# 2.0 Synopsis

<table>
<thead>
<tr>
<th>Boots Company India</th>
<th>Individual Study Table Referring to Part of Dossier:</th>
<th>(For National Authority Use Only)</th>
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</thead>
<tbody>
<tr>
<td>Name of Study Drug: Ibuprofen</td>
<td>Volume:</td>
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<tr>
<td>Name of Active Ingredient: Ibuprofen</td>
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**Title of Study:** Evaluation of Ibuprofen and Paracetamol in Infective Disorders of Children

**Investigator:** On file

**Study Site:** 1 site in India


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

**Objective:** To compare the therapeutic efficacy of ibuprofen with that of a commonly used antipyretic and analgesic, paracetamol, in children with infective disorders.

**Methodology:** This was an open-label, comparative, randomized, parallel group study in children with fevers due to upper respiratory tract infections (URTIs) or measles. Children with an axillary temperature greater than 38.5°C were admitted to the pediatric ward of the hospital. Axillary temperature was recorded before study drug administration and at 0.5, 1, 2, 3, 4, 5, 6, 7, and 8 hours after the first dose of study drug. Temperature was taken with a clinical thermometer kept in the axilla for 1 minute. The same thermometer was used for all patients. No antimicrobial drug was administered concomitantly during this period. All patients then continued to receive study drug treatment for 5 days, during which antimicrobial therapy was administered as required. Clinical assessments were carried out for 5 days.

**Number of Subjects (Planned and Analyzed):** 45 analyzed

**Diagnosis and Main Criteria for Inclusion:** Children suffering from fever above 38.5°C (axial temperature) due to URTI or measles. Children who were sensitive to aspirin-like drugs were excluded.

**Test Product, Dose/Strength/Concentration, Mode of Administration and Lot Number:** Ibuprofen (Brufen Syrup), total daily dose of 20 mg/kg of body weight divided into 3 doses taken orally (PO). Ibuprofen suspension contained 100 mg/5mL of syrup.

**Duration of Treatment:** 5 days

**Reference Therapy, Dose/Strength/Concentration and Mode of Administration and Lot Number:** Paracetamol syrup (Crocin Syrup) supplied as 125 mg/5 mL syrup; the dosage was 62.5 mg 3 times daily (TID) for children 1 to 3 years of age; 125 mg TID for children 3 to 6 years of age, and 250 mg TID for children 6 to 12 years of age.
Criteria for Evaluation

**Efficacy:** Clinical assessments included fever, headache, irritability, and generalised aches. Based on clinical assessment, the overall efficacy of the study drug was recorded as good (satisfactory symptomatic relief), fair (partial symptomatic relief), or poor (no symptomatic relief).

**Safety:** Any side-effects observed were recorded.

### Statistical Methods

**Efficacy:** Patients with URTIs were analyzed separately from those with the measles. The data was analyzed for rate of decrease in temperature, degree of decrease in temperature, duration of decrease in temperature, number of patients in whom temperature reached normal, time required to reach normal temperature, and duration for which temperature remained normal. For the rate of change in temperature, a linear function $Y = a + bt$ ($Y =$ mean temperature, $t =$ time in hours) was fitted to the data up to 4 hours and the value of slope ($b$) indicated the rate of change of temperature. The statistical tests used to analyze data were Student's t-test, paired t-test, F-test, and Fisher's test.

**Safety:** No statistical tests were performed for safety.

### Summary/Conclusions

All 45 patients completed the study per protocol. Of the 22 patients in the ibuprofen group, 13 had URTIs and 9 had the measles. Of the 23 patients in the paracetamol group, 14 had URTIs and 9 had the measles.

**Efficacy Results:** Both the ibuprofen group and the paracetamol group experienced a significant decrease in temperature from 0.5 to 8 hours. In both the URTI group and the measles group, both ibuprofen and paracetamol were comparable in their antipyretic effects on the basis of rate of fall in temperature, duration of fall in temperature, maximum fall in temperature, and number of patients in whom temperature reached normal. The only statistically significant difference between treatment groups was the mean decrease in temperature at 1 hour for the URTI group (–1.08°C for ibuprofen versus –0.88°C for paracetamol).

In the URTI group, the clinical response was good in 11 patients (84.6%) treated with ibuprofen and 10 patients (71.4%) treated with paracetamol. The response was fair in 2 patient (15.4%) treated with ibuprofen and 4 patients (28.6%) treated with paracetamol.

In the measles group, the clinical response was good in 8 patients (88.9%) treated with ibuprofen and 6 patients (66.7%) treated with paracetamol. The response was fair in 1 patient (11.1%) treated with ibuprofen and 3 patients (33.3%) treated with paracetamol.

**Safety Results:** No side effects were observed with either ibuprofen or paracetamol.

**Conclusions:** Both ibuprofen and paracetamol produced significant reduction in fever and were found comparable in their antipyretic effects. These results indicated that buprofen could be used as an alternative antipyretic to paracetamol in children suffering from infective disorders such as URTI and measles.

**Date of Synopsis:** Prepared on 12 September 2011 for submission to EMA in accordance with Article 45 of Regulation (EC) No 1901/2006. Date of original study report: 03 August 1993.