2.0 **Synopsis**

<table>
<thead>
<tr>
<th>The Boots Company PLC</th>
<th>Individual Study Table Referring to Part of Dossier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Study Drug:</td>
<td>Ibuprofen</td>
</tr>
<tr>
<td>Name of Active Ingredient:</td>
<td>Ibuprofen</td>
</tr>
<tr>
<td>Volume:</td>
<td></td>
</tr>
<tr>
<td>Page:</td>
<td></td>
</tr>
<tr>
<td>(For National Authority Use Only)</td>
<td></td>
</tr>
</tbody>
</table>

**Title of Study:** Antipyretic Activity of Ibuprofen Suspension and Paracetamol: Comparative Study in Children with Pyrexia

**Investigator:** On file

**Study Site:** 1 site in India

**Study Period (Years):** NA  
**Phase of Development:** NA

**Objective:** This study was designed to assess the antipyretic effect of ibuprofen in comparison with that of paracetamol in children suffering from fever associated with upper respiratory tract infection (URTI) and viral infections.

**Methodology:**
This study was an open, randomized, comparative study design. Patients received either ibuprofen (7 mg/kg) or paracetamol (8 mg/kg) orally, and each dose was calculated on the basis of total daily dose recommended for each drug (i.e., 20 mg/kg for ibuprofen and 30 mg/kg for paracetamol). All children received no medication other than the study drug during the study period.

Rectal temperature was recorded in each patient by a clinical thermometer kept in the rectum for 1 minute. At each assessment time, 2 readings were taken 5 minutes apart. The same thermometers were used for all patients, and temperature was recorded by the same person.

**Number of Subjects (Planned and Analyzed):** 39 enrolled, 38 analyzed for efficacy

**Diagnosis and Main Criteria for Inclusion:**
Children with fever due to URTI and viral infections and having rectal temperature above 38.5°C. Children who required immediate specific therapy for fever and those with reported allergy to aspirin-like drugs were excluded.

**Test Product, Dose/Strength/Concentration, Mode of Administration and Lot Number:**
Ibuprofen syrup; 7 mg/kg of body weight. Ibuprofen Syrup was supplied by The Boots Company (India) Ltd.

**Duration of Treatment:** Single dose

**Reference Therapy, Dose/Strength/Concentration and Mode of Administration and Lot Number:**
Paracetamol syrup, 8 mg/kg of body weight. Paracetamol (Metacin) Syrup was provided by Themis Pharmaceuticals, India.

**Criteria for Evaluation:**
Rectal temperature recorded prior to and at 0.5, 1, 2, 3, 4, 5, 6, 7, and 8 hours after drug administration.
Statistical Methods:
For each time point, the mean of the 2 temperature readings was used for statistical analysis. The results for patients with URTI were analyzed separately from results for patients with viral infections. One patient with URTI in the paracetamol group did not fulfill the protocol requirement and was excluded from analysis. The rates of temperature reduction were compared between ibuprofen and paracetamol treatment using a linear function $Y = a + bt$ (where $Y$ = mean temperature, $t$ = time in hours, $a$ = intercept, and $b$ = slope) fitted to the data up to 4 hours. The value of the slope indicated the rate of change in temperature, and the degree of reduction in temperature (i.e., mean maximum reduction in temperature) was calculated on the basis of the maximum reduction in temperature for each patient during 8 hours. The results were statistically analyzed using the student's t-test, paired t-test, and F-test. The analysis of covariance was used to adjust for baseline differences between treatment groups for patients with URTI.

Summary/Conclusions:
The 39 patients enrolled included 27 males and 12 females ranging from 2 to 12 years of age. The ibuprofen group consisted of 13 patients with URTI and 6 patients with viral infections; the paracetamol group consisted of 13 patients with URTI (1 patient excluded in analyses) and 7 patients with viral infections. The mean age was 7.0 years for the ibuprofen group and 6.4 years for the paracetamol group.

Efficacy Results:
The mean initial temperature in patients with URTI was 39.9°C in the ibuprofen group and 40.81°C in the paracetamol group. A significant reduction in temperature ($P < 0.01$) was observed in both treatment groups from 0.5 to 8 hours after study drug administration. Comparison between treatment groups of the rate of reduction, degree of reduction, and duration of reduction indicated that both drugs have comparable antipyretic activity ($P > 0.05$).

The mean initial temperature in patients with viral infections was 40.75°C in the ibuprofen group and 40.51°C in the paracetamol group. A significant reduction in temperature was observed in both treatment groups from 0.5 to 8 hours after administration. Comparison between treatment groups of the rate of reduction, degree of reduction, and duration of reduction indicated that both drugs have comparable antipyretic activity ($P > 0.05$).

Safety Results:
No side-effects were reported with either ibuprofen or paracetamol treatment.

Conclusions: Both ibuprofen and paracetamol produced a significant reduction in the initial temperature and both were found comparable in terms of rate of reduction in temperature, degree of reduction in temperature, and duration of reduction in temperature. Since ibuprofen also exhibits anti-inflammatory activity, it may provide additional therapeutic advantage over paracetamol in the treatment of infective disorders.