



# Costs associated with a fibroscope inventory: what role for the disposable scope?

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## Introduction

Disposable intubating fibroscopes have recently been introduced to the UK at an initial cost of between £200 and £300 per item. Informal trialling of these devices at our hospital suggested that they performed satisfactorily, however the cost seemed high. We decided to look at our numbers of fibre-optic intubations and the costs and governance concerns associated with maintaining, repairing and replacing our existing devices.

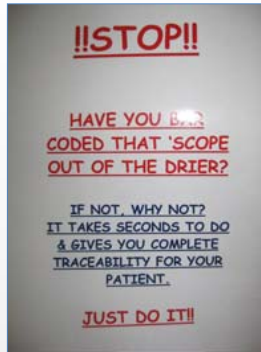
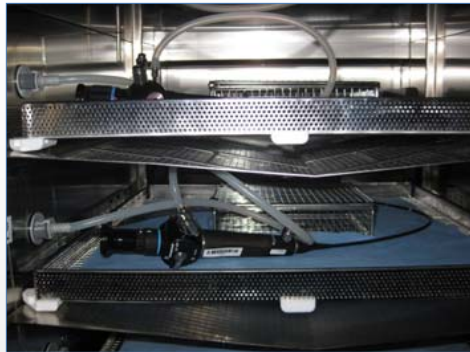


Figure 1 Storage and retrieval of fibroscopes from drying cupboard. Fibroscopes are sterilised every 72 hours.

## Results

In 2009 on our campus we had 11 fibroscopes, of which four were paediatric. They were from a variety of manufacturers. It proved very difficult to obtain details of costs, and records were incomplete. Repair contracts for some of the devices totalled more than £4000. Detailed breakdown of repairs was only available for the fibroscopes from Karl-Storz. Most problems related to the angulating tip, with leaks, tears and damaged vertebrae. There were also examples of severe damage to the shaft and eyepiece/camera. In five out of seven episodes the damage was considered too extensive to repair and scopes were replaced under the customer arrangement, but not before costs of ~£12,000 were incurred. Four new scopes were ordered in that year at a cost of £32000. For the last four years we have, on average ordered two new devices to replace stock and increase supply as demand has grown and following changes to sterilization requirements. Our estimate therefore was around £32,000 In 2008-9 we recorded performance of 141 fiberoptic intubations. If all of these had been performed using disposable instruments at £200 each the cost would have been £28,000

## Discussion

Fibroscopes are expensive and notoriously easy to damage. Our hospital has over 30 operating theatres and a large staff body with a high turnover. Despite the fact that the majority of damage is easily avoided, the problem of repeatedly damaged scopes has resisted all our attempts at training. Our cost estimates are incomplete, and even the direct costs are certain to be greater than we have identified here. Additionally, they do not start to address sterile service concerns, storage requirements, record keeping and quality control of infection [1]; see Figure 1.

Remote sites need to have access to difficult intubation equipment, but the cost of keeping traditional fibroscopes in all these areas is excessive if they are rarely or never used. The occasional user of a fibroscope is often faced with equipment that fails to work as well as it should, and they may lack the skills to troubleshoot fibroscopes and camera stacks; see Figure 2.

## Reference

1. Pujol E, Lopez A, Valero R. Use of the Ambu®aScope™ in 10 patients with predicted difficult intubation. *Anaesthesia* 2010; **65**: 1037 – 1040.

## Method

We checked our inventory of devices. In a twelve-month period we prospectively collected data on all fiberoptic intubations performed on the site. We also looked at manufacturers' repair records for costs and nature of damage to our fibroscopes, together with records where these could be obtained, from the Medical Equipment Service Unit and the theatres finance team.



Figure 2 Plug & Play set-up of Ambu®aScope™ versus usual set-up for fiberoptic intubation

For these reasons our department has decided to invest in disposable instruments especially for use outside the core elective areas to supplement our standard instruments. The price of disposable devices will probably fall. In the meantime departments should identify the real costs of fiberoptic intubation.