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Letters to the Editor

The non-contact handheld cutaneous infra-red thermometer for fever screening during the COVID-19 global emergency

Sir,

The recent article 'Novel coronovarus is putting the whole world on alert' highlighted the need for a large-scale programme to screen or detect individuals who may be infected by the novel coronavirus COVID-19 [1]. International media coverage of the COVID-19 global emergency has repeatedly depicted the popular but, to the author, disturbing use of the non-contact handheld infra-red thermometer to screen for fever at hospitals, primary care clinics, and commercial buildings.

Pulmonary artery catheterization is the reference standard to measure core body temperature, but is invasive, requires specialized skills and equipment, and is not suitable for screening of large cohorts [2]. Instead, surrogates such as rectal and oral thermometers are less invasive and moderately correlate with core body temperature but require contact with bodily fluids and hence risk contamination. The tympanic infra-red thermometer frequently used in patient care has been shown to correlate with core body temperature [2,3].

Although the handheld cutaneous infra-red thermometer is popularly used to screen large cohorts as it is portable, does not require contact and does not cause discomfort to the individual being assessed, there is little data to support its use. Among common cutaneous infra-red thermometers evaluated for their ability to measure temperature traceable to the International Temperature Scale of 1990 (ITS-90), the majority performed outside the accuracy range stated by the manufacturers and the medical standard [4]. The handheld cutaneous infra-red thermometer was less accurate than the tympanic thermometer and other infra-red thermal systems for temperature measurements and fever detection [3,5–7]. A local study found the handheld infra-red thermometer to have a low sensitivity of 29.4% when compared with the oral thermometer to detect fever [7]. In addition, its performance is operator-dependent, as the thermometer is aimed at the temple or forehead, and distance between the thermometer and skin may affect its accuracy. It is not unlikely that sub-optimally trained operators, shying away from close contact with those being screened, hold the thermometer further away than the required proximity and thus compromise its effectiveness. In a possible pandemic, a false negative is a false reassurance and a potential future infection cluster.

Conflict of interest statement
None declared.

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