**Supplementary Table 1: Summary of methods of resource use valuation**

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| **From randomisation to discharge** | |
| Intervention | Only the unit costs of MgSO4 (GBP 0.12 for 2.5ml), salbutamol (GBP 1.91 for 2.5mg) and ipratropium (GBP 7.43 for 20X2mL (500 microgram)) were estimated. No consumable costs were included in total cost estimates. Cost source: BNF 60 ([10](#_ENREF_10))  Not all patients received the full dose of the intervention/placebo. Full data were available from the CRF to ensure that all doses were costed appropriately. Dosages were estimated in accordance with age of the child. |
| Accident and Emergency visit | All children incurred the cost of an Accident and Emergency visit. The cost estimate used in the analysis depended on whether or not the child was admitted to hospital as a result of attendance.  Cost source: PSSRU 2010 ([8](#_ENREF_8))   * Visit leading to admitted (GBP 131) * Visit NOT leading to admitted (GBP 97)   In the sensitivity analysis, NHS Reference Costs 2009-2010 ([9](#_ENREF_9)) were used:   * Visit leading to admitted (GBP 97)[VB09Z; Category 1 investigation with category 1-2 treatment) * Visit NOT leading to admitted (GBP 90)[VB09Z; Category 1 investigation with category 1-2 treatment) |
| Hospital stay | Hospital stays were divided into two categories: per diem general medical ward and per diem high dependency unit (HDU)/paediatric intensive care unit (PICU).  The per diem general medical ward cost (GBP 368) was taken from the NHS Reference Costs 2009-10 ([9](#_ENREF_9)) (DZF15F-Asthma without complications without intubation). This closely matched a general ward per diem estimate provided by the Finance/Accounts Department of Alder Hey Hospital, Liverpool of GBP 348.  As the difference between HDU and PICU costs was large, a weighted average of the two costs was estimated.  Cost source: NHS Reference Costs 2009-10 ([9](#_ENREF_9)) (Critical Care Paediatric Bed days)  HDU cost: XB07Z (GBP 868)  PICU cost: XB05Z (GBP 2225)  Weighted average: (GBP 1471.96)  In the base case, total general medical ward stay and total HDU/PICU stay were estimated in terms of hours and minutes. If a child had spent more than 12 hours in a ward, a full per diem cost was applied. If a child had spent less than 12 hours in a ward, a half day cost was applied. Full days incurred the full per diem cost.  The duration and therefore cost of inpatient stay is a key driver in the economic evaluation and required careful consideration in the sensitivity analysis where various approaches were used to test the robustness of the economic evaluation results to changes in the cost of hospital inpatient admission.  In the sensitivity analysis, a cost of GBP 392 was used (NHS Reference Costs 2009-10 ([9](#_ENREF_9)) DZ15E-Asthma with complications without intubation) to estimate the cost of a per diem general medical ward stay; the weighted average cost was replaced by the HDU cost (low estimate) and the PICU cost (high estimate); hours and minutes of inpatient stays on either/both wards were costed exactly i.e. taking account of fractions of time; and finally, all inpatient stays of less than 12 hours were not costed in the analysis. |
| Adverse events | The cost of concomitant medications used to treat adverse events were estimated using Prescription Costs Analysis data (2010) ([11](#_ENREF_11)). The costs of additional days in hospital as a result of an adverse event were included in the hospital stay costs up until discharge. |
| From discharge to 4 weeks post randomisation | |
| Medication costs | All medication costs were estimated using the net ingredient cost per prescription stated in the Prescription Cost Analysis (2010) data ([11](#_ENREF_11)). For all medications, the total for chemical entity value was used. |
| Inhaler costs | All inhaler related costs were estimated using the net ingredient cost per prescription stated in the Prescription Cost Analysis (2010) data ([11](#_ENREF_11)). For all items, the total for chemical entity value was used. |
| Overnight hospital stay | All overnight stay costs were estimated using per diem general medical ward cost (GBP 368) from the NHS Reference Costs 2009-10 ([9](#_ENREF_9)) (DZF15F-Asthma without complications without intubation). This closely matched a general ward per diem estimate provided by the Finance/Accounts Department of Alder Hey Hospital, Liverpool of GBP 348. |
| Outpatient attendance | All costs were taken from PSSRU Unit Costs of Health Care 2010 ([8](#_ENREF_8)).  Outpatient attendance costs were divided into three separate cost categories:  Accident and Emergency attendance (not leading to admission) (GBP 97)  Consultant led outpatient attendance (GBP 163.71)  Non-consultant led outpatient attendance (GBP 134) |
| Non-hospital costs | A variety of sources were used to estimate non-hospital costs.   * The following costs were taken from the Unit Costs of Health Care (PSSRU 2010) ([8](#_ENREF_8))   GP surgery visit (GBP 36)  GP telephone call (GBP 22)  GP out of hours visit/GP home visit (GBP 120)  Practice nurse surgery visit (GBP 12)  Community nurse /practice nurse telephone call\* (GBP 7.32)  Community nurse home visit (GBP 27)  Health visitor home visit (GBP 42)  Health visitor telephone call\*\*(GBP 7.56)  \*Cost of telephone calls was estimated using the GP surgery to telephone call cost ratio (0.61) using practice nurse surgery visit cost  \*\* Cost of telephone call was estimated using the GP home visit to telephone call cost ratio (0.18) using health visitor home visit cost  The following costs were taken from NHS Reference Costs 2009-2010:([9](#_ENREF_9))  Out of hours walk-in appointment (GBP 38)[VB11Z, No investigation with no significant treatment).  In the sensitivity analysis, the NHS Reference Cost (2009-10) ([9](#_ENREF_9)) out of hours walk-in appointment cost of GBP 45 was used (VB09Z, Category one investigation with 1-2 significant treatments). |
| Non-NHS costs | |
| Travel | As recorded by the respondent. Travel costs included: car parking fees, petrol/fuel costs, public transport fares, taxi fares and “other costs”  Travel costs were only estimated in relation to the time period from the child’s initial hospital visit up until discharge.  Estimates were presented for parent/carer of the child, partner of parent/carer of the child and relatives/friend of the child. |
| Expenses | As recorded by the respondent. Expenses costs were only estimated in relation to the time period from initial hospital visit to discharge.  Expenses were those costs resulting from lost earnings, childcare costs, hospital expenses (e.g. snacks/gifts) and “other” costs.    Estimates were presented for parent/carer of the child, partner of parent/carer of the child and relatives/friends of the child. |
| Extras | As recorded by the respondent. Extras were only estimated in relation to the time period from discharge to 4 weeks post randomisation.  Extras were those costs resulting from visits to the family doctor or hospital and included: travel costs, lost earnings due to taking time off work, childcare costs and “other” expenses. Expenses also included a specific “other” cost category: e.g. help with housework, telephone bills, special equipment for child or “other” expenses.  Estimates were presented for parent/carer of the child, partner of parent/carer of the child and relatives/friends of the child. |
| Over the counter medicines | As recorded by the respondent. In a few cases only the names of the medicines were stated. If this medicine had already been mentioned by other respondents, then an average cost was used. If the medicine had not already been mentioned by other respondents, then costs were taken from Boots ([www.Boots.com](http://www.Boots.com)) or Chemist Direct (www.chemistdirect.co.uk). All internet costs were accessed in 2012. |