

From: Video Analysis of Factors Associated With Response Time to Physiologic Monitor Alarms in a Children's Hospital

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Table 1. Characteristics of the 11710 Evaluable Clinical Alarms^a

Alarm Label	Alarm Condition	Text to Nurse Phone	Total No.	No. (%) Valid	Actionable
Critical arrhythmias					
Asystole	Asystole	Yes	44	0	0
V Tach	≥6 Beats of ventricular tachycardia	Yes	18	0	0
VFib/VTac	Ventricular fibrillation	Yes	2	0	0
Noncritical arrhythmias					
PVC	Premature ventricular contraction	No	1220	10 (0.8)	0
PVC HI	Threshold for No. of premature ventricular contractions exceeded	No	106	0	0
Irregular	Irregular rhythm	No	135	36 (26.7)	0
Couplet	Couplet	No	159	1 (0.6)	0
Bigeminy	Bigeminy	No	3	0	0
Trigeminy	Trigeminy	No	3	0	0
R on T	Ventricular contraction near T wave peak	No	28	0	0
Pause	RR interval exceeds set duration	No	26	0	0
VT > 2	3-5 Rapid ventricular contractions	No	30	0	0
Pulse oximetry					
SpO ₂ LO	Low oxygen saturation	Yes	3265	608 (18.6)	43 (1.3)
Heart rate^b					
Tachy	Tachycardia using ECG arrhythmia algorithm	No	1531	1512 (98.8)	0 (0.0)
HR HI	Tachycardia using ECG rate algorithm	Yes	1328	1291 (97.2)	1 (0.1)
Rate HI	Tachycardia using SpO ₂ pulse rate algorithm	No	251	245 (97.6)	0
Brady	Bradycardia using ECG arrhythmia algorithm	No	346	221 (63.9)	2 (0.6)
HR LO	Bradycardia using ECG rate algorithm	Yes	95	62 (65.3)	1 (1.1)
Rate LO	Bradycardia using SpO ₂ pulse rate algorithm	No	1	1 (100.0)	0
Respiratory rate					
RSP HI	Respiratory rate, high	Yes ^c	574	431 (75.1)	1 (0.2)
RSP LO	Respiratory rate, low	Yes ^c	312	202 (64.7)	0 (0.0)
Apnea	No breath detected in 15 seconds (infant) or 20 seconds (child/adult)	Yes	13	9 (69.2)	2 (15.4)
Blood pressure					
NBP S HI	Systolic blood pressure, high	No	21	12 (57.1)	0
NBP M HI	Mean blood pressure, high	No	8	8 (100.0)	0
NBP D HI	Diastolic blood pressure, high	No	27	18 (66.7)	0
ST segment					
ST I HI	ST segment elevation in lead I	No	1	0	0
Overall			9547	4667 (48.9)	50 (0.5)

Abbreviations:
ECG, electrocardiogram;
RR, respiratory rate;
SpO₂, oxygen saturation.
^a All alarms generated immediate audible alerts at the bedside and at the central monitoring station. Only a subset of the alarms generated automatic text messages and sent them to the bedside nurse's phone, as shown in the Table.
^b Tachy and Brady heart rate alarms are generated using a different algorithm than HR HI and HR LO; all 4 are generated using the ECG leads. Rate LO and Rate HI alarms are generated using the SpO₂ probe.
^c Respiratory rate high and low alarms are sent to the nurse's phone 15 seconds after they occur at the bedside. If the condition resolves during the 15 seconds, a text message is not sent. All other text messages are sent without a delay as soon as alarms occur at the bedside.

Table Title:

Characteristics of the 11 710 Evaluable Clinical Alarms^a Abbreviations: ECG, electrocardiogram; RR, respiratory rate; SpO₂, oxygen saturation.

^a All alarms generated immediate audible alerts at the bedside and at the central monitoring station. Only a subset of the alarms generated automatic text messages and sent them to the bedside nurse's phone, as shown in the Table.

^b Tachy and Brady heart rate alarms are generated using a different algorithm than HR HI and HR LO; all 4 are generated using the ECG leads. Rate LO and Rate HI alarms are generated using the SpO₂ probe.

^c Respiratory rate high and low alarms are sent to the nurse's phone 15 seconds after they occur at the bedside. If the condition