**Appendix F. Supplemental Tables**

**Table F-1. KQ 1—Study characteristics**

| **Study** | **N** | **Patient Population** | **Cough Measures** | **Study Objectives** | **Dimensions** | **Risk of Bias** |
| --- | --- | --- | --- | --- | --- | --- |
| ***Studies in Adults and Adolescents*** | | |  |  |  |  |
| Au, 20051 | 64 | Chronic bronchitis | * CBSAS * Pulmonary function tests * SGRQ * San Diego Shortness of Breath Questionnaire | Develop the CBSAS | Severity/QOL | High |
| Baiardini, 20052 | 95 | Chronic cough | * CCIQ | Develop the CCIQ | Severity/QOL | High |
| Barnabe, 19953 | 119 | Dry or slightly productive cough due to respiratory disorders | * Cough count (by a human) * Electronic sound recorder * VAS | Evaluate the efficacy and safety of moguisteine vs. codeine | Frequency  Severity/QOL | Low |
| Barry, 20064 | 33 | Chronic cough | * Hull Automatic Cough Counter * Cough count by observer | Evaluate the Hull Automatic Cough Counter | Frequency | Low |
| Berkhof, 20125 | 54 | COPD | * LCQ * SGRQ * SF-36 | Examine the psychometric performance of the LCQ in patients with COPD and chronic productive cough | Severity/QOL | Low |
| Birring, 20086 | 65 | Chronic cough | * Leicester Cough Monitor * Video recording * Cough count by 2 observers | Evaluate the Leicester Cough Monitor | Frequency | Low |
| Birring, 20067 | 20 | Chronic cough | * LCQ * Leicester Cough Monitor * Capsaicin cough challenge | Evaluate the Leicester Cough Monitor | Frequency  Severity/QOL | Low |
| Birring, 20038 | 104 | Chronic cough | * LCQ * Self-reported cough severity * Self-reported clinical change * SGRQ * SF-36 * Capsaicin cough challenge | Develop the LCQ | Severity/QOL | Low |
| Braido, 20069 | 95 | Chronic cough | * CCIQ * SF-36 | Evaluate the CCIQ | Severity/QOL | Low |
| Chernecky, 200410 | 31 | Lung cancer | * LCCQ * Lung Cancer Wheezing Questionnaire | Evaluate the LCCQ and the Lung Cancer Wheezing Questionnaire | Severity/QOL | High |
| Coyle, 200511 | 8 | COPD | * LifeShirt cardio-respiratory monitoring system * Video recorder | Evaluate the LifeShirt system in COPD patients | Frequency | Low |
| Crawford, 200812 | 671 | Chronic bronchitis | * CASA-Q * SGRQ * SF-36 * Medical Research Council Dyspnea Scale * Self-reported symptom change scale * 24-hour ambulatory cardiorespiratory monitoring * 24-hour sputum specimen collection | Develop and validate the CASA-Q | Frequency  Severity/QOL | Low |
| De Vito Dabbs, 200213 | 37 | Lung transplant | * Questionnaire for Lung Transplant Patients * Modified Symptom Frequency/Symptom Distress Scale * Functional Performance Inventory * Self-reported cough severity (VAS) * Pulmonary function tests * Qualitative interview | Reliability and validity of the Questionnaire for Lung Transplant Patients | Severity/QOL | Low |
| Decalmer, 200714 | 62 | Chronic cough | * LCQ * Self-reported cough severity * Self-reported cough frequency * Citric acid cough challenge * Ambulatory cough recording | Compare cough reflex sensitivity and subjective assessments with objective cough counts | Frequency  Severity/QOL | Low |
| Dicpini-gaitis, 200615 | 100 | Chronic cough | * CES-D * Subjective cough score | Estimate prevalence of depressive symptoms among patients with chronic cough | Severity/QOL | High |
| Doherty, 200016 | 205 | Asthma or COPD | * Questionnaire administered in hospital * Self-reported cough score * Self-reported cough severity (VAS) * Capsaicin cough challenge | Evaluate capsaicin cough challenge | Severity/QOL | High |
| Doherty, 200017 | 15 | Cryptogenic fibrosing alveolitis | * Self-reported cough severity (VAS) * Cough diary * Tussigenic challenge | Evaluate the relationship between capsaicin responsiveness and the severity of cryptogenic fibrosing alveolitis | Severity/QOL | Low |
| Faruqi, 201118 | 25 | Chronic cough | * LCQ * Symptom Assessment Score * Self-reported cough severity (VAS) * Self-reported composite cough score * 24-hour Hull Automatic Cough Counter * Capsaicin cough challenge | Compare objective and subjective measures of cough | Frequency  Severity/QOL | Low |
| Field, 200919 | 151 | Chronic cough | * CQLQ * Cough-specific QoL * Subjective cough assessment | Evaluate whether certified respiratory educators could assist pulmonologists in managing patients with chronic cough | Severity/QOL | Low |
| Fisman, 200120 | 21 | Cough from ACE inhibitor | * Self-reported cough severity score * Self-reported cough frequency score * Combined severity and frequency score | Compare cough severity and frequency scores | Frequency  Severity/QOL | High |
| Fletcher, 201021 | 127 | Cough | * Punum Ladder * Global Rating of Change Scale * CQLQ | Evaluate the GRC, Punum Ladder, and CQLQ | Severity/QOL | Low |
| Freestone, 199722 | 67 | Cough from common cold | * Self-reported cough severity score * Audio recording device * Cough counts by observer | Assess the antitussive efficacy of codeine for cough | Frequency  Severity/QOL | Low |
| French, 200223 | 215 | Chronic bronchitis or COPD | * CQLQ | Evaluation of CQLQ | Severity/QOL | Low |
| French, 199824 | 28 | Chronic cough | * Adverse Cough Outcome Survey * SIP | Assess the relationship between chronic cough and adverse psychosocial or physical effects | Severity/QOL | Low |
| Hsu, 199425 | 47 | Asthma or chronic cough | * Self-reported cough score * Self-reported asthma score * 24-hour ambulatory recorder | Evaluate an ambulatory cough recorder | Frequency | Low |
| Huisman, 200726 | 152 | Chronic cough | * LCQ * Modified Borg score for cough * HADS * Self-reported change in disease control | Validate a Dutch-language version of the LCQ | Severity/QOL | Low |
| Irwin, 200227 | 8 | Chronic cough due to gastroesophageal reflux disease | * ACOS * Self-reported cough severity (VAS) | Evaluate the relationship between esophageal acid suppression and chronic cough | Severity/QOL | Low |
| Jones, 201128 | 27 | Idiopathic pulmonary fibrosis | * LCQ * Self-reported cough severity score * Self-reported cough severity (VAS) * Cough challenge test | Mechanical induction of cough in idiopathic pulmonary fibrosis | Severity/QOL | Low |
| Kelsall, 201129 | 57 | Chronic cough | * Self-reported cough score * Self-reported cough severity (VAS) * 24-hour ambulatory cough recording | Compare objective and subjective measures of cough | Frequency  Severity/QOL | Low |
| Kelsall, 200930 | 86 | Chronic cough | * LCQ * Electronic cough recorder * Tussigenic challenge * Cough history | Determine the predictors of objective cough frequency in patients with chronic cough | Severity/QOL | Low |
| Kelsall, 200831 | 70 | Chronic cough | * LCQ * Self-reported cough severity (VAS) * Audio recording device * Cough count by observer | Compare methods of quantifying coughing | Frequency  Severity/QOL | Low |
| Key, 201032 | 19 | Idiopathic pulmonary fibrosis | * LCQ * Cough severity VAS * 24-hour ambulatory cough recording * Manual cough count | Measure objective cough frequency | Frequency  Severity/QOL | Low |
| Krahnke, 200433 | 28 | Cough | * Home telemetry device * Score | Validate novel measurement tools with video recording as gold standard | Frequency | Low |
| Krajnik, 201034 | 16 | Chronic cough | * Self-reported cough score (NRS) * Automatic portable cough analyzer | Evaluate an automatic portable cough analyzer | Frequency | Low |
| Leconte, 201135 | 10 | Cough | * LR102 Electronic cough recorder * Video cough recorder * LR102 device | Assess the accuracy of an automatic identification of cough episodes by the LR102 | Severity/QOL | Low |
| Ma, 200936 | 110 | Chronic cough | * LCQ * SF-36 * Capsaicin cough challenge | Validate a Chinese-language version of the LCQ | Severity/QOL | Low |
| Marsden, 200837 | 56 | Asthma | * LCQ * Cough severity VAS * Numeric cough frequency score * Ambulatory cough sound recording * Citric acid cough challenge | Compare objective and subjective measures of cough in asthma | Frequency  Severity/QOL | Low |
| Matos, 200738 | 18 | Cough | * Leicester Cough Monitor * Cough count by observer | Evaluation of the Leicester Cough Monitor | Frequency | Low |
| Monz, 201039 | 59 | Chronic bronchitis or COPD | * CASA-Q * Self-reported cough frequency * Self-reported shortness of breath * Self-reported phlegm production * Self-reported symptom change | Evaluate the CASA-Q | Severity/QOL | Low |
| Morice, 200740 | 27 | Chronic cough | * LCQ * Cough diary * Tussigenic challenge | Evaluate the efficacy of morphine sulfate for chronic cough | Severity/QOL | Low |
| Murray, 200941 | 120 | Cough | * LCQ | Compare the LCQ with the SGRQ | Severity/QOL | Low |
| Mwachari, 200742 | 649 | Acute bronchitis | * ABSS | Evaluate new scoring system | Severity/QOL | Low |
| Nandha, 200043 | 48 | Cough | * Cough diary | Compare cough diary with a structured recall interview | Severity/QOL | Low |
| Nieto, 200344 | 101 | Chronic cough | * Tussigenic challenge | Repeat tussigenic challenge to evaluate responsiveness to treatment | Severity/QOL | Low |
| Novitsky, 200245 | 21 | Chronic cough due to GERD | * ACOS * SIP | Prospective evaluation of consecutive patients with chronic cough due to GERD | Severity/QOL | Low |
| O’Connell, 199446 | 87 | Chronic cough | * Tussigenic challenge | Comparison of cough severity with cough sensitivity | Severity/QOL | Low |
| Polley, 200847 | 147 | Chronic cough | * EuroQol * LCQ * CQLQ | Compared with each other | Severity/QOL | Low |
| Raj, 200948 | 52 | Cough | * LCQ | Determination of minimal important difference for the LCQ | Severity/QOL | Low |
| Ribeiro, 200749 | 64 | Chronic cough | * Cough diary * Self-reported cough severity (VAS) | Compare the effects of beclomethasone and placebo in patients with chronic cough | Frequency  Severity/QOL | Low |
| Shaheen, 201150 | 40 | Chronic cough | * CQLQ * Fisman cough severity/frequency scores | Assess the impact of high-dose acid suppression with proton pump inhibitors on chronic cough in subjects with rare or no heartburn | Frequency  Severity/QOL | Low |
| Singapuri, 200851 | 13 | Chronic cough | * Mannitol challenge test * LCQ * VAS | To investigate the utility of the mannitol challenge as a cough-provocation test in non-asthmatic chronic cough | Severity/QOL | Low |
| Smith, 200652 | 8 | Chronic cough | * Human cough count * Video recording device | Comparisons of digital audio recordings with video recordings | Frequency | Low |
| Smith, 200653 | 19 | Cystic fibrosis | * Electronic cough recorder * Score * Self-reported cough severity (VAS) | Evaluate objective measurements of cough during pulmonary exacerbations of cystic fibrosis | Frequency  Severity/QOL | Low |
| Smith, 200654 | 21 | COPD | * Electronic cough recorder * Tussigenic challenge * Self-reported cough severity (VAS) | Quantify the effect of codeine on chronic cough | Frequency  Severity/QOL | Low |
| Smith, 200655 | 26 | COPD | * Electronic recording device * Tussigenic challenge * Score * CQLQ | Determine relationships between objective cough rates, cough reflex sensitivity, subjective estimates of cough frequency, and cough-related quality of life in patients with COPD | Frequency  Severity/QOL | Low |
| Thomas, 197856 | 42 | Chronic cough | * Automated electronic cough-counting device * Cough count | Evaluate a cough recording device | Frequency | Low |
| Vernon, 201057 | 39 | Chronic cough | * Cough severity diary | Evaluation of new cough severity diary | Severity/QOL | Low |
| Woodcock, 201058 | 91 | Subacute cough | * Electronic cough recorder * Cough diary | Evaluate the efficacy of a NOP1 agonist (SCH486757) in subacute cough | Frequency  Severity/QOL | Low |
| Woolf, 196459 | 1 | Chronic cough | * Electronic cough recorder * Self-reported cough severity (VAS) | Assess the effects of cough suppressants | Frequency | High |
| ***Studies in Adults, Adolescents, and Children*** | | | |  |  |  |
| Hamutcu, 200260 | 14 | Inpatients with cystic fibrosis | * Self-reported VAS score * Self-reported clinical cough score * LR100 cough monitoring device * Audio recording device * Pulmonary function tests | Objective monitoring of cough in children | Frequency | Low |
| Hartnick, 200961 | 120 | Parents of children with chronic cough | * Pediatric Cough Questionnaire * Parent-reported clinical change | Evaluate the Pediatric Cough Questionnaire | Severity/QOL | Low |
| Kalpakli-oglu, 200562 | 40 | Asthma | * LCQ * CQLQ * SF-36 * HADS | Compare specific vs. generic quality-of-life questionnaires for chronic cough | Severity/QOL | Low |
| Paul, 200663 | 15 | Cough | * Electronic recording device using an accelerometer | Validate new recording device using video recording as gold standard | Frequency  Severity/QOL | Low |
| ***Studies in Children Only*** | | |  |  |  |  |
| Archer, 198564 | 8 | Asthma | * Self-reported cough severity (VAS) * Self-reported cough severity (VCD) * Parent-reported cough severity (VAS) * Parent-reported cough severity (VCD) * 24-hour ambulatory cough meter | Compare recorded night cough counts with diary card scores | Frequency | High |
| Chang, 201265 | 346 | Chronic cough | * PC-QOL * PedsQL * Cough diary | Evaluate the burden and etiologies of children with chronic cough | Severity/QOL | Low |
| Chang, 200366 | 37 | Recurrent cough | * Ambulatory cough meter * Self-reported VAS (unspecified) * Parent-reported VAS (unspecified) * Capsaicin cough challenge | Compare measurements of cough severity | Frequency  Severity/QOL | Low |
| Chang, 199867 | 39 | Recurrent cough | * Self-reported cough severity (VAS) * Self-reported cough severity (VCD) * Parent-reported cough severity (VAS) * Parent-reported cough severity (VCD) * 24-hour ambulatory cough meter | Compare child and parent-reports with objective measurement of cough frequency, and comparison of VAS with VCD scoring of cough severity | Frequency  Severity/QOL | Low |
| Chang, 199768 | 21 | Recurrent cough | * Ambulatory cough meter * Audio recording device | Describe and evaluate a modified Holter monitor for use as an ambulatory cough meter | Frequency | Low |
| Corrigan, 200369 | 9 | Infants with coughing illnesses | * LR100 cough monitoring device * Video recorder | Objective cough monitoring in infants | Frequency | Low |
| Dales, 199770 | 41 | Community sample | * Interviewer-administered questionnaire * Recording device * Cough counts | Assess possible bias in parental reporting of children's coughing | Frequency | Low |
| Falconer, 199371 | 15 | Asthma | * Self-reported presence of nocturnal cough * Self-reported respiratory symptoms * Recording device | Compare reported and recorded nocturnal cough | Frequency | High |
| Faniran, 199972 | 109 | Children with or without cough | * A questionnaire to assess cough prevalence | Develop a questionnaire to measure prevalence of persistent cough in children | Severity/QOL | High |
| Fuller, 199873 | 39 | Inner-city children with night cough | * Video cough recorder * Cough diary | Determine whether cough at night keeps children awake | Frequency  Severity/QOL | High |
| Hoskyns, 199174 | 16 | Cough | * Audio recording device * Parental cough diaries | Compare diaries with electronic recording and assess response to salbutamol | Frequency | Low |
| Newcombe, 201175 | 34 | Chronic cough | * PC-QOL | Create and validate new questionnaire | Severity/QOL | Low |
| Newcombe, 201076 | 43 | Chronic cough | * PC-QOL | Validate PC-QOL by comparison with:   * Audio recording * VAS * Pediatric Quality of Life Questionnaire * SF-12 * Verbal category descriptive score | Frequency  Severity/QOL | Low |
| Newcombe, 200877 | 170 | Chronic cough | * PC-QOL | Validate PC-QOL by comparison with:   * Pediatric Quality of Life Questionnaire * SF-12 | Severity/QOL | Low |
| Zihlif, 200578 | 20 | Primary ciliary dyskinesia | * Electronic cough recorder * Self-reported cough severity (VAS) | Explore the relationship between cough frequency and airway inflammation | Frequency | Low |

Abbreviations: ABSS=Acute Bronchitis Severity Score; ACE=angiotensin-converting enzyme; BPC=bronchoprovocation challenge; CASA-Q=Cough and Sputum Assessment Questionnaire; CBSAS=Chronic Bronchitis Symptoms Assessment Scale; CCIQ=Chronic Cough Impact Questionnaire; CES-D=Center for Epidemiologic Studies Depression Scale; COPD=chronic obstructive pulmonary disease; CQLQ=Cough-specific Quality of Life Questionnaire; EuroQol=European Quality of Life questionnaire; GERD=gastroesophageal reflux disease; GRC=Global Rating of Change; HADS=Hospital Anxiety and Depression Scale; LCQ=Leicester Cough Questionnaire; LCCQ=Lung Cancer Cough Questionnaire; PC-QOL=Parent Cough-Specific Quality-of-Life Questionnaire; QOL = quality-of-life; SF-36/SF-12=Medical Outcomes Study 36-Item/12-Item Short Form Health Survey; SGRQ=St. George's Respiratory Questionnaire; SIP=Sickness Impact Profile; VAS=visual analog scale; VCD=verbal category descriptive scale