

# Theophylline



Accredited to  
ISO 15189:2022

## Synonyms

Aminophylline, Nuelin

## Clinical Indication

Theophylline levels are required if IV aminophylline is being considered for patients already taking oral theophylline preparations, as serious toxic side effects may occur. Measurement of theophylline levels may be helpful if no clinical improvement is seen on increasing doses, in confirming toxicity and management of the overdosed patient and in patients where compliance may be an issue.

## Part of Profile / See Also

## Request Form

Combined Pathology manual Blood form or ICE request

## Availability / Frequency of

## Analysis

On request.

In management of theophylline overdose, levels may be measured urgently under the following circumstances (please contact Clinical Biochemistry)

- (a) If there is doubt about the clinical severity of poisoning
- (b) In all patients with severity grades 3 and 4.

For full details of patient management see [Toxbase](#).

## Turnaround Time

Same day

## Patient Preparation

Samples should preferably be collected pre-dose.

## Sample Requirements

### Specimen Type

Serum and plasma

### Volume

2 ml

### Acceptable Containers



Yellow top (SST) tube



Green top (lithium-heparin) tube



paediatric orange top (lithium-heparin)



paediatric green top (lithium-heparin)

Plain serum samples may also be used.

## Reference Range & Units

Therapeutic range: 10 -20 mg/L

Reference: Pathology Harmony Group, Clinical Biochemistry Outcomes, January 2011 ([www.pathologyharmony.co.uk](http://www.pathologyharmony.co.uk))

## Interferences

Due to cross-reactivity with 1,3-Dimethyluric Acid, the Theophylline assay should not be used to quantitate samples from uremic patients.

Samples containing antibodies to E. coli  $\beta$ -galactosidase may result in artificially high results which will not fit the clinical profile. The incidence of patients having such antibodies is extremely low.

## Interpretation & Clinical Decision Value (if applicable)

Half-life: Healthy adults: 3 - 13 hours (reduced in smokers)

## References

Beckman kit insert.

## Test code

THEO

## Lab Handling

Analysed from primary tube and stored at 4°C.  
Serum and plasma stable for 7 days at 2-8°C.