

## Correspondence

### Vaccine vial monitors in adverse field environment

Sir,

We compliment investigators at the St Stephen's Hospital and the National Institute of Immunology<sup>1</sup> for their meticulous investigations involving frequent exposures of poliovirus vaccine aliquots to high temperatures to assess utility of vaccine vial monitors (VVM) in conditions mimicking those encountered during field usage. Obviously, it would be improper to rely on VVM all the times as these would work on the chemical changes induced by heat. These are thermal and not biological indicators, and thus could be fallible. The VVMs do not reflect any evaporative and radiative transfer (in the form of electromagnetic radiation) of heat from atmosphere. An exclusive monitoring of temperature without a watch on humidity, atmospheric pressure, air velocity, exposure to sunlight or radiation would be unrealistic.

Exposure to rigours of temperature would not mimic the environment likely to be encountered during field usage of vaccines. Monitoring temperature without an estimate of the prevailing humidity could

be fallacious. For example, during the heat wave in Chicago in 1995, the atmospheric temperature was 40°C but the heat index; an estimate of evaporative and radiative transfer was 40.3°C<sup>2</sup>.

In conclusion, to protect ingredients of vaccine vials in field, relying on any thermal based indicators like VVM may not be appropriate as these would not indicate exposures to rigours of temperature<sup>1</sup>, humidity and atmospheric pressure that happen universally.

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#### References

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2. Heat-related mortality, Chicago, July 1995. *MMWR* 1995; 44 : 577-9.