Table C-9. Outcomes of HEPA vacuum study

| Study | Asthma Control | Exacerbations and Healthcare Utilization | Pulmonary Physiology | Quality of Life | Symptoms  (secondary measure) | Allergen Levels (median difference; 95% CI; p)  (secondary measure) |
| --- | --- | --- | --- | --- | --- | --- |
| Popplewell et al. 200017 | NR | NR | **FEV1:**  HEPA vs. standard vacuum: p=0.027  **PEFR:**  HEPA vs. standard vacuum: p=0.001  (data shown graphically) | NR | NR | **Measurement:** Patients collected dust samples by vacuuming mattresses, bedroom and living room carpets, and sofas; samples were collected 2 times: before and after study  **Der p 1** (mean ng/m2 [95% CI]):  Living room carpet  HEPA: 117 (-2 to 269); pre-post p=0.089  Standard: 64 (-12 to 320); pre-post p=0.247  Bedroom carpet  HEPA: 10 (-375 to 321); pre-post p=0.803  Standard: 19 (-278 to 96); pre-post p=0.58  Sofa  HEPA: 94 (-96 to 842); pre-post p=0.325  Standard: 64 (-12 to 320); pre-post p=0.247  Mattress  HEPA: 22 (-71 to 1264); pre-post p=0.179  Standard: 10 (-65 to 1497); pre-post p=0.377  **Fel d 1** (mean ng/m2 (95% CI):  Living room carpet  HEPA: -185 (-674 to -15); pre-post p=0.046  Standard: -261 (-712 to 106); pre-post p=0.111  Bedroom carpet  HEPA: -193 (-68 to -1848); pre-post p=0.003  Standard: -180 (-1320 to -15); pre-post p=0.061  Sofa  HEPA: -728 (-3700 to -30); pre-post p=0.005  Standard: -570 (-1647 to 720); pre-post p=0.247  Mattress  HEPA: -491 (-1216 to -23); pre-post p=0.013  Standard: -580 (-1702 to -23); pre-post p=0.009  **Can f 1** (ng/m2 (95% CI):  Living room carpet  HEPA: 10 (-388 to 203); pre-post p=0.958  Standard: 21 (-118 to 2812); pre-post p=0.443  Bedroom carpet  HEPA: -78 (-258 to 22); pre-post p=0.116  Standard: -23 (-93 to 44); pre-post p=0.511  Sofa  HEPA: -140 (-791 to 469); pre-post p=0.542  Standard: 30 (-373 to 2035); pre-post p=0.617  Mattress  HEPA: -58 (-726 to -28); pre-post p=0.028  Standard: -14 (-185 to 46); pre-post p=0.685 |

Can f 1=*Canis familiaris* dog allergen I; Der p 1=*Dermatophagoides pteronyssinus* house dust mite allergen; CI=confidence interval; Fel d 1=*Felis domesticus* cat allergen 1; FEV1=forced expiratory volume in one second; HEPA=high-efficiency particulate air-filtration; NR=not reported; PEFR=peak expiratory flow rate