

Cost comparison of reusable and single-use fibrescopes in a large English teaching hospital

A single-use fibrescope appeared to be better value than a reusable fibrescope in the setting of a teaching hospital in the United Kingdom.

Cost savings of more than one-third per fibre-optic intubation could be achieved by using a single-use versus a reusable fibrescope.

Objective

- To perform a cost assessment of fibre-optic intubation using reusable and single-use fibrescopes

Methods

- This was a retrospective analysis of cost and utilization data related to fibre-optic intubations conducted in the operating theaters and emergency department of a single teaching hospital in the United Kingdom
- The cost of using a reusable fibrescope was calculated over a period of 5.3 years and was based on three categories of expenditure
 - Purchase of capital equipment
 - Maintenance and repair
 - Sterilization and storage
- The cost calculation was conducted in tandem with an audit of fibre-optic intubation practices to determine the annual rate of fibre-optic intubations (relative to all general anesthetic procedures)
- For comparative purposes, cost data for use of a single-use fibrescope (Ambu® aScope™) was modelled over the same time period for an equal number of fibre-optic intubations per annum

Results

- The annual cost (overall and per use) of using a reusable fibrescope is shown in Table 1

Table 1. Annual costs of fibre-optic intubation with reusable fibrescopes

TYPE OF EXPENDITURE	ANNUAL COST (£)
Capital consumption [†]	19,292
Storage	3,480
Maintenance and repair	19,927
Sterilizing	3,687
Total	46,386[‡]
<i>Cost per intubation[‡]</i>	329

[†] Gross cost to acquire the instruments (including any ancillary equipment) divided by their useful life

[‡] The value shown is the sum of the individual costs reported for capital consumption, storage, maintenance/repair and sterilization; the value reported in the published paper is £46,385

[‡] Based on an estimated annual throughput of 141 fibre-optic intubations per annum (1.2% of general anesthetic procedures)

- Cost 'isopleths'^{*} were identified for the relationship between total cost of use versus number of uses for a fibrescope
 - Below a value of ~200 uses per year (i.e., a range commensurate with normal practice), a single-use fibrescope was found to be generally cheaper
 - This was true even when the repair costs for reusable fibrescopes were negligible

Conclusions

- In the setting of a teaching hospital in the United Kingdom, a single-use fibrescope appeared to be better value than a reusable fibrescope
 - The use of single-use versus reusable fibrescopes could result in costs savings of more than one-third per fibre-optic intubation

^{*} A line that joined all the points where the cost of a reusable versus a single-use fibrescope was equal