Title: COMPARISON OF VIGILANCE USING AUTOMATED VERSUS HAND WRITTEN RECORDS.

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Introduction: Anesthesia records serve multiple purposes. Articles in the anesthesiology literature have stated benefits of automated charting including better legal defense, greater accuracy, credibility, and improved patient care. The ARKIVE (Diatek) automated record (AR) is now an official record at our institution. This study was to determine whether the anesthesia providers are more vigilant of their patients' conditions while using the AR or the manual record (MR).

Methods: Twelve anesthesia providers (MD&CRNA) familiar with both MR and AR participated. Anesthesia experience ranged from one to fifteen years. All participants were studied on five cases of each charting modality assigned in a random manner. During the case, an examiner entered the operating room and asked them the values of their patient's BP, HR, ETCO2, FiO2, O2 Sat, PIP, and temperature without looking at the monitors. These numbers were compared to those currently on the monitors. The investigation did not occur during the first or last thirty minutes of the anesthetic. All cases were >1 hour; patients ASA 1-3; without invasive monitoring.

Results: The differences between the responses and actual values were analyzed to determine how many of the errors were greater than a clinically relevant error.(RE)

		percent of cases with relevant error		
Parameter	RE	AR	MR	p
BP systolic	>9mmHg	16	9	
BP diastolic	>9mmHg	36	16	0.035
Temperature	>.4 C	31	8	0.016
HR	>9	14	7	
ETCO2	>3torr	10	8	
FiO2	>4%	20	5	
PIP	>4cmH2O	33	11	0.033
O2 Sat	>2%	8	0	
one or more value not known		23	5	0.0007

Discussion: This study demonstrates the providers were less aware of their patient's parameters while charting with the AR versus the MR. Furthermore, in over one fifth of the AR cases, the providers could not give the value of one or more variable. Thus using the AR and not manually recording information at regular intervals, the anesthesia provider is less vigilant of the conditions of their patient.

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TITLE: EVALUATION OF THE ESOPHAGEAL DETECTOR DEVICE

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Introduction: A device for detection of esophageal intubation was recently described by Wee[1] and subsequently modified by Nunn[2]. It consists of an evacuator bulb and endotracheal tube (ETT) adapter. We report use of this device in a large sample of patients and one instance of failure.

Methods: Following ethics committee approval, three hundred patients were randomly assigned to have either the esophagus or trachea intubated after induction of anesthesia. The bulb was collapsed and attached to the end of the ETT. Refill within 5 sec. indicated tracheal placement; absent or delayed refill indicated esophageal placement. A blinded observer assessed placement of ETT based on bulb refill. Calculation of test device sensitivity and specificity, along with 95% confidence intervals, were made according to conventional methods.

Results:

Placement	Trachea	Esophagus
Refill	150	1
No/slow refill	6	143

Sensitivity was calculated to be 99% (95%CI = 96 - 100%); specificity was calculated to be 96% (95%CI = 92 - 99%).

Discussion: As previously reported the sensitivity of this device was found to be very high[2]. A single false negative - refill of the bulb with the ETT placed in the esophagus - occurred in a patient whose stomach was grossly distended following prolonged manual ventilation. Specificity was also high; and all false positives - absent or delayed refill of the bulb with the ETT in the trachea - occurred in obese patients or those with large breasts. In the setting of acute resuscitation patients often have inflated stomachs, and obesity is certainly common in the critically ill population; therefore, this device requires further testing outside the operating room.

References:
1. MKY Wee. The oesophageal detector device. Anaesthesia, 1988; 43:27-29.
2. KN Williams, JF Nunn. The oesophageal detector device. Anaesthesia, 1989; 44:412-414.