Title : PAINLESS COST CONTAINMENT

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Introduction. In the past two years, members of both houses of Congress as well as the Administration have proposed legislation for cost containment in hospitals. While some of these plans address specific issues, others suggest limiting hospital costs to below the current level of annual inflation. Then the hospital would be responsible for determining where to make the cost cuts. Such cuts should be accomplished without adversely affecting the standard of patient care.

Methods. Because of demand for cost containment, we critically analyzed the common practice of anesthesiologists in our teaching hospital which performs approximately 8,000 anesthetics per year. We particularly scrutinized areas dealing with volume of inhalation anesthetic agents given per unit time and routine preparation of drugs not subsequently used. Also, we studied single use of items for which a good medical reason not to reprocess and reuse them was not apparent. Areas were identified where items labeled as "Waste" could be conserved without influencing the standard of patient care.

Results. The most obvious waste was in use of inhalation agents. Rates of flow of nitrous oxide and oxygen either alone or in combination with potent inhalation agents like halothane and enflurane varied from two l/min to ten l/min in a random sample; the most prevalent rate was a total flow of five l/min of nitrous oxide and oxygen. This latter rate was noted in 87.5% of cases sampled. Considering five liter flow rate as a base line and that, in the year 1978-1979, the department spent approximately $16,296 per year for nitrous oxide, $23,964 for oxygen, $4,019 per year for halothane and $4,524 for ethrane, these costs could have been decreased by half and saved $24,401 if a total flow rate of 2.5 l/min had been used. We found that customarily syringes were prepared routinely with sodium thiopental, succinylcholine, d-tubocurare or pavulon, atropine sulfate and ephedrine sulfate; yet syringes containing atropine sulfate and ephedrine sulfate were seldom used and, although 20 cc syringes of 2.5% sodium thiopental were prepared and distributed, rarely was a patient given more than 300 mg of thiopental. Per atropine dose, drug, syringe and needle cost $0.10 and per ephedrine dose, $0.28. Since these drugs, syringes and needles are used only 5% of the time they are prepared, an annual saving of $184 would have resulted if they had been prepared only when necessary. We also calculated that a 20 cc syringe of thiopental costs $1.01 whereas a 15 cc syringe of thiopental costs only $0.81. By the use of 15 instead of 20 cc syringes of thiopental, there could be a savings of $2,080 per year. Finally, plastic endotracheal tubes and Bain circuits are recommended for single use by the manufacturer but we could not find any justifiable medical reason for this. The cost of an endotracheal tube is from $0.98 to $3.43 and of the Bain circuit, $6.60; if each of these items were sterilized for reuse only four times each, there would be a 75% saving less cost of repackaging and resterilization. Projected onto our base of patients, this would mean saving $15,124 per year. Altogether, these suggestions represent a saving of $41,789 per year in a teaching hospital with an annual surgical case load of approximately 8,000 patients. Other suggestions will be added to the final presentation.

Discussion. Containing hospital costs is an important public issue at present and those of us working in the hospital have a responsibility to keep costs minimal without compromising quality of patient care. Our study indicates that considerable waste of anesthetic drugs and equipment exists through habits that developed over the years. For example, total gas flow rates of five l/min became popular as an easy way to calculate percentage of halothane emitted from a copper kettle since one only has to divide the oxygen flow through the copper kettle by 100 to obtain halothane percentage. Further, some earlier vaporizers had non-linear characteristics below four l/min. These reasons no longer justify the use of higher flows of gas, particularly when there is also concern about scavenging and disposing excess anesthetic gases. The practice of using 20 cc syringes for pentothal was a policy to avoid confusion by using pentothal in a size syringe different from all other drugs. While such an idea may be sound, safety and saving could be insured by proper labeling and reading of labels before injection of drugs. The appearance of single-use disposable items in anesthesiology was based on such items helping to avert cross-infection from improper sterilization and, also, being inexpensive enough that it was cheaper to dispose of them than to reprocess them. Now, with plastics that can withstand multiple resterilization and with the increase in price of petroleum from which plastic items are made, we need to reinvestigate whether the reasons for disposing of such items after a single use are still justified.

Our study was limited and addressed only the most obvious areas in which hospital expense for anesthesia supplies could be decreased through less waste. We are confident that a more detailed study of common anesthesia practice in hospitals would yield substantial savings without jeopardizing the standard of patient care.