

Economic considerations on reusable and single-use laryngeal mask airways: Sample calculation based on clinical data of LMA-Classic and Ambu laryngeal mask

Background and goal of study

Materials & Methods

Results & Discussions

Conclusions

References

Besides reduction of infection risk, economic concerns are of increasing interest in the debate on single-use versus reusable products.

In a clinical trial, LMA-Classic and single-use Ambu laryngeal mask (ALM) are compared and costs are analyzed.

After approval of the local ethics committee and written consent, 60 patients scheduled for elective ambulatory interventions were randomized to be ventilated with either LMA or ALM.

General anaesthesia was standardized, and airway devices were placed according to manufacturer's instructions. Number of attempts, anaesthesia time, and time in the recovery unit were recorded.

Costs were calculated based on data obtained from buying department (device costs) and controlling (process costs: sterilization, personnel, storage, disposal).

Demographic data was comparable for both groups, as were number of attempts, anaesthesia and recovery unit time, resulting in no economic differences.

With a prize per unit of EUR 120,00 for the reusable LMA (up to 40 uses), one would expect a cost advantage as long as the price per unit for the single-use ALM exceeds EUR 3,00.

When costs for autoclaving (EUR 1,09) and personnel (EUR 2,37) for each resterilization of LMA are added (total EUR 6,46), the costs per use calculated as 1/40 of the device cost account for only 46% of actual costs per use (+/- 20 EUR LMA price results in a change of only +/-4 %). After deduction of 10 % of the costs for storing and disposal, the maximum price for the single-use product to be competitive is EUR 5,81 (90% of EUR 6,46).

Costs caused by wrong size selection, which are applicable for both devices, leading to resterilization in the LMA and disposal in the ALM, are not noted. Also not included are considerations on reusable devices kept ready as backup for airway management but not frequently used, and devices that are broken or lost, never reaching the maximum of recommended uses (up to 25% of the total stock),^{1,2} leading to higher costs per actual use of LMA.

Calculations on device economy should not be based on wholesale prices alone but should take into account process costs and other important variables.

[1] Goodman EJ, Haas AJ. *Anesth Analg* 2004;99:626-627
[2] Rosenberg H, Marr A, Smith C. *Anesthesiology* 2001;95:A506

