**Leonie S. Brose, Erikas Simonavicius & Ann McNeill. (2017). Maintaining abstinence from smoking after a period of enforced abstinence – systematic review, meta-analysis and analysis of behaviour change techniques with a focus on mental health. *Psychological Medicine.***

**Supplemental Material**

**Table S1.** Study description

| **Publication details** | **Setting, country, n** | **Length of stay, intervention format, provider, mode** | **Inpatient intervention behaviour change techniques b, c (**[**Michie *et al.*, 2015**](#_ENREF_25)**)** | **Post-discharge behaviour change techniques** c | **Control** |
| --- | --- | --- | --- | --- | --- |
| **Randomised controlled trials** | | |  |  |  |
| Clarke et al., JAMA Intern Med., 2013a  (study protocol ([Clarke *et al.*, 2011](#_ENREF_8))) | Prison, US, n=247 | Length of stay:  Measured as time since last cigarette smoked, M (SD) = 1.5 (3.4) years  Inpatient:  6 sessions, sessions 1 and 6 based on Motivational Interviewing, sessions 2 to 5 based on CBT, delivered by Research Assistants, one-to-one.  Post-discharge:  Telephone calls 24 hours and 7 days post-discharge | *1.1 Goal setting (behaviour)*  *1.2 Problem solving*  *1.4 Action planning*  *2.3 Self-monitoring of behaviour*  *3.1 Social support (unspecified)*  *3.3 Social support (emotional)*  *4.1 Instruction on how to perform a behaviour*  *4.2 Information about antecedents*  *5.1 Information about health consequences*  *5.4 Monitoring of emotional consequences*  *5.6 Information about emotional consequences*  *7.4 Remove access to the reward*  *8.1 Behavioural practice/rehearsal*  *8.2 Behaviour substitution*  *8.3 Habit formation*  *8.4 Habit reversal*  *9.2 Pros and cons*  *9.3 Comparative imagining of future outcomes*  *11.2 Reduce negative emotions*  *11.3 Conserving mental resources*  *12.1 Restructuring the physical environment*  *12.2 Restructuring the social environment*  *12.3 Avoidance/reducing exposure to cues for the behaviour*  *12.6 Body changes*  *13.2 Framing/reframing*  *13.4 Valued self-identity*  *13.5 Identity associated with changed behaviour*  *15.2 Mental rehearsal of successful performance*  *15.3 Focus on past success*  *15.4 Self-talk*  *16.2 Imaginary reward* | *1.5 Review behaviour goal(s)*  *1.7 Review outcome goal(s)*  *3.1 Social support (unspecified)*  *10.4 Social reward* | Inpatient:  Videos on health-related topics but not about smoking cessation.  Post-discharge:  Telephone calls 24 hours and 7 days post-discharge. |
| Gariti et al., Am J Drug Alcohol Abuse, 2002 | Veterans Affairs Medical Center’s detoxification unit for alcohol and other non-nicotine drugs, US, n=62 | Length of stay:  M = 7.4 days.  Inpatient:  One manual-based individual session delivered by Addiction Therapist, one-to-one. Participants encouraged to attend daily film series, Motivational enhancement (MET) post-film discussion in group.  Post-discharge:  Optional smoking cessation program delivered face-to-face by study co-investigator or nurse practitioner | 3.1 Social support (unspecified)  *5.3 Information about social and environmental consequences*  *6.1 Demonstration of the behaviour*  *9.2 Pros and cons*  11.1 Pharmacological support (nicotine patch | 3.1 Social support (unspecified)  11.1 Pharmacological support (nicotine patch) | Inpatient and post-discharge:  3.1 Social support (unspecified)  11.1 Pharmacological support (nicotine patch)  Optional smoking cessation program delivered face-to-face by study co-investigator or nurse practitioner |
| Hickman et al., Nicotine Tob Res, 2015a | Three psychiatric units (one non-acute and two acute units) in public acute care hospital, US, n=100 (3 deaths during follow-up) | Length of stay:  47% stayed 2-7 days, 30% 8-13 days, 23% 2 weeks or longer  Inpatient:  Transtheoretical model-tailored computer-delivered intervention, self-help information, 15–30 minute on-unit individual motivational enhancement cessation counselling, delivered by study staff  Post-discharge:  Computer intervention repeated at 3 and 6 months, optional NRT for up to 10 weeks | *1.1 Goal setting (behaviour)*  *1.2 Problem solving*  *1.4 Action planning*  *1.9 Commitment*  *2.4 Self-monitoring of outcome(s) of behaviour*  3.1 Social support (unspecified)  *3.3 Social support (emotional)*  *4.2 Information about antecedents*  *5.1 Information about health consequences*  *5.3 Information about social and environmental consequences*  *5.6 Information about emotional consequences*  *6.2 Social comparison*  *6.3 Information about others’ approval*  *7.1 Prompts/cues*  *8.1 Behavioural practice/rehearsal*  *8.2 Behaviour substitution*  *8.7 Graded tasks*  *9.2 Pros and cons*  *9.3 Comparative imagining of future outcomes*  *10.3 Non-specific reward*  *10.4 Social reward*  *10.9 Self-reward*  11.1 Pharmacological support (NRT)  *11.2 Reduce negative emotions*  *12.1 Restructuring the physical environment*  *12.2 Restructuring the social environment*  *12.3 Avoidance/reducing exposure to cues for the behaviour*  *12.4 Distraction*  *12.5 Adding objects to the environment*  *12.6 Body changes*  *13.2 Framing/reframing*  *13.5 Identity associated with changed behaviour*  *15.2 Mental rehearsal of successful performance*  *15.3 Focus on past success*  *15.4 Self-talk*  *16.2 Imaginary reward* | 11.1 Pharmacological support (NRT) | Inpatient:  3.1 Social support (unspecified)  11.1 Pharmacological support (NRT)  Delivered by study staff  Post-discharge:  Referrals (without NRT) |
| Prochaska et al., Am J Public Health, 2014a | Locked inpatient psychiatry unit at the Psychiatric Institute, US, n=224 (4 deaths during follow-up) | Length of stay:  M (SD) = 7.4 (5.7) days, median = 6.0, mode = 5  Inpatient:  Transtheoretical model-tailored computer-delivered intervention, 15–30 minute on-unit individual motivational enhancement cessation counselling, delivered by study staff  Post-discharge:  Computer intervention repeated at 3 and 6 months, optional NRT for up to 10 weeks | *1.1 Goal setting (behaviour)*  *1.2 Problem solving*  *1.4 Action planning*  *1.9 Commitment*  *2.4 Self-monitoring of outcome(s) of behaviour*  3.1 Social support (unspecified)  *3.3 Social support (emotional)*  *4.2 Information about antecedents*  *5.1 Information about health consequences*  *5.3 Information about social and environmental consequences*  *5.6 Information about emotional consequences*  *6.2 Social comparison*  *6.3 Information about others’ approval*  *7.1 Prompts/cues*  *8.1 Behavioural practice/rehearsal*  *8.2 Behaviour substitution*  *8.7 Graded tasks*  *9.2 Pros and cons*  *9.3 Comparative imagining of future outcomes*  *10.3 Non-specific reward*  *10.4 Social reward*  *10.9 Self-reward*  11.1 Pharmacological support (NRT)  *11.2 Reduce negative emotions*  *12.1 Restructuring the physical environment*  *12.2 Restructuring the social environment*  *12.3 Avoidance/reducing exposure to cues for the behaviour*  *12.4 Distraction*  *12.5 Adding objects to the environment*  *12.6 Body changes*  *13.2 Framing/reframing*  *13.5 Identity associated with changed behaviour*  *15.2 Mental rehearsal of successful performance*  *15.3 Focus on past success*  *15.4 Self-talk*  *16.2 Imaginary reward* | 11.1 Pharmacological support (nicotine patches) | Inpatient:  11.1 Pharmacological support (nicotine patches)  Post-discharge:  No intervention |
| Stockings et al., 2014a (study protocol Stockings et al., 2011) | One comorbid acute mental health and substance use unit and two acute mental health units in public hospital, Australia, n=205 | Length of stay:  M (SD) = 22.6 (78.0) days  Inpatient:  Self-help smoking cessation literature, 10-15 minutes face-to-face motivational interview, delivered by study staff  Post-discharge:  4 months of fortnightly telephone smoking cessation support with a designated counsellor, optional 12-week NRT (choice of patches, gums, lozenges, and inhalers), optional referrals to Quitline or smoking cessation groups | 3.1 Social support (unspecified)  *5.1 Information about health consequences*  *5.3 Information about social and environmental consequences*  *5.6 Information about emotional consequences*  *9.2 Pros and cons*  *9.3 Comparative imagining of future outcomes*  11.1 Pharmacological support (NRT) | *1.2 Problem solving*  *2.1 Monitoring of behaviour without feedback*  *2.3 Self-monitoring of behaviour*  3.1 Social support (unspecified)  *4.1 Instruction on how to perform a behaviour*  *4.3 Re-attribution*  *5.1 Information about health consequences*  *5.3 Information about social and environmental consequences*  *5.4 Monitoring of emotional consequences*  *7.1 Prompts/cues*  *8.2 Behaviour substitution*  *10.4 Social reward*  11.1 Pharmacological support (NRT)  *12.2 Restructuring the social environment*  *12.3 Avoidance/reducing exposure to cues for the behaviour*  *12.4 Distraction*  *12.5 Adding objects to the environment* | Inpatient:  3.1 Social support (unspecified)  11.1 Pharmacological support (NRT)  Delivered by clinic staff  Post-discharge:  11.1 Pharmacological support (NRT, for three days upon discharge)  Post-discharge smoking care plan and optional referral to Quitline |
| **Cohort studies** | |  |  |  |  |
| Jonas & Eagle, 1991 | Short-term psychiatric unit of a general hospital, US, n=39 | Length of stay:  M (SD) = 14.1 (7.0) days  Inpatient:  Nicotine gum and education in its use, self-help materials about smoking cessation, delivered by nursing staff  Post-discharge:  None | *11.1 Pharmacological support (NRT, gum)* |  |  |
| Joseph, 1993 | 21-day residential drug dependency treatment program, US, n=163 | Length of stay:  Not reported; 21-day inpatient program  Inpatient:  Written agreement to adhere to new smoke-free policy, arranged by clinic staff  Post-discharge:  None | *1.1 Goal setting (behaviour)*  *1.8 Behavioural contract*  *11.1 Pharmacological support (clonidine)* | n/a | n/a |
| Prochaska et al., 2006 | University- based adult inpatient psychiatry unit, US, n=100 | Length of stay:  M (SD) = 6.4 (5.5) days, range = 1-37.  Inpatient:  Clinic staff provided treatment as usual  Post-discharge:  Occasionally NRT as part of treatment as usual | *11.1 Pharmacological support (NRT patch and/or gum)* | *11.1 Pharmacological support (NRT)* | n/a |
| Strong et al., 2012a | Two inpatient units in a psychiatric hospital, US, n=15 | Length of stay:  M (SD): 7.2 (2.6) days  Inpatient:  One face-to-face 45 minute Motivational Interviewing session, delivered by study staff, information on quitlines and treatment  Post-discharge:  Phone call 2 weeks post-discharge | *1.4 Action planning*  *2.1 Monitoring of behaviour without feedback*  *2.2 Feedback on behaviour*  *8.2 Behaviour substitution*  *9.2 Pros and cons*  11.1 Pharmacological support (NRT)  *13.3 Incompatible beliefs*  *13.4 Valued self-identity* | *1.2 Problem solving*  *1.4 Action planning*  *1.5 Review behaviour goal(s)*  *3.1 Social support (unspecified)*  *10.3 Non-specific reward* | Inpatient:  11.1 Pharmacological support (NRT)  Post-discharge:  No intervention |
| Stuyt, 2015a | 90-day inpatient treatment program for co-occurring substance abuse and mental health problems, US, n=154 (4 deaths during follow-up) | Length of stay:  Not reported; 90-day inpatient program.  Inpatient:  Tobacco topic is fully integrated into the program, delivered by centre staff, one-to-one and groups  Post-discharge:  None described | *1.2 Problem solving*  *2.5 Monitoring outcome(s) of behaviour by others without feedback*  *2.6 Biofeedback*  *4.1 Instruction on how to perform a behaviour*  *5.1 Information about health consequences*  *5.3 Information about social and environmental consequences*  *5.6 Information about emotional consequences*  *11.1 Pharmacological support (Nicotine patch)* | n/a | n/a |

Abbreviations: n = Number of participants, NRT = Nicotine Replacement Therapy; US = United States

a Study author(s) provided additional information about study interventions in the form of intervention manuals or similar documents.

b In addition to the Behaviour Change Techniques (BCTs) described in the interventions, a smoke-free environment in itself delivers a number of BCTs for smoking cessation. These include restructuring the physical environment (BCT 12.1), restructuring the social environment (12.2), avoidance/reducing exposure to cues for the behaviour (12.3) and removing access to the reward (7.4). ([Michie *et al.*, 2015](#_ENREF_25))

c Number indicates position in clusters; cluster labels are: 1: ‘Goals and planning’, 2 ‘Feedback and monitoring’, 3 ‘Social support’, 4 ‘Shaping knowledge’, 5 ‘Natural consequences’, 6 ‘Comparison of behaviour’, 7 ‘Associations’, 8 ‘Repetition and substitution’, 8 ‘Comparison of outcomes’, 10 ‘Reward and threat’, 11 ‘Regulation’, 12 ‘Antecedents’, 13 ‘Identity’, 14 ‘Scheduled consequences’, 15 ‘Self-belief’, 16 ‘Covert learning’.

d Italics: Behaviour change techniques used in intervention but not in control.

**Table S2.** Outcomes of included studies; N = 10.

| **Study** | **Key smoking outcome measures, follow-ups, findings** | **Variables associated with smoking outcomes** | **Mental health and other substance use outcomes** |
| --- | --- | --- | --- |
| **Randomised controlled trials** | |  |  |
| Clarke et al., 2013 | Measures Self-reported 7-day smoking abstinence verified by urine cotinine level <200 ng/mL;  Nicotine dependence (FTND);  Time to first cigarette after release  Follow-up 3 weeks and 3 months for those abstinent at 3 weeks  Findings  Abstinence:  - 3-weeks: AOR = 6.6, 95% CI: 2.5-17.0 for intervention  - 3-months: AOR = 5.3, 95% CI: 1.4-23.8 for intervention  Time to first cigarette (3 week follow-up): Treatment main effect: β(SE) = 0.56 (0.16), hazard ratio = 1.75 (p=.001) | Associated with abstinence at 3-week follow-up  Not smoked for >6 months (baseline): AOR=4.6, 95% CI: 1.7-12.4;  Hispanic: AOR=3.2, 95% CI: 1.1-8.7;  Planned not to smoke after release (baseline): AOR=1.6, 95% CI: 1.2-2.3 | At 3-week follow-up:  Perceived stress (PSS)M (SD) 21.5 (6.1) non-smoker vs 21.9 (6.3) smoker (non-significant);  Depression (CES-D) M (SD) : 12.3 (4.9) non-smoker vs 12.8 (5.5) smoker (non-significant) |
| Gariti et al, 2002 | Measures Self-reported 7-day smoking abstinence verified by CO reading ≤ 9 parts per million and urine cotinine level <50 ng/mL;  Time to relapse after discharge;  Cigarettes per day  Follow up 6 months  Findings  Abstinence: 6% of intervention vs 0% of control (χ2 (1) = 0.002, p = .97);  Time to first cigarette: 76% reported smoking the same day they were discharged, 92.7% smoked within a month of discharge, no differences between groups in the mean number of days before relapse, t(52)=0.65, p=.52;  Cigarettes per day: Reduced for both groups F(1) = 21.1, p<.001; no differences between groups | None reported | Almost 47% of participants were abstinent for their primary drug of abuse at the follow up;  No differences between groups |
| Hickman et al., 2015 | Measures Self-reported 7-day smoking abstinence verified by CO reading ≤ 10 parts per million or a confirmation of participant’s past 7 days non-smoking status obtained from friends, family, or case managers if a participant was unable to attend in person  Follow-up 3, 6, and 12 months  Findings  Abstinence:  - 3 months: 12.5% intervention vs 7.3% control  - 6 months: 17.5% intervention vs 8.5% control  - 12 months: 26.2% intervention vs 16.7% control  Abstinence modelled over 12-month period: AOR = 1.76, 95% CI: 0.69-4.48 for intervention | Associated with abstinence over 12-month study period  Quitting over time: AOR = 1.16, 95% CI: 1.04-1.29;  Higher social status in United States (baseline): AOR = 1.25, 95% CI: 1.04-1.50;  Stronger desire to quit (baseline): AOR = 1.28, 95% CI: 1.06-1.55;  Higher expectation of success with quitting (baseline: AOR = 1.26, 95% CI: 1.06-1.50 | Over the 12 months of follow-up, 55% of control and 57% of intervention group participants were rehospitalised or seen by psychiatric emergency care |
| Prochaska et al., 2014 | Measures Self-reported 7-day smoking abstinence verified by CO reading ≤ 10 parts per million or confirmation of participant’s past 7 days non-smoking status obtained from significant others if the participant was unable to attend in person  Follow-up: 3, 6, 12, and 18 months  Findings  Abstinence:  - 3 months: 13.9% intervention vs 3.2% control  - 6 months: 14.4% intervention vs 6.5% control  - 12 months: 19.4% intervention vs 10.9% control  - 18 months: 20.0% intervention vs 7.7% control  Abstinence modelled over 18-month period: AOR = 3.85, 95% CI: 1.39-11.11 for intervention (reverse of AOR = 0.26, 95% CI: 0.09-0.72 reported by authors) | Associated with abstinence over 18-month study period  Higher expectation of success with quitting (baseline): AOR = 1.17, 95% CI: 1.06-1.31;  Higher perceived difficulty with staying quit (baseline): AOR = 0.86, 95% CI: 0.76-0.97;  Time to first cigarette < 30 min (baseline): AOR = 0.51, 95% CI: 0.26-0.96 | Over an 18-month study period, 56% of control and 44% of intervention group participants were rehospitalised, t(223)=2.1, p=.036; this was predicted by: Usual care condition: AOR = 1.92, 95% CI: 1.06-3.49; Psychotic symptoms (BASIS-24): AOR = 1.43, 95% CI: 1.09-1.89; Unstable housing: AOR = 2.09, 95% CI: 1.12-3.92; ≥8 previous psychiatric hospitalisations vs none: AOR = 3.21, 95% CI: 1.37-7.54 |
| Stockings et al., 2014 | Measures Self-reported continuous smoking abstinence verified by CO reading < 10 parts per million;  Self-reported 7-day smoking abstinence verified by CO reading < 10 parts per million;  ≥50% reduction in cigarettes per day;  Quit attempts after hospitalisation;  Nicotine dependence (FTND)  Follow-up 1 week and 2, 4, and 6 months  Findings  Continuous abstinence:  - 1-week: 5.8% intervention vs 1% control (p=.06)  - 2 months: 2.9% intervention vs 0% control (p=.13)  - 4 months: 1.9% intervention vs 0% control (p=.26)  - 6 months: 1.9% intervention vs 0% control (p=.26)  Point prevalence abstinence (intervention vs control):  - 1 week: OR=1.37, 95% CI: 0.45-4.98  - 2 months: OR=2.27, 95% CI: 0.81-7.52  - 4 months: OR=6.46, 95% CI: 1.50-32.77  - 6 months: OR = 1.32, 95% CI: 0.47-4.36  Quit attempts at 6-month follow-up: OR = 2.89, 95% CI: 1.43-5.98 for intervention  ≥50% reduction in cigarettes per day at 6-month follow-up: OR = 5.90, 95% CI: 2.89-15.25 for intervention  FTND over 6-month period:  - Condition-by-time interaction: F(3,406)=8.5, p<.0001  - Main effect of condition: F(1,215)=9.8, p=.002  - Main effect of time: F(3,406)=10.9, p<.0001 | Use of NRT associated with point prevalence abstinence at 4 months (χ2(3) = 6.8,  p=.009), no other significant associations | Psychological distress (K10) over 6-month period:  - Condition-by-time interaction: F(3,621)=1.48, p=.22  - Main effect of condition: F(1,621)=.04, p=.85  - Main effect of time: F(3,621)=63.2, p<.0001 |
| **Cohort studies** | |  |  |
| Jonas & Eagle, 1991 | Measures Self-reported smoking abstinence;  Cigarettes per day;  Time to relapse after discharge  Follow-up Varying from 6 to 18 months after discharge  Findings  Abstinence: 4/39 (10.3%) were non-smokers;  Relapse: 28/35 (80%) relapsed immediately after discharge, 3/35 (8.6%) within one week, 2/35 (5.7%) one to four weeks, and 2/35 (5.7%) relapsed one month post-discharge | Associated with abstinence at follow-up  M (SD) cigarettes per day (baseline): 6.8 (5) non-smokers vs 23.4 (13.5) smokers, t(34)  = 2.4, p<.02 | None reported |
| Joseph, 1993 | Measures Self-reported smoking behaviour  Follow-up On average 10.7 months post-discharge  Findings  Abstinence: 13/163 (8%) non-smokers after introduction of smoke-free policy vs 5/156 (3%) (p<.05) before smoke-free policy | None reported | Use of other substances at follow up: 145/163 (89% with smoke-free policy) vs 151/156 (97% pre-smoke-free policy) reported improvement in chemical dependency (p=.15) |
| Prochaska et al., 2006 | Measures Self-reported 7-day smoking abstinence verified by CO reading ≤ 10 parts per million;  Nicotine dependence (FTND);  Time to relapse post-discharge;  Initiation of quit attempt post-relapse  Follow-up 1 week and 1 and 3 months post-discharge  Findings  Abstinence at 3 months: 4/100 (4%) were non-smokers, although had been relapsed after discharge  Relapse: Ranged from seconds to 36 days, 76% reported smoking the same day they were discharged, with a median time to first cigarette of 5 minutes  Quit attempts: 48% reported a 24-hour quit attempt after relapsing post-discharge | Associated with abstinence at 3-month follow up:  Less perceived difficulty with staying quit (baseline): F(1,97) = 4.16, p=.044  Associated with relapse on the day of discharge vs later  Heavier smoker (baseline): r=.18, p=.047;  Higher FTND score: r=.19, p=.043;  Stronger craving and urges to smoke during hospitalisation: r=.23, p=.014;  Fewer lifetime quit attempts: r=-.19, p=.034;  Fewer past year quit attempts: r=-.26, p=.008;  Less desire for abstinence: r=-.29, p=.002;  Lower expectation of success: r=-.32, p=.001;  Pre-contemplation or contemplation vs preparation stage: χ2(2) = 20.12, p<.001;  Non-abstinence related goals: OR=.26, p=.016;  Depressive disorder: OR=3.3, p=.030  Associated with quit attempt initiation following relapse post-discharge  Lower FTNDscore: r=-.22, p=.019;  More past year quit attempts: r=.24, p=.018;  Greater desire for abstinence: r=.26, p=.005;  Greater expectation of success: r=.21, p=.025;  Less perceived difficulty with staying quit (baseline): r=-.24, p=.013;  Preparation stage: OR=5.7, p=.002;  Goal of complete abstinence: OR=5.4, p=.003;  NRT use post-discharge: OR=6.9, p<.001  Not smoking on the day of discharge: OR=6.7, p=.001 | During the 3-month follow-up period, 81% of participants had a mental health contact, 1/3 of them were rehospitalised. Rehospitalisation was not related to quit attempts. |
| Strong et al., 2012 | Measures Self-reported 7-day smoking abstinence verified by CO reading < 8 parts per million;  Quit attempt made and length of attempt;  Cigarettes per day  Follow-up 6 months post-discharge  Findings  Abstinence: No one abstinent  Quit attempt: 6/15 (40%) reported attempt with median length of 62 days, range: 2 to 110 days.  Cigarettes per day: Average reduction of 7.16, t(10)=-2.4, p<.04 | None reported | Depressive symptoms over 6-month period  No significant change in PHQ-9 scores over time, β(SE) = 0.08 (0.09), p=.33, |
| **Stuyt, 2015** | Measures Self-reported tobacco abstinence in the past month verified by tissue testing results obtained from probation officers  Follow-up Monthly for 12 months, only 12 months reported  Findings  Abstinence: 18/120 (15% of smokers at admission) were non-smokers | None reported | Relapse to alcohol or drugs  70/102 (69%) of smokers post-discharge vs 5/18 (28%) of non-smokers post-discharge, χ2 = 10.9, p=.001 |

FTND:Fagerstrom Test of Nicotine Dependence; PSS: Perceived stress scale; CES-D: Centre for Epidemiologic Studies Depression Scale; PHQ-9: nine item depression screen from Patient Health Questionnaire.

**Table S3.** Frequency of studies that used particular behaviour change techniques in their interventions

| **Behaviour Change Technique** | **Total**  **(max n=10)** | **Treatment as usual/control**  **(max n=6)** | **Inpatient intervention**  **(max n=10)** | **Post-discharge intervention**  **(max n=7)** | **Example description** |
| --- | --- | --- | --- | --- | --- |
| 11.1 Pharmacological support | 9 | 5 | 8 | 5 | The setting was a locked unit with a complete smoking ban that managed patients’ nicotine withdrawal with nicotine replacement therapy (NRT) during hospitalization. ([Prochaska *et al.*, 2014](#_ENREF_6)) |
| 1.2 Problem solving | 6 |  | 4 | 2 | CBT sessions teach smokers to recognize specific environmental and affective events (“triggers“) that occur prior to smoking and to identify behavioral and cognitive strategies to cope with these triggers. ([Clarke *et al.*, 2013](#_ENREF_1)) |
| 3.1 Social support (unspecified) | 6 | 3 | 5 | 4 | The intervention group received one manually based individual session with an addiction therapist to explore motivation/ambivalence and provide a rationale for continuing smoking cessation post-discharge. ([Gariti *et al.*, 2002](#_ENREF_2)) |
| 9.2 Pros and cons | 6 |  | 6 |  | The project officer will conduct a brief (5-10 minutes) motivational interview by guiding the participant through a series of topics designed to motivate the participant towards positive health behaviour change, including: positives and negatives of smoking and quitting. ([Stockings *et al.*, 2011](#_ENREF_7)) |
| 5.3 Information about social and environ-mental consequences | 5 |  | 5 | 1 | Patients were encouraged to attend a group-oriented daily film series dealing with the hazards of smoking and how to quit successfully, and to discuss their reactions to the films. ([Gariti *et al.*, 2002](#_ENREF_2)) |
| 5.1 Information about health consequences | 5 |  | 5 | 1 | The patients are given a great deal of education on tobacco and its effects on the brain and body. ([Stuyt, 2015](#_ENREF_10)) a |
| 5.6 Information about emotional consequences | 5 |  | 5 |  | In the Symptoms Management group they talk about how all the substances including tobacco play a role in anxiety or depression. ([Stuyt, 2015](#_ENREF_10)) a |
| 8.2 Behaviour substitution | 5 |  | 4 | 1 | Many change plans included specific steps for obtaining substitutes for cigarettes, such as gum or toothpicks. ([Strong *et al.*, 2012](#_ENREF_9)) |
| 1.4 Action planning | 4 |  | 4 | 1 | The final element of the intervention was to develop a change plan if appropriate. ([Strong *et al.*, 2012](#_ENREF_9)) |
| 1.1 Goal setting (behaviour) | 4 |  | 4 |  | Patients were required upon admission to the hospital to acknowledge the smoke-free policy and agree to nicotine abstinence during treatment. ([Joseph, 1993](#_ENREF_4)) |
| 9.3 Comparative imagining of future outcomes | 4 |  | 4 |  | How would life be in 5 years’ time if you were still smoking and if you had quit smoking? What would it be like? ([Stockings *et al.*, 2014](#_ENREF_8)) a |
| 10.4 Social reward | 4 |  | 2 | 2 | What did client attempt? Reinforce attempts/accomplishments. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 12.2 Restructuring the social environment | 4 |  | 3 | 1 | There are two ways to use your social network to help you stay quit, or quit again if you have experienced a relapse. One is to talk to your friends and family. Find ex-smokers and get their perspectives. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 12.3 Avoidance/ reducing exposure to cues for the behaviour | 4 |  | 3 | 1 | AVOID high temptation situations. Don't go to places that you normally associate with smoking, at least for the first couple of days. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 3.3 Social support (emotional) | 3 |  | 3 |  | Make a pact to call someone several times a day if you need help or just a morale boost. Also, agree that you will not smoke a cigarette until after you have talked with this person ...no matter what time it is or how late it is. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 4.1 Instruction on how to perform a behaviour | 3 |  | 2 | 1 | Groups will run on a rotating basis of one, one hour group for four weeks, and will follow an informational, group-oriented support and skills training format. ([Stockings *et al.*, 2014](#_ENREF_8)) |
| 4.2 Information about antecedents | 3 |  | 3 |  | People tend to be consistent in the type of situations that are high risk for them. You can anticipate them, prepare for them, and rehearse in your mind how you are going to deal with them. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 7.1 Prompts/cues | 3 |  | 2 | 1 | If there are certain times/places/people/actions that make you feel more motivated to quit, visit them more often! A diary can help identify these cues as well. ([Stockings *et al.*, 2014](#_ENREF_8)) a |
| 8.1 Behavioural practice/rehearsal | 3 |  | 3 |  | If you have already learned RELAXATION skills, remember to use them when you are feeling stressed or irritable, even now, while you’re here. It’s good practice for when you go home. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 10.3 Non-specific reward | 3 |  | 2 | 1 | Post quit sessions review/reinforce progress, revise plans for identifying high-risk situations, managing any side effects/withdrawal, review strategies for overcoming lapse events, and put in place reinforcement for successes. ([Strong *et al.*, 2012](#_ENREF_9)) |
| 11.2 Reduce negative emotions | 3 |  | 3 |  | Have something that you can do with your hands and/or mouth when you are doing boring or repetitive tasks. Bring a book, a crossword puzzle, or magazines... anything to reduce boredom. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 12.1 Restructuring the physical environment | 3 |  | 3 |  | Do not keep any cigarettes in your home, car or at work. If you do not have easy access it will be easier to avoid smoking. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 12.4 Distraction | 3 |  | 2 | 1 | If you are with friends, ask them how their weekend was, or what they are planning to do later to take your mind off the craving. ([Stockings *et al.*, 2014](#_ENREF_8)) a |
| 12.5 Adding objects to the environment | 3 |  | 2 | 1 | Avoid taking your cigarettes with you, but have your NRT on hand. ([Stockings *et al.*, 2014](#_ENREF_8)) a |
| 12.6 Body changes | 3 |  | 3 |  | You can avoid smoking by ALTERING YOUR BODILY REACTIONS. If you are smoking because you are feeling tense, anxious, uptight, or jittery, you can be taught ways to relax and to reduce anxiety using RELAXATION TRAINING instead of smoking. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 13.2 Framing/reframing | 3 |  | 3 |  | However, the important thing for right now is to be aware that the road to permanent smoking cessation is a path that goes up and down. There will be many temptations the day you get out but within a week or two, the hills become less steep and the valleys are less deep, but don't expect a completely flat road for a while. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 13.5 Identity associated with changed behaviour | 3 |  | 3 |  | You are not a smoker again -- you're an ex-smoker who just has had a couple of cigarettes. Your levels of nicotine in your body are still very low. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 15.2 Mental rehearsal of successful performance | 3 |  | 3 |  | Imagine yourself on the outside encountering the Triggers and using your new coping skills to avoid smoking. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 15.3 Focus on past success | 3 |  | 3 |  | Keep in mind, you’ve been able to do without cigarettes while here. You’ve shown yourself that you can be without nicotine. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 15.4 Self-talk | 3 |  | 3 |  | One way to cope with negative self-talk is to tell yourself something positive that will help you not to smoke instead. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 16.2 Imaginary reward | 3 |  | 3 |  | You need to have one particularly vivid image that you can always fall back on to help you through the tough times -- a motivating image that keeps you going. These motivating images need not necessarily be positive and need to be specific. For example, a positive image may be the pride your children will show when you are not smoking. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 1.4 Action planning | 2 |  | 2 |  | b Prompt detailed planning of performance of the behaviour. Context may be environmental (physical or social) or internal (physical, emotional or cognitive). |
| 1.9 Commitment | 2 |  | 2 |  | b Ask the person to affirm or reaffirm statements indicating commitment to change the behaviour. |
| 2.1 Monitoring of behaviour without feedback | 2 |  | 1 | 1 | Topics covered include: uptake, usage, problems and effectiveness of intervention supports (NRT, Quitline, community smoking cessation support groups), fortnightly review of NRT dosage, assistance with NRT use, monitoring and managing nicotine withdrawal symptoms, daily cigarette consumption, techniques to improve smoking outcomes, and general psychological support and encouragement. ([Stockings *et al.*, 2014](#_ENREF_8)) |
| 2.3 Self-monitoring of behaviour | 2 |  | 1 | 1 | Writing down the cigarettes you smoke every day is called self-monitoring. Self-monitoring increases your awareness of your smoking patterns and puts you in a better position to change your habits and negative thoughts. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 2.4 Self-monitoring of outcome(s) of behaviour | 2 |  | 2 |  | b Establish a method for the person to monitor and record the outcome(s) of their behaviour as part of a behaviour change strategy. |
| 5.4 Monitoring of emotional consequences | 2 |  | 1 | 1 | How did you feel right after smoking the cigarette? What negative self-talk got to you? ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 6.2 Social comparison | 2 |  | 2 |  | b Draw attention to others’ performance to allow comparison with the person’s own performance. |
| 6.3 Information about other’s approval | 2 |  | 2 |  | b Provide information about what other people think about the behaviour. The information clarifies whether others will like, approve or disapprove of what the person is doing or will do. |
| 8.7 Graded tasks | 2 |  | 2 |  | b Set easy-to-perform tasks, making them increasingly difficult, but achievable, until behaviour is performed. |
| 10.9 Self-reward | 2 |  | 2 |  | b Prompt self-praise or self-reward if and only if there has been effort and/or progress in performing the behaviour. |
| 13.4 Valued self-identity | 2 |  | 2 |  | What about you makes you think you can try your plan and have it work? ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 1.5 Review behaviour goal(s) | 1 |  |  | 1 | Sometimes we set goals and later find they weren’t right for us. That’s ok. During the session today, you may decide on new goals, that’s up to you. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 1.7 Review outcome goal(s) | 1 |  |  | 1 | If not smoking: What new goals can you set? ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 1.8 Behavioural contract | 1 |  | 1 |  | This [agreement to nicotine abstinence] was confirmed in a written contract. ([Joseph, 1993](#_ENREF_4)) |
| 2.2 Feedback on behaviour | 1 |  | 1 |  | Provide personalised feedback using smoking-related information taken from the assessment. ([Strong *et al.*, 2012](#_ENREF_9)) |
| 2.5 Monitoring out-come(s) of behaviour by others without feedback | 1 |  | 1 |  | Breath carbon monoxide testing is utilized, in addition to urine drug screens for nicotine, alcohol, and other drug detection and breathalyzers for alcohol detection. ([Stuyt, 2015](#_ENREF_10)) |
| 2.6 Biofeedback | 1 |  | 1 |  | We also teach coping skills such as biofeedback, tapping (Emotion Freedom Technique) and offer the NADA 5-point ear acupuncture protocol several times a week to help with cravings and anxiety or things that trigger them to use/smoke. ([Stuyt, 2015](#_ENREF_10)) a |
| 4.3 Re-attribution | 1 |  |  | 1 | Adjust your thinking about the withdrawal symptoms. Focus on the biological component, not the emotional, for example try to change ‘I need a cigarette’ or ‘I can’t handle without a cigarette’ to ‘this is just a biological feeling of withdrawal, and it will pass soon’. ([Stockings *et al.*, 2014](#_ENREF_8)) a |
| 6.1 Demonstration of the behaviour | 1 |  | 1 |  | Patients were encouraged to attend a group-oriented daily film series dealing with the hazards of smoking and how to quit successfully, and to discuss their reactions to the films. ([Gariti *et al.*, 2002](#_ENREF_2)) |
| 7.4 Remove access to the reward | 1 |  | 1 |  | Pick one or two situations in which you will not smoke. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 8.3 Habit formation | 1 |  | 1 |  | We recommend that you practice using relaxation at least once per day. You can also use these relaxation breaks (2-5 minutes) instead of your usual "smoke breaks" or "coffee breaks". ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 8.4 Habit reversal | 1 |  | 1 |  | Remember that smoking has been repeated "millions" of times. In order for a coping strategy to work it has to become as frequently used and as comfortable to you as smoking was in the past. ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 11.3 Conserving mental resources | 1 |  | 1 |  | You may want to jot down your positive thoughts on an index card and keep the card handy so you can refer to it (i.e. in your pocket). ([Clarke *et al.*, 2013](#_ENREF_1)) a |
| 13.3 Incompatible beliefs | 1 |  | 1 |  | Explore broader goals and values of the participant and how smoking fits in with those. ([Strong *et al.*, 2012](#_ENREF_9)) |

Abbreviations: n: Number of studies

a  Quoted example is from additional information provided by a particular author in the form of intervention manuals or similar documents.

b Examples used in studies not quoted due to a confidentiality and non-disclosure agreement in relation to the intervention manual for two trials ([Hickman *et al.*, 2015](#_ENREF_3), [Prochaska *et al.*, 2014](#_ENREF_6)). The general BCT definition is shown instead ([Michie *et al.*, 2015](#_ENREF_5)).

**A1. Final search strategies for all databases.**

**MEDLINE**

1. exp "Tobacco Use"/ or exp "Tobacco Use Disorder"/

2. (smok\* or tobacco\* or cigarette\* or nicotine\* or cigar\*).ab,ti.

3. exp Inpatients/ or exp Hospitalization/ or exp prisoner/ or exp Mental Health Services/ or exp Hospitals, Psychiatric/ or exp prisons/ or exp smoke-free policy/ or exp Substance Abuse Treatment Centers/

4. (hospitali?ed or hospitali?ation\* or inpatient\* or in-patient\* or inmate\* or prison\* or convict\* or offender\* or rehab\* center or rehab\* centre or smoke-free or smok\* free or smokefree or ((smok\* or tobacco) adj4 (ban or bans or banned or law or laws or policy or policies or prohibit\* or restrict\* or regulat\* or legislat\* or ordinance\*))).ab,ti.

5. exp "Tobacco Use Cessation"/

6. ((smok\* or tobacco or nicotine) adj3 (quit\* or stop\* or ceased or abstain\* or abstin\* or prevent\* or cessation or reduction)).ab,ti.

7. exp Recurrence/ or exp treatment outcome/

8. (((relaps\* or laps\* or return to smok\* or (smok\* adj2 abstinence) or (abstinent adj2 smok\*) or relapse) adj3 (prevent\* or smok\*)) or maintenance or recurrence).ab,ti.

9. cohort studies/ or longitudinal studies/ or follow-up studies/ or prospective studies/ or retrospective studies/ or cohort.ti,ab. or longitudinal.ti,ab. or prospective.ti,ab. or retrospective.ti,ab.

10. RANDOMIZED CONTROLLED TRIAL.pt.

11. CONTROLLED CLINICAL TRIAL.pt.

12. PRAGMATIC CLINICAL TRIAL.pt.

13. CLINICAL TRIAL.pt.

14. Meta analysis.pt.

15. exp Clinical Trial/

16. Random Allocation/

17. randomized controlled trials/

18. double blind method/

19. single blind method/

20. placebos/

21. Research Design/

22. ((clin$ adj5 trial$) or placebo$ or random$).ti,ab.

23. ((singl$ or doubl$ or trebl$ or tripl$) adj5 (blind$ or mask$)).ti,ab.

24. (volunteer$ or prospectiv$).ti,ab.

25. exp Follow Up Studies/

26. exp Retrospective Studies/

27. exp Prospective Studies/

28. exp Evaluation Studies/ or Program Evaluation.mp.

29. exp Cross Sectional Studies/

30. Comparative study/

31. exp Behavior therapy/

32. exp Health Promotion/

33. exp Community Health Services/

34. exp Health Behavior/ or exp Health Education/

35. 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34

36. smoking cessation.mp. or exp Smoking Cessation/

37. "Tobacco Use Cessation"/

38. "Tobacco Use Disorder"/

39. Tobacco Smokeless/

40. exp Tobacco Smoke Pollution/

41. exp Tobacco/

42. exp Nicotine/

43. ((quit$ or stop$ or ceas$ or giv$) adj5 smoking).ti,ab.

44. exp Smoking/pc, th

45. 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44

46. exp Smoking/ not 45

47. 10 or 11 or 12

48. 45 and 35

49. 45 and 47

50. (animals not humans).sh.

51. ((36 or 37 or 38 or 39) and REVIEW.pt.) not 48

52. 46 and 35

53. (52 and 47) not 50

54. 48 not 49 not 50

55. (45 and 47) not 50

56. 1 or 2 or 3 or 4

57. 5 or 6

58. 7 or 8

59. 9 or 55

60. 56 and 57 and 58 and 59

61. limit 60 to english

62. limit 61 to adult

**EMBASE**

1. exp "tobacco use"/

2. (smok\* or tobacco\* or cigarette\* or nicotine\* or cigar\*).ab,ti.

3. exp hospital patient/ or exp hospitalization/ or exp prison/ or exp prisoner/ or exp mental hospital/ or exp mental health service/ or exp smoking ban/ or exp drug dependence treatment/

4. (hospitali?ed or hospitali?ation\* or inpatient\* or in-patient\* or inmate\* or prison\* or convict\* or offender\* or rehab\* center or rehab\* centre or smoke-free or smok\* free or smokefree or ((smok\* or tobacco) adj4 (ban or bans or banned or law or laws or policy or policies or prohibit\* or restrict\* or regulat\* or legislat\* or ordinance\*))).ab,ti.

5. exp smoking cessation/ or exp smoking cessation program/

6. ((smok\* or tobacco or nicotine) adj3 (quit\* or stop\* or ceased or abstain\* or abstin\* or prevent\* or cessation or reduction)).ab,ti.

7. exp relapse/ or exp treatment outcome/ or treatment response/

8. (((relaps\* or laps\* or return to smok\* or (smok\* adj2 abstinence) or (abstinent adj2 smok\*) or relapse) adj3 (prevent\* or smok\*)) or maintenance or recurrence).ab,ti.

9. cohort studies/ or longitudinal studies/ or follow-up studies/ or prospective studies/ or retrospective studies/ or cohort.ti,ab. or longitudinal.ti,ab. or prospective.ti,ab. or retrospective.ti,ab.

10. (RANDOM$ or FACTORIAL$ or (CROSSOVER$ or CROSS OVER$) or PLACEBO$ or (DOUBL$ adj BLIND$) or (SINGL$ adj BLIND$) or ASSIGN$ or ALLOCAT$ or VOLUNTEER$).ti,ab.

11. CROSSOVER PROCEDURE/ or DOUBLE BLIND PROCEDURE/ or RANDOMIZED CONTROLLED TRIAL/ or SINGLE BLIND PROCEDURE/

12. 10 or 11

13. SMOKING CESSATION.mp.

14. exp SMOKING CESSATION/

15. exp SMOKING/

16. ((QUIT$ or STOP$ or CEAS$ or GIV$ or PREVENT$) adj SMOK$).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]

17. exp PASSIVE SMOKING/ or exp SMOKING HABIT/ or exp CIGARETTE SMOKING/ or exp "SMOKING CESSATION"/dem, der

18. 13 or 14 or 15 or 16 or 17

19. 12 and 18

20. 1 or 2 or 3 or 4

21. 5 or 6

22. 7 or 8

23. 9 or 19

24. 20 and 21 and 22 and 23

25. limit 24 to english

26. limit 25 to adult

**PsycInfo**

1. exp tobacco smoking/

2. (smok\* or tobacco\* or cigarette\* or nicotine\* or cigar\*).ab,ti.

3. exp Hospitalized Patients/ or exp Hospitalization/ or exp prisoners/ or exp drug rehabilitation/ or smoke free.mp.

4. (hospitali?ed or hospitali?ation\* or inpatient\* or in-patient\* or inmate\* or prison\* or convict\* or offender\* or rehab\* center or rehab\* centre or smoke-free or smok\* free or smokefree or ((smok\* or tobacco) adj4 (ban or bans or banned or law or laws or policy or policies or prohibit\* or restrict\* or regulat\* or legislat\* or ordinance\*))).ab,ti.

5. exp smoking cessation/

6. ((smok\* or tobacco or nicotine) adj3 (quit\* or stop\* or ceased or abstain\* or abstin\* or prevent\* or cessation or reduction)).ab,ti.

7. exp treatment outcomes/ or exp "Relapse (Disorders)"/

8. (((relaps\* or laps\* or return to smok\* or (smok\* adj2 abstinence) or (abstinent adj2 smok\*) or relapse) adj3 (prevent\* or smok\*)) or maintenance or recurrence).ab,ti.

9. ((cohort or longitudinal or prospective or retrospective).ti,ab,id. or longitudinal study.md. or prospective study.md. or retrospective study.md.) not "Literature Review".md.

10. SMOKING CESSATION.mp. or exp SMOKING CESSATION/

11. (ANTISMOKING or ANTI SMOKING).mp.

12. (QUIT$ or CESSAT$).mp.

13. (ABSTIN$ or ABSTAIN$).mp.

14. (CONTROL$ adj SMOK$).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]

15. exp BEHAVIOR MODIFICATION/

16. 11 or 12 or 13 or 14 or 15

17. TOBACCO SMOKING/

18. (SMOK$ or CIGAR$ or TOBACCO$).mp.

19. PREVENTION/

20. 17 or 18

21. 16 and 20

22. 19 and 20

23. 10 or 21 or 22

24. 1 or 2 or 3 or 4

25. 5 or 6

26. 7 or 8

27. 9 or 23

28. 24 and 25 and 26 and 27

29. limit 28 to english

30. limit 29 to adult

**CINAHL**

S1 (MH "Smoking+")

S2 TI (smok\* OR tobacco\* OR cigarette\* OR nicotine\* OR cigar\*) OR AB (smok\* OR tobacco\* OR cigarette\* OR nicotine\* OR cigar\*)

S3 (MH "Inpatients") OR (MH "Psychiatric Patients+")

S4 (MH "Prisoners") OR (MH "Correctional Health Services") OR (MH "Correctional Facilities")

S5 TI (hospitali?ed or hospitali?ation\* or inpatient\* or in-patient\* or inmate\* or prison\* or convict\*) OR AB (hospitali?ed or hospitali?ation\* or inpatient\* or in-patient\* or inmate\* or prison\* or convict\*)

S6 (MH "Smoking Cessation") OR (MH "Smoking Cessation Programs") OR (MH "Smoking Cessation Assistance (Iowa NIC)") OR (MH "Tobacco Use Cessation Products+")

S7 TI ((smok\* N cessation) or (smok\* N reduction) or stop smoking or (tobacco N2 cessation) or (tobacco N2 reduction) or (nicotine\* N2 cessation) or (nicotine\* N2 reduction) or (quit N smok\*)) OR AB ((smok\* N cessation) or (smok\* N reduction) or stop smoking or (tobacco N2 cessation) or (tobacco N2 reduction) or (nicotine\* N2 cessation) or (nicotine\* N2 reduction) or (quit N smok\*))

S8 (MH "Recurrence")

S9 TI (relaps\* or laps\* or return to smok\* or (smok\* N abstinence) or (abstinent N smok\*)) OR AB (relaps\* or laps\* or return to smok\* or (smok\* N abstinence) or (abstinent N smok\*))

S10 (TI longitudinal\* OR AB longitudinal\* OR TI prospective OR AB prospective OR TI cohort OR AB cohort OR TI follow-up OR AB follow-up OR TI follow up OR AB follow up OR TI baseline OR AB baseline OR TI wave\* OR AB wave\* OR TI panel OR AB panel OR TI predict\* OR AB predict\*)

S11 ( TX (random\* OR factorial\* OR placebo\* OR assign\* OR allocat\*) ) OR ( TX (trial and (control\* OR comparative)) ) OR TX "treatment arm" OR TX "control group\*" OR ( MH (Random assignment OR Clinical Trials+ OR Quantitative Studies) ) OR TX RCT OR MH Placebos

S12 S1 OR S2 OR S3 OR S4

S13 S5 OR S6 OR S7

S14 S8 OR S9

S15 S10 OR S11

S16 S12 AND S13 AND S14 AND S15

**Web of Science**

#7 (#6 AND #5 AND #4 AND #1) AND LANGUAGE: (English)

#6 #3 OR #2

#5 TS= clinical trial\* OR TS=research design OR TS=comparative stud\* OR TS=evaluation stud\* OR TS=controlled trial\* OR TS=follow-up stud\* OR TS=prospective stud\* OR TS=random\* OR TS=placebo\* OR TS=(single blind\*) OR TS=(double blind\*)

#4 ti=(relaps\* or laps\* or return to smok\* or (smok\* near/2 abstinence) or (abstinent near/2 smok\*) or relapse near/3 (prevent\* or smok\*) or maintenance or recurrence)

#3 ti=((smok\* or tobacco or nicotine) near/3 (quit\* or stop\* or ceased or abstain\* or abstin\* or prevent\* or cessation or reduction))

#2 ti=(hospitali?ed or hospitali?ation\* or inpatient\* or in-patient\* or inmate\* or prison\* or convict\* or offender\* or rehab\* center or rehab\* centre or smoke-free or smok\* free or smokefree or ((smok\* or tobacco) near/4 (ban or bans or banned or law or laws or policy or policies or prohibit\* or restrict\* or regulat\* or legislat\* or ordinance\*)))

#1 ts=(smok\* or tobacco\* or cigarette\* or nicotine\* or cigar\*)

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