Supplementary Data

Appendix Table 2. Effectiveness of nurse interventions to improve medication adherence. A positive clinical effect is any improvement in adherence measurement (whether statistically significant or not) in the intervention group as compared with the control group.

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| **Authors**  **(year)**  **Country** | **Measure method of medication adherence outcome** | **Sample Size**  **Intervention group – Usualcare group** | **Mean Age**  **(SD)** | **Sex**  **Male (M)**  **Female (F)**  **In %** | **Number of medicines** | **Definition of outcome** | **Time(s) of outcome measure-ments (month)** | **Baseline** | **Intervention group** | **Usual care group** | **P-value** | **Positive clinical effect on adherence** | | **Statistically significant effect on adherence** | |
| **Nurse-led interventions** | | | | | | | | | | | | | | |
| Barnason et al. (2010)  USA | Brief Medication Questionnaire (BMQ) 1 | N: 40  Intervention group: 20  Usual care group: 20 | 76.9 (6.5) | 65% M  35% F | 11.3 (SD = 3.8) for both groups | Mean score of medication adherence | 1  3 | Intervention: 98.3 (0.1) vs Usual- care 93.7 (0.1) | 1 month: 99.6 (SD = 1.8)  3 months: 98.8 (SD = 5.6) | 1 month: 82.9 (SD = 26.2)  3 months: 86.7 (SD = 17.4) | 0.64 | no | no | | |
| Garcia-Aymerich et al.  (2007)  Spain | Medication Adherence Scale (MAS) 3  Inhaler Adherence Scale (IAS)4 | N: 113  Intervention group: 44  Usual care group: 69 | 73 (8) | 86% M  14 % F | Intervention group  4(SD = not available)  Usual care group  (5 SD = not available) | MAS: Compliant (all answers correct = 4) VS Non-compliant (one or more mistakes =< 4)  IAS: Compliant (all answers correct = 4) VS Non-compliant (one or more mistakes = < 4) | 12 |  | 19 (compliant) /2 (non-compliant)  15 (compliant) /6 (non-compliant) | 35 (compliant)/6 (non-compliant)  15 (compliant /26 (non-compliant) | 0.57  0.009 | yes  yes | no  yes | | |
| Kennedy  (1990)  USA | Medication Error Rating (MER)5 | N: 65  Intervention group: 32  Usual care group: 33 | Intervention group: 77.9  Usual care group: 75.9 | 32% M  68% F | Intervention group  Old medics 2.6 (SD = 2.0)  Newly prescribed medics 2.4 (SD = 1.5)  Usual care group  non available | Mean score of medication adherence | 1 |  | 4.01 (SD = 5.3) | 10.08 (SD = 9.2) | 0.030 | yes | yes | | |
| Wolfe & Schirm (1992)  USA | Interview | N: 50  Intervention group: 25  Usual care group: 25 | Intervention group: 72.8 (5.8)  Usual care group: 75.2 (7.5) | 42% M  58% F | Intervention group 4.9 (SD = 2.9)  Usual care group  4.3 (SD = 1.9) | Compliant (adherent to container’s directions) VS Non-compliant (did not take medication as prescribed) | 1.5 |  | 9/9 | 13/7 | > 0.05 | yes | no | | |
| Hornnes et al. (2011)  Denmark | Interview | N: 303  Intervention group: 145  Usual care group: 158 | Intervention group: 70.2 (13.7)  Usual care group: 68.5 (12.2) | 51% M  49% F | not available | Compliant (80% or more of doses taken during the last two weeks) VS Non-compliant (79% or less of doses taken during the last two weeks) | 12 |  | 98/2 | 99/13 | 0.496 | yes | no | | |
| Weller (2015)  USA | Modified Center for Adherence Support Evaluation (CASE) adherence index 6 | N: 16  Intervention group: 8  Usual-care group: 8 | 73.13 (5) | not available | not available | CASE: > 10 = good adherence  < 10 = poor adherence | 0.75 | 1 week  3 weeks | 15.38  15.50 | 14.88  15.00 | 0.576  0.531 | yes | no | | |
| Zhao & Wong (2009)  China | Daily record | N: 200  Intervention group: 100  Usual care group: 100 | Intervention group: 72.9 (6.4)  Usual care group: 71.6 (4.1) | 52% M  48% F | not available | Percentage of patients in each category of medication adherence: high, moderate, and low | 3 |  | High: 51 (51%), Moderate: 39 (46%),  Low : 3 (3%) | High: 86 (86%), Moderate: 11 (11%)  Low: 3 (3%) | < 0.001 | yes | yes | | |

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| **Nurse-collaborative interventions** | | | | | | | | | | | | | |
| Eggink et al.  (2010)  Netherlands | Brief Medication Questionnaire – Regimen screen (BMQ) > 2 = non-adherent | N: 85  Intervention group: 41  Usual care group: 44 | Intervention group: 74 (10)  Usual care group: 72 (10) | 67% M  33% F | Intervention group  10 (SD = 4)  Usual care group  9 (SD = 3) | Proportion of compliant patients (score of 0 on BMQ) VS Proportion of non-compliant patients (score of 1 or more on BMQ) | 1.5 |  | 78% / 22% | 79.5% / 20.5% | RR: 1.07 (95% CI: 0.47–2.44) | no | no | |
| Bisharat et al. (2012)  Israel | Medication Possession Ratio (MPR)7 | N: 74  Intervention group: 33  Usual care group: 41 | Intervention group: 65.3 (12.2)  Usual care group: 72.73 (10.6) | 68% M  32% F | Intervention group  7 (SD = 2.7)  Usual care group  6.6 (SD = 1.9) | Proportion of compliant patients (80% or more on MPR) | 9 |  | 77.8% (SD = 22.9) | 62.6% (SD = 24.5) | < 0.05 | yes | yes | | |
| Rich et al.  (1996)  USA | Pill counts | N: 156  Intervention group: 80  Usual care group: 76 | 79.4 (6.0) | 33% M  67% F | Intervention group 5.2 (SD = 2.4)  Usual care group  5.2 (SD = 2.5) | Percentage of pills taken correctly for each medication | 1 |  | 87.9% (SD = 12%) | 81.1% (SD = 17.2%) | 0.003 | yes | yes | | |
| Rinfret et al.  (2013)  Canada | Refill adherence 8 | N: 300  Intervention group: 150  Usual care group: 150 | Intervention group: 63.4 (10)  Usual care group: 64.3 (10) | 73% M  27% F | Intervention group 3 (SD = 0)  Usual care group 3 (CD = 0) | Proportion of day covered by aspirin and Clopidrogrel | 12 |  | Aspirin: 99.2% (97.5%–100%);  Clopidrol: 99.3% (97.5%–100%) | Aspirin: 90.2% range:  84.2%–95.4%  Clopidrol: 91.5% range: 85.1%–96.0% | < 0.001  < 0.001 | yes | yes | | |
| Tsuyuki et al.  (2004)  Canada | Medication Possession Ratio (MPR):7 No. days medicine dispensed divided by no. days follow-up | N: 276  Intervention group: 140  Usual care group: 136 | Intervention group: 71 (12)  Usual care group: 72 (12) | 58% M  42% F | Intervention group  5 (SD = not available)  Usual care group  5 (SD = not available) | Mean MPR | 6 |  | 83.5 (29%) | 86.2% (SD = 29) | 0.691 | no | no | | |
| Rytter et al. (2010)  Denmark | Interview | N: 293  Intervention group: 148  Usual care group: 145 | Intervention group: 84  Usual care group: 83 | 33% M  67% F | Intervention group 6  (range 4.5-9)  Usual care group  6 (range 4-8) | Proportion of non-compliant (GP reporting medication not taken) | 3 |  | 28% | 39% | 0.03 | yes | yes | | |
| Antonicelli et al. (2010)  Italy | Interview | N: 57  Intervention Group: 29  Usual Care group: 28 | 78.2 (7.3) | 58% M  42% F | Intervention group  1 (SD = 0)  Usual care group  1 (SD = 0) | Compliant (took all medication as prescribed) VS Non-compliant (did not take medication as prescribed) | 12 | No difference | 26/3 | 10/18 | < 0.03 | yes | yes | | |

Footnote: 1) Brief Medication Questionnaire (BMQ): if ≥ 80% = adherence; 2) Brief Medication Questionnaire–Regimen Screen (BMQ-Regimen Screen): if score ≥ 1 = non-adherence; 3) Medication Adherence Scale (MAS): if < 4 = non-adherence and if 4 = adherence; 4) Inhaler Adherence Scale (IAS): if < 4 = non-adherence and if 4 = adherence; 5) Medication Error Rating (MER); 6) Modified Center for Adherence Support Evaluation (CASE) adherence index: if ≥ 10 = good adherence, if < 10 = poor adherence; 7) Medication Posession Rate: if ≥ 80% respect of prescription = adherence; 8) Refill adherence: if ≥ 80% = adherence