

**Supplement 1. Scenarios of the COVID-19 Simulation Training in Queen Elizabeth Hospital**
**Infectious Disease Practice Drill and Refresher Training (Novel Coronavirus) 2020**
*Queen Elizabeth Hospital, Hospital Authority, HKSAR*

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|---|--|---|--|--|
| <b>COVID-19 Simulation Training Program Development Committee</b> | <ul style="list-style-type: none"> <li>● Accident and Emergency Department (A&amp;E), Queen Elizabeth Hospital</li> <li>● Central Nursing Division (CND), Queen Elizabeth Hospital</li> <li>● Infection Control Team (ICT), Queen Elizabeth Hospital</li> <li>● Intensive Care Unit (ICU), Queen Elizabeth Hospital</li> <li>● Isolation Ward, Queen Elizabeth Hospital</li> <li>● Kwong Wah Hospital Multi-disciplinary Simulation Training Centre</li> <li>● Multi-disciplinary Skills Simulation Centre (MDSSC), Queen Elizabeth Hospital</li> <li>● Quality and Safety (Q&amp;S) Department, Queen Elizabeth Hospital</li> </ul>   |   |  |  |
| <b>Learning Objectives</b>  | <ol style="list-style-type: none"> <li>1. To increase awareness in using appropriate Personal Protective Equipment in performing Aerosol Generated Procedure</li> <li>2. To recognize basic hazards in Aerosol Generated Procedure</li> <li>3. To describe the appropriate Personal Protective Equipment required in Aerosol Generated Procedure</li> <li>4. To demonstrate doffing of Personal Protective Equipment (PPE) properly</li> <li>5. To communicate with relevant people and units for transfer of suspected Novel Coronavirus Infectious case</li> <li>6. To provide relevant information to the receiving unit</li> <li>7. To identify lapse in infection control – buddy system</li> <li>8. To recognize clean and dirty zone concept</li> </ol> |   |  |  |
| <b>Contents</b>   | Pre-requisite/<br>Pre-reading:   | Before the training, all participants should: <ul style="list-style-type: none"> <li>✓ complete basic infection control training within 24 months</li> <li>✓ complete the Proficiency Test on Personal Protective Equipment within 24 months</li> <li>✓ watch education video on “Transportation of Critically Ill Patient using Portable Ventilator”.</li> <li>✓ read hospital guideline and workflow on inter-hospital transportation of confirmed case and intra-hospital transfer suspected case</li> </ul> |  |  |
|   | <ul style="list-style-type: none"> <li>● Scenario-based simulation training to increase staff awareness on the importance to use appropriate Personal Protective Equipment in Aerosol Generated Procedure (AGP) and perform doffing of PPE appropriately</li> <li>● Briefing of scenario, post-training de-briefing and discussion</li> <li>● Sharing common pitfall in caring of patient during aerosol generated procedure</li> </ul>  |   |  |  |
| <b>Assessment</b>   | Direct observation by instructors ± observers  |   |  |  |
| <b>Evaluation</b>   | <ul style="list-style-type: none"> <li>● Evaluation forms (by Multi-disciplinary Simulation and Skills Centre)</li> <li>● Personal Feedback</li> <li>● Instructor’s Feedback</li> </ul>  |   |  |  |
| <b>Certificate of Achievement</b>                                 | Electronic Certificate of Attendance would be awarded to participants after completion of the training class   |   |  |  |
| <b>Format of Training</b>   | In-situ: A&E, ICU; Lab-based: Isolation Ward, General Ward   |   |  |  |
| <b>Participants (HOT Seats)</b>                                   | <b>A&amp;E</b>   | <b>ICU</b>  | <b>Isolation Ward</b>  | <b>General Ward</b>  |
|   | <ul style="list-style-type: none"> <li>● A&amp;E Doctor</li> <li>● A&amp;E Nurse in-charge</li> <li>● A&amp;E Nurse x 2</li> <li>● Supporting Staff</li> </ul>   | <ul style="list-style-type: none"> <li>● Nurse in-charge</li> <li>● Case Nurse</li> <li>● Ward Nurse x2</li> <li>● Parent Team Doctor</li> </ul>  | <ul style="list-style-type: none"> <li>● Nurse in-charge</li> <li>● Case Nurse</li> <li>● +/- Ward Nurse</li> <li>● Parent Team Doctor</li> <li>● Anaesthetist &amp; OT assistant</li> </ul> | <ul style="list-style-type: none"> <li>● Case Nurse</li> <li>● Ward Nurse</li> <li>● Parent Team Doctor</li> <li>● Anaesthetist and OTA</li> </ul> |
|   | No confederate   | + Patient Care Assistant (as confederate)   | + Patient Care Assistant (as confederate)  | + Parent Team Doctor (as confederate)  |
|   | + 2 Observers  | + 6 Observers   | + 12 Observers   | + 6 Observers  |

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|--|--|--|
| <b>Instructor</b>  | <ol style="list-style-type: none"> <li>1. Certified simulation instructors</li> <li>2. Simulation Instructor or Infection Control Link Nurse specialized in Infection Control</li> </ol>   |  |
| <b>Duration</b>  | <b>Duration</b>  | <b>Content</b>   |
|  | 5 mins   | Briefing/ Familiarization  |
|  | 15 mins  | Scenario + Skills Practice on Doffing  |
|  | 40 mins  | Debriefing, discussion and sharing of common pitfalls in caring of patient during AGPs |
| 5 min  | Evaluation & Questionnaire   |  |
| <b>Scenarios<br/>(Respective<br/>Training<br/>Groups)</b>  | <b>Background for A&amp;E</b>  |  |
|  | <ol style="list-style-type: none"> <li>1. A 72-year-old man with history of Diabetes Mellitus on regular Diamicon and Metformin</li> <li>2. Triage <ol style="list-style-type: none"> <li>2.1. TOCC history was negative</li> <li>2.2. Vital signs BP 128/70, P 110/min, Temp 37.9°C, SpO2 94% in room air, RR 24/min</li> <li>2.3. Verbalized cough for 2 days without sputum. He had mild shortness of breath since the morning</li> </ol> </li> <li>3. Scenario <ol style="list-style-type: none"> <li>3.1. Waiting for doctor assessment in cubicle</li> <li>3.2. Patient told the staff that he had travel history to China <ol style="list-style-type: none"> <li>3.2.1. sought medical advice and diagnosed as chest infection</li> <li>3.2.2. refuse admission and return to HK</li> </ol> </li> <li>3.3. Increasing shortness of breath, desaturation</li> <li>3.4. Elective intubation</li> <li>3.5. Contact relevant staff and unit for arrangement patient transfer</li> <li>3.6. Perform doffing</li> </ol> </li> </ol> |  |
|  | <b>Background for ICU</b>  |  |
|  | <ol style="list-style-type: none"> <li>1. A 72-year-old man with history of Diabetes Mellitus on regular Diamicon and Metformin</li> <li>2. On admission <ol style="list-style-type: none"> <li>2.1. TOCC history was negative</li> <li>2.2. Vital signs BP 128/70, P 110/min, Temp 37.9°C, SpO2 94% in room air, RR 24/min</li> <li>2.3. Verbalized cough for 2 days without sputum. He had mild shortness of breath since the morning</li> <li>2.4. Histix HHH, urine ketone +++, ABG 7.02/4.5/10/24/-10 on 2L/min</li> <li>2.5. RFT 130/4.5/3.4/78</li> </ol> </li> <li>3. Inserted two large bores IV for insulin 2 units/hr infusion and 100ml/hr plasmalyte</li> <li>4. He told the staff that he had increasing SOB and some sweating</li> <li>5. Patient in Air-borne Infection Isolation Room and on 2L/min Oxygen via nasal cannula</li> </ol>   |  |
| <b>Background for Isolation Ward (Air-borne Infection Isolation Room)</b>  |  |  |
| <ol style="list-style-type: none"> <li>1. A 72-year-old man with history of Diabetes Mellitus on regular Diamicon and Metformin</li> <li>2. On admission <ol style="list-style-type: none"> <li>2.1. TOCC (Travel Occupation Contact Clustering) history was positive, visited relatives in Wuhan, China one week ago</li> <li>2.2. Vital signs BP128/70, P 110/min, Temp 37.9°C, SpO2 94% in room air, RR 24/min</li> <li>2.3. Cough for 2 days without sputum and mild shortness of breath since morning</li> <li>2.4. Awaiting Nasopharyngeal aspirates result.</li> </ol> </li> <li>3. Patient in Air-borne Infection Isolation Room and on 2L/min Oxygen via nasal cannula</li> </ol>   |  |  |
| <b>Background for General Ward</b>   |  |  |
| <ol style="list-style-type: none"> <li>1. A 72-year-old man with history of Diabetes Mellitus on regular Diamicon and Metformin</li> <li>2. On triage / admission / transfer-in <ol style="list-style-type: none"> <li>2.1. TOCC history was negative</li> <li>2.2. Vital signs BP 128/70, P 110/min, Temp 37.9°C, SpO2 94% in room air, RR 24/min</li> <li>2.3. Verbalized cough for 2 days without sputum. He had mild shortness of breath since the morning</li> <li>2.4. ** Surgical Stream General Ward: Abdominal Pain; Back Pain; Head injury.....</li> </ol> </li> <li>3. Pre-Scenario <ol style="list-style-type: none"> <li>3.1. Patient in a 4-bed cubicle, bed 7, IV access available at right upper limb</li> <li>3.2. Conscious and alert GCS 15, On 4L/min oxygen therapy via nasal cannula, tiredness</li> <li>3.3. Case Nurse go to bedside to take Blood Pressure</li> <li>3.4. Patient verbalize shortness of breath, SpO2 88% (no sputum, dry cough), RR 24/min</li> <li>3.5. Case Nurse Informed Medical Officer for desaturation</li> <li>3.6. Phone order prepare for elective intubation</li> </ol> </li> <li>4. Scenario <ol style="list-style-type: none"> <li>4.1. Case Nurse activate resuscitation</li> <li>4.2. Nurse B transferred patient to designated single room then prepare equipment.....</li> </ol> </li> </ol> |  |  |

## Checklist of Simulation Training

| Items of the Checklist  |  | Compliance<br>✓/✗  | Remarks  |  |
|---|--|--|--|--|
| Personal Protective Equipment   | Put on appropriate PPE for Suspected/ Confirmed Case | - Hand Hygiene<br>- N95  |  |  |
|   |  | - Face Shield<br>- Level III Gown  |  |  |
|   |  | - Cap (Optional)<br>- Latex Gloves   |  |  |
|   | Doffing of PPE                                       | - Hand Hygiene<br>- Remove gloves<br>- Hand Hygiene  |  |  |
|   |  | - Remove Face Shield<br>- Remove Cap<br>- Hand Hygiene   |  |  |
|   |  | - Remove Gown<br>- Hand Hygiene<br>- Remove N95<br>- Hand Hygiene                              |  | For A&E, remove N95 outside Resuscitation Room |
| Bathing after Aerosol Generated Procedure   |  |  |  |  |
| Buddy System  |  |  |  |  |
| Resuscitation – Airway  | High Flow Oxygen therapy                             | - Connect all parts including bacterial filter   | For General ward, avoid high flow oxygen therapy   |  |
|   |  | - Full PPE before high flow oxygen   |  |  |
|   |  | - Monitor for any leakage<br>- Surgical Mask for patient over the nasal cannula or oxygen mask |  |  |
|   | Intubation   | - Video-assisted laryngoscope<br>- Disposable blade  | N/A for General ward   |  |
| - Sedation and Muscle relaxant<br>- Inflate the cuff of ET tube before connecting to ventilator |  |  |  |  |
| Communication and Information   | Communication  | - Alert others for suspected case identified<br>- Alert others to put on Full PPE              | For A&E, activate engagement light outside Resuscitation Room  |  |
|   |  | - Closed loop communication<br>- SBAR  |  |  |
|   |  | - inform relevant parties for patient transportation   |  |  |
|   | Information  | - Patient Condition<br>- Suspected or Confirmed Case   |  |  |
|   |  | - Precaution<br>- Designated passage away from overcrowded area                                |  |  |
|   |  | - Required Equipment<br>- Environmental Decontamination after transportation                   |  |  |
| Other Infection Control   | Concept of Clean and Dirty Zone                      | - Proper documentation<br>- Resuscitation trolley and equipment pool outside All Room          | - For ICU and Isolation ward, document outside All Room<br>- For A&E and General ward, document by “clean” nurse |  |
|   |  | - Dirty Zone provide care<br>- Clean Zone for record and external communication                |  |  |