OVERVIEW

In Africa where there is a prevalence of endemic diseases such as malaria and Ebola speed and accuracy is paramount when measuring temperature. Tympanic thermometry offers an option for clinicians who require speed, accuracy, safety and ease of use.

STUDY OBJECTIVE: Compare temperatures obtained by tympanic membrane thermometers with those obtained with mercury glass thermometers before recommending tympanic thermometers for use in general practice in Sudan.

A study was conducted at Omdurman Teaching Hospital in Sudan. A total of 174 adults and children 2 years and above presenting with or without fever to the emergency room were included in the study.

Subjects who met the inclusion criteria had simultaneous axilla and tympanic membrane temperature measurements obtained at 08.00 h., since body temperature can vary depending on the time of day all temperatures were taken at the same time. Digital reading from the tympanic membrane thermometer and the mercury thermometer were recorded by a healthcare worker. Otoscopes were used to examine all patients ears to exclude ear infection, and any occluding ear wax was cleared. Immediately after, another member of the team would read and document the mercury thermometer, blinded from the results of the original healthcare worker.

Participant information is as follows:

| Subject Age       |          |
|-------------------|----------|
| Children 2-<18 years | 67 (38.5%) |
| Adults             | 107 (61.5%) |

| Subject Gender   |          |
|------------------|----------|
| Males            | 95 (54.60%) |
| Females          | 79 (45.40%) |

| Subjects with Fever (>37.5°C) |          |
|-------------------------------|----------|
| Children 2-<18 years          | 61 (35.4%) |
| Adults                        | 6 (20.0%) |
STUDY OUTCOMES:

The mean (SD) body temperature measurements were 37.29 ± 0.91 axillary, and 37.38 ± 0.95 tympanic \( P = 0.373 \) (Table 1) *

| Method of measurement | Mean ± SD  | Median (min; max) | \( P \) |
|-----------------------|-----------|-------------------|--------|
| Axillary temperature  | 37.29 ± 0.91 | 37.20 (35.50; 40.70) | 0.373  |
| Tympanic temperature  | 37.38 ± 0.95 | 37.25 (35.20; 40.40)   |        |

*An alpha of 0.05 is used as the cutoff for significance. If the p-value is less than 0.05, the null hypothesis there's no difference between the means and conclude that a significant difference does exist. If the p-value is larger than 0.05, we cannot conclude that a significant difference exists.

CONCLUSION:

"Tymp[anic membrane thermometry] was as reliable and as accurate as axillary mercury glass thermometry. Thus, Tympanic membrane thermometry can be used in the clinical practice, because it is easy to use and for the speed of obtaining the temperature reading"1

Reference:

1 Gasim et al.: Accuracy of tympanic temperature measurements using an infrared tympanic membrane thermometer. BMC Research Notes 2013 6:194 (doi: 10.1186/1756-0500-6-194)