

## **2. Incident Summary: failure to administer anaesthetic gas at start of operation**

### **Case Summary and Chronology**

Patient Mrs K (25) suffers from chronic arthritis. Over the years she has undergone many elective orthopaedic operations including bilateral hip replacements and bilateral knee replacements.

#### **Chronology**

**27.10.97** - Patient was admitted for elective elbow replacement, pre operative visit by Consultant Anaesthetist, who knew patient and was aware of her immobility problems. Surgery planned for 28.10.97.

**28.10.97** - Case postponed due to lack of theatre time.

**30.10.97** - Elective total elbow replacement, incident occurred during this procedure

Patient was a recognised operative risk; she had severe chronic arthritis, which greatly reduced her range of movements. Her neck was almost totally immobile, allowing minimal flexion. She had previously had a very difficult intubation and required resuscitation. Recognised Grade 4' intubation difficulty. The anaesthetist (a Senior registrar) spoke to the patient about the anaesthetic, and explained that she would be prone (lying on her front) during the procedure.

On arrival in the anaesthetic room the patient vomited a small amount of bile stained fluid, though to be as a result of preoperative morphine. Intravenous drugs were administered to induce anaesthesia. A laryngeal mask airway was inserted without a problem, and the patient was allowed to ventilate spontaneously on a mixture of isoflurane, a volatile anaesthetic, 50% oxygen and nitrous oxide. The patient's trachea was successfully intubated with an armoured endotracheal tube. Once intubated the patient was paralysed and mechanically ventilated.

The patient was transferred to the theatre and reconnected to the anaesthetic machine, and (it was thought) the same gases were administered as in the anaesthetic room. The machine was not formally checked as there was no oxygen analyser. The patient was carefully positioned prone on the table with her neck being held in a neutral position. The patient remained stable during this positioning procedure.

Once surgery had commenced the patient became very hypertensive and tachycardic, denoting a sympathetic response to pain. IV opioids were given. The patient did not respond to this. The breathing circuit was checked on suspicion of a leak. The anaesthetist became aware that the patient was not receiving anaesthetic gas, but just oxygen. The circuit was immediately changed and anaesthetic gas administered. The operation was successfully completed.

The patient recalls waking up in recovery screaming. She was immediately aware of the fact that she recalled being awake at the outset of surgery. She remembered what the surgeon said, and recalls feeling intense pain but being unable to move and alert the staff to the fact that she was awake.



Form C: SUMMARY

**CARE MANAGEMENT PROBLEMS AND CONTRIBUTORY FACTORS FORM**

Use one form for each of the care management problems identified

**Care Management Problem**  
 Failure to adequately check anaesthetic machine preoperatively

**Clinical Context and Patient Factors**  
 Patient had number of handicaps such that mobility was very restricted, and she was a recognised anaesthetic risk

**Contributory Factors**

Specific	General
<b>Work Environment Factors</b> The anaesthetic machine used in this operation was non standard	None
<b>Team Factors</b> Anaesthetist relied on the ODA	Custom and practice emphasised reliance on the ODA's
<b>Individual Factors</b> The senior registrar had not met the patient prior to the day of the operation	None
<b>Task Factors</b> None	None

**Organisational Management & Institutional Context Factors**  
 None

**Implications and Action Points**

1. Clarification of responsibilities for preoperative checking
2. Risk of using non-standard anaesthetic equipment



Form C: SUMMARY

**CARE MANAGEMENT PROBLEMS AND CONTRIBUTORY FACTORS FORM**

Use one form for each of the care management problems identified

<p><b>Care Management Problem</b></p> <p>Failure to check gas emissions following transfer to the operating table</p>
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<p><b>Clinical Context and Patient Factors</b></p> <p>All staff in theatre concerned about positioning patient due to her disabilities</p>
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**Contributory Factors**

Specific	General
<p><b>Work Environment Factors</b></p> <p>No objective method of checking gas transfer, no oxygen analyser attached to the anaesthetic machine</p>	None
<p><b>Team Factors</b></p> <p>Reliance between the anaesthetist and ODA not clear</p>	Reliance between the anaesthetist and ODA not clear
<p><b>Individual Factors</b></p> <p>Failure to check gas emission, other than by eyeball check once patient transferred</p>	None
<p><b>Task Factors</b></p> <p>None</p>	None

<p><b>Organisational Management &amp; Institutional Context Factors</b></p> <p>None</p>
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<p><b>Implications and Action Points</b></p> <ol style="list-style-type: none"> <li>1. Need for oxygen analyser</li> <li>2. Confirmation that the Anaesthetist is directly responsible for ensuring that the patient is receiving anaesthetic gases</li> </ol>
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Form C: SUMMARY

**CARE MANAGEMENT PROBLEMS AND CONTRIBUTORY FACTORS FORM**

Use one form for each of the care management problems identified

<p><b>Care Management Problem</b></p> <p>Failure to respond to patient's tachycardia and hypertension</p>
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<p><b>Clinical Context and Patient Factors</b></p> <p>Painful operation therefore expectation that pain relief would be required during operation</p>
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**Contributory Factors**

Specific	General
<p><b>Work Environment Factors</b></p> <p>None</p>	<p>None</p>
<p><b>Team Factors</b></p> <p>None</p>	<p>None</p>
<p><b>Individual Factors</b></p> <p>Lack of full assessment of the reasons for the pain response, automatic assumption that the patient was experiencing pain</p>	<p>None</p>
<p><b>Task Factors</b></p> <p>None</p>	<p>None</p>

<p><b>Organisational Management &amp; Institutional Context Factors</b></p> <p>None</p>
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<p><b>Implications and Action Points</b></p>
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### **Lessons Learned**

1. Differences between the protocol and practice re. setting-up and checking of the anaesthetic machines needs attention e.g. via audit.
2. The machine used in this case was the only one in use with this particular set-up. Therefore standardised equipment with the same functions, set-up, capabilities, etc should be used throughout the Trust, or staff should be trained to use the various pieces of equipment.
3. The machine lacked an oxygen monitor.
4. More care needs to be paid to the positioning of patients.

### **Actions**

1. Protocol revised and reissued. All anaesthetists and ODAs received updating on the details within the protocol.
2. This particular machine was taken out of service and modified to reduce risk of recurrence of this error.
3. This particular machine was modified to include an oxygen monitor. All anaesthetic machines were checked and it was confirmed that they each had working oxygen monitors.