TITLE: BLOOD CONTAMINATION AND INTRAVENOUS INJECTION PORTS

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Introduction. Recent publications recommend against the recapping of needles, even when these needles are used in injection ports of free flowing intravenous lines.[1,2] The purpose of this study was to determine if injection ports of a standard intravenous set up were free of occult blood contamination.
Methods. Known dilutions of blood contaminated balanced salt solution were tested for positive reactions using Hemoccult™ slide cards. The control solutions were obtained by diluting known quantities of blood in salt solutions. The most dilute solution testing positively was 1:5000 (one ml of blood in 5 liters of solution).

The second part of the investigation entailed the testing of injection sites proximal to the intravenous canula (K-53 Novex 3 way stopcock) and the upper injection port of the Cutter Medical Saftiset and was conducted after institutional review and approval. Syringes corresponding to the injection sites were also tested. The sites and syringes were tested by withdrawing 0.2cc of fluid with a syringe (the smallest amount of fluid that saturated the test sites). A total of 250 intravenous lines were tested at the K-53 proximal site and a corresponding 402 syringes used at that site were also tested.
Results. Twenty K-53 sites (8%) and 19 syringes (4.7%) tested heme positive. All the upper (most distal from intravenous catheter) ports tested negative for occult blood contamination, and an additional 100 syringes whose use was limited to the upper port also tested completely negative.
Discussion. The FDA now recognizes significant rates of infectious viral transmission via banked blood, all of which has been screened for HIV and Hepatitis B. The general populace presenting to the operating suite, especially in large urban training centers, represent high risk patients in regard to possible self-inoculation with contaminated blood. The Hemoccult™ test was chosen as it is the recommended choice for detecting fecal occult blood, combining both adequate sensitivity and the lowest false positive reaction rate among major available tests.[3] From our results, we believe that recapping of needles used for injection of drugs close to the patient is not prudent. Our results indicate that the whole issue of needles and infectivity may be moot if the ports furthest from the intravenous canula are used as the primary injection ports. These sites were never found to be contaminated in our series.
References.

1. Hein HAT, et al: Anesthesiology G7: 3A, A161.
2. CDC: Summary: JAMA 254:3023-3026, 1985.
3. Ostrow J, et al: Digestive Disease, 18:930-939.

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TITLE: FAILURE RATE OF PULSE OXIMETRY IN THE POST ANESTHESIA CARE UNIT

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Introduction. The use of pulse oximetry as a standard monitoring practice in the Post Anesthesia Care Unit (PACU) is currently under consideration by the ASA. In a prospective study of intraoperative oximetry failure in 11,046 anesthetics we reported an overall failure rate of 1.12% at 4 hospitals.[1] We are now examining the failure rate of pulse oximetry (POF) in the PACU at one of these hospitals.

Methods. After obtaining an institution-approved protocol, all records from 1403 patients admitted to the PACU following administration of anesthesia were reviewed from December, 1989, through February, 1990. Pulse oximeter (Nelcor N-200) readings were recorded every 15 minutes on all patients. If a reading was not obtained during a 15-minute period, after reasonable attempts were made to correct position or equipment malfunction, a not obtainable (NO) value was recorded for that interval. A failure was defined as two or more periods when NO values were noted. All patients received supplemental oxygen.

Results. There were 16 POF out of 1403 patients admitted to the PACU for an overall failure rate of 1.1%. The mean duration of failure was 63 ± 40 minutes. The median ASA classification was 3 for POF patients compared to 2 for nonfailure patients (Table). The mean age of patients with POF was 62 ± 19 years with 75% of the patients age 61 or older. This compares with a mean age of 46 ± 19 years in the nonfailure patients. The average duration of anesthesia (289 ± 170 minutes) was greater in the patients who had POF in the PACU than it was in the nonfailure patients (186 ± 125 minutes).

Discussion. The data shows there is a small but consistent incidence of failure with pulse oximetry in the PACU. The failure rate of 1.1% in our study of PACU patients is higher than the failure rate of 0.77% obtained in the study of patients in the University of Washington Medical Center operating rooms.[1] The higher failure rate is most probably due to emergence, shivering, pain, stress response and the fact that the dilating effects of many anesthetic agents are no longer present. Many patients who had POF in the OR study where the incidence of failure was 0.77% were admitted directly to the ICU. Had this type of high risk patient been admitted to the PACU, it is likely that the failure rate in the present study would have been higher.

Reference.

1. Anesth. Analg. 70:S289, 1990.

Table.

		FAILURES	NONFAILURES
ASA STATUS:	Median	3	2
AGE YEARS:	Mean ± SD	62 ± 19	46 ± 19
ANESTHESIA TIME (MIN):			
Mean ± SD		289 ± 170	186 ± 125
GENDER:			
Male		4	664
Female		12	738