

Actual Measurement and Predictive Measurement

Clinical thermometers measure body temperature in two ways: actual and predictive. Predictive measurement was developed to reduce the time needed to take a measurement, which is regarded as a disadvantage of actual measurement.

* The following description deals with body temperature measurement in the armpit or in the mouth.

Actual measurement

Actual measurement measures the actual temperature of a given body region at a specific moment.

This method is used by mercury thermometers and by some electronic thermometers. The thermometer is left in place until the temperature does not rise any more (equilibrium temperature). In the armpit, this can take more than 10 minutes, and in the mouth, about 5 minutes.

Predictive measurement

Predictive measurement quickly analyzes, calculates and displays the equilibrium temperature.

The equilibrium temperature predictive measurement technique was first developed in Japan by TERUMO in 1983, in order to reduce measurement time, a disadvantage of actual measurement. By statistically processing the body temperature rise data of multiple people and calculating it using an arithmetic expression (obtained from the processed data), it is able to predict the 10-minute (in the case of the armpit) equilibrium temperature with high accuracy in a short period. As a result, a predictive measurement type clinical thermometer can measure body temperature in a period as short as 30 or 90 seconds.

