

CLINICAL SUMMARY

The differences in alarm events between Kendall DL™ single-patient-use and reusable electrocardiography lead wires.

Citation

Albert NM, Murray T, Bena JF, Slifcak E, Roach JD, Spence J, Burkle A. Differences in alarm events between disposable and reusable electrocardiography lead wires. Am J Crit Care. 2015;24(1):67-73; quiz 74. doi: 10.4037/ajcc2015663. <http://ajcc.aacnjournals.org/content/24/1/67.full>

Introduction and purpose

- Cleaned, reusable electrocardiographic (ECG) lead wires are used across multiple patients and generally replaced only after excessive soiling, when casings fracture and wires are exposed, or when signals are no longer reliable and result in repetitive alarms and interruptions in ECG monitoring.
- These false crisis alarms prompt nurses to shift priorities away from the true needs of their patients.
- The focus of this study is to determine if there are differences in the frequency of false ECG alarms and true crisis events between reusable and Kendall DL™ single-patient-use ECG lead wires.

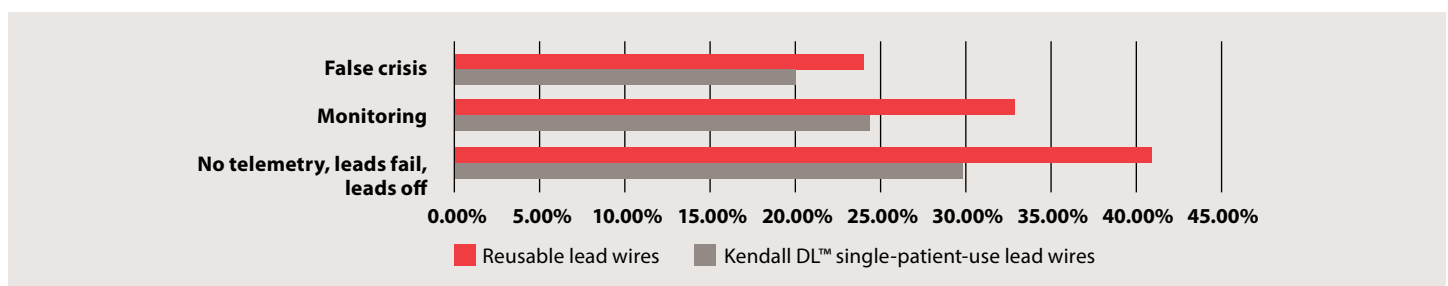
Methods

This was a cluster randomized (by telemetry units) controlled, blinded trial with a crossover design. The standard care group used a single brand of reusable ECG cable and lead wire system, while the intervention group used the Kendall DL™ disposable cable and lead wire system with patented push-button design. Data collection included alarms associated with true and false crisis ECG events per unit, per month by personnel completing usual job responsibilities on a remote monitoring team. Remote monitoring facility was off-campus and personnel were blinded to ECG lead wire group assignment.

Results

Among all patients in the study, Kendall DL™ single-patient-use lead wires led to a 29% relative risk reduction in no-telemetry, leads-fail and leads-off alarms (superiority P = .03) and showed statistical noninferiority in monitoring (artifact) alarms and all false alarms.

Alarm type	Rate per 100 patient days		Adjusted relative risk (95% CI)	pb	
	Kendall DL™	Reusable		Noninferiority	Superiority
No telemetry, leads fail, leads off	29.8%	40.9%	0.71 (0.53-0.96)	<.001	.03



Discussion and conclusion

Kendall DL™ single-patient-use lead wires with patented push-button design resulted in significantly fewer no-telemetry, leads-fail and leads-off alarms compared to standard reusable lead wires. Kendall DL™ lead wires were significantly noninferior in ECG alarm percentages for all false alarms (no-telemetry, leads-fail and leads-off alarms, monitoring alarms, and false crisis alarms) and were similar to reusable lead wires for identifying true crisis alarms.

Kendall DL™ single-patient-use lead wires significantly decreased false alarms and may play an important role in patient safety by reducing ECG alarm fatigue.