions to improve the ventilation status of the patient. |
| Patient Picture | NA |
| Patient Data | Name: Antoine DebuzzyGender: MaleAge: 71 yearsWeight: 83 kgHeight: 175 cmAllergies: No knownImmunizations: Yearly influenza vaccine |
| Start vital signs | Initial vitals• ECG: Sinus w occasional VES • HR: 140 bpm • RR: 0 rpm• BP: 118/70 mmHg• SpO2: 88%* EtCO2: 51 mmHg

• Tblood: 39 oC |
| Medical history | **Past Medical History**Diabetes 2, chronic kidney disease**Resent Medical History**Patient got a cold 7 days ago with fever, sore throat, sneezing and increasing fatigue. 2 days ago, his son called that he had been tested positive for Covid-19, after returning from a business trip in an endemic Covid-19 area. Patient met with his son 11 days ago.**Social History**Retired bus driver 8 years ago, married with 2 grown-up children, smokes 4-6 cigarettes per day. Used to drink alcohol on daily basis until he got a diagnosis of diabetes type 2 seven years ago and chronic kidney disease 10 years ago. Active in the local AA society. |
| Clinical Findings | * Sedated and paralyzed
* Sweating
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| Diagnostics | Chest x-rayChest x-ray is available on patient monitor LaboratoryCovid-19 swab: positive **Arterial Blood Gas Analysis:**At start of simulation:pH 7.11, PaCO2: 70 mmHg, PaO2: 55 mmHg, HCO3-: 22 mEq/LPatient is deteriorating:pH 7.10, PaCO2: 72 mmHg, PaO2: 47 mmHg, HCO3-: 22 mEq/LJust after patient turned to prone position:pH 7.10, PaCO2: 72 mmHg, PaO2: 46 mmHg, HCO3-: 22 mEq/LPatient settling after turned to prone position:pH 7.21, PaCO2: 60 mmHg, PaO2: 55 mmHg, HCO3-: 24 mEq/L |
| Provider’s orders | NA |
| Expected interventions | * Assemble and prepare equipment
* Don PPE according to procedure and IPC guidelines for acute respiratory infections (ARI)
* Identify patient
* Perform primary survey including oxygen therapy
* Assess infusion of normal saline
* Improve ventilation support with ventilation strategies
* Ensure the patient in sedated and paralyzed
* Discuss the change in patient condition with provider
* Delegate roles to turn the patient into prone position
* Successful turn the patient to prone position
* Safely dispose of equipment
* Doff PPE according to procedure
* Optional alternative ending:
	+ Accidental extubation of patient during turning
	+ Turn patient back to supine position
	+ Apply cricoid pressure
	+ Re-intubate patient
	+ Re-connect tubing
* Re-attach ventilator
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| Assessment Instruments | This scenario contains scoring that enables a summative assessment of the participants. The scoring is based on key events which should be logged during simulation. The scoring is presented in a separate score card in the Session Viewer under the Performance tab. |
| Operator Information (in accordions) | Running Simulation with ASL 5000 Lung SolutionThis scenario requires an additional plugin to LLEAP to run correctly. Please, find a guide for installing the plugin to LLEAP below:(Add attachment) Information on logging PPEThis simulation is a team training session. All participants are required to apply adequate PPE. If one of the participants fails to apply one of the required PPE equipment items, this item should not be logged even though the rest of the participants apply the PPE equipment item. It is a basic assumption that the team helps and ensures that all participants have don correct PPE after procedure.Alternative pathway with accidental extubationThis scenario contains an optional alternative partway with accidental extubation of the patient while turning him to prone position. If faculty chose to train additional learning objectives on handling this unintentional incident, an extra pathway is added in the programming in phase 2 under the event category “Treatment”. A confederate scenario assistant will exhale the patient during the flipping of the patient to prone position. Choose the event “Optional route: Patient accidentally extubated” to enter the extubation pathway. |
| Scenario Progression Image | NA |
| Scenario Progression Image Title | NA |
| Scenario Progression Image Description | NA |
| Scenario Progression Attachment | NA |
| Debrief tab |  |
| Guided reflection questions | These guided reflection questions are organized by the gather-analyze-summarize (GAS) method. The questions are presented to suggest topics that may inspire the debriefing conversation.Gather Information* What are your reactions to this simulation? What are your other initial reactions?
* Would one of you describe the events from your perspective?
* From your perspective, what were the main issues you had to deal with?

Analyze* Describe the characteristics of vital signs for respiratory virus infections. Which characteristics was applicable in this case?
* How was the patient ventilating at the commencement of the scenario?
* What steps did you perform to improve ventilation?
* What were your considerations concerning increasing sedation?
* Were there any concerns in relation to complications from turning the patient to the prone position?
* How was your cooperation within the team when turning the patient?
* Which interprofessional communication did you perform?
* How did you ensure safety precautions before, during and after the patient encounter?
* *Alternative route:*
	+ Describe what happened when you were about to turn the patient.
	+ Which decision did you make concerning the emergency incident?
	+ How did you delegate tasks?
	+ What were your considerations for the patient after the extubation incident?

Summarize* What are the key points from this simulation?
* What would you like to do differently next time in a similar situation?
* What are your main take-home messages?
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| Guided reflection Attachment | NA |
| Case considerations | They should apply routine IPC (i.e. standard precautions) for all patients. Moreover, it is of the outmost importance to apply standard precautions at all times including but not restricted to:• Hand hygiene• Respiratory hygiene• PPE according to the risk• Safe injection practices, sharps management and injury prevention• Safe handling, cleaning and disinfection of patient care equipment• Environmental cleaningThe team should handle mechanical ventilation for the critically unwell patient. |
| Case considerations image | NA |
| Case considerations image Descriptions | NA |
| Case considerations Attachment | NA |
| Files and attachments |  |
| Publication Details |  |
| Version number | 1.0 |
| Publication date | Target 17/3 2020 |
| Release note | NA |
| Co-developer One | Ingmar Medical |
| Co-developer Two | NA |
| Legal Notice | NA |
| Credits | Contribution and review by Ingmar Medical  Jessica Dietz, MS, RRT-ACCS Clinical Educator  Justina Gerard, MBA, RRT Clinical Educator Acknowledgement**Peter Xu, RT** Sir Run Run Shaw Hospital, the affiliated hospital of Zhejiang Medical university, Wubei, China X-Ray Source Case courtesy of Dr Derek Smith: <https://radiopaedia.org> from the case: <https://radiopaedia.org/cases/7525> |
| Scenario Settings |  |
| Training disciplines |

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| x  Community Health and Public Safety  |
| ​​☐​  EMS /Prehospital  |
| x  Interdisciplinary  |
| x  Medical  |
| ​​X​  Military  |
| x  Nursing  |
| ​​☐​  Nursing Aids  |
| ​​☐​  Occupational Therapy  |
| ​​☐​  Phlebotomy  |
| ​​☐​  Pharmacy  |
| x  Physician Assistant  |
| ​​☐​  Radiology Technician  |
| ☐  Respiratory Therapy  |

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| Education level |

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|  ☐ Undergraduate  |
|   xPostgraduate  |

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| Medical specialities |

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| ☐  Allergy and immunology  |
| ​​☐​  Anesthesiology  |
| ​​☐​  Cardiology  |
| x  Critical Care Medicine  |
| ​​☐​  Dermatology  |
|  Emergency Medicine  |
| ​​☐​  Endocrinology  |
| ​​☐​  Family Medicine  |
| ​​☐​  Gastroenterology  |
| ​​☐​  Geriatrics  |
| x  Hospital Medicine  |
| x  Infectious diseases  |
| ​​☐​  Internal medicine  |
| ​​☐​  Nephrology  |
| ​​☐​  Neurology  |
| ​​☐​  Neurosurgery  |
| ​​☐​  Obstetrics and Gynecology  |
| ​​☐​  Oncology  |
| ​​☐​  Ophthalmology  |
| ​​☐​  Orthopedics  |
| ​​☐​  Otolaryngology  |
| ​​☐​  Palliative care  |
| ​​☐​  Pediatrics  |
| ​​☐​  Pharmacology  |
| ​​☐​  Psychiatry  |
| x  Pulmonology  |
| ☐Radiology  |
| ​​☐​  Rehabilitation Medicine  |
| ​​☐​  Rheumatology  |
| ​​☐​  Surgery  |
| ​​☐​  Vascular surgery  |

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| Nursing specialities |

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| ​​☐​  Ambulatory care nursing  |
| ​​☐​  Advanced practice nursing  |
| ​​☐​  Burn nursing  |
| ​​☐​  Cardiac nursing  |
| ​​☐​  Diabetes nursing  |
| ​​☐​  Medical case management  |
| ​​☐​  Community health nursing  |
| x  Critical care nursing  |
|   Emergency nursing  |
| ​​☐​  Gastroenterology nursing  |
| ​​☐​  Geriatric nursing  |
| ​​☐​  Home health nursing  |
| ​​☐​  Hospice and palliative care nursing  |
| ​​☐​  Hyperbaric nursing  |
| ​​☐​  Immunology and allergy nursing  |
| ​​☐​  Intravenous therapy nursing  |
| X Infection control nursing  |
| x Infectious disease nursing  |
| ​​☐​  Maternal-child nursing  |
| ​​☐​  Medical-surgical nursing  |
| ​​☐​  Military and uniformed services nursing  |
| ​​☐​  Neonatal nursing  |
| ​​☐​  Neurosurgical nursing  |
| ​​☐​  Nephrology nursing  |
| ​​☐​  Nurse midwifery  |
| ​​☐​  Obstetrical nursing  |
| ​​☐​  Oncology nursing  |
| ​​☐​  Orthopedic nursing  |
| ​​☐​  Ostomy nursing  |
| ​​☐​  Pediatric nursing  |
| ​​☐​  Peri anesthesia nursing  |
| ​​☐​  Perioperative nursing  |
| ​​☐​  Psychiatric nursing  |
| x Pulmonary nursing  |
| ​​☐​  Radiology nursing  |
| ​​☐​  Rehabilitation nursing  |
| ​​☐​  Renal nursing  |
| ​​☐​  Sub-acute nursing  |
| ​​☐​  Substance abuse nursing  |
| ​​☐​  Surgical nursing  |
| ​​☐​  Urology nursing  |
| ☐ Vascular access  |
| ☐  Wound care  |

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| Nursing courses |

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| ☐  Child & adolescent health  |
| ​​☐​  Community and family health nursing  |
| ​​☐​  Fundamentals of nursing  |
| ​​☐​  Gerontology  |
| ​​☐​  Health assessment  |
| ​​☐​  Leadership  |
| ​​☐​  Maternal-neonatal health  |
| x  Medical-surgical nursing  |
| ​​☐​  Pathophysiology  |
| ​​☐​  Pharmacology  |
| ​​☐​  Psychiatric and mental health  |

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| Body systems | x  Circulatory ☐  Digestive ☐  Endocrine ☐  Hematopoietic ☐  Immune/lymphatic ☐  Integumentary ☐  Muscular ☐  Nervous ☐  Renal/Urinary ☐  Reproductive x  Respiratory ☐  Skeletal  |
| Assessment type (summative/formative) |

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| x  Formative  |
|   Summative  |

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| Free for public use | YES |