**Supplementary Table 1. Search query and results**

|  |  |  |
| --- | --- | --- |
| **Embase** | **Search Query** | (asthma OR “bronchial asthma” OR “asthma, bronchial”) AND (predictive OR prediction) AND ((symptoms) OR (medical history OR comorbidity) OR (diagnosis OR diagnoses)) |
| **Search Date** | 26-Dec-16 |
| **Total No. of Hits** | 3423 |
| **PubMed** | **Search Query** | (asthma OR “bronchial asthma” OR “asthma, bronchial”) AND (predictive OR prediction) AND ((symptoms) OR (medical history OR comorbidity) OR (diagnosis OR diagnoses)) |
| **Search Date** | 26-Dec-16 |
| **Total No. of Hits** | 2611 |
| **Cochrane Library** | **Search Query** | (asthma OR “bronchial asthma” OR “asthma, bronchial”) AND (predictive OR prediction) AND ((symptoms) OR (medical history OR comorbidity) OR (diagnosis OR diagnoses)) |
| **Search Date** | 26-Dec-16 |
| **Total No. of Hits** | 143 |
| **Google Scholar** | **Search Query** | • (asthma OR “bronchial asthma” OR “asthma, bronchial”) AND (predictive OR prediction) AND ((symptoms) OR (medical history OR comorbidity) OR (diagnosis OR diagnoses)) |
| **Search Date** | 26-Dec-16 |
| **Total No. of Hits** | 300 |
| **Total number of Unique Hits** | **4939** |

**Supplementary Table 2. List of combinations reported**

|  |  |
| --- | --- |
| **Combination** | **Symptoms in Combi.** |
| Combi. 1 | wheezing + breathlessness + chest tightness + cough |
| Combi. 2 | bronchial hyperresponsiveness |
| Combi. 3 | wheezing |
| Combi. 4 | wheezing + cough |
| Combi. 5 | wheezing + breathlessness + cough |
| Combi. 6 | wheezing + breathlessness + chest tightness + cough + asthma exacerbation |
| Combi. 7 | wheezing + breathlessness + chest tightness + cough + bronchial hyperresponsiveness |
| Combi. 8 | sneezing + running nose/rhinorrhea + nasal congestion |
| Combi. 9 | cough |
| Combi. 10 | sneezing |
| Combi. 11 | breathlessness + cough + sinusitis |
| Combi. 12 | breathlessness + cough |
| Combi. 13 | running nose/rhinorrhea + nasal congestion |
| Combi. 14 | wheezing + sleep disturbances |
| Combi. 15 | sinusitis |
| Combi. 16 | wheezing + breathlessness + cough + sleep disturbances |
| Combi. 17 | wheezing + breathlessness + chest tightness + cough + sneezing + running nose/rhinorrhea + sleep disturbances + bronchial hyperresponsiveness + sinusitis |
| Combi. 18 | wheezing + breathlessness + exercise induced bronchoconstriction + sleep disturbances + asthma exacerbation |
| Combi. 19 | wheezing + breathlessness + cough + exercise induced bronchoconstriction + asthma exacerbation |
|  |  |
| Combi. 20 | wheezing + breathlessness + chest tightness + cough + exercise induced bronchoconstriction + sleep disturbances + asthma exacerbations + bronchial hyperresponsiveness |
| Combi. 21 | exercise induced bronchoconstriction |
| Combi. 22 | wheezing + cough + bronchial hyperresponsiveness |
| Combi. 23 | wheezing + breathlessness + chest tightness + cough + sleep disturbances + asthma exacerbation |
| Combi. 24 | wheezing + breathlessness + chest tightness + sleep disturbances |
| Combi. 25 | asthma exacerbation + sinusitis |
| Combi. 26 | wheezing + breathlessness + chest tightness + cough + sneezing + running nose/rhinorrhea + nasal congestion + exercise induced bronchoconstriction |
| Combi. 27 | wheezing + breathlessness + cough + exercise induced bronchoconstriction + sleep disturbances + bronchial hyperresponsiveness |
| Combi. 28 | wheezing + breathlessness + chest tightness + cough + exercise induced bronchoconstriction + sleep disturbances |
| Combi. 29 | wheezing + breathlessness + chest tightness + cough + exercise induced bronchoconstriction + bronchial hyperresponsiveness |
| Combi. 30 | wheezing + breathlessness + chest tightness + cough + exercise induced bronchoconstriction |
| Combi. 31 | wheezing + breathlessness + chest tightness + cough + sleep disturbances |
| Combi. 32 | wheezing + cough + exercise induced bronchoconstriction |
| Combi. 33 | wheezing + breathlessness + cough + exercise induced bronchoconstriction |
| Combi. 34 | wheezing + cough + exercise induced bronchoconstriction + sleep disturbances |
| Combi. 35 | wheezing + breathlessness + bronchial hyperresponsiveness |
| Combi. 36 | wheezing + breathlessness + chest tightness + exercise induced bronchoconstriction |
| Combi. 37 | wheezing + breathlessness + chest tightness + cough + sneezing + running nose/rhinorrhea + nasal congestion + sleep disturbances |

**Supplementary Table 3. Proportion of patients with different asthma severity and symptoms**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Combination** | **No. of studies** | **Total No. of patients, N** | **Avg. % of patients with symptom** | **Mild,** **n (%)** | **Mild-moderate,****n (%)** | **Moderate,** **n (%)** | **Moderate-severe, n (%)** | **Severe, n (%)** | **Intermittent, n (%)** | **Not defined, n (%)** |
| Combi. 1 | 4 | 1204 | 71.26 | 43 (3.57) | 0 (0) | 86 (7.14) | 0 (0) | 247 (21.53) | 41 (3.57) | 787(65.3) |
| Combi. 2 | 3 | 1089 | 57.73 | 180 (16.53) | 0 (0) | 167 (15.33) | 181 (16.62) | 154 (14.14) | 210 (19.28) | 0 (0) |
| Combi. 3 | 2 | 759 | 14.98 | 396 (52.18) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 363 (50.48) |
| Combi. 4 | 3 | 1217 | 35.13 | 0 (0) | 380 (31.22) | 0 (0) | 0 (0) | 837 (68.77) | 0 (0) | 0 (0) |
| Combi. 5 | 1 | 132 | 54.30 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 132 (100) |
| Combi. 6 | 2 | 2313 | 42.87 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 2313 (100) |
| Combi. 7 | 1 | 551 | 25.90 | 156 (28) | 0 (0) | 41 (7) | 0 (0) | 35 (6) | 0 (0) | 319 (58) |
| Combi. 8 | 1 | 140 | 18.53 | 0 (0) | 0 (0) | 0 (0) | 140 (100) | 0 (0) | 0 (0) | 0 (0) |
| Combi. 9 | 1 | 856 | 29.70 | 69 (8.10) | 0 (0) | 143 (16.70) | 0 (0) | 154 (17.99) | 388 (45.32) | 0 (0) |
| Combi. 10 | 1 | 109 | 62.38 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 109 (100) |
| Combi. 11 | 1 | 135 | 18.33 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 135 (100) |
| Combi. 12 | 1 | 774 | 37.92 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 774 (100) | 0 (0) |
| Combi. 13 | 1 | 124 | 65.70 | 5 (4.03) | 0 (0) | 68 (54.83) | 0 (0) | 30 (24.19) | 21 (16.93) | 0 (0) |
| Combi. 14 | 1 | 106 | 50.33 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 106 (100) |
| Combi. 15 | 1 | 173 | 63.70 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 173 (100) |
| Combi. 16 | 1 | 635 | 29.06 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 635 (100) |
| Combi. 17 | 1 | 6590 | 26.03 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 6590 (100) |
| Combi. 18 | 1 | 125 | 55.88 | 77 (61.60) | 0 (0) | 40 (32) | 0 (0) | 8 (6.4) | 0 (0) | 0 (0) |
| Combi. 19 | 1 | 210 | 66.80 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 210 (100) |
| Combi. 20 | 1 | 1527 | 13.36 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 1527 (100) |
| Combi. 21 | 1 | 235 | 27.07 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 235 (100) |
| Combi. 22 | 1 | 150 | 62.66 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 150 (100) |
| Combi. 23 | 1 | 215 | 45.52 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 215 (100) | 0 (0) |
| Combi. 24 | 1 | 1683 | 99.40 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 1683 (100) |
| Combi. 25 | 1 | 2032 | 51.00 | 963 (47.40) | 0 (0) | 824 (40.55) | 0 (0) | 243 (11.96) | 0 (0) | 0 (0) |
| Combi. 26 | 1 | 212 | 60.07 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 212 (100) |
| Combi. 27 | 1 | 6009 | 18.17 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 6009 (100) |
| Combi. 28 | 1 | 239 | 42.34 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 229 (95.81) |
| Combi. 29 | 1 | 784 | 21.75 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 784 (100) |
| Combi. 30 | 1 | 176 | 47.98 | 51 (28.97) | 0 (0) | 34 (19.32) | 0 (0) | 9 (5.11) | 82 (46.59) | 0 (0) |
| Combi. 31 | 1 | 1103 | 18.50 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 1103 (100) |
| Combi. 32 | 1 | 109 | 25.40 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 109 (100) |
| Combi. 33 | 1 | 164 | 49.85 | 0 (0) | 164 (100) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Combi. 34 | 1 | 575 | 16.85 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 575 (100) |
| Combi. 35 | 1 | 11,297 | 26.93 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 11297 (100) |
| Combi. 36 | 1 | 1623 | 19.37 | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 1623 (100) |
| Combi. 37 | 1 | 767 | 38.45 | 537 (70.01) | 0 (0) | 0 (0) | 232 (30.25) | 0 (0) | 0 (0) | 0 (0) |