

**Issue: Thermometry in Remote**

Raised by: Tilly Todhunter, RAN (Elliott Health Centre),

Background: Request for tympanic thermometers to be added to the standard equipment list for all health centres.

Discussion: Considerable research into the accuracy of temperature assessment has been conducted over the last decade with little evidence to support a clear recommendation for the implementation of Tympanic Thermometry for Remote Health Practice in the Northern Territory. Of note, none of the studies reviewed for this communiqué address the acute & chronic ear health issues currently seen in the indigenous population, which would directly impact upon the accuracy of tympanic temperature measurement.

Research by El-Radhi and Patel (2005:40) concluded tympanic thermometry is likely to deliver more accurate measurements than electronic axilla thermometry. However, the accuracy is dependant upon a number of factors; consistent use of correct technique according to manufacturer's specifications, operation in ambient temperature of 15.6 - 35°C, ear canal clear of ear wax, pus or inflammation, the tympanic membrane is intact & ideally three measurements should be taken (using both ears) with the highest reading being utilised.

Infra-red skin surface thermometers are also available. Early research by Burnham et al (2006:553) concludes that the infra-red skin device is slightly more responsive than the Thermistor or the tympanic thermometers.

Hooper and Andrews (2006:23) concluded, " Oral temperature measurements taken at the left or right posterior sublingual (buccal) are an accurate measure of invasive core temperature measurement.

The preferred thermometer for paediatric and adult use in ASH is sure temp plus (used axillary or oral). In RDH the preferred thermometer is First temp Genius (Tympanic).

Consensus of the Best Practice Group is to recommend oral thermometry as the most accurate, the most versatile and cost effective, non-invasive method of temperature assessment.

Consultation: Registered Nurses ASH and RDH

References: Joanna Briggs Practice Information Sheet, *Vital Signs*

Literature Review, with the following papers being most considered:

- Burnham R, McKinley R & Vincent D 2006 "Three Types of Skin-Surface Thermometers: A Comparison of Reliability, Validity & Responsiveness" **American Journal of Physical Medicine & Rehabilitation** vol. 85 no. 7 pp. 553-558
- El-Radhi A & Patel S 2006 "An evaluation of tympanic thermometry in a paediatric emergency department" **Emergency Medicine Journal** vol. 23 pp. 40-41
- Hooper V D, Andrews J O 2006 "Accuracy of non-invasive core temperature measurement in acutely ill adults: the state of science" **Biological Research for Nursing** vol. 8 pp 234

Outcome: There is no clear indication supporting the inclusion of Tympanic Thermometers on the Remote Health [Standard Clinical Equipment List](#).

The continued use of axillary or oral use of digital thermometers is recommended as the default means of temperature measurement in Remote Health.