

Supplementary tables

Supplementary Material: List of brief video clips made available as part of the self-management support component of the EDGE-System

"The titles of the included videos were:

- 1 "How to use the Handihaler";
- 2 "How to use the Accuhaler";
- 3 "How to use the Metered Dose Inhaler";
- 4 "How to use the Turbuhaler";
- 5 "Pulmonary rehabilitation importance"^a;
- 6 "Stay active";
- 7 "How to use the Aerochamber";
- 8 "Manage my mood";
- 9 "Manage my breathing";
- 10 "Manage my worry"
- 11 "How to use the Respimat"
- 12 "Relaxation technique";
- 13 "My breathing exercises"; and
- 14 "How to use the Volumatic".

^aThe pulmonary rehabilitation video was developed by Oxford Health NHS Foundation Trust to supplement the evidence-based course which many of the trial participants had already attended. Other videos were based on standard clinical practice with the aim of supplementing advice already received."

Supplementary Table 1: Definition of an exacerbation

The number of recorded exacerbations defined as episodes in which antibiotics or oral steroids were prescribed or in which the patients were seen in the accident and emergency department or admitted to hospital in the presence of an acute change in respiratory symptoms (defined as the presence of at least two symptoms, one of which should be major (major symptoms: change in sputum; more breathless; chest tight. minor symptom: unwell, tired, temperature, a cold) or a report of a patient taking more salbutamol, either blue inhaler or by nebuliser, for at least 48 hours).

| | |
|----------------|---|
| Major symptoms | Change in sputum; More breathless; Chest tight. |
| Minor symptom | Unwell, Tired, Temperature, A cold (URTI) |

Supplementary Table 2: Detailed baseline characteristics of participants

| | | mHealth N=110 | Standard Care N=56 |
|---|-----------------------|--------------------------|-------------------------------|
| Clinical data | | | |
| Male | N (%) | 68 (61.8) | 34 (60.7) |
| Age | Mean (SD) | 69.8 (9.1) | 69.8 (10.6) |
| BMI | Mean (SD) | 28.6 (7.1) | 9.1 (7.8) |
| FEV1 | Mean (SD) | 47.4 (15.6) | 50.1 (16.9) |
| FEV1/FVC | Mean (SD) | 47.6 (11.3) | 49.8 (11.5) |
| Number of COPD medications | Median (IQR) | 5 (3, 6) | 5 (4, 6) |
| Number of other medications | Median (IQR) | 4 (2, 7) | 5 (2.5, 8) |
| Smoking history | | | |
| | Current | N (%) | 23 (20.9) |
| | Ex-smoker (< 2 years) | N (%) | 17 (15.5) |
| | Ex-smoker (≥ 2 years) | N (%) | 70 (63.6) |
| COPD Severity | | | |
| | Moderate | N (%) | 41 (37.3) |
| | Severe/Very severe | N (%) | 69 (62.7) |
| MRC Dyspnoea score | | | |
| | 2 | N (%) | 17 (15.5) |
| | 3 | N (%) | 74 (67.3) |
| | 4 | N (%) | 19 (17.3) |
| Co-morbid conditions including high blood pressure, osteoporosis, high cholesterol, diabetes, heart disease and depression) | | N (%) | 89 (80.9) |
| Patient reported outcome measures | | | |
| SGRQ-C (St George's Respiratory questionnaire for COPD patients) | Mean (SD) | 56.4 (19.7) | 55.5 (16.2) |
| SCL-10 A | Median (IQR) | 0.3 (0.1, 0.9) | 0.3 (0, 0.5) |
| SCL-20 | Median (IQR) | 0.53 (0.3, 1.15) | 0.68 (0.3, 1.1) |
| BMQ (Beliefs about Medicines Questionnaire) | Mean (SD) | 24.6 (4.8) | 25.3 (5.7) |
| MARS (Medicines Adherence Report Scale) | Mean (SD) | 23.4 (2.3) | 22.5 (3.8) |
| EQ-5D Index | Mean (SD) | 0.62 (0.24) | 0.63 (0.24) |
| Deprivation score* | Mean (SD) | 22440 (7951.9) | 22777 (7261.5) |
| Use of computers and mobile phones | | | |
| Participant has computer | N (%) | 97 (88.2) | 54 (96.4) |
| Frequency of use of computer | | | |
| | Never | N (%) | 11 (10.0) |
| | Hardly ever | N (%) | 3 (2.7) |
| | Sometimes | N (%) | 2 (1.8) |
| | Quite frequently | N (%) | 16 (14.6) |
| | Everyday | N (%) | 54 (49.1) |
| | N/A | N (%) | 13 (11.8) |
| | Missing | N (%) | 11 (10.0) |
| Participant has a mobile phone | N (%) | 97 (88.2) | 54 (96.4) |

| | | mHealth N=110 | Standard Care N=56 |
|---|---|------------------|-----------------------|
| Frequency of use of mobile phone | | | |
| | Never | N (%) 4 (3.6) | 3 (5.4) |
| | Hardly ever | N (%) 23 (20.9) | 14 (25.0) |
| | Sometimes | N (%) 17 (15.5) | 9 (16.1) |
| | Quite frequently | N (%) 15 (13.6) | 5 (8.9) |
| | Everyday | N (%) 38 (34.6) | 23 (41.1) |
| | N/A | N (%) 13 (11.8) | 2 (3.6) |
| Mobile phone used for? | | | |
| | Only calls/texting | N (%) 79 (71.8) | 45 (80.4) |
| | Calls, texting and internet | N (%) 17 (15.5) | 7 (12.5) |
| | N/A | N (%) 13 (11.8) | 2 (3.6) |
| | Missing | N (%) 1 (0.9) | 2 (3.6) |
| Pulmonary rehabilitation | | | |
| | Previously attended a pulmonary rehabilitation course | N (%) 74 (67.3) | 27 (48.2) |
| If yes, how long ago? | | | |
| | <6 months ago | N (%) 34 (30.9) | 12 (21.4) |
| | 6-12 months ago | N (%) 14 (12.7) | 2 (3.4) |
| | >12 months ago | N (%) 26 (23.6) | 13 (23.2) |
| | N/A | N (%) 36 (32.7) | 29 (51.8) |
| | Referred for pulmonary rehabilitation | N (%) 19 (17.3) | 11 (19.6) |
| | Have a carer | N (%) 35 (31.8) | 18 (32.1) |
| If yes do they live with participant? | | | |
| | Yes | N (%) 26 (23.6) | 12 (21.4) |
| | No | N (%) 9 (8.2) | 6 (10.7) |
| | N/A | N (%) 75 (68.2) | 38 (67.9) |
| Use of community health and hospital servicers | | | |
| | Seen by community respiratory nurse team | N (%) 41 (37.3) | 21 (37.5) |
| Total number of hospital admissions in past 12 months | | | |
| | 0 | N (%) 58 (52.7) | 38 (67.9) |
| | 1 | N (%) 33 (30.0) | 14 (25.0) |
| | 2 | N (%) 14 (12.7) | 2 (3.6) |
| | 3 | N (%) 3 (2.7) | 1 (1.8) |
| | 4 | N (%) 1 (0.9) | 1 (1.8) |
| | 5 | N (%) 0 | 0 |
| | 6 | N (%) 1 (0.9) | 0 |
| | At least one hospital admission in last 12 months | N (%) 52 (47.3) | 18 (32.1) |
| Number of times seen GP in surgery in last 3months | | | |
| | Median (IQR) | 1.5 (0, 3) | 2 (1, 3) |
| | 0 | N (%) 32 (29.1) | 12 (21.4) |
| | 1 | N (%) 23 (20.9) | 11 (19.6) |
| | 2 | N (%) 23 (20.9) | 13 (23.2) |
| | ≥3 | N (%) 32 (29.1) | 20 (35.7) |
| Number of times seen GP at home in last 3 months | | | |
| | Median (IQR) | 0 (0, 0) | 0 (0, 0) |
| | 0 | N (%) 99 (90.0) | 49 (87.5) |
| | 1 | N (%) 7 (6.4) | 4 (7.1) |
| | ≥2 | N (%) 4 (3.6) | 3 (5.4) |
| Number of unplanned GP contacts in last 3 months | | | |
| | Median (IQR) | 0 (0, 1) | 0 (0, 1) |
| | 0 | N (%) 74 (67.3) | 41 (73.2) |
| | 1 | N (%) 22 (20.0) | 5 (8.9) |

| | | | mHealth N=110 | Standard Care N=56 |
|--|--------------|-------|--------------------------|-------------------------------|
| | ≥2 | N (%) | 14 (12.7) | 10 (17.9) |
| Number of times seen by nurse in surgery in last 3 months | | | | |
| | Median (IQR) | | 1 (0, 1) | 1 (0, 2) |
| | 0 | N (%) | 54 (49.1) | 27 (48.2) |
| | 1 | N (%) | 37 (33.6) | 13 (23.2) |
| | ≥2 | N (%) | 19 (17.3) | 16 (28.6) |
| Number of times seen by nurse at home in last 3 months | | | | |
| | 0 | N (%) | 108 (98.2) | 55 (98.2) |
| | ≥1 | N (%) | 2 (1.8) | 1 (1.8) |
| Number of unplanned nurse contacts in last 3 months | | | | |
| | 0 | | 106 (96.4) | 53 (94.6) |
| | 1 | N (%) | 4 (3.6) | 3 (5.4) |
| | | N (%) | | |
| Number of times seen by community respiratory nurse team in last 3 months | | | | |
| | Median (IQR) | | 88 (80.0) | 47 (83.9) |
| | 0 | N (%) | 22 (20.0) | 9 (16.1) |
| | ≥1 | N (%) | | |
| Number of times seen at A&E in last 3 months | | | | |
| | Median (IQR) | | 91 (82.7) | 52 (92.9) |
| | 0 | N (%) | 19 (17.3) | 4 (7.1) |
| | ≥1 | N (%) | | |
| Number of admissions to inpatient care in last 3 months | | | | |
| | 0 | N (%) | 93 (84.6) | 50 (89.3) |
| | ≥1 | N (%) | 17 (15.4) | 6 (10.7) |
| Days spent in hospital in last 3 months | | | | |
| | 0 | N (%) | 91 (82.7) | 50 (89.3) |
| | 1-3 | N (%) | 8 (7.3) | 3 (5.4) |
| | ≥4 | N (%) | 11 (10.0) | 3 (5.4) |
| Number of times attended respiratory outpatient clinic in last 3 months | | | | |
| | 0 | N (%) | 67 (60.9) | 38 (67.9) |
| | ≥1 | N (%) | 43 (39.1) | 18 (32.1) |
| Number of times attended pulmonary rehabilitation class in last 3 months | | | | |
| | Median (IQR) | | 0 (0, 3) | 0 (0, 0) |
| | 0 | N (%) | 78 (70.9) | 45 (80.4) |
| | 1-11 | N (%) | 19 (17.3) | 6 (10.7) |
| | ≥12 | N (%) | 13 (11.8) | 5 (8.9) |
| Number of times received physiotherapy in last 3 months | | | | |
| | 0 | N (%) | 96 (87.3) | 54 (96.4) |
| | ≥1 | N (%) | 14 (12.7) | 2 (3.6) |
| Number of times received occupational therapy in last 3 months | | | | |
| | 0 | N (%) | 105 (95.4) | 55 (98.2) |
| | ≥1 | N (%) | 5 (4.6) | 1 (1.8) |

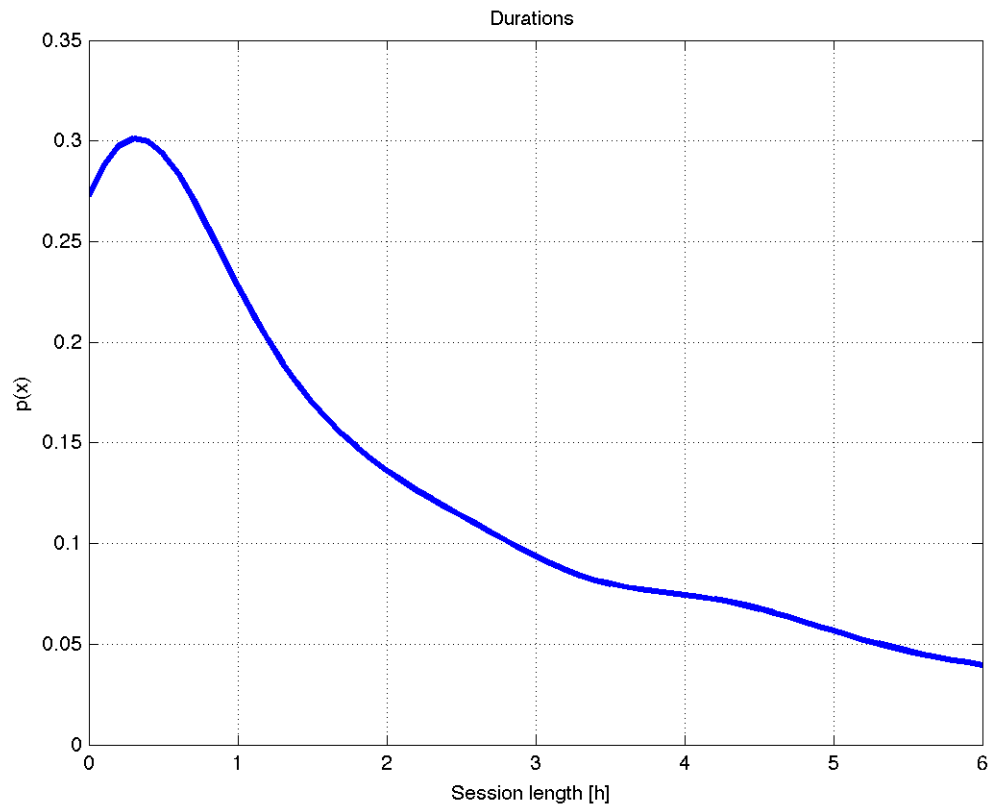
* Based on postcode with deprivation rankings accessed from <http://www.streetgames.org/www/sgplus/content/areas-deprivation-postcode> for individual searches (inputting postcode links to ONS website). Bulk lists (IMD 2010) were accessed via <http://dclgapps.communities.gov.uk/imd/imd-by-postcode.html>
IQR = Inter quartile range (25th, 75th Percentiles)

Supplementary Figure

Probably density curve for clinician time spent each session reviewing data

Vertical (y) axis – probability of given session length

Horizontal (x) axis - time for each session



Footnote. Duration of sessions was estimated from time for which the system was active. This does not account for time spent when logged on but not using the system – so estimates are conservative. Therefore, for at least 60% of the sessions, the nurse was logged on for one hour or less.