# Et bilde som inneholder tegning Automatisk generert beskrivelseSanity Template for Emergency Department Non-Invasive Support IngMar

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| **Field** | **Text** |
| Title | Covid-19 Part 1: Respiratory Stabilization on Ventilator |
| Subtile | Advanced Respiratory Care |
| Publishing Organization | Laerdal Medical/ |
|  |  |
| Simulation Type | Simulator based |
| Simulation time | 25 minutes |
| Debriefing time | 30-40 minutes |
| Level | Advanced |
| Patient Type | Adult |
| Target groups | Health Care Providers in Emergency Department |
| Summary | This scenario presents a 71-years-old male with suspected COVID-19 already admitted to the Emergency Department. The patient was admitted to 1 hour ago and is waiting for an Intensive care bed.    The participants are expected to assess and recognize a deterioration in the patient's respiratory condition. They should appropriately increase ventilatory support while maintaining appropriate respiratory precautions., and recognize the need for intubation and ventilator support. |
| Learning objectives | After simulation the participants should be able to:   * Perform a primary assessment of a patient with severe acute respiratory infection (SARI) * Change the non-invasive support to maximize the patient’s effort * Express the need for intubation of the patient to stabilize respirations * Perform intubation of the patient the patient in a timely manner * Connect the patient to a ventilator * Contact Intensive Care Unit to discuss possible transfer using patient advocacy * 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  Intensive 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://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? | This scenario is designed for health care providers in the emergency department to train care for a patient with a potential Covid-19 infection which require contact precautions. The learning objectives provide possibility to train intubation and ventilator support of a patient in respiratory distress.  The scenario is designed according to the World Health Organization’s recommendations for treatment of Covid-19 Ultimo March 2020. |
| Prepare tab |  |
| Location | Emergency Department |
| Participants | * 2-6 health care providers * 1 observer * 1 instructor ton run the simulation * 1 facilitator to lead the debriefing session |
| 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) * Oxygen delivery devices including minimum nasal cannula, bag valve mask, high flow oxygen therapy and non-invasive ventilator with reservoir * Closed circuit ventilator with Non-Invasive settings * 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 perceptions equipment * Circuits for the ventilators  Props  * Ventilator * Hospital bed on wheels * Patient gown  Medications  * Ipratropium * IV Antibiotics * Normal Saline * Salbutamol * Rapid Sequence Medication * First Line Emergency Medication such as Adrenaline |
| Preparation and setup | * Dress the simulator in a hospital gown * Insert IV and have normal saline infusion running at 100 mL/hour * Place the simulator lying in a hospital bed, apply high flow oxygen nasal cannula to the scenarios * Apply moisture on upper lip and forehead to simulate sweating |
| Role Information | NA |
| 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.*  **Emergency Room**  **10:00**    **Situation**: Your Patient is Antoine Debuzzy. He is a 71-years-old male patient presented to the Emergency Department 1 hour ago.    **Background**: The patient has had non-insulin requiring diabetes and chronic kidney disease. The patient has reported fever, dry coughing, chest pain and respiratory difficulty. The patient has been swabbed for Covid-19 and is on isolation precautions. ICU did not have a bed at admission.    **Assessment**: The patient’s respiratory rate appears to be increasing despite the oxygen therapy. On arrival his oxygen saturations were 91% on Room Air. Since this moment he started on oxygen via nasal cannula and oxygen saturations are only 94% on 8 liters. Patient has deteriorated and now has increased shortness of breath.    **Recommendation**: Please assess the patient and provide respiratory support as needed. |
| Patient Picture | NA |
| Patient Data | Name: Antoine Debuzzy  Gender: Male  Age: 71 years  Weight: 83 kg  Height: 175 cm  Allergies: No known  Immunizations: Yearly influenza vaccine |
| Start vital signs | Initial vital signs:  • ECG: Sinus  • HR: 130/min  • RR: 24/min  • BP: 145/78 mmHg  • SpO2: 94%   * EtCO2: 46 mmHg * Tblood: 39,8 C |
| Medical history | **Past Medical History**  Diabetes type 2, chronic kidney disease  **Resent Medical History**  Patient got a cold 3 days ago with fever, sore throat, sneezing and increasing fatigue. This morning, 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 9 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 | * Respiratory distress * Dry coughing with chest pain * Sweating and shivering * Malaise and fatigue |
| Diagnostics | Chest X-ray Chest x-ray is available on patient monitor. Click on the event “Analyze X-ray” during session to launch the radiology file.  **Arterial Blood Gas during simulation**  Start of simulation before changing oxygen administration:  pH 7.31, PaCO2: 55 mmHg, PaO2: 45 mmHg, HCO3-: 27 mEq/L  If trying high-flow oxygen on nasal cannula:  pH 7.31, PaCO2: 55 mmHg, PaO2: 45 mmHg, HCO3-: 27 mEq/L (no change)  If trying non-invasive ventilation:  pH 7.26, PaCO2: 67 mmHg, PaO2: 40 mmHg, HCO3-: 27 mEq/L  Post-intubation and on ventilator:  pH 7.33, PaCO2: 46 mmHg, PaO2: 67 mmHg, HCO3-: 27 mEq/L |
| Provider’s orders |  |
| Expected interventions | * Assemble and prepare equipment * Don PPE according to procedure and IPC guidelines for acute respiratory infections (ARI) * Identify patient * Perform a focused respiratory assessment * Perform primary survey * Assess infusion of normal saline * Inform patient in relation to plan of care * Communicate effectively with interprofessional team * Attempt to improve ventilation support with either non-invasive Ventilation or High Flow oxygen therapy. * Recognize the need for rapid sequence induction and ventilation * Ventilate the patient in a timely manner * Discuss the change in patient condition with Intensive Care Unit * Safely disposal of equipment * Doff PPE according to procedure |
| 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 Solution This 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 PPE This 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. |
| 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? * Describe your actions to increase saturation in this case. What was your reasoning? * What are the rationales for intubating the patient? * How was your cooperation within the team and with the patient? * Which interprofessional communication did you perform? Discuss the importance of communication with ICU in this case. * How did you ensure safety precautions before leaving the isolation room?  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? |
| Guided reflection Attachment | NA |
| Case considerations | The team should apply routine IPC (i.e. standard precautions) for all patients. Moreover, it is of 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 cleaning  In this case, the team should recognize the need for advanced ventilatory support and initiate mechanical ventilation for the critically unwell patient. |
| Case considerations image | NA |
| Case considerations image Descriptions | NA |
| Case considerations Attachment | NA |
| Files and attachments |  |
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| Version number | 1.0 |
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| 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 X-Ray  The X-ray used in this scenario was found at the Radiology Assistant website at:  <https://radiologyassistant.nl/chest/lk-jg-1>  References:  <https://pubs.rsna.org/doi/pdf/10.1148/ryct.2020200034>  X-ray link:  <https://radiologyassistant.nl/assets/2-chest-filmb.jpg> |
| Scenario Settings |  |
| Training disciplines | |  | | --- | | 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 | |
| Education level | |  | | --- | | ☐ Undergraduate | | x Postgraduate | |
| Medical specialities | |  | | --- | | ☐  Allergy and immunology | | ​​☐​  Anesthesiology | | ​​☐​  Cardiology | | x  Critical Care Medicine | | ​​☐​  Dermatology | | x  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 | |
| Nursing specialities | |  | | --- | | ​​☐​  Ambulatory care nursing | | ​​☐​  Advanced practice nursing | | ​​☐​  Burn nursing | | ​​☐​  Cardiac nursing | | ​​☐​  Diabetes nursing | | ​​☐​  Medical case management | | ​​☐​  Community health nursing | | x  Critical care nursing | | x  Emergency nursing | | ​​☐​  Gastroenterology nursing | | ​​☐​  Geriatric nursing | | ​​☐​  Home health nursing | | ​​☐​  Hospice and palliative care nursing | | ​​☐​  Hyperbaric nursing | | ​​☐​  Immunology and allergy nursing | | ​​☐​  Intravenous therapy nursing | | ☐Infection control nursing | | ☐ 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 | | ☐ Pulmonary nursing | | ​​☐​  Radiology nursing | | ​​☐​  Rehabilitation nursing | | ​​☐​  Renal nursing | | ​​☐​  Sub-acute nursing | | ​​☐​  Substance abuse nursing | | ​​☐​  Surgical nursing | | ​​☐​  Urology nursing | | ☐ Vascular access | | ☐  Wound care | |
| Nursing courses | |  | | --- | | ☐  Child & adolescent health | | ​​☐​  Community and family health nursing | | ​​☐​  Fundamentals of nursing | | ​​☐​  Gerontology | | ​​☐​  Health assessment | | ​​☐​  Leadership | | ​​☐​  Maternal-neonatal health | | ☐  Medical-surgical nursing | | ​​☐​  Pathophysiology | | ​​☐​  Pharmacology | | ​​☐​  Psychiatric and mental health | |
| Body systems | x  Circulatory  ☐  Digestive  ☐  Endocrine  ☐  Hematopoietic  ☐  Immune/lymphatic  ☐  Integumentary  ☐  Muscular  ☐  Nervous  ☐  Renal/Urinary  ☐  Reproductive  x  Respiratory  ☐  Skeletal |
| Assessment type (summative/formative) | |  | | --- | | x  Formative | | Summative | |
| Free for public use | YES |