Overview

Estimated scenario time: 10 – 15 minutes
Estimated debriefing time: 10 minutes

Target groups:
Paramedics, nurses, respiratory therapists, physicians, and others who manage respiratory emergencies.

Brief summary of suggested progress

This case presents the participant with a patient in respiratory arrest due to an opiate overdose. Using a systematic approach, the participant is expected to assess the patient, assist ventilations, recognize opiate-induced respiratory depression, and immediately administer naloxone.

Optional progression

The degree of respiratory depression can be worsened by using the scenario slider, prompting participants to consider more definitive airway management and/or repeated doses of naloxone. Airway management can be further complicated by inducing vomiting and aspiration.
### Equipment checklist

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Drugs and fluids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal precautions equipment</td>
<td>Normal saline</td>
</tr>
<tr>
<td>Stethoscope</td>
<td>Lactated Ringers</td>
</tr>
<tr>
<td>Blood pressure cuff and sphygmomanometer</td>
<td>D$_{50}$W injection</td>
</tr>
<tr>
<td>SpO$_2$ monitor</td>
<td>Flumazenil</td>
</tr>
<tr>
<td>SpO$_2$ probe</td>
<td>Vasopressors</td>
</tr>
<tr>
<td>Thermometer</td>
<td>Atropine</td>
</tr>
<tr>
<td>ECG monitor</td>
<td>Naloxone</td>
</tr>
<tr>
<td>ECG electrode cables</td>
<td></td>
</tr>
<tr>
<td>Crash cart with defibrillator</td>
<td></td>
</tr>
<tr>
<td>Oxygen supply source</td>
<td></td>
</tr>
<tr>
<td>Oxygen delivery devices (nasal cannula and/or non-rebreathing mask)</td>
<td></td>
</tr>
<tr>
<td>Bag-mask ventilation device</td>
<td></td>
</tr>
<tr>
<td>IV start supplies</td>
<td></td>
</tr>
<tr>
<td>IV tubing</td>
<td></td>
</tr>
<tr>
<td>Intubation equipment, including endotracheal tubes/extraglottic airway devices (optional)</td>
<td></td>
</tr>
<tr>
<td>End-tidal CO$_2$ detector</td>
<td></td>
</tr>
<tr>
<td>Oropharyngeal airway and/or nasopharyngeal airway</td>
<td></td>
</tr>
<tr>
<td>Light and tongue blade</td>
<td></td>
</tr>
<tr>
<td>Pen light</td>
<td></td>
</tr>
<tr>
<td>Suction device and suction catheter (tonsil tip and flexible)</td>
<td></td>
</tr>
<tr>
<td>Arterial blood gas (ABG) equipment</td>
<td></td>
</tr>
<tr>
<td>Blood drawing equipment and tubes</td>
<td></td>
</tr>
<tr>
<td>Emesis basin</td>
<td></td>
</tr>
</tbody>
</table>

### Preparation of simulator & environment

- Place SimMan 3G in hospital bed
- Dress in normal male night clothes
Chris Hayes
Diagnosis: Morphine overdose

Morphine:
Controls the degree of morphine narcosis

Reduce morphine effect
More normal respiratory rate
Decreases need for respiratory support
Increases level of consciousness
Less miosis

Increase morphine effect
Slows respiratory rate
Increases need for respiratory support
Decreases level of consciousness
More miosis
Increases requirement for naloxone

Vomiting in...:
Adjust the time until patient start vomiting
Diagnosis: Morphine overdose

Proposed correct treatment

- Assess level of consciousness
- Call for help
- Perform heat tilt/chin lift
- Check airway
- Check breathing
- Consider adjunct airway device (NPA/OPA)
- Initiate bag-mask ventilation
- Obtain vital signs
- Initiate cardiac and respiratory monitoring
- Insert IV
- Examine pupils
- Identify opiate overdose
- Administer IV naloxone
- Evaluate response to treatment
- Obtain patient history
- Maintain cardiovascular and respiratory monitoring

Debriefing overview

A patient who is in imminent respiratory arrest must be provided with immediate airway maintenance and ventilatory support. Reversible causes must be considered and addressed. A focused assessment of the airway, breathing and circulation (ABC) should be performed immediately. If the patient has a pulse and is not breathing, ventilations should be provided at a rate of 10 – 12 breaths per minute (once every 5 to 6 seconds). Use of basic airway adjuncts (OPA/NPA) should be considered.

In this case a history of narcotic administration, evidence of respiratory depression and pin-point pupils suggests an opiate overdose. When opiate overdose is suspected naloxone, in incremental doses, should be administered. Airway protection is important to monitor closely as vomiting may result in airway obstruction and/or aspiration.

If respiratory depression is not alleviated and/or airway protective mechanisms do not return after administration of adequate doses of naloxone, it may be necessary to perform endotracheal intubation. Other causes of respiratory depression should be considered and worked up.
Learning objectives

**General management:**
- Performs focused patient assessment following the ABC principles
- Implements effective communication with patient
- Implements direct communication with team members
- Demonstrates effective teamwork
- Recalls when to call for help
- Implements a focused respiratory assessment
- Initiates relevant cardiac and respiratory monitoring
- Identifies important risk factors in patient history
- Recalls indications and contraindications for oxygen therapy
- Demonstrates basic airway maneuvers
- Demonstrates correct use of relevant airway device
- Recalls indications, contraindications and potential adverse effects of relevant medication

**Scenario-specific:**
- Summarizes the presentation and treatment of opioid intoxication
- Summarizes differential diagnosis
- Summarizes signs and symptoms of impaired airway protection
- Explains relevant first-line treatment for morphine intoxication
- Summarizes that resuscitation efforts should be continued until return of airway reflexes

**Optional:**
- Summarizes that repeated doses of naloxone may be necessary in severe cases of opioid overdose
- Summarizes that a patient with impaired airway protection is in risk of airway obstruction and aspiration

Chris Hayes
Diagnosis: Morphine overdose

Chris Hayes
Chris Hayes is a 59-year-old male who was discharged from the hospital yesterday after a successful cholecystectomy. This morning his wife found him in bed unconscious with slow and irregular breathing. EMS was called. A BLS ambulance responded and provided oxygen by non-rebreathing mask during transport. Upon arrival the respiration rate is lower than 8.

**EMS entry notification:**
This is BLS Unit XX and we have an ETA of 6 minutes. On board we have a 59-year old otherwise healthy male who was found by his wife in bed with abnormally shallow respirations and altered mental status. He is somnolent and is responsive only to loud verbal stimulation. There is no evidence of trauma. He was discharged from your facility yesterday after a routine cholecystectomy.

**Clinical signs:**
- Pale

**Additional information on request, medical history**

**Patient data:**
Male - Age: 59 years Weight: 80 kg (176 lbs) Height: 66 inches (1.7 meters)

**Prior medical history:**
Mr. Hayes has been hospitalized several times because of recurrent biliary colic which has been treated over the years with opioids. He has no known medication allergies and quit smoking six months ago.

**Recent medical history:**
He was doing well at home until his wife found him this am. She brings in a bottle of the patient’s prescribed hydromorphine, containing only 6 of the originally prescribed 40 tablets.

**Diagnosis:** Morphine overdose