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## Blood Utilization for Elective General Surgery at the Port-of-Spain General Hospital

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### ABSTRACT

*A study of 7 commonly performed elective general surgical procedures shows that blood is only rarely used in most operations that traditionally require routine group and cross-matching of two units for surgery. This is expensive, takes much time and could contribute to shortage of already limited blood stores. It is recommended that a transfusion committee be established to set up guidelines for blood utilization.*

### INTRODUCTION

The blood bank at the Port-of-Spain General Hospital is beset with a chronic shortage of blood donations and yet is required to meet the needs of a 1,000-bed hospital. The general surgical service demands a significant portion for both emergency and elective procedures.

In many elective operations, where two units of blood are routinely cross-matched, it was noted that the intraoperative blood utilization was minimal. Thus, an attempt was made to estimate the average blood requirement per procedure for seven commonly performed elective surgical operations and to assess the efficiency of blood ordering practices relative to intraoperative blood use.

### MATERIALS AND METHODS

Blood utilization was investigated in patients subjected to cholecystectomy, mastectomy, thyroidectomy, elective gut resection, prostatectomy, nephrectomy and pyelo/nephrolithotomy, by examining the operating room notes of 358 consecutive patients. From these data, both the pre-operative blood order and the intraoperative blood use were determined, the latter for the patient under anaesthesia and in the recovery room.

Using the method outlined by Mintz et al (1978), these data were used to calculate consumption, the transfusion index and the crossmatched to transfused ratio. The transfusion index, a measure of the blood requirement for a given procedure, is thus defined:

$$\frac{\text{number of units used for the procedure}}{\text{the total number of that type of procedure}}$$

In 1981, Argov and Schecter (1981) utilized this index to determine whether pre-operative cross-matching was relevant. They proposed that with the index greater than 0.5 pre-operative cross-matching of 2 units was justified, but if less than 0.5, then cross-matching was unnecessary. The cross-matched to transfused (C/T) ratio,

$$\frac{\text{the no. of units cross-matched/procedure}}{\text{the no. of units actually transfused}}$$

was used by Smallwood (1983) as a measure of blood ordering efficiency.

### RESULTS

The accompanying Table shows that the transfusion indices for all the procedures investigated never exceeded 0.5. Moreover, the C/T ratios were highest for thyroidectomy and cholecystectomy, procedures with the lowest intraoperative blood use.

Table: Cross matched to transfused (C/T) ratio and transfusion indices

Type of Operation	C/T Ratio	No. of Cases
Gut resection	4.58	53
Proctectomy	5.11	74
Mastectomy	5.65	62
Nephrectomy & Nephrothotomy	7.57	24
Cholecystectomy	21.75	87
Thyroidectomy	55.00	58
		0.03

DISCUSSION

Approximately 2,000 elective surgical procedures are performed annually at the Port-of-Spain General Hospital and the number continues to increase. Proposals for more vascular operative procedures and open heart surgery are likely to result in a rapid increase in demand for blood in spite of the supply remaining relatively small.

In order to make optimal use of the limited blood available, the areas of demand must be evaluated in order to eliminate any source of wastage. At our institution, pre-operative preparation consists of typing and cross-matching two units of blood, which usually accompany the patient to the operating theatre where storage facilities are inadequate. Moreover, when these units are not used, they are frequently not returned promptly to the blood bank; this reduces the shelf life of the blood.

As has been shown, several of our common operative procedures have a low intraoperative blood requirement. This finding has been confirmed by other workers (Boral et al, 1979; Henry et al, 1977). The establishment of transfusion guidelines has been shown to conserve blood in the bank (Boral et al, 1979). In order for us to benefit maximally from the limited blood resources, a transfusion committee comprising haematologists, surgeons and anaesthetists should be responsible for outlining policies for blood transfusion.

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ABRIDGED PRESCRIPTION  
 Uses: Management of hypotension (adults only); ECG prophylaxis, 100mg one tab. (contra-indications: Heart failure, renal failure, anuria, chronic obstructive pulmonary disease, hypoglycaemia, agents. Withdrawal: gradual in patients)

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