

Comparative Heelstick Evaluation

Background:

The Dutch National Institute for Public Health and the Environment (RIVM) conducts research and provides advice to the Dutch Ministry of Health. They were tasked with determining which heelstick device should be awarded a tender for the Ministry of Health. They evaluated three devices from the most economically advantageous bids, and conducted several field tests to determine which would be recommended for the Ministry of Health tender.

Objective:

The goal of the field test was to verify that the heelstick devices perform in accordance with the tender specifications. Therefore, both the performance and the usability of the heelstick devices were evaluated during the field test.

Results:

The screeners received a questionnaire per heelstick device with five statements on the ease of use of the heelstick device, i.e. unpacking the heelstick device, use of the heelstick device wearing gloves, stability of the heelstick device when placed on the puncture side, robustness of the trigger mechanism, level of volume blood. Screeners were asked to fill in the questionnaire after they used the heelstick device for one month. Per statement the screener had to specify their level of agreement on a scale from 1 to 5 (strong disagreement to strong agreement).

A Dutch reference laboratory for neonatal screening assessed performance of the heelsticks. This was done by examining the quality of blood spots as an indicator for blood volume (Guthrie card completely filled with six blood spots, in theory this would be $\geq 300 \mu\text{l}$). The quantity of blood volume was not measured, so the cards were scored as a degree of filling of the 6 pre-printed circles on the Guthrie card. The filling (on both the front and backside of the Guthrie card) was scored completely filled when 30 acceptable punches (3.2 mm/punch) could be taken. As the performance of the heelstick device was the most important feature of the field study, a weighing factor was used. The score of the performance was weighted 60%, while the price and supply were 40%.

Total Results Field Test				
		Supplier One	Supplier Two	babyLance
	Weight	Score	Score	Score
Phase 1 (Price & Supply)	40	20.4	30.4	24.4
Phase 2 (Field Test Results)	60	45.0	45.0	60.0
Total Score (Phase 1 + Phase 2)	100	65.4	75.4	84.4

Conclusion:

RIVM concluded that a statistically significant difference between the performances of the three heelsticks was observed. The performance results of the babyLance Heelstick were 5% higher than the other devices. Although it was not the least expensive option presented, the tender was awarded to babyLance because of the superior performance.